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**THIS ACTION IS FUNDED BY THE EUROPEAN UNION**

**ANNEX 4**

of the Commission Implementing Decision on the financing of the annual action plan in favour of the Republic of Mozambique for 2022– Part 1

**Action Document for ‘National Control Centre (NCC) for Energy’**

**ANNUAL PLAN**

This document constitutes the annual work programme in the sense of Article 110(2) of the Financial Regulation, and action plans of Article 23(2) of NDICI-Global Europe Regulation.

**1 SYNOPSIS**

**1.1 Action Summary Table**

<b>1. Title OPSYS business reference Basic Act</b>	National Control Centre (NCC) for Energy OPSYS number: ACT-60663 Financed under the Neighbourhood, Development and International Cooperation Instrument ( <u>NDICI-Global Europe</u> )
<b>2. Team Europe Initiative</b>	Yes Mozambique’s Green Deal
<b>3. Zone benefiting from the action</b>	The action shall be carried out in Mozambique
<b>4. Programming document</b>	Multi-annual Indicative Programme (MIP <sup>1</sup> ) for the Republic of Mozambique for 2021-2027
<b>5. Link with relevant MIP(s) objectives / expected results</b>	The proposed action intends to contribute to MIP Priority area 1 ‘Growing Green’, more specifically to Specific Objective 3 ‘Mozambique increases its low-carbon, climate-resilient and sustainable infrastructure’  Expected results: <ul style="list-style-type: none"> <li>• Decarbonised energy mix.</li> <li>• Enhanced access to on-grid and off-grid renewable energy.</li> <li>• Improved energy efficiency of the electricity network.</li> </ul> The proposed Action also intends to contribute to MIP Priority Area 2 ‘Growing youth’, more specifically to Specific Objective 3 ‘Foster digital transformation for inclusive growth’.  Expected results: <ul style="list-style-type: none"> <li>• Enabled environment for high quality access to broadband communication networks and services at affordable prices for all – closing the rural-urban and the gender gap.</li> </ul>

<sup>1</sup> MIP 2021-2027 for Republic of Mozambique (C(2021)9271)

<b>PRIORITY AREAS AND SECTOR INFORMATION</b>				
<b>6. Priority Area(s), sectors</b>	Priority area 1, Sector 232 Energy generation, renewable sources Priority area 2, Sector 220 Communications			
<b>7. Sustainable Development Goals (SDGs)</b>	Main SDG: SDG 7 ‘Ensure access to affordable, reliable, sustainable and modern energy for all’. Targets 7.1 ‘By 2030, ensure universal access to affordable, reliable and modern energy services’, 7.2 ‘By 2030, increase substantially the share of renewable energy in the global energy mix’ and 7.3 ‘By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology’. Other significant SDGs: SDG 13 ‘Take urgent action to combat climate change and its impacts’ SDG 9 ‘Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation’ SDG 5 ‘Achieve gender equality and empower all women and girls’			
<b>8 a) DAC code(s)</b>	232 – Energy generation, renewable sources – 20 % 23210 – Energy generation, renewable sources – multiple technologies 236 – Heating, cooling and energy distribution – 36 % 23630 – Electric Power Transmission and Distribution 220 – Communications – 44 % 22040 – Information and communication technology			
<b>8 b) Main Delivery Channel</b>	13000 Third Country Government - Delegated co-operation			
<b>9. Involvement of multilateral partners</b>	Yes African Development Bank			
<b>10. Targets</b>	<input type="checkbox"/> Migration <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Social inclusion and Human Development <input checked="" type="checkbox"/> Gender <input type="checkbox"/> Biodiversity <input type="checkbox"/> Education <input type="checkbox"/> Human Rights, Democracy and Governance			
<b>11. Markers (from DAC form)</b>	<b>General policy objective @</b>	<b>Not targeted</b>	<b>Significant objective</b>	<b>Principal objective</b>
	Participation development/good governance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aid to environment @	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Gender equality and women’s and girl’s empowerment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Trade development	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reproductive, maternal, new-born and child health	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Disaster Risk Reduction @	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Inclusion of persons with Disabilities @	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Nutrition @	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>RIO Convention markers</b>	<b>Not targeted</b>	<b>Significant objective</b>	<b>Principal objective</b>
	Biological diversity @	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Combat desertification @	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change mitigation @	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Climate change adaptation @	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>12. Internal markers and Tags</b>	<b>Policy objectives</b>	<b>Not targeted</b>	<b>Significant objective</b>	<b>Principal objective</b>
	Digitalisation @ digital connectivity digital governance digital entrepreneurship digital skills/literacy digital services	<input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Connectivity @ transport people2people energy digital connectivity	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Migration @ (methodology for tagging under development)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reduction of Inequalities (methodology for marker and tagging under development)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Covid-19	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>BUDGET INFORMATION</b>			
<b>13. Amounts concerned</b>	<p>Budget line: BGUE-B2022-14.020122-C1-INTPA  Total estimated cost: EUR 57 700 000  Total amount of EU budget contribution: EUR 18 200 000</p> <p>This action is co-financed in joint co-financing by:</p> <ul style="list-style-type: none"> <li>- Germany through Kreditanstalt für Wiederaufbau – (KfW) Development Bank for an amount of EUR 15 000 000;</li> </ul> <p>This action is co-financed in parallel co-financing by:</p> <ul style="list-style-type: none"> <li>- Swedish International Development Cooperation Agency (SIDA) for an amount of EUR 17 400 000</li> <li>- African Development Bank for an amount of EUR 7 100 000</li> </ul> <p>Amount and modality for the involvement of multilateral partners:</p> <ul style="list-style-type: none"> <li>- African Development Bank for an amount of EUR 7 100 000;</li> </ul>			

	Key Member States providing support: Germany and Sweden.
<b>MANAGEMENT AND IMPLEMENTATION</b>	
<b>14. Type of financing</b>	<b>Indirect management</b> with KfW Development Bank

## 1.2 Summary of the Action

Mozambique is a resource-rich country. The potential of renewable energy generation is significant but the share of renewable energy in the energy mix is currently limited to 1 %. This figure includes solar but does not consider hydropower which is the main source of energy. Mozambique is already a net exporter of electricity to its neighbours in the Southern Africa Power Pool (SAPP), with South Africa as main client. However, the potential for exportation is far higher and the country aims at becoming an energy hub for Southern Africa.

Despite recent improvements, the national electrification rate reaches only around 38 % of the population in Mozambique with important disparities between urban (73 %) and rural (5 %)². The situation is also marked by a regional imbalance: the average rate in the south is 72 % while only 24 % in the north and centre of the country.

The country has set ambitious targets for its energy sector: by 2030, universal access as well as 62 % of renewable energy in the energy mix, and 20 % of solar and wind generation in 2043.

However, these targets are hampered by the fact that Mozambique does not have an appropriate control of its electricity grid. The Mozambican power grid currently comprises two independent and unconnected sub-grids, a southern grid and a grid in central and northern Mozambique. The power utility, Electricidade de Moçambique (EDM), operates with a dispatch centre furnished with outdated equipment that only controls parts of the southern network. The central/northern grid is currently only monitored and managed on a manual basis. The lack of a National Control Centre restrains to perform a remote and automated control of the entire high and medium voltage grid, to control the voltage and frequency stability and the balance between supply and demand. This is a major constraint for EDM to deliver stable and reliable power to all parts of the country, especially to the north, increasing as such territorial inequalities, and hindering social cohesion and national integration. It also limits the capacity for Mozambique to integrate more variable and intermittent renewable energy into the grid. It finally impedes Mozambique to consolidate its position as major energy exporter to neighbouring countries through the SAPP, thus limiting regional integration within the Southern Africa Development Community (SADC). Mozambique is the only country in Southern Africa region without a National Control Centre (NCC).

The construction of a National Control Centre for energy has been prioritised in the ‘Integrated Master Plan for Mozambique Power System Development 2018-2043’ and is a flagship project for EDM which has the ambition to become a smarter, more modern, performant utility at medium-term. It is also a prerequisite for the implementation of the National Electrification Strategy and has a strategic role for the development of the energy sector in the country.

