United Nations Development Programme

Government of Indonesia

Directorate General of Renewable Energy and Energy Conservation,
Ministry of Energy and Mineral Resources (DG-NREEC - MEMR)

Terminal Evaluation of UNDP-GEF Project: Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3 Project)

(GEF ID number 5339, UNDP PIMS ID: 4673)
Climate Change Mitigation

Final Report

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ABBREVIATIONS

Acronym	Meaning
APR/PIR	Annual Project Reports and Project Implementation Review reports
AWP	Annual Work Plans
BAU	Business-as-Usual
BAPPENAS	National Planning Agency
BKPM	Indonesia Investment Coordinating Board
BOMA	Building Owners and Managers Association
BPPT	Agency for the Assessment and Application of Technology
BRESL	UNDP-GEF supported "Barrier Removal to the Cost-Effective Development and Implementation of Energy Standards and Labeling Project"
BUMN	Ministry of State-owned Enterprise
CCM	Climate change mitigation
CDR	Combined Delivery Report
CER	Certified emission reduction
CO	Country Office
CO_2	Carbon dioxide
CPD	Country Programme Document.
CSO	Civil Society Organization
DG-NREEC/EBTKE	Directorate General of New-Renewable Energy and Energy Conservation
DJEBTKE	Directorate General of Renewable Energy and Energy Conservation under MEMR
DNPI/NCCC	Indonesia National Council of Climate Change
DPMPTSP	One-Stop Permit Service Board
DPR	Dewan Perwakilan Rakyat / Parliament
DPT	Fixed provider's list
ECN	Mitigation Momentum Indonesia
EE	Energy efficiency/energy efficient
ENDC	Enhanced NDC
EnMS	Energy Management System
EOP	End of the Project
ESCO	Energy Service Company/Energy Saving Company
FGD	Focused group discussion
FiT	Feed in Tariff
FPIC	Free, Prior Informed Consent
GBCI	Green Building Council Indonesia
GCF	Green Climate Fund
GEF	Global Environmental Facility
GHG	Greenhouse gas
GoI	Government of Indonesia
GBCI	Green Building Council Indonesia
GNTU	PT Grahaniaga Tata Utama
GW	Gigawatts
ICED	USAID-funded Indonesia Clean Energy Development Project
IDR	Indonesian Rupees
IEF	Indonesia Environment Fund
IMSC	Integrated Market Service Center
INDC	Intended National Determined Contributions
IPMVP	International Monitoring and Verification Protocol
kt	kilo tons

Acronym	Meaning
LECB	UNDP-implemented Low Emission Capacity Building Programme
LFA	Logical Framework Analysis
M&E	Monitoring and evaluation
MACC	Marginal GHG Abatement Cost Curve
MAP	Mitigation Action Plan
MEMR/ESDM	Ministry of Energy and Mineral Resources
MEPS	Minimum energy performance standards
MoEF	Ministry of Environment and Forestry
MPW	Ministry of Public Works
MoF	Ministry of Finance
MoEF	Ministry of Environment and Forestry
MoPW	Ministry of Public Works
MRV	Measurement, Reporting, Verification
MTRE3	Market Transformation for Renewable Energy and Energy Efficiency
NAMA	Nationally Appropriate Mitigation Action
NEP	National Energy Plan
NIM-COSS	UNDP's National Implementation Modality with Country Office Support Services
NPD	National Project Director
NPM	National Project Manager
NTT	East Nusa Tenggara
OJK	Otoritas Jasa Keuangan (Financial Services Authority)
OSS	Online Single Submission
PAR	Project Assurance Report
PB	Project Board
PBPs	Performance Based Payments
PIF	Project Identification Form
PLN	National Electricity Company
PLTM	Mini hydropower project
PLTMH	Micro hydropower project
PMU	Project Management Unit
POME	Palm oil mills effluent
PPA	Power Purchase Agreement
PPG	Project Preparation Grant
PRF	Project Results Framework
ProDoc	Project Document
PSC	Project Steering Committee
PT SMI	PT Sarana Multi Infrastructure
PTA	Principal Technical Advisor
PV	Photo-Voltaic
QPR	Quarterly Progress Reports
R&D	Research and development
RAN-GRK	National Action Plan to Reduce Green House Gases
RAD-GRK	Regional Action Plan to Reduce Green House Gases
RE	Renewable Energy
RFCC	Residue fluid catalytic cracking
RoI	Return on investment
RPA	Responsible Party Agreement
RPJMN	Medium-term National Development Plan
RTA	Regional Technical Advisor

Acronym	Meaning
RUED	Local Energy Plan
RUPTL	Electricity Procurement Plan
SDG	Sustainable Deevelopment Goal
SEF	Sustainable Energy Fund
SESP	Social and Environmental Screening Procedure
SNI	Indonesia National Standard
TE	Terminal Evaluation
ToC	Theory of Change
ToT	Training of trainers
TWG	Technical Working Group
UK-PACT	"Partnering for Accelerated Climate Transitions", a programme under the UK's International Climate Finance
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention for Climate Change
WHyPGen	Wind Hybrid Power Generation Market Development Project

EXECUTIVE SUMMARY

E-1. This Termination Evaluation (TE) report assesses the design and formulation, implementation, results (at goal, objective, outcome, outputs levels), targets (against the indicators in the July 2016 Project Result Framework, hereinafter referred to as the PRF), GEF additionality, catalytic effect, and progress to impact of the "Market Transformation through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector" Project (hereinafter referred to as the MTR3 Project or the Project). It also evaluates the Project's relevance, effectiveness, efficiency, sustainability, country ownership, gender equality, and cross cutting issues.