The action, whose planned duration is 72 months, aims at improving the reliability and sustainability of the power supply nationwide, specifically in the north and in the whole Southern African region, enhancing the capacity of the grid to integrate more generation from renewable sources and contributing to the digital transformation of the electricity sector, including the installation of optic fibre. The action will positively contribute to the achievement of universal access to energy in Mozambique and the transition towards renewable energy.

The action entails the construction and refurbishment of four buildings in Matalane (Greater Maputo), Maputo, Chibata (centre) and Nampula (north) to respectively host the principal National Control Centre, the backup Control Centre and the two regional Control Centres. All centres will be equipped with a Supervisory Control And Data Acquisition/ Energy Management System (SCADA/EMS) for automated monitoring and control of the Mozambican power grid. The action also includes substation adaptation measures, e.g. installation of Remote Terminal Units (RTU), installation of telecommunication infrastructure, using optical fibres and wireless solutions, capacity-building and training for EDM and a 5 year-service and maintenance agreement.

This action is fully in line with the priority areas 1 and 2 of the 2021-2027 Multi Indicative Programme for Mozambique, ‘Growing Green’ and ‘Growing Youth’. In contributing to renewable energy generation and therefore to climate change mitigation, the action is also perfectly aligned to the Green Deal, in general, and the

<sup>2</sup> [https://trackingsdg7.esmap.org/data/files/download-documents/2021\\_tracking\\_sdg7\\_report.pdf](https://trackingsdg7.esmap.org/data/files/download-documents/2021_tracking_sdg7_report.pdf)

Team Europe Initiative (TEI) ‘Green Deal for Mozambique’, in particular. The TEI indeed foresees installation of renewable energy solutions in pillar 2 - Green and resilient (climate-smart) infrastructures and related systems – as a main intervention of its theory of change. Two other Member States, Germany and Sweden, are also part of this action.

The action will contribute to the digital transition of the energy sector and to energy connectivity in facilitating electricity interconnections and power market integration within the SADC. It will therefore be part of the Global Gateway framework. The action will contribute to achieving the United Nations 2030 Agenda for Sustainable Development, more specifically targets under SDG 7 (Ensure access to affordable, reliable, sustainable and modern energy for all), SDG13 (Take urgent action to combat climate change and its impacts), SDG 9 (Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.) and SDG 5 (Achieve gender equality and empower all women and girls). The action is aligned with the United Nations Framework Convention for Climate Change (UNFCCC) Gender Action Plan and will contribute to the EU Gender Action Plan (GAP) III (JOIN/2020/17 final), particularly to the thematic area of engagement – ‘addressing the challenges and harnessing the opportunities offered by the green transition and the digital transformation’. Finally, it contributes to the implementation of the EU Digital Agenda.

This action will allow EDM to provide more reliable and stable energy to those northern provinces affected by the current conflict and hosting a large number of Internally Displaced Persons (IDPs). This will contribute to the integrated triple nexus approach for northern Mozambique promoted in several actions of Mozambique’s Annual Action Plan (AAP) 2022.

## 2 RATIONALE

### 2.1 Context

Among the 20 countries in the world with the largest access deficit, Mozambique has increased electricity access at a rate faster than the global average: from 8% in 2006 to 38% in 2020. Despite recent improvements, the national electrification rate stands therefore at a low level with important disparities between the rate in urban (73%) and the rate in rural (5%) areas as well as regional imbalance. The average rate in the south is 72% while only 24% in the north and in the centre of the country.

Mozambique is a resource-rich country. Mozambique has the greatest potential for electricity generation of any country in Southern Africa. With its solar, hydro, coal, gas, and wind resources, the country could generate up to 187 GW of electricity. At present, most of the electricity is generated with hydropower facilities (79%), completed by gas (16%), diesel (4%) and a mix of solar, wind, biomass (1%). Total energy production in Mozambique has been growing rapidly over the last two decades. In 2020, the total installed power capacity stood at 2,780 MW (including the Cahora Bassa dam on the Zambezi river in the Province of Tete). In the meantime, domestic peak demand has increased from about 320 MW in 2006 to 1,179 MW in 2020. It is forecasted that the demand will increase from 3.9 GWh (2015) to 35.4 GWh (2042)<sup>3</sup>.

Although only 38% of the population has access to electricity, Mozambique is a net exporter of electricity to its neighbours in the Southern African Power Pool (SAPP). The SAPP comprises twelve member countries of the Southern Africa Development Community (SADC) represented by their respective electric power utilities. The SAPP coordinates the planning and operation of the electric power system among member utilities and in particular bilateral or market based trade of power. Its main customer is South Africa: EDM supplies it with up to 1,920 MW thanks to the Cahora Bassa dam (contract ending in 2029), which is linked to the South African Apollo station by a 900 km transmission line. However, since new interconnection transmission lines are being built, the potential for exportation is far higher and the country aims at becoming an energy hub for Southern Africa.

The country has set ambitious targets for its energy sector. On electrification, the official target is to achieve 64% access by 2024 and universal access to energy by 2030. The ‘Integrated Master Plan for Mozambique Power System Development (2018-2043)’ sets a target of 20% of renewables in the energy mix (solar and wind - excluding hydro) to be reached by 2043. At the COP26, Mozambique committed to reach 62% of renewables in the energy mix by 2030, including hydropower so less ambitious than what it seems. It is not clear whether this figure also includes gas to power. The country is indeed facing a dilemma: using its gas and coal reserves to secure

<sup>3</sup> Integrated Master Plan for Mozambique Power System Development (2018-2043).

least-cost solutions to supply energy for all by 2030, and at the same time contributing to reducing carbon emissions. Mozambique has clearly stated that it was considering gas in his energy transition. Coal has not been defined as an energy transition resource but the Master Plan still foresees use of coal for power generation in the next decades. Moreover, the Government of Mozambique did not sign the Global Coal to Clean Power Transition Statement at COP26. The dialogue with partners continues on this matter in the hope that the government comes with a more ambitious position on energy transition at the next COP.

In order to achieve these targets, the Master Plan describes an extensive development of electricity demand, generation, and interconnection until 2043. To meet the growing development and have a manageable, secure and efficient operation of the electrical grid, a key prerequisite is to be able to monitor and control the network. The existing energy control system in Mozambique has been a constraint for the development of the sector since it is outdated and has limited functionality and geographical coverage. EDM needs to be able to control its full territory in order to effectively engage in regional power trade. The Northern provinces need reliable power in order to catch up with economic development in the South. The expansion of variable renewable energy - wind and solar - generation feeding into the grid will remain limited without an effective control of the grid. This is also a prerequisite to become a control area within the South African Power Pool (SAPP), one of the corporate objectives of EDM.

A National Control Centre must be established in the short term to ensure that the upcoming projects in generation, transmission and distribution will have a proper tool for operation and dispatch. A National Control Centre (NCC) will perform remote and automated control of the entire high and medium voltage grid, controls voltage and frequency stability and the balance between supply and demand.

Electricidade de Moçambique (EDM) is the state-owned utility in charge of the production, transport, distribution, and commercialisation of electricity in Mozambique. Its financial situation has been gradually deteriorating due to a combination of factors, including: a macroeconomic crisis, intensifying EDM's exposure to foreign exchange obligations in 2015-2016, high level of – mainly non-technical – electricity losses in the network, non-cost reflective electricity tariffs despite a series of tariff increases in recent years, lack of administrative capacity including difficulties in collecting payments from consumers and lack of investment in the rehabilitation of the network and the improvement of access to energy. One of the main drivers of the huge inequalities between the North-South and rural-urban areas is the inequality in provision of basic services, including access to energy. This has an impact on gender equality. 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.

The development of a NCC will support the EDM's aim operate as a commercial, financially sustainable 'Smart (digitally integrated) Utility' in delivering clean, efficient electricity and quality services to its customers in Mozambique and the region, and playing a key role in achieving universal access in Mozambique, as stated in the EDM strategy 2018-2028. The future NCC will also help EDM to comply with Decree 42/2005 which requires EDM to operate the complete Mozambican transmission grid. EDM will host, own and operate the National Control Centre in the future.

A first feasibility study was carried out in 2013 with the support of France. Because of the 2015-2016 financial crisis, the project was put on hold. An update of this study was made in 2017 and a final feasibility study based on precedent analysis was completed in 2021 with the support of Sweden. Thanks to the EU contribution of this action, the financial gap calculated on the basis of the updated feasibility study of 2021 will be covered. This will allow the action to be extended to the Northern part of the country (regional control centre and telecommunication infrastructure) which was first planned to be left to a later stage. This would have again penalised a region which has been suffering from poverty and violence for several years.

The EU has been an active player in the Mozambican renewable energy sector. Under the 11th EDF, over the period 2014-2020 about EUR 180 000 000 was invested in renewable energy generation, the institutional transformation of the sector and capacity-building of the national institutions for more competitive and transparent renewable energy development. An emphasis was also put on leveraging private sector finance. Under the programme PROMOVE Energia (FED 2020/040-055), the EU has also been actively supporting the Government's goal of universal access by 2030 through its flagship programme 'Energy for All' (ProEnergia) through investments in on-grid and off-grid access projects. The financial sustainability of the sector has also been at the core of the EU's intervention through support to EDM to reduce the technical and non-technical losses and increase

their revenues. At regional level, the EU is co-funding interconnection between Mozambique and Malawi to reinforce Mozambique's lead role in power trade.

## 2.2 Problem Analysis

### **Short problem analysis:**

The Mozambican power grid currently comprises of two independent and unconnected sub-grids, a southern grid and a grid in central and northern Mozambique. Currently, Electricidade de Moçambique (EDM) operates with a dispatch centre furnished with outdated equipment and only provides control of parts of the southern network. The central/northern grid is currently only monitored and managed on a manual basis. The two systems will be connected internally in 2023 by means of a new 110 kV transmission line between Mavuzi (Centre) and Temane (South) which is being constructed. The connection will be completed in 2024 by the first phase (Maputo-Vilanculos) of the Mozambique Backbone Transmission System Project (STE) funded by the World Bank, the African Development Bank, Norway, the Islamic Bank and the Organisation of the Petroleum Exporting Countries (OPEC) Fund for International Development.

The existing outdated control centre requires immediate action and investment to enable EDM to control its full territory in order to effectively engage in regional power trade and to ensure reliable power supply in the northern and central provinces in order to catch up with economic development in the south. Due to the current lack of real-time monitoring capabilities of EDM, Electricity Supply Commission (ESKOM) - the South African power utility - acts as a so-called 'Southern Africa Power Pool (SAPP) control area' for the Mozambican network<sup>4</sup> which controls power interconnection and power interchanges with other countries of the SAPP. This service currently costs EDM around USD 1 000 000 per month. In addition, payments are made to ESKOM for necessary power feed-in for grid stabilisation at significantly increased tariffs. After commissioning of the NCC, EDM will become its own 'SAPP control area' and will subsequently no longer be dependent on external control at a cost, but will be able to make necessary power purchases or sales at market prices in the SAPP.

The absence of a National Control Centre entails that voltage and frequency control can only be made manually, leading to over- and under- voltage and frequency related problems, hampering reliability of access for households, social infrastructure and businesses/industries. EDM struggles with the technical quality the service it provides as it cannot directly, on a 'minute-to-minute basis', control voltage and frequency, posing serious problems especially for large consumers using sophisticated modern equipment. The lack of control also means that the power system must be operated with wider reserve margins, thus making less power available to customers and reducing income. The lack of control also contributes to increased energy losses. They represent 31% of the energy generated, 5% of which are due to the high and medium voltage grid<sup>5</sup>.

Moreover, the fact that there are more and more renewable energies (RE) feeding into the national power grid by solar and wind Independent Power Producers (IPPs) requires a greater degree of control over the electricity system in order to ensure stability of voltage and frequency. The current framework already poses a challenge for the feed-in of RE as no adequate generation forecast can be utilised for the effective management of supply and demand. The situation will become even more critical as around 40 new IPP projects in Mozambique are currently being prepared and the manual control will soon come to its operational limits, preventing the safe and continuous operation of the networks.

### **Identification of main stakeholders and corresponding institutional and/or organisational issues (mandates, potential roles, and capacities) to be covered by the action:**

Regarding the main stakeholders in the sector, the current institutional structure of the power sector derives from the 1997 Electricity Law. A new electricity law is supposed to be adopted in 2022 by parliament. The Ministry of

<sup>4</sup> A Control Area is an electrical system with borders defined by points of interconnection and capable of maintaining continuous balance between the generation under its control, the consumption of electricity in the area and the schedules interchanges with other control areas. The SAPP is divided into three control areas, each with its own control area system operator. ESKOM serves as the operator for Botswana, Lesotho, Southern Mozambique, Namibia, South Africa, and Eswatini; Zimbabwe Electricity Supply Authority (ZESA) is the operator for Zimbabwe and northern Mozambique; and Zambia Electricity Supply Corporation (ZESCO) is the operator for Zambia and the DRC

<sup>5</sup> Other losses are due to dysfunctions of the distribution grid or to commercial losses of earning.

Mineral Resources and Energy (Ministerio de Recursos Minerais e Energia, MIREME) is the Government entity responsible for energy policy and planning, as well as monitoring sector performance and governance. Electricidade de Moçambique, (EDM) is the state-owned, vertically integrated utility with operations in generation, transmission, and distribution countrywide. Hidroeléctrica de Cahora Bassa, (HCB) is the largest power generation company, in charge of operating the 2,075 MW Cahora Bassa power plant and the associated transmission system. The generation sector is complemented by independent power producers (IPPs) that have signed power purchase agreements (PPAs) with EDM. In May 2017, Parliament approved the creation of an energy regulatory authority, Autoridade Reguladora de Energia, (ARENE) in an effort to separate regulatory and policy functions in MIREME. The new regulatory body has been given the authority – inter alia – to regulate the electricity tariff, promote and monitor competition in the power sector, and monitor and enforce the terms and conditions of the licenses or concession contracts in the sector. In addition to the Electricity Law, private investments in the electricity sector are also governed by the Public-Private Partnership Law (2011).

The beneficiary of the funds will be the Republic of Mozambique and EDM will act as the Project Executing Agency (PEA). EDM will host, own and operate the NCC in the future. Training of EDM’s staff (women and men) to be able to integrate this technology leap will be critical.

This strategic project will be co-funded in parallel by the African Development Bank (AfDB), Sweden, Germany through KfW and the EU. Coordination will be key to limit the transaction and reporting burden of EDM. A Steering committee has already been set up and holds monthly meetings. Complementarity with the intervention of other development partner will be ensured through the regular dialogue within the Energy Sector Working Group, chaired for the moment by Sweden and AfDB.

Population and local authorities will be associated to the project within the framework of the Social and Environment Impact Assessments which will be carried out when buildings are considered.

### 3 DESCRIPTION OF THE ACTION

#### 3.1 Objectives and Expected Outputs

The Overall Objective (Impact) of this action is to contribute to the **achievement of universal access to energy in Mozambique and the transition towards renewable energy.**

The Specific Objectives (Outcomes) of this action are to

- 1. Improve the reliability, inclusiveness and sustainability of the power supply nationwide, specifically in the north and in the whole Southern African region**
- 2. Enhance the capacity of the grid to integrate more generation from renewable sources**
- 3. Promote the digital transformation of the electricity sector**

The 4 Outputs to be delivered by this action contributing to all corresponding Specific Objectives (Outcomes) are

1. The National Control Centre (NCC) constructed, fully equipped and operational.
2. The Backup NCC and 2 regional Control Centres constructed, fully equipped and operational.
3. Adaptation works for substations and telecommunication infrastructure completed.
4. EDM fully capable and equipped to control and monitor the power network.