E-2. The Project received the CEO endorsement on 12 July 2016. The Project inception workshop was held on 13 December 2017 and the Project implementation commenced in March 2017. The Project applied for a 15 -month no-cost extension since 2021 , which was granted by the UNDP. The end date of the Project was extended on 10 November 2021 for 9 months, and then another extension on 21 November 2022 for another for 6 months to the current terminal date of the Project of 30 June 2023.

E-3. The duration of the TE assessment is from the ProDoc signature on 13 March 2017 until 31 March 2023, while also providing estimations on the emission reduction results by the End of the Project (EOP). The TE and this report follow the *Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects*, copyrighted by UNDP in 2020

Project Summary Table

Project Details		Project Milestones	
Project Title	Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3 Project)	PIF Approval Date:	15 November 2013
UNDP Project ID (PIMS #):	4673	CEO Endorsement Date (FSP) / Approval date (MSP):	12 July 2016
GEF Project ID:	5339	ProDoc Signature Date (Project start date):	13 March 2017
UNDP Atlas Business Unit, Award ID, Project ID:	00086173, 00093506	Date Project Manager hired:	June 2017
Country/Countries:	Indonesia	Inception Workshop Date:	13 December 2017
Region:	PAC	MTR Review Completion Date:	August 2019
Focal Area:	Climate Change	Terminal Evaluation Completion date:	8 June 2023
GEF Operational Programme or Strategic Priorities/Objectives	FA Objective #3 for GEF 5: Climate Change Mitigation Objective-2 and Objective-3 FA Climate Change Objective 3 for GEF-6	Planned Operational Closure Date:	30 June 2023
Trust Fund:	GEF		
Implementing Partner (GEF Executing Entity):	Directorate General of Renewable Energy and Energy Conservation, Ministry of Energy and Mineral Resources (DG-NREEC - MEMR)		
NGOs/CBOs involvement:	n/a		
Private sector involvement:	n/a		
Geospatial coordinates of project sites:	Latitude: 6° 12' 00.0000" S Longitude: 106° 48' 59.9976" E		

Financial Information		
PDF/PPG	**At approval (US$ million)**	**At PPG/PDF completion (US$ million)**
GEF PDF/PPG grants for project preparation	**0.175**	**0.175**
Co-financing for project preparation	**-**	**-**
Project	**At CEO Endorsement (US$ million)**	**At TE (US$ million)**
[1] UNDP contribution:	**0.100**	**0.255**
[2] Government:	**8.000**	**2.683**
[3] Other multi-/bi-laterals:	**-**	**-**
[4] Private Sector:	**52.000**	**57.771**
[5] NGOs:	**-**	**0**
[6] Total co-financing [1 + 2 + 3 + 4 + 5]:	**60.100**	**60.709**
[7] Total GEF funding:	**8.025**	**7.474**
[8] Total Project Funding [6 + 7]	**68.125**	**68.183**

Project Description

E-4. The MTRE3 Project was designed to overcome barriers to climate change mitigation actions in Indonesia (Para 22):

- *Policy, institutional and capacity barriers including* low capacity in planning and prioritization cost-effective mitigation actions at all levels in energy generation and energy end-use sectors;
- *Awareness and market barriers including* limited availability and accessibility of reliable data on RE resources;
- *Technical barriers including* low level of technical capacity and poor quality of services from local energy service providers and few national experts that are able to offer energy efficiency solutions in the buildings sector;
- *Financial barriers including* limited source of funds for RE and EE project financing to project developers and no support for the financial institutions in terms of policies that can motivate them to provide more financing to RE and EE projects with minimum financial risks;
- *Barriers in Measurement, Reporting and Verification (MRV) of RE and EE projects* that includes the absence of an operational national registry mechanism for climate change mitigation actions and operational MRV guidelines.

E-5. The objective of the MTRE3 Project was to "*support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors*". The Project was designed to do this by:

- Component 1: Climate change mitigation options for the RE based energy generation and energy efficiency;
- Component 2: Market transformation through implementation of appropriate mitigation actions in the RE based energy generation and energy efficiency; and
- Component 3: MRV system and national registry for mitigation actions in the RE based energy generation and energy efficiency.

E-6. EOP results expected from the Project were:

- prioritized and appropriate mitigation actions in RE-based energy generation and energy efficiency;
- enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies; and
- accurate measurement and accounting of GHG emission reductions from mitigation actions in RE-based energy generation and energy efficiency applications.

E-7. Actual outcomes of the MTRE3 Project are summarized on Table A in comparison with intended outcomes.

Table A: Comparison of Intended Project Outcomes from the ProDoc to Actual Outcomes

Intended Objective and Outcomes in Project Results Framework of March 2017 (see Appendix F)	Actual Outcomes as of 31 March 2023
Objective: To support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors	**Actual achievement toward objective**: There has been support for the design and implementation of several climate change mitigation actions in energy generation and energy end-use sectors. This includes RE and EE investments that have generated 217,509 tCO_{2eq} (End of Project) of cumulative GHG emission reductions, 8 times the target of 27,019 tCO_{2eq} (End of Project) and over US$57.77 million in private investments in RE and EE projects. If 20 years lifetime of RE technology is considered, the total lifetime direct GHG emissions avoided is 2,252,301 tCO_{2eq} in which 2,137,012 tCO2eq from RE and from EE is 115,289 tCO2eq.
Intended Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency	**Actual Outcome 1**: Appropriate mitigation actions in the RE-based energy generation and energy efficiency were prioritized in 4 pilot provinces.
Intended Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies	**Actual Outcome 2**: Market diffusion of renewable energy and energy efficiency technologies was enhanced from the streamlining of permitting for RE/EE investments, the work towards using the IMSCs and the SEF, and increasing the capacities of government personnel and project proponents to improve access to financing for RE/EE projects.
Intended Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency	**Actual Outcome 3:** Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency

Findings and Conclusions

E-8. The MTRE3 Project has managed to achieve 217,509 tCO2eq of GHG emission reductions exceeding the target by a factor of 8 times, DG-NREEC-backed MACC reports for 4 pilot provinces, 4 operational "Integrated Market Service Centers" (IMSCs) that facilitate sustainable RE & EE investments supported by the Sustainable Energy Fund (SEF), US$54.6 million of public and private investment leveraged by SEF against a target of US$25 million, and 334,667 households who are to benefit from RE and EE investments. Keys to this success has been successful stakeholder participation between the PMU and key ministries as well as CSOs, private sector firms and Project

beneficiaries; gender equality being managed and monitored throughout the Project; and rectification of inconsistencies in the SESP and the Management of Environmental Risk (Para 126). There were a few implementation issues such as length of time to get PLN approvals for applicants to the Solar PV Rooftop Incentive program, limited ESCO participation in RE and EE projects and a shortage of individual third party GHG verifiers (Para 127).

E-9. As a result, the MTRE3 Project provided significant support to the design and implementation of climate change mitigation actions in renewable energy generation and energy efficiency investments including an upgraded LINTAS-EBTKE website as a one-stop information center for RE/EE investment (Paras 77 and 128) and a website implementing for SEF (Para 80, 6th bullet). MEMR is now in a position to scale up the results of the MTRE3 Project to the remaining 36 provinces of Indonesia including MACCs and IMSCs to improve access to the SEF (Para 128).

Table B: Evaluation Ratings[1]

1. Monitoring and Evaluation	*Rating*	2. IA & EA Execution	*Rating*
M&E design at entry	5	Quality of Implementation Agency - UNDP	5
M&E Plan Implementation	5	Quality of Execution - Executing Entity (MEMR)	5
Overall quality of M&E	5	Overall quality of Implementation / Execution	5
3. Assessment of Outcomes	**Rating**	**4. Sustainability[2]**	**Rating**
Relevance[3]	2	Financial resources	4
Effectiveness	6	Socio-political	3
Efficiency	5	Institutional framework and governance	4
Overall Project Outcome Rating	5	Environmental	4
		Overall likelihood of sustainability	3

Recommendations

Rec #	Recommendation	Entity Responsible	Time Frame
A	**Recommendation 1:**		
E-10.	*Support the continued uptake of RE/EE policies and for a scale-up phase to raise awareness and promote replication of MACCs, IMSCs and RE and EE investment projects that have already been implemented under the MTRE3 Project (Para 130).*	UNDP DG-NREEC (Government of Indonesia)	Immediate
B	**Recommendation 2**		
E-11.	*The GoI through MEMR consider continuing the program on training verifiers to assess GHGs emission reduction from*	UNDP	Immediate

[1] Evaluation rating indices (except sustainability – see Footnote 2, and relevance – see Footnote 3): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[2] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

[3] Relevance is evaluated as follows: 2 = Relevant (R); 1 = Not relevant (NR)

Rec #	Recommendation	Entity Responsible	Time Frame
	mitigation action for issuance of Certified Emission Reductions (CER) (Para 131).	MEMR (Government of Indonesia)	
C	**Recommendation 3**		
E-12.	*BAZNAS should widely share its best practices in community development after the commissioning of a PLTMH (Para 132).*	UNDP BAZNAS	Medium term
D	**Recommendation 4**		
E-13.	*Disseminate information through the Directorate of Energy Conservation and BOMA to banks of best practices for ESCOs using GNTU as a model (Para 133).*	UNDP DG-NREEC (Government of Indonesia)	Medium term

Lessons Learned

E-14. *Lesson #1: The Project has covered a lot of different aspects in supporting the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors. However, there is still a lot to be done with donor agency guidance (Para 134).*

E-15. *Lesson #2: The PLTMH in Lubuk Bangkar has attracted attention to its best practices on village development (Para 135).*

E-16. Lesson #3: The success of the MTRE3 Project was the result of strong collaboration of all relevant stakeholders (Para 136).

1. INTRODUCTION

1. The Terminal Evaluation (TE) for the Project entitled "*Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector*" (otherwise referred to as "MTRE3", "the MTRE3 Project" or "the Project") was conducted for UNDP-GEF as an impartial assessment of MTRE3 activities, mainly comprised of investment and capacity building activities. The Project objective is to "support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors".

1.1 Evaluation Purpose

2. This Terminal Evaluation (TE) for the MTRE3 Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The TE is to serve as an agent of change and play a critical role in supporting accountability. As such, the TE will serve to:

- measure to what extent the Project has contributed to solve the needs identified in the design phase;
- measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised;
- measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), United Nations Sustainable Development Cooperation Framework (UNSDCF), Indonesia's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, Indonesia's Enhanced Nationally Determined Contribution (ENDC) submitted to UNFCCC in 2022, Presidential Regulation on the Medium-term National Development Plan (RPJMN) for 2015-2019 and 2020-2024, along with relevant SDGs;
- assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors, weakness in design, management and resource allocation;
- assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project;
- generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components promote accountability and transparency, and to assess and disclose levels of project accomplishments.

3. Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by UNDP, the Government of Indonesia, their donor partners, and the private sector, to sustain the momentum built by the Project to continue with low carbon deployment and with the goal of reducing GHG emissions.

1.2 Scope

4. The scope of this TE was to evaluate all activities funded by GEF and activities that are parallel-financed. The Terms of Reference (ToRs) for the TE are contained in Appendix A. Key issues addressed on this TE include:

- that the TE is independent of MTRE3 Project management to ensure independent quality assurance;
- the application of UNDP and UNDP-GEF norms and standards for evaluations[4];
- assessment of achievements of outputs and outcomes, likelihood of the sustainability of outcomes, and if the Project met the minimum M&E requirements; and
- reporting basic data of the evaluation and the Project, as well as provide lessons from the Project on broader applicability. This would include an outlook and guidance in charting future directions by UNDP and their future support for a possible subsequent phase to the MTRE3 Project.

5. With this scope, the following issues were identified for further discussion in this TE:

- replication of Marginal GHG Abatement Cost Curves (MACCs) and Integrated Market Service Centers (IMSCs) in other provinces;
- the effectiveness of providing technical assistance to the Independent Power Producers (IPPs) for renewable energy (RE) and energy efficiency (EE) projects to improve bankability of projects;
- ongoing challenges and barriers to the Solar PV Rooftop Incentive program including the length of time for the applicants to get the state's electricity company (PT. PLN or PLN) approval for the installation;
- progress on the Ministry of Energy and Mineral Resources (MEMR) ministerial regulation and Ministry of Environment and Forestry (MoEF or KLHK) on carbon trading and carbon pricing and the MEMR Ministerial Regulation of Emissions Cap for coal power plant awaiting MoEF Ministerial Regulation;
- mitigative measures to reduce the gender gap in the energy profession that exists with less than 4.6% of women involved in energy efficiency, and less than 5% of women as certified energy managers and certified energy auditors.

1.3 Approach and Methodology

6. The evaluation approach adopted was non-experimental evaluation[5] where questions needed to be answered concerning policy and market for government stakeholders and Project developers, and the benefits and impacts of RE and EE investments for Project beneficiaries. Interviews with government stakeholders were to bring up key issues with respect to the process of prioritizing RE and EE measures and enhancing market diffusion of RE and EE technologies; this was to strengthen learning within the MTRE3 Project team and its stakeholders to support better decision-making to attain the Project objective. Project developers and beneficiary stakeholders were interviewed using a participatory approach on their experiences applying for credit from the Sustainable Energy Fund

[4] This TE was conducted to closely adhere to GEF guidelines for evaluations. The Table of Contents of this report reflects these GEF guidelines that were accepted by UNDP in the Evaluator's Inception Report from April 2021.

[5] From the UNEG Compendium of Evaluation Methods: http://www.unevaluation.org/document/detail/2939

(SEF) and the impacts of the programme. These approaches delivered an impartial assessment of the MTRE3 Project.

7. The Evaluation methodology consisted of:

- setting up the TE report in the context of evaluation criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the August 2020 version of the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects" [6];
- document review of Project findings in the context of progress, effectiveness and pace of awareness raising, sustained engagement of national implementation teams (including training of these teams), level of implementation, and Project management (including M&E performance);
- interviews conducted with selected stakeholders (i.e. government stakeholders, Project developers, and Project beneficiaries) to gauge the effectiveness and efficiency of capacity building efforts and investments of the Project. This was important as these evaluation criteria were likely undocumented. The interview process was conducted in a participatory manner and in a spirit of collaboration with MTRE3 Project personnel with the intention of providing constructive inputs that can inform activities of a potential subsequent phase of the MTRE3 Project;
- triangulation of the various data sources that ensured optimum validity and quality of the information and data sources (i.e. interviews, focused group discussions and documents);
- compile and evaluate the progress and quality of implementation against the indicators of each objective and outcome in the Project Results Framework (PRF) as provided Appendix F;
- formulation of TE conclusions and recommendations that focus on the current setup of the MTRE3 Project and its completion by 30 June 2023.

8. The evaluation of the Project is based on evaluability analysis consisting of formal (clear outputs, indicators, baselines, data) and substantive (identification of problem addressed, theory of change, results framework) inputs. Considering the information provided into this evaluation (which is mainly whether or not the technical assistance of the Project was effective to the Government of Indonesia and its stakeholders), the implication of this methodology is that it should be effective in the evaluation process and should inform stakeholders and the MTRE3 Project team as it possibly transitions into a subsequent phase.

1.4 Data sources and analysis

9. Data and information for this TE was sourced from:

- a review of Project documentation as listed in Appendix C notably the final country reports from the UNDP Indonesia office. This was important in establishing information pertaining to the country's efforts in implementing the Project. This was done primarily at the home bases of the Evaluators;
- the combination of in-depth interviews, field visits and focused groups discussions (full list of persons interviewed in Appendix B) which were semi-structured interviews with key stakeholders within an interview schedule. These discussions were based on questions designed

[6] http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf

for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability. Interviews were conducted with:

- *PMU personnel*, the purpose of which was to deal with implementation and execution issues;
- *Implementing partners*, notably MEMR technical personnel, personnel from MEMR management, and consultants to MEMR to gauge the effectiveness of training and institutional strengthening as well as other execution issues;
- *Project partners* involving entities which worked in close collaboration with the executing partners, including other government agencies, Project consultants, project developers, FIs and banks, contractors, and suppliers. Exhaustive information was obtained from these stakeholders on how the RE and EE projects were financed and the details of procuring and installing equipment. A complete listing of partners is found in Annex A;
- *Beneficiaries* that include households, and renewable energy generation cooperatives, if they exist. Discussions also revolved around the Nationally Appropriate Mitigation Actions (NAMAs) and the SEF who provide credits to project developers who have equity in the projects they have developed.