#### 3.2 Indicative Activities

Activities related to Output 1:

- Construction of a building in Matalane (Greater Maputo) to host the National Control Centre and its equipment, among others, with a Supervisory Control And Data Acquisition/Energy Management System (SCADA/EMS) system for automated monitoring and control of the Mozambican power grid;

Activities related to Output 2:

- Refurbishment of the building in Maputo currently hosting the Control Centre South to host the future Backup Control Centre and its equipment, among others, with a SCADA/EMS system;
- Construction of a building in Chibata (Centre) to host the Medium Voltage Feeders Control Centre (MVFCC) for the Central region and its equipment, among others, with a SCADA/EMS system;
- Construction of a building in Nampula (North) to host the Medium Voltage Feeders Control Centres (MVFCC) for the Northern region and its equipment, among others, with a SCADA/EMS system;

Activities related to Output 3:

- Substation adaptation measures to enable them to communicate automatically with the control centres, e.g. installation of Remote Terminal Units (RTU);
- Installation of telecommunication infrastructure, using optical fibres (including retrofitting existing transmission lines with optic fibre cables) and wireless solutions;

Activities related to Output 4:

- Training and exchange visits with special attention to train women;
- Service and maintenance agreement between Electricidade de Moçambique (EDM) and the contractor in charge of the telecommunication installation. The purpose is to have the system operating over time and the software updated as needed to follow the evolution of the technology.

Activities related to Output 1 to 4:

- Supervision of all works and equipment activities for the development of the NCC with a human rights and gender based approach

The National Control Centre, together with the Backup Control Centre, will serve to monitor and control the high-voltage grid (66 kV and above). The two new regional Control Centres, together with the current Control Centre for the southern grid, will serve to monitor and control the medium-voltage grid. The system, including back-up and regional control centres, is organised to allow alternative routes and redundancy in case of loss of telecommunication. This will serve to provide maximum availability of the system and avoid any failure in the control.

Electricidade de Moçambique (EDM) will act as the Project Executing Agency (PEA) and will implement all the activities with the support of the supervising engineer.

The EU contribution, in joint co-financing with the German Government (KfW), will fund the following components:

- The acquisition and installation of the SCADA/EMS systems for the new NCC, the Backup Control Centre and two new regional Medium Voltage Feeders Control Centres (MVFCC) – Part of Outputs 1 and 2
- The equipment and installation for all the substation adaption measures – Part of Output 3
- The upgrading of the EDM telecommunications infrastructure where required – Part of Output 3
- The required training of EDM – Part of Output 4

The other funders will cover the cost of the new buildings for the NCC and two regional control centres as well as specific new telecommunications infrastructure such the retrofitting of optic fibre on existing transmission lines plus any related telecommunications adaption works. The engineering consulting fees will also be covered by the other partners.

A fine-tuning of the activities may be proposed to ensure the timely achievement of outputs and outcomes as defined in this action.

The commitment of the EU's contribution to the Team Europe Initiative foreseen under this action plan will be complemented by other contributions from Team Europe partners. It is subject to the formal confirmation of each respective partners' meaningful contribution as early as possible. In the event that the TEIs and/or these contributions do not materialise the EU action may continue outside a TEI framework.

### 3.3 Mainstreaming

#### **Environmental Protection and Climate Change**

##### **Outcomes of the EIA (Environmental Impact Assessment) screening**

The project includes minor construction measures, consequently expected environmental and social risks will be presumably limited and reversible. The preliminary assessment by KfW has resulted in environment and social impact category B (moderate risks not requiring an EIA, but for which environment aspects will be addressed during design). Nonetheless, the project preparation includes an Environmental & Social Impact Assessment (ESIA) in order to identify and mitigate potential environmental, social and climate related issues.

Currently, an ESIA is being carried out by a consultant financed by the German government in preparation for the project. The study will assess the four sites regarding environmental, social impact and climate risks. The sites of Maputo, Chibata (Centre) and Nampula (North) are currently already home to EDM substations, so the land use rights for EDM should be available. Initial results of the ESIA show that for specific sites, compensation payments for the resident population currently cultivating the land are foreseeable. The Matalane site (Greater Maputo), which will host the National Control Centre, is not yet developed and land rights still have to be secured. Construction of necessary access roads is currently underway, as a substation will initially be constructed on the site in the near future.

##### **Outcome of the CRA (Climate Risk Assessment) screening**

The CRA screening carried out by KfW concluded that this action is of no or low risk (no need for further assessment).

One of the main objectives of the action is to contribute to climate change mitigation by reducing Green House Gases (GHG) emissions. The action indeed aims at enabling the integration of more renewable energy into the national electricity grid. Today, the expansion of variable renewable energy - wind and solar PV - generation feeding into the grid is limited without an effective control.

##### **Gender equality and empowerment of women and girls**

As per OECD Gender DAC codes identified in section 1.1, this action is labelled as G1. This implies that Gender equality is a significant objective of the action. Both men and women will equally benefit from enhanced access to more reliable and sustainable energy supply in Mozambique. It has been demonstrated that access to clean energy has a higher impact on women whose health, access to information and economic opportunities are improved. Access to clean energy for women reduces energy and time poverty and might also reduce gender-based violence related to fuel/wood collection. Specific attention will be given to participation of women and women led private sector organisation in the ESIA processes. Equality in access to training will also be ensured. Gender responsible policy frameworks, the promotion of equitable power relations within workplaces will be included.

##### **Human Rights**

The action will contribute to address the development inequalities in the country and to reduce the infrastructure gap between the North and the South. Without the contribution of the EU, the overall Action would not be able to cover the North. The EU support will allow providing reliable and stable energy to the North Provinces affected by high levels of poverty, including access to basic services, and by the security related crisis since 2017, which created a large number of Internally Displaced Persons (IDPs). This action is complementary to other Actions foreseen in the Annual Action Plan 2022 targeting the North of the country, in line with the triple nexus approach enhancing complementarity between humanitarian, development and peace actors in line with international human rights standards and international humanitarian law.

Access to electricity is also considered a human right. It provides the potential for everyone to exercise power and improve their lives. Access to energy is fundamental to achieve most of the Sustainable Development Goals. Education, health, water, biodiversity, agriculture or climate change are some of the sectors where better access to energy plays has a transformative impact. The action will respect the 5 principles of the human rights-based approach: i) transparency, ii) accountability, iii) respect to all human rights, iv) participation, and v) non-discrimination.

##### **Disability**

As per OECD Disability DAC codes identified in section 1.1, this action is labelled as D1. Access to affordable energy has an important impact on persons with disabilities as they tend to have higher energy needs. For instance, they have a greater demand for electricity to operate assistive technologies that help them to become more self-sufficient. Since persons with mobility difficulties also tend to spend more time at home, their energy bills are higher than for households without persons with disabilities and often they have fewer financial resources available to pay their energy bills. The key to overcoming the energy challenges faced by people with disabilities lies chiefly in increasing access to affordable electricity, which is one of the objectives of this project.

#### **Democracy**

The action will improve transparency and equality between regions in the supply of electricity, allowing decision-making based on scientific data collected by an automated system. It will also improve Mozambique's sovereignty to strategically control and monitor the use of its own energy resources. It will allow to improve general access to energy, sharing the country's energy richness with Mozambicans in a more inclusive and sustainable way.

#### **Conflict sensitivity, peace and resilience**

The action is conflict sensitive and peace oriented addressing drivers of the conflict in the North of Mozambique, such as unequal access to infrastructure and services which increases the likelihood of some groups resorting to violence. Securing energy supply in the North will also improve livelihood opportunities, including for IDPs, and will foster the overall socio-economic development of the region.

#### **Disaster Risk Reduction**

The action does not specifically target disaster risk reduction. However, attention will be paid that all infrastructure to be built through this action will be climate-resilient. The action also foresees a principal and a back-up National Control Centre as well as a redundant telecommunication system to be able to continue providing electricity to the whole country in case of natural disaster.

#### **Digitalisation**

One of the outcomes of the action is to contribute to the modernisation and the digitalisation of the energy sector in Mozambique. Main activities of the project will include the installation of Supervisory Control And Data Acquisition/Energy Management Systems, as well as of Remote Telecommunication Units in electricity substations. The Action will also increase the number of transmission lines retrofitted with optic fibre, which will allow better control and monitoring of the transport and supply of electricity in all regions of the country. This will contribute to making the national power utility, EDM, smarter and more performant, one of the main objectives of its strategy 2018-2028.

### 3.4 Risks and Lessons Learnt

<b>Category</b>	<b>Risks</b>	<b>Likelihood</b> <b>(High/ Medium/ Low)</b>	<b>Impact</b> <b>(High/ Medium/ Low)</b>	<b>Mitigating measures</b>
People and organisation	Technology Risk – EDM will not have the required skills and expertise to fully develop, execute and operationalise the National Control Centre	<b>High</b>	<b>High</b>	The NCC is clearly a complex undertaking and its implementation will challenge EDM. However, adequate resources have been allocated towards recruiting a Project Implementation Unit (PIU) and a supervising engineer (women and men). The operational risk is significantly reduced in the first 5 years after commissioning by concluding a service and maintenance contract, which is part of the project.

People and Organisation	Market opportunity - EDM fails to fully take advantage of the NCC in terms of regional sales.	<b>Medium</b>	<b>Low</b>	The action will provide training and technical assistance to the market operator of EDM to ensure the company captures value from the NCC component for sales in the regional market.
Planning, processes and systems	Delays in the project implementation, mainly regarding procurement as well as the actual construction.	<b>High</b>	<b>Medium</b>	Mitigation measures include the utilisation of e-Procurement platforms. The steering committee will closely monitor those aspects. During construction, the supervising engineer will reduce the risks of works delays in closely monitoring contracts implementation.
Planning, processes and systems	Difficult coordination and complexity for EDM management due to the number of partners around the table.	<b>High</b>	<b>Low</b>	A steering committee is up and running to ensure appropriate coordination and complementarities. The project is supposed to be split in complementary lots for a better management of the donors' budget and respective implementation and procurement modalities.
Planning, processes and systems	Delay in the backbone project (STE) connecting the Northern and Southern grid and thus no/late interconnection	<b>Medium</b>	<b>Medium</b>	The STE project is a flagship project for the Mozambican government. Phase 1, the Temane Transmission Line Project is ongoing with funding from the World Bank, the African Development Bank, Norway, the Islamic Bank and the OPEC Fund for International Development. Interconnection, if only with limited capacity, will be reached by 2023 after commissioning of the new 110 kV transmission line from Mavuzi to Temane.
Legality and regularity aspects	Corruption	<b>High</b>	<b>Low</b>	The funds are to be forwarded in full and unremunerated by the Ministry of Economy Finance to the project-executing agency EDM by way of an on-granting agreement which is part of the disbursement requirements for KfW. The award of contracts for supplies and services is based on transparent procurement procedures, which include tender based on international competitive bidding and KfW's approval. Monitoring of the project by a supervising engineer.
Legality and regulatory aspects	Prioritisation of fossil fuels as the main source for electricity production	<b>Medium</b>	<b>Medium</b>	The EU, with other development partners, have engaged in a dialogue with the government on Mozambique's energy transition to clean and sustainable energy and support several programmes contributing to that aim like the ongoing EU funded PROLER which will provide addition 160MW of renewable energy and the programme GET FiT aiming at additional 135MW. The government committed to 62% of renewable energy in the energy mix by 2030 at the COP26. The 'Integrated Master Plan for Mozambique Power System Development (2018-2043)' sets a target of 20% of renewables in the energy mix (solar and wind - excluding hydro) to be reached by 2043.

Legality and regularity aspects	Human rights violations (i.e. unsafe working conditions and land right issues)	<b>Medium</b>	<b>Medium</b>	Private sector involved in the action will abide by the UN Guiding principles on Business and Human rights. The principle of ‘do not harm’ will be applied and specified in the tender documents.
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**Lessons Learnt:**

The proposed support builds on lessons learnt from former EU support to the energy sector. As mentioned above, the EU is currently investing around EUR 180 000 000 in the energy sector in Mozambique in support of the Government’s ‘Energy for All’ programme through its PROMOVE Energia (FED 2020/040-055) strategy. The EU helps to increase the part of renewables in the energy mix, enhance the performance and financial sustainability of the power utility, reinforce the regulator, increase the share of private investments in renewable energy and build interconnection with neighbours within the Southern African Power pool (SAPP). For doing so, the EU has deployed innovative financing instruments such as equity, senior debt, guarantees, etc. The EU has also been highly engaged in the policy dialogue with the Government and other Development Partners. The EU has been co-chairing the Energy Sector Working Group for several years and handed it over to Sweden and the African Development Bank in 2021.

The support to the power utility to increase their performance and their financial viability has demonstrated that in the context of a developing electricity sector and a more complex management of the system, building a strong and reliable National Control Centre is critical for reducing power losses, providing stable and reliable power nationwide, integrating more renewable energy into the grid and increasing power trade and integration in the SAPP.

Past support has also shown that Mozambique was facing a dilemma between using its large resources of gas for power generation and fully transitioning to renewable energy. Coal has not been defined as an energy transition resource but the Integrated Master Plan foresees use of coal for power generation in the next decades. Moreover, the Government of Mozambique did not sign the Global Coal to Clean Power Transition Statement at COP26. However, the dialogue with partners continues on this matter in the hope that the Government comes with a more ambitious position on energy transition at the next COP. Supporting the increase of renewable energy in the energy mix is therefore fundamental. The NCC will prepare the grid to receive more renewable/variable energy.

Based on previous projects it is also important to ensure that human resources and skills are upgraded to handle new technologies and new challenges. Thus, targeted technical assistance and training will support EDM in the effective operation of the new control system. In relation to regional trade, EDM’s market operator will also be strengthened.

The past intervention has shown that for serving all regions and categories of population, coherence and integration between generation, transmission and distribution development must be ensured through a thorough master planning.

### 3.5 The Intervention Logic

If the NCC is established, Mozambique will be able to upgrade, automate, secure and optimise its power grid. With the increase in national power generation foreseen under the strategic development of the energy sector, the sharp growth in demand, the integration of renewable energies and the increase in power trade under the South African Power Pool (SAPP), Mozambique needs to operate in a modern way and to effectively control its power grid.

As such, Mozambique will be able to **improve the reliability, inclusiveness and sustainability of the power supply nationwide, specifically in the North and in the whole Southern African region (outcome 1)**. Mozambique can more easily respond to the growing national demand and enhance access to reliable and affordable energy for its population, including for companies which will result in decent job creation and increased inclusive socio-economic development. The NCC will permit an automated control of the grid stability nationwide. Through enhanced control of the voltage and frequency as well as the balance between demand and supply, EDM will be able to supply power of better quality, limiting the risk of over or under voltage for appliances and equipment, and limit power cuts and outages. This is especially the case for Northern Mozambique where lack of power reliability hampers inclusive socio-economic development and contributes to growing territorial inequalities including gender inequality. The Action will therefore contribute the social cohesion and national integration.

A better control will also reduce the grid's technical power losses. EDM will therefore be able to charge for more electricity, which will improve EDM's revenue situation, making the overall supply financially more sustainable. In 2020, the total amount of electricity transmitted in the Mozambican grid was 7,265 GWh. The reduction in technical transmission losses from 5.0% to 4.5% possible with the NCC represents a saving of 36,265 MWh. Based on an average retail tariff of USD 0.102 per KWh (2020), EDM will be able to bill an additional electricity value of about USD 3 700 000 per year in the future.

The NCC will also strengthen Mozambique's role in the South African Power Pool (SAPP). EDM will be able to purchase necessary power or sell surpluses at market prices in the SAPP. Mozambique is indeed well positioned, not least because of its large renewable energy resources, to become more involved in regional trade with other SAPP member countries. The NCC will make a significant contribution to the expansion of electricity trade within the SAPP, thereby also contributing to the improvement of EDM's financial performance and to regional integration.

The NCC will also enable the country to **enhance the capacity of the grid to integrate more generation from renewable sources (outcome 2)**. Enhanced control will reduce the losses meaning that less electricity production is needed to serve an identical demand. This will result in lower greenhouse gas emissions. The increased power system control, ensuring enhanced voltage and frequency stability, will enhance the capacity of the grid to receive more decentralised variable renewable energies produced by Independent Power Producers (IPPs). This enhanced grid capacity is necessary and urgent considering the increasing number of investments in renewable energy generation projects by all partners, including the EU (e.g. PROLER). A better balance of electricity supply and demand through automated, real-time monitoring and control of the power grid will also facilitate further integration of generated renewable energy into the nationwide power grid. It thus supports the Mozambican government in achieving its National Climate Change (NDC) targets, which envisage a reduction of 76.5 Mt CO<sub>2</sub>eq between 2020 and 2030.