10. There were 4 provinces who have benefited from the MTRE3 Project and the SEF. Sampling and surveys of these provinces were done in a manner that was smart and cost-effective to generate representative results. In the absence of travel by the International Evaluator, communications with the provincial stakeholders was logistically challenging, especially considering that some of these stakeholders do not have internet or smart phone services. The National Evaluator provided follow-up to these interviews with a participatory and consultative approach to ensure close engagement with the Project team, implementing partners and male and female direct beneficiaries. Questions to be posed for these stakeholders are included in Annex D.

11. All interviews with the International Evaluator and the National Evaluator with various stakeholders were conducted in-person or on Zoom or Teams platforms with facilitation and translation support provided by the PMU or the Country Office. The time difference between Indonesia and Canada placed significant limitations on the timing of the meetings with various stakeholders who generally are available throughout daytime. The International and National Evaluators made every effort to be flexible and available for scheduling interviews with stakeholders.

1.5 Structure of the Evaluation

12. This evaluation report is presented as follows:

- An overview of Project activities from commencement of operations in March 2017 to the present activities of the MTRE3 Project;
- A review of all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Social and Environmental Screening Procedure/SESP), the Project Document, project progress reports, and any other materials that the team considers useful for this evidence-based evaluation;
- Interview information from a participatory and consultative approach that ensured close engagement with stakeholders who have Project responsibilities including the Project Team, government counterparts, implementing partners, the UNDP Country Office (CO), the Regional Technical Advisors, and other stakeholders. The National Evaluator conducted face-to-face and virtual interviews with the Project's stakeholders;

- An assessment of results based on Project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Conclusions, recommendations and lessons learned.

13. This evaluation report is designed to meet GEF's "Guidelines for Conducting Terminal Evaluations of UNDP-Supported, GEF Financed Projects" of 2020[7] as well as UNDP guidelines "Evaluation during COVID-19" (updated to June 2021)[8].

1.6 Ethics

14. This Terminal Evaluation has been undertaken as an independent, impartial and rigourous process, with personal and professional integrity and is conducted in accordance with the principles outlined in the UNEG Ethical Guidelines for Evaluations, and the UNDP GEF M&E policies, specifically the August 2020 UNDP "Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects".

1.7 Limitations

15. There are limitations to this TE process, mainly due to the COVID-19 pandemic and the inability of the International Evaluator to travel to Indonesia to conduct face-to-face meetings with stakeholders and the PMU. This task was instead undertaken by the National Evaluator. The information collected by the National Evaluator was then passed onto the International Evaluator. However, the International Evaluator was not able to take the opportunity to get to know the stakeholders better. Actual visits to the offices of the stakeholders and the PMU by the International Evaluator are usually an opportunity for the stakeholders and the PMU to make a 2-3 hour presentations followed by question-and-answer period. This has many intangible benefits including the collection of information not documented. With the virtual visits on Zoom, the opportunity to make these 2-3 hour presentations and conduct a question-and-answer period is limited. By this limitation to the International Evaluator, he has limited exposure to the stakeholder teams, and as such, the Terminal Evaluation to a large extent is dependent on the information passed on by the National Evaluator and the documentation from progress reports and other reports. This also limits the Terminal Evaluation in terms of findings.

[7] Available at: http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf

[8] Available at: http://web.undp.org/evaluation/guideline/documents/covid19/update/June2021/UNDP%20DE%20Guidance%20Planning%20and%20Implementation%20during%20COVID19%203%20June%202021.pdf

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

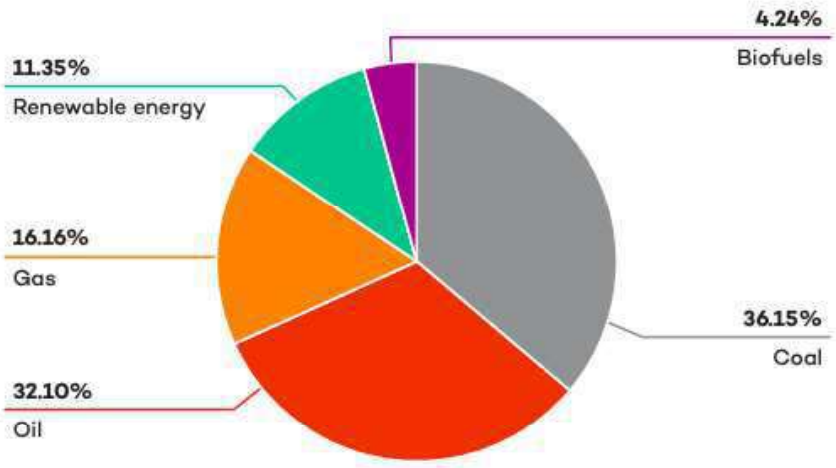
2.1 Project Start and Duration

16. The MTRE3 Project commenced as of 13 March 2017. The Project is being implemented up to the time of writing of this report (as of April 2023). The Project is scheduled to close as of 30 June 2023.