Finally, the NCC will **promote the digital transformation of Mozambique's electricity sector (outcome 3)**. The adaptation of substations with remote telecommunication units, equipment of all centres with SCADA and Energy Monitoring Systems and retrofitting of additional transmission line with optic fibre will allow (numerical) data collection and its circulation between the generating plant, EDM and end-users. This will facilitate real-time power flow adjustment and contribute to more efficient grid management. The NCC will also contribute to interconnect and activate existing optic fibre not in use because of missing telecommunication links. The retrofitting of specific transmission lines with optical fibre can offer opportunities for enhancing broadband coverage and represent commercial opportunities for EDM, currently suffering from financial underperformance.

The achievement of these three outcomes will ensure the following expected impact of the action: **contribution to the achievement of universal access to energy in Mozambique and the transition towards renewable energy.**

### 3.6 Logical Framework Matrix

This indicative logframe constitutes the basis for the monitoring, reporting and evaluation of the intervention.

On the basis of this logframe matrix, a more detailed logframe (or several) may be developed at contracting stage. In case baselines and targets are not available for the action, they should be informed for each indicator at signature of the contract(s) linked to this AD, or in the first progress report at the latest.

New columns may be added to set intermediary targets (milestones) for the Output and Outcome indicators whenever it is relevant.

- At inception, the first progress report should include the complete logframe (e.g. including baselines/targets).
- Progress reports should provide an updated logframe with current values for each indicator.
- The final report should enclose the logframe with baseline and final values for each indicator.

The indicative logical framework matrix may evolve during the lifetime of the action depending on the different implementation modalities of this action.

The activities, the expected Outputs and related indicators, targets and baselines included in the logframe matrix may be updated during the implementation of the action, no amendment being required to the Financing Decision.

Results	Results chain (@): Main expected results (maximum 10)	Indicators (@): (at least one indicator per expected result)	Baselines (values and years)	Targets (values and years)	Sources of data	Assumptions
<b>Impact</b>	To contribute to the achievement of universal access to energy in Mozambique and the transition towards renewable energy	1. Number of potential new connections to electricity grid *,** GERF 1.2  2. Percentage of variable renewables (solar and wind) in the energy mix *,** GERF 1.3	1=0 (2022)  2=1% (2022)	1=TBD  2=5% (2027)	1 EDM annual report, KfW calculation  2 EDM annual report	<i>Not applicable</i>
<b>Outcome 1</b>	1. Reliability, inclusiveness and sustainability of the power supply is improved nationwide, specifically in the North, and in the whole Southern African region	1.1. Technical losses in Mozambique's grid measured in % of power generation*  1.2 System Average Interruption Duration Index (SAIDI), measured in number of hours per year: nationwide  1.3 System Average Interruption Duration Index (SAIDI), measured in number of hours per year: Northern  1.4 Power trade with neighbouring countries, measured in MWh	1.1=5% (2021)  1.2=50 hours per year (2021)  1.3=68 hours per year (2021)  1.4=1,488,000 (2021)	1.1= 4.5% (2027)  1.2= 42 hours per year (2027)  1.3= 57 hours per year (2027)  1.4=1,607,000 (2027) (8% increase)	1.1 ARENE reporting, EDM annual report  1.2 ARENE reporting ,EDM annual report  1.3 ARENE reporting, EDM annual report  1.4 EDM annual report	Coherence between generation, transmission and distribution development is ensured  Renewable energy generation is prioritised
<b>Outcome 2</b>	2. The capacity of the grid to integrate more generation from renewable sources is enhanced	2.1 Potential of additional variable renewable energy the grid can integrate measured in additional MW*,** GERF 2.4  2.2 Greenhouse gas emissions (CO2 equivalents) avoided with EU support, measured in t CO2eq /year*, ** GERF 2.7	2.1=800 MW (2022)  2.2=0 tCO2/ year (2022)	2.1=4,100 MW (2027)  2.2=4660 t CO2 / year (2027)	2.1 EDM annual report, KfW calculation  2.2 EDM annual report, KfW calculation	GoM continues to prioritise the programme 'Energia para Todos'

<b>Outcome 3</b>	3. The digital transformation of Mozambique's electricity sector is promoted	3.1 Number of kms of transmission line retrofitted with optic fibre with EU support  3.2 Total Number of Interconnected retrofitted kms of transmission line enabled by the action with EU support	3.1=0 km (2022)  3.2=766 km (2022)	3.1=719 km (2027)  3.2= 4202 km (2027)	3.1 EDM annual report  3.2 EDM annual report	
<b>Output 1 related to Outcome 1-3</b>	1.1 National Control Centre (NCC) building is constructed , fully equipped and operational	1.1.1 % of the NCC construction with EU support  1.1.2 % of NCC equipment with EU support	1.1.1 = 0 (2022)  1.1.2=0 (2022)	1.1.1=100 (2027)  1.1.2=100 (2027)	1.1.1EDM, KfW reports,  1.1.2 EDM, KfW reports,	Project Implementation Unit (PIU) put in place  Mozambique Integrated Transmission Backbone System (STE Project) completed  Additional interconnection with neighbouring countries completed
<b>Output 2 related to Outcome 1-3</b>	1.2 Backup NCC and 2 regional control centres are constructed, fully equipped and operational	1.2.1 % of backup NCC and regional CC's construction with EU support  1.2.2 % of backup NCC and regional CC's equipment with EU support	1.2.1=0 (2022)  1.2.2=0 (2022)	1.2.1=100 (2027)  1.2.2=100 (2027)	1.2.1 EDM, KfW reports  1.2.2 EDM, KfW reports,	
<b>Output 3 related to Outcome 1-3</b>	1.3 Adaptation works for substations and telecommunication infrastructure are completed	1.3.1 Number of updated substation with EU support  1.3.2 Number of newly connected substations based on modernised telecommunication infrastructure with EU support	1.3.1=0 (2022)  1.3.2=0 (2022)	1.3.1=70 (2027)  1.3.2=135 (2027)	1.3.1 EDM, KfW reports,  1.3.2 EDM, KfW reports	
<b>Output 4 related to Outcome 1-3</b>	1.4 EDM fully capable and equipped to control and monitor the power network.	1.4.1 Number of EDM staff trained with increased knowledge and/or skills in enegy information system management with EU support, disaggregated by sex	1.4.1=0 (2022)	1.4.1=50 (2027)	1.4.1 EDM, KfW reports	

## 4 IMPLEMENTATION ARRANGEMENTS

### 4.1 Financing Agreement

In order to implement this action, it is envisaged to conclude a financing agreement with the partner country

### 4.2 Indicative Implementation Period

The indicative operational implementation period of this action, during which the activities described in section 3 will be carried out and the corresponding contracts and agreements implemented, is 72 months from the date of entry into force of the financing agreement.

Extensions of the implementation period may be agreed by the Commission's responsible authorising officer by amending this Financing Decision and the relevant contracts and agreements.

### 4.3 Implementation Modalities

The Commission will ensure that the EU appropriate rules and procedures for providing financing to third parties are respected, including review procedures, where appropriate, and compliance of the action with EU restrictive measures<sup>6</sup>.

#### 4.3.1 Indirect Management with a Member State Organisation

This action may be implemented in indirect management with KfW. This implementation entails all indicative activities as per section 3.2 contributing to part of result 1 'The National Control Centre (NCC) constructed, fully equipped and operational'; part of result 2 'The Backup NCC and 2 regional Control Centres constructed, fully equipped and operational'; part of result 3 'Adaptation works for substations and telecommunication infrastructure completed' and part of result 4 'EDM fully capable and equipped to control and monitor the power network'.

The envisaged entity has been selected by the Commission's services using the following criteria:

- Technical competence in the energy sector and leverage for policy dialogue
- Established presence in Mozambique, including logistical and management capacities
- Administrative capability and the experience to implement this type of intervention due to its mandate and expertise;
- Experience with management of delegated funds from the EU
- Strategic relevance for EU multilateral engagement (link with TEI)
- Demonstrated capacity to coordinate with various stakeholders.

If negotiations with the above-mentioned entity fail, that part of this action may be implemented in indirect management with the Swedish Development International Agency (SIDA). The implementation by this alternative entity would be justified as it complies with the criteria listed above. This would also be justified because SIDA, like KfW, already finances this action.