2.2 Development Context

17. Indonesia faces significant electricity challenges with an electricity demand increase of 4.9% annually from 2021-2030[9] while access to electricity reported as 96.95% of the population in 2020[10]. While Indonesia currently has an energy mix as illustrated on Figure 1, the heavy reliance on fossil fuels leaves Indonesia facing long-term challenges to its energy security and vulnerable to the price of imported fuel that it currently subsidizes. The energy mix also makes the energy sector one of the largest greenhouse gas (GHG) emitters (around 600 million tonnes CO_{2eq}) making Indonesia the world's ninth-largest emitter. Yet, per capita energy CO_2 emissions are only 2 tonnes, half the global average[11]. A key strategy has been diversification of primary energy sources to provide clean solutions necessary to address the country's electricity demand, increase access to modern energy, reduce the over-reliance on fossil fuels, and contribute to GHG emission reductions. The Government of Indonesia (GoI) have made substantial efforts in this regard.

Figure 1: Indonesia's energy mix in 2021[12]



[9] https://www.trade.gov/country-commercial-guides/indonesia-energy#:~:text=The%20new%20National%20Electric%20Generation,will%20reach%20100%25%20in%202022

[10] https://tradingeconomics.com/indonesia/access-to-electricity-percent-of-population-wb-data.html#:~:text=Access%20to%20electricity%20(%25%20of%20population)%20in%20Indonesia%20was%20reported,compiled%20from%20officially%20recognized%20sources

[11] https://www.iea.org/reports/an-energy-sector-roadmap-to-net-zero-emissions-in-indonesia/executive-summary

[12] https://tradingeconomics.com/indonesia/access-to-electricity-percent-of-population-wb-data.html#:~:text=Access%20to%20electricity%20(%25%20of%20population)%20in%20Indonesia%20was%20reported,compiled%20from%20officially%20recognized%20sources

18. Article 4 in the country's Energy Law No. 30/2007 states that new energy and RE resources shall be managed by the state and utilized in a just, sustainable, rational, optimum and integrated order for the greatest welfare and prosperity of the people[13]. This law also stipulates that energy resources are to be controlled and managed by both the central and local governments, depending on the jurisdiction. The state-owned electricity enterprise, PLN, is the sole purchaser and provider of electricity in the country. Other sustainable energy policies and regulations promulgated in response to the Energy Law includes:

- *Government Regulation of Minister of Energy No.04/2012* on the electricity purchase price by PLN for small and medium scale RE-based power generation with capacity up to 10 MW and its excess power by PLN for specific types of RE-based power generation:
  - MEMR Regulation No. 17/2013 on Feed-in Tariff (FiT) for photovoltaic solar power plant;
  - MEMR Regulation No.22/2014 on FiT for hydropower generation;
  - MEMR Regulation No.27/2014 on FiT for biomass and biogas power generation;
- *Government Regulation No.79/2014 on National Energy Policy (NEP)*, which sets the following targets:
  - new and renewable energy of at least 23% in 2025 and at least 31% in 2050 in the national primary energy mix and average of 1% annual reduction in final energy intensity through various energy efficiency and energy conservation measures;
  - oil should be less than 25% in 2025 and less than 20% in 2050;
  - coal should be minimum 30% in 2025 and minimum 25% in 2050; and
  - gas should be minimum 22% in 2025 and minimum 24% in 2050;
- *Presidential Regulation on the Medium-term National Development Plan (RPJMN) for 2015-2019 and 2020-2024* that emphasizes by 2024, the portion of new and renewable energy must be increased to 23% of the national energy mix. In addition, efforts to find new energy sources are needed to anticipate the decline in fossil energy resources in the future;
- *MEMR Regulation No. 49/2017* that covers standard terms and conditions in Power Purchase Agreements (PPAs) between PLN and IPPs, including both renewable and non-renewable energy sources, under the scheme of build-own-operate-transfer (BOOT);
- *MEMR Regulation No. 50/2017* that covers the purchase of renewable energy from independent power producers using auction system based on Capacity Quota (for solar PV and wind) and using a reference price based on PLN's average electricity generation cost or direct appointment mechanism for other resources;
- *MEMR's 2019-2028 Electricity Procurement Plan (RUPTL)* released in 2019 that defines Indonesia's roadmap relating to electricity demand growth, energy mix and investment scale-up[14];
- *MEMR Regulation No. 13/2019 and MEMR Regulation No. 16/2019, and MEMR Regulation No. 26/2021 amending MEMR Regulation No. 49/2018*, setting out the procedure for the use of rooftop solar panel power systems by PLN customers;
- *Government Regulation No. 78/2019* concerning income tax facilities for capital investment in certain business sectors or certain regions, including geothermal energy;

[13] https://www.irena.org/publications/2022/Oct/Indonesia-Energy-Transition-Outlook

[14] RUPTL 2019-2028 proposed to add 1.8 GW of incremental RE capacity as compared to the previous RUPTL (2018-2027), raising the target installed capacity of RE to 16.7 GW from the earlier target of 14.9 GW. With this increase, RE planned to contribute to 30% of 56 GW electricity generation capacity projected to be added in 2019-2028. In terms of technology, the RE allocations are dominated by large-scale geothermal and hydro with a spiked interest in mini-hydro. In contrast, solar-PV and wind technologies that have proved to be cost-competitive to fossil fuels in many Asian countries, have received limited target allocation in Indonesia. despite an abundance of solar resources.

- *MEMR Regulation No. 4/2020*, which sets out the general governance on the use of renewable energy for the public supply of electricity; and
- *Presidential Regulation 112/2022 on the "Acceleration of Renewable Energy Development for Electricity Supply"*, that sets out the provisions to push the establishment of large-scale renewable energy plants by both the state electricity company (PT. PLN) and the private sector.

19. Other notable regulations are related to climate change mitigation (CCM) actions covering the agriculture, forestry, industry, and transport and energy sectors of the country. Collectively, they are referred to as the compilation of Indonesia's potential NAMAs, in which some of the actions were to be implemented as unilateral NAMAs (targeting 26% emission reduction from the business-as-usual GHG emission trajectory in 2020) and as supported NAMAs (targeting additional 15% emission reduction from BAU emission trajectory in 2020). These regulations include:

- *Presidential Regulation No. 61/2011* establishing a National Action Plan to reduce greenhouse gas emissions (RAN-GRK);
- Local Action Plan to reduce GHG emissions (RAD-GRK, 2012);
- *Presidential Regulation No.71/2011* on establishing a National GHG Inventory;
- *Presidential Regulation 98/2021* on implementation of a carbon economy to achieve national targets; and
- MoEF Regulation on implementation procedure of a carbon economy.

20. All of these regulations support the GHGs emission reduction framework of Indonesia, reflecting GoI's voluntary commitment to unconditionally reduce GHG emissions by 29% and conditionally by 41% by 2030 and become net-zero by 2060 through national efforts or with international assistance. National and local actions both on renewable energy (RE) and energy efficiency (EE) have been prioritized to achieve GHG emission reduction targets. To achieve this, Indonesia has to utilize its abundant renewable energy resources potential that includes 24 GW geothermal, 95 GW hydropower, 57 GW bioenergy, 60 GW ocean energy, 3,295 GW solar energy (with solar insolation of 4.8 kWh/m^2/day), and 155 GW wind energy (with average wind speed 3-6 m/s)[15]. Notwithstanding, the CCM actions in these plans are only indicative without binding commitment and uncertain budget allocations for their implementation. Despite their inclusion in the RAN-GRK or RAD-GRK, there is no assurance that these CCM actions will be funded and implemented. Indonesia had referenced RAN-GRK as a basis for development of Indonesia's Intended National Determined Contributions (INDC) that was summited to the UNFCCC in September 2015.

21. Further to the INDC, Indonesia submitted *Enhanced NDCs* (ENDCs) to the UNFCCC Secretariat on 23 September 2022 with an increased emission reduction target from 29% in First NDC and Updated NDC to 32% unconditionally (BAU) and from 41% in the Updated NDC to 43.2% conditionally (with the multilateral assistance). The ENDC is the transition towards Indonesia's Second NDC which will be aligned with the Long-Term Low Carbon and Climate Resilience (LTS-LCCR) Strategy for 2050 with a vision to achieve net-zero emission by 2060 or sooner.

2.3 Problems that the MTRE3 Project sought to address

22. Despite GoI efforts to promote RE and EE utilization and EE technology applications in energy generation and energy end use, there were and still are clear significant barriers hindering its

[15] MEMR 2022

widespread application. The energy market in Indonesia has shown limited transformation towards the use of more sustainable RE resources for power generation, and towards more energy efficient appliances, equipment and systems. Despite the Enhanced NDCs, the MTRE3 Project sought to address policy, institutional, financial, and technical barriers that hinder the realization of energy savings and GHG emission reductions from renewable energy and energy efficiency in Indonesia:

- *Policy, institutional and capacity barriers:*
  - low capacity in planning and prioritization cost-effective mitigation actions at all levels in energy generation and energy end-use sectors;
  - limited government budget and low interest from the private sector in investing in RE/EE projects;
  - no standardized, official approach to establish reference baseline data nor is there any green/EE building certification system;
  - no streamlined procedure for getting required permits for projects approvals;
- *Awareness and market barriers:*
  - limited availability and accessibility of reliable data on RE resources;
  - inefficient permitting systems for RE and EE investments;
- *Technical barriers:*
  - limited infrastructure limits accessibility to RE project sites hindering their implementation;
  - low level of technical capacity and poor quality of services from local energy service providers;
  - few national experts that are able to offer energy efficiency solutions in the buildings sector;
- *Financial barriers:*
  - limited source of funds for RE and EE project financing to project developers;
  - poor quality of feasibility studies leading to poor performance of RE/EE projects;
  - no support for the financial institutions in terms of policies that can motivate them to provide more financing to RE and EE projects with minimum financial risks[16];
  - low level of technical capacity of project developers to make bankable RE and EE project documents and who are able to meet the requirements of financial institutions in terms of equity, collateral and quality of RE and EE project feasibility study;
- *Barriers in Measurement, Reporting and Verification (MRV) of RE and EE projects* that includes the absence of an operational national registry mechanism for climate change mitigation actions and operational MRV guidelines and standard methodologies for compliance assessment of programs and projects that are supposed to be contributing to the achievement of the national GHG emission reduction targets.

23. Further to the lack of support from financial institutions in terms of policies, RE lenders typically prefer to provide finance to RE-IPPs with corporate or personal guarantees from owners of these companies. Similarly, for small-scale RE, construction finance is generally unavailable and RE-IPPs either resort to using 100% equity for construction or availing long-term finance that hampers further re-financing options that employ asset transfers. Among the domestic lenders that consider lending to small-scale renewables, PT SMI has quickly developed investment interest, capacity and capabilities. PT SMI is a government-owned financing entity with a range of financing solutions to support RE infrastructure sector in Indonesia as detailed in Table 1. In the RE sector, PT SMI has already financed several biomass and mini-hydro projects in the small-scale renewables segment.