### 4.4 Scope of geographical eligibility for procurement and grants

N/A

### 4.5 Indicative Budget

<b>Indicative Budget components</b>	<b>EU contribution (amount in EUR)</b>	<b>Third-party contribution, in currency identified</b>
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<sup>6</sup> [www.sanctionsmap.eu](http://www.sanctionsmap.eu). Please note that the sanctions map is an IT tool for identifying the sanctions regimes. The source of the sanctions stems from legal acts published in the Official Journal (OJ). In case of discrepancy between the published legal acts and the updates on the website it is the OJ version that prevails.

<b>Implementation modalities</b> – cf. section 4.4		
<b>4.4.1 Indirect Management with a Member State Organisation</b>	18 000 000	EUR 15 000 000 (KfW)
<b>Swedish International Development Cooperation Agency</b>		EUR 17 400 000
<b>African Development Bank</b>		EUR 7 100 000
<b>5.2 Evaluation</b>	200 000	
<b>5.3 Audit</b>		
<b>Total</b>	18 200 000	EUR 39 500 000

#### 4.6 Organisational Set-up and Responsibilities

This strategic project will be co-funded by the African Development Bank (AfDB), Sweden through the Swedish International Development Cooperation Agency (SIDA), Germany through KfW and the EU. In order to ensure the achievement of all outputs and to limit the transaction and reporting burden of Electricidade de Moçambique (EDM), an appropriate coordination between partners the national counterpart EDM and all donors is necessary. A steering Committee has already been put in place for the management of the project. It gathers the main stakeholders involved in the implementation and financing of the project: the utility EDM, the African Development Bank, Sweden, KfW and the EU. The Steering Committee is chaired by EDM and co-chaired alternatively by one of the donors. Complementarity with the intervention of other development partner will be ensured through the regular dialogue within the Energy Sector Working Group, chaired for the moment by Sweden and AfDB.

A first feasibility study was carried out in 2013 with the support of France and implemented by Electricité de France (EDF). Because of the 2015-2016 financial crisis, the project was put on hold. An update of this study was made in 2017 and a final feasibility study based on precedent analysis was completed in 2021 with the support of Swedfund and implemented by the consulting company SWECO.

EDM will act as the Project Executing Agency (PEA) under the supervision of the Ministry of Mineral Resources and Energy (MIREME). EDM will host, own and operate the National Control Centre in the future. EDM will recruit a supervising engineer during the first semester of 2022 to assist them in the overall management of the project, and more specifically with the supervision and monitoring of all works included in the action.

The complexity and novelty of the project for EDM will require technical assistance. Continued support to EDM to maintain and derive value from the system are very important. EDM will set up a Project Implementation Unit (PIU) which will consist of dedicated EDM staff augmented by staff resources who cover gender, environment, telecommunications, transmission, and market operations. The beneficiary of the EU-KfW funds will be the Republic of Mozambique. KfW will sign a tripartite financing agreement with Ministry of Economy and Finance (MEF) and EDM (and in connection a so called ‘separate agreement’ only with EDM) for the EU contribution. An additional tripartite financing agreement with MEF and EDM will be concluded for the BMZ funds.

## 5 PERFORMANCE MEASUREMENT

### 5.1 Monitoring and Reporting

The day-to-day technical and financial monitoring of the implementation of this action will be a continuous process, and part of the implementing partner’s responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the action and elaborate regular progress reports (not less than annual) and final reports. Every report shall provide an accurate account of implementation of the action, difficulties encountered, changes introduced, as well as the degree of achievement

of its results (Outputs and direct Outcomes) as measured by corresponding indicators, using as reference the logframe matrix.

The Commission may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by the Commission for independent monitoring reviews (or recruited by the responsible agent contracted by the Commission for implementing such reviews).

Roles and responsibilities for data collection, analysis and monitoring: the entrusted entity will have full responsibility in partnership with the Project Executing Agency EDM, to collect, analyse, monitor and report on data relevant for the monitoring of the indicators stated out in the logframe of the action.

## 5.2 Evaluation

Having regard to the nature of the action, a final evaluation will be carried out for this action or its components via independent consultants.

It will be carried out for accountability and learning purposes at various levels (including for policy revision), taking into account in particular the fact that the action will represent a technological leap for EDM. The evaluation could particularly focus on the sustainability of the action through adequate capacity-building of EDM's staff and institutional organisation for the successful operation of the National Control Centre. Evaluation shall also assess to what extent the action is taking into account the human rights-based approach as well as how it contributes to gender equality and women's empowerment. Expertise on human rights and gender equality will be ensured in the evaluation teams. Additionally, all evaluations carried within this Action will establish links with the Team Europe Initiatives developments.

The evaluation of this action may be performed individually or through a joint strategic evaluation of budget support operations carried out with the partner country, other budget support providers and relevant stakeholders.

The evaluation reports may be shared with the partners and other key stakeholders following the best practice of evaluation dissemination. The implementing partner and the Commission shall analyse the conclusions and recommendations of the evaluations and, where appropriate, in agreement with the partner country, jointly decide on the follow-up actions to be taken and any adjustments necessary, including, if indicated, the reorientation of the project.

Evaluation services may be contracted under a framework contract.

## 5.3 Audit and Verifications

Without prejudice to the obligations applicable to contracts concluded for the implementation of this action, the Commission may, on the basis of a risk assessment, contract independent audit or verification assignments for one or several contracts or agreements.

# 6 STRATEGIC COMMUNICATION AND PUBLIC DIPLOMACY

The 2021-2027 programming cycle will adopt a new approach to pooling, programming and deploying strategic communication and public diplomacy resources.

It will remain a contractual obligation for all entities implementing EU-funded external actions to inform the relevant audiences of the Union's support for their work by displaying the EU emblem and a short funding statement as appropriate on all communication materials related to the actions concerned. This obligation will continue to apply equally, regardless of whether the actions concerned are implemented by the Commission, partner countries, service providers, grant beneficiaries or entrusted or delegated entities such as UN agencies, international financial institutions and agencies of EU member states.

However, action documents for specific sector programmes are in principle no longer required to include a provision for communication and visibility actions promoting the programmes concerned. These resources will instead be consolidated in Cooperation Facilities established by support measure action documents, allowing

Delegations to plan and execute multiannual strategic communication and public diplomacy actions with sufficient critical mass to be effective on a national scale.

## Appendix 1 REPORTING IN OPSYS

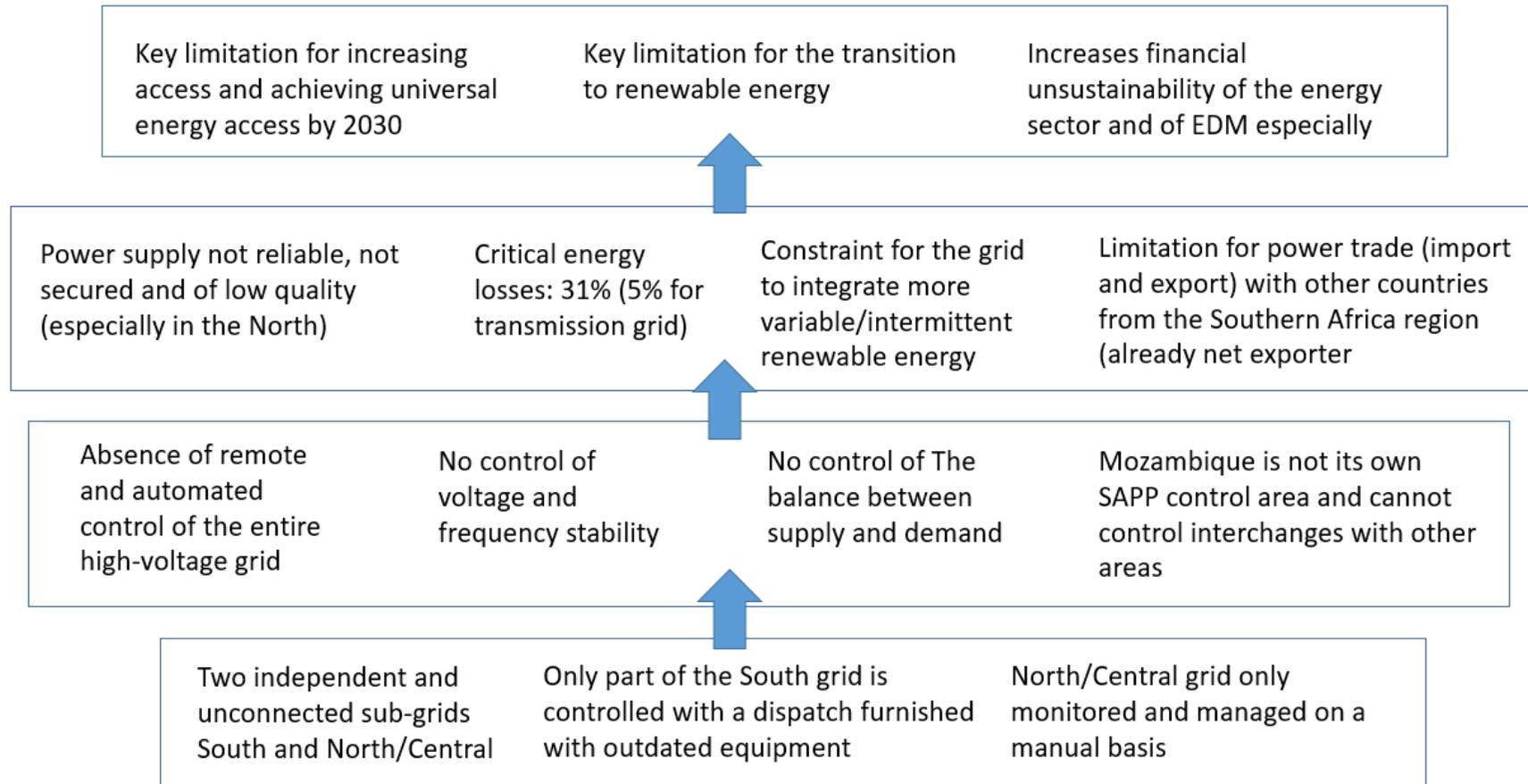
An Intervention (also generally called project/programme) is the operational entity associated to a coherent set of activities and results structured in a logical framework aiming at delivering development change or progress. Interventions are the most effective (hence optimal) entities for the operational follow-up by the Commission of its external development operations. As such, Interventions constitute the base unit for managing operational implementations, assessing performance, monitoring, evaluation, internal and external communication, reporting and aggregation.

Primary Interventions are those contracts or groups of contracts bearing reportable results and respecting the following business rule: 'a given contract can only contribute to one primary intervention and not more than one'. An individual contract that does not produce direct reportable results and cannot be logically grouped with other result reportable contracts is considered a 'support entities'. The addition of all primary interventions and support entities is equivalent to the full development portfolio of the Institution.

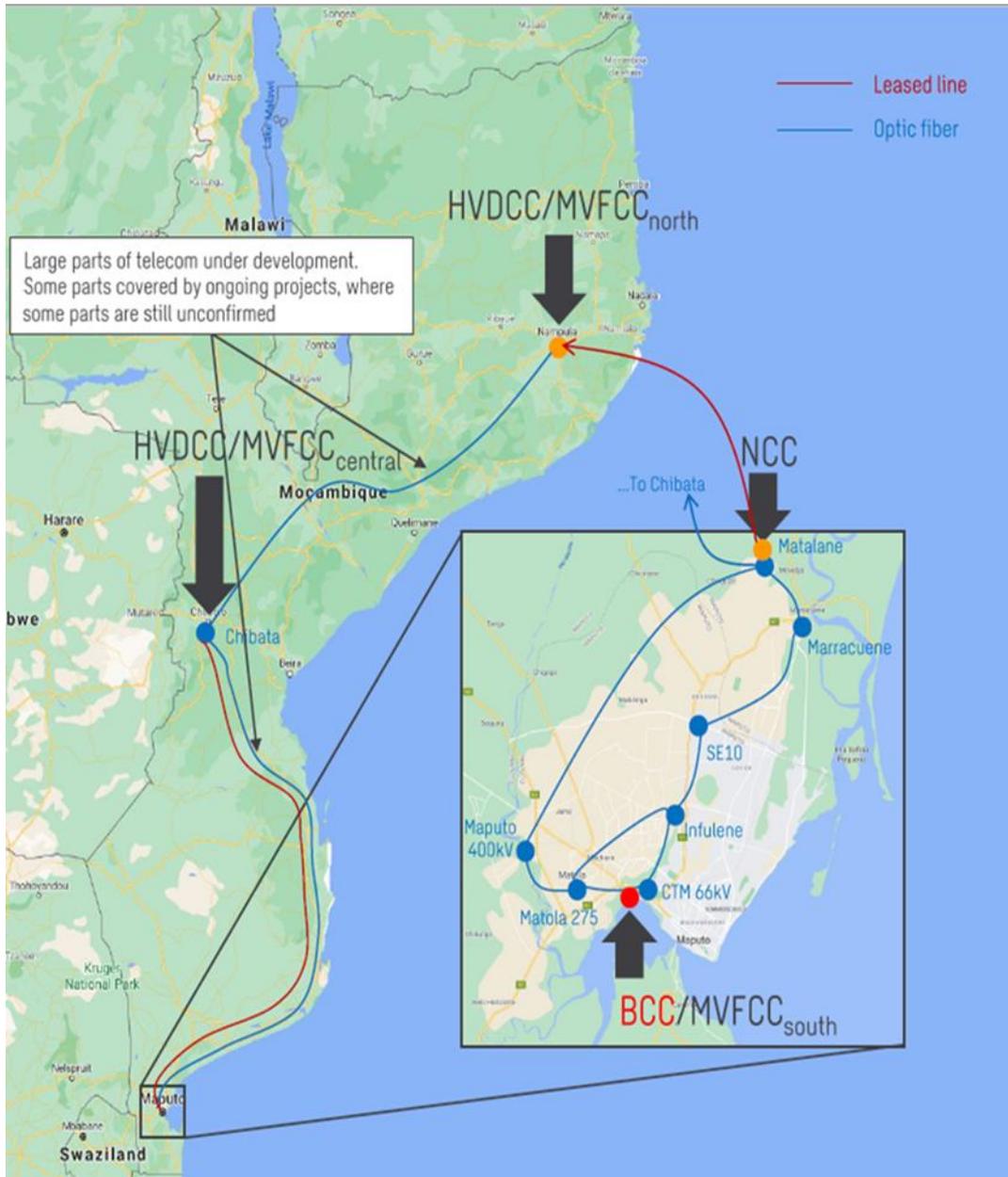
The present Action identifies as;

<b>Action level</b>		
<input checked="" type="checkbox"/>	Single action	Present action: all contracts in the present action

## Appendix 2: Problem tree



### Appendix 3: map of the National Control Centre



## Appendix 4: Team Europe Initiative Green Deal - Mozambique

### Team Europe Initiative Green Deal - Mozambique Financial Contributions of Team Europe

04/12/2022

Pillars	Country	Programmes/Projects	Financial participation (M€)- Approved and/or ongoing		Financial participation (M€)- Pipeline		Non-financial (M€) Quantified time, staff, experts outside of projects in Euros	Total Financial and non-financial (M€)
			Grants	Loans Guarantees Equity	Grants	Loans Guarantees Equity		
All pillars	EU	All programmes/projects	227,375,424	21,000,000	139,730,000			388,105,424
	AT		935,000		4,500,000			5,435,000
	BE		55,524,404		2,500,000			58,024,404
	DE		202,560,947					202,560,947
	ES		9,180,000					9,180,000
	FR		23,228,000	42,000,000				65,228,000
	IE		0		21,000,000			21,000,000
	IT		40,629,591	61,752,000				102,381,591
	NL		62,029,800		82,000,000			144,029,800
	PT		308,780					308,780
	SE		130,760,982		180,208,333			310,969,315
	EIB			105,414,674		50,000,000		155,414,674
	<b>Total Team Europe</b>			<b>752,532,928</b>	<b>230,166,674</b>	<b>429,938,333</b>	<b>50,000,000</b>	<b>1,462,637,935</b>