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Table 1: Main Stakeholders on MTRE3 Project

Stakeholder	Role
Ministry of Energy and Mineral Resources (MEMR) Directorate General for New and Renewable Energy and Energy Conservation (DG-NREEC) Education and Training Center for Renewable Energy & Energy Conservation (Pusdiklat EBTKE)	As implementing Partner of MTRE3 project in close coordination with the Ministry of Environment and Forestry (MoEF), Ministry of National Development Planning, Ministry of Finance and Ministry of Public Works. MEMR is responsible in enactment of renewable energy and energy efficiency policy and regulation for providing technical assistance in relation to improving energy efficiency and renewable energy measures of energy investment. The training center is a structure within MEMR that is responsible to conduct energy-related education and trainings for government officials in Indonesia.
Ministry of Environment and Forestry (MoEF) Deputy Minister's Office for Climate Change Mitigation and Environmental Damage Control SIGN (*Sistem Inventarisasi GRK Nasional/* National GHG Inventory System) Center	Lead agency in implementation of MRV scheme for RAN-GRK and will be the focal point for coordinating MRV scheme for energy sector in provinces and HPMP beneficiaries with MTRE3 activities. Lead agency in implementation of National GHG Inventory and will be the focal point for coordinating GHG Inventory for energy sector in provinces.
National Planning Agency (BAPPENAS) Directorate for Environment	Focal point for coordinating NAMAs (Nationally Appropriate Mitigation Actions) framework in Indonesia. MTRE3 project will work closely with BAPPENAS in the implementation of proposed project interventions.
Ministry of Public Works (MPW) Directorate General of Cipta Karya, Directorate of Environment and Building Management	Leading agency for regulation on building code – supporting energy efficiency program for commercial buildings in the proposed project.
Ministry of Finance (MoF) Centre for Policy on Climate Change and Multilateral Financing, Fiscal Policy Office (FPO/BKF)	Leading agency for provision of policies and regulations for financial packages and incentives in supporting RE investment and EE for commercial buildings. MTRE3 project will work closely with MoF in the implementation of Sustainable Energy Fund.
Agency for the Assessment and Application of Technology (BPPT) ● Center for Energy Conversion and Conservation Technology (PTKKE) ● Center for Energy Technology Laboratory (B2TE)	● Focal point for technical support and recommendation of RE and EE technology for MTRE3 project. ● Focal point for Laboratory and Test of RE and EE and Energy Auditing for MTRE3 project.
Financial Service Authority (OJK)	Focal points for enabling financial packages in banking sectors and incentives in supporting RE and EE for commercial buildings investments in the proposed project.
Ministry of State-owned Enterprise (BUMN)	Focal points for enabling State-owned Enterprise (BUMN) in banking sectors in supporting RE investment and EE for commercial buildings. MTRE3 project will closely consult with BUMN while mobilizing finance for proposed project interventions.
Local Governments of Pilot Provinces	Local governments will be partner of MTRE3 in implementing renewable energy and energy efficiency related regulations for energy investment, implementation of energy appropriate mitigation actions and establishment of Integrated Market Service Center.

Stakeholder	Role
PT Sarana Multi Infrastructure (PT SMI)	Focal partner for Sustainable Energy Fund supporting RE and EE investments. MTRE3 project will work closely with PT SMI in the implementation of proposed project interventions. PT SMI is a government-owned financing entity with a range of financing solutions to support RE infrastructure sector in Indonesia. In the RE sector, PT SMI has already financed several biomass and mini-hydro projects in the small-scale renewables segment.
BKPM – Indonesia Investment Coordinating Board	Focal point for investment permit in RE and EE. MTRE3 project will work closely with BKPM to mobilize investments for the proposed project interventions.
RE Project Developers in RE/EE: ● PT. Pasadena Engineering Indonesia ● PT. Multi Fabrindo Gemilang ● PT. Daun Biru Engineering	Association or corporation focusing on RE investment, focal point for project development, engineering, procurement and construction service providers and co-financing partners. MTRE3 project work them closely in the design of project interventions and implementation of demonstration projects. These companies have conducted pre-feasibility study for several potential RE-power projects, which implementation can be supported by results from MTRE activities (i.e. access to financing, streamlined permit, improved feasibility, etc.). These companies are negotiating loans for financing their project, which will be subsumed into the MTRE3 project. Their investment is part of the MTRE3 project co-financing.
Building Managers	Individuals or service companies that guide investment decisions on EE and in few cases, focal point for energy efficiency technology implementation in commercial buildings. MTRE3 project work them closely in improving the services they provide.
Green Building Council Indonesia (GBCI)	Association that provides technical assistance, assessment, EE related information, EE standard for commercial buildings. The association will be involved in market development activities under MTRE3 and certification.
Civil Society Organizations (CSOs), Indigenous communities and women groups	CSOs, Indigenous communities and women groups at project locations will be engaged during feasibility assessment and prioritization of RE/EE projects in provinces as part of FPIC process. They will be targeted participants in technical training on RE/EE operation and maintenance. It is expected that employment and local entrepreneurs as service providers can be enhanced from CSOs and local communities.
Development Partners	Development partners are potential to co-finance feasibility study, RE construction/EE installment and to participate in Sustainable Energy Fund. MTRE3 project work them closely in maximizing the global environmental benefits through accessing additional co-finance.

2.4 Objective of MTRE3 Project

24. The objective of the MTRE3 Project is to "*support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors*". This is contained in PRF in Appendix F.

2.5 Description of the Project's Theory of Change

25. A Theory of Change (ToC) was completed for this Project. Due to the differences of opinion by the Evaluators on how to set up a ToC, a revised ToC is provided on Figure 2.

2.6 Expected Results

26. The expected results of the MTRE3 Project are as follows:

- Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency;
- Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies; and
- Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency.

2.7 Total Resources for MTRE3 Project

27. The total resources allocated to this Project at time of ProDoc signature is provided in Table 2.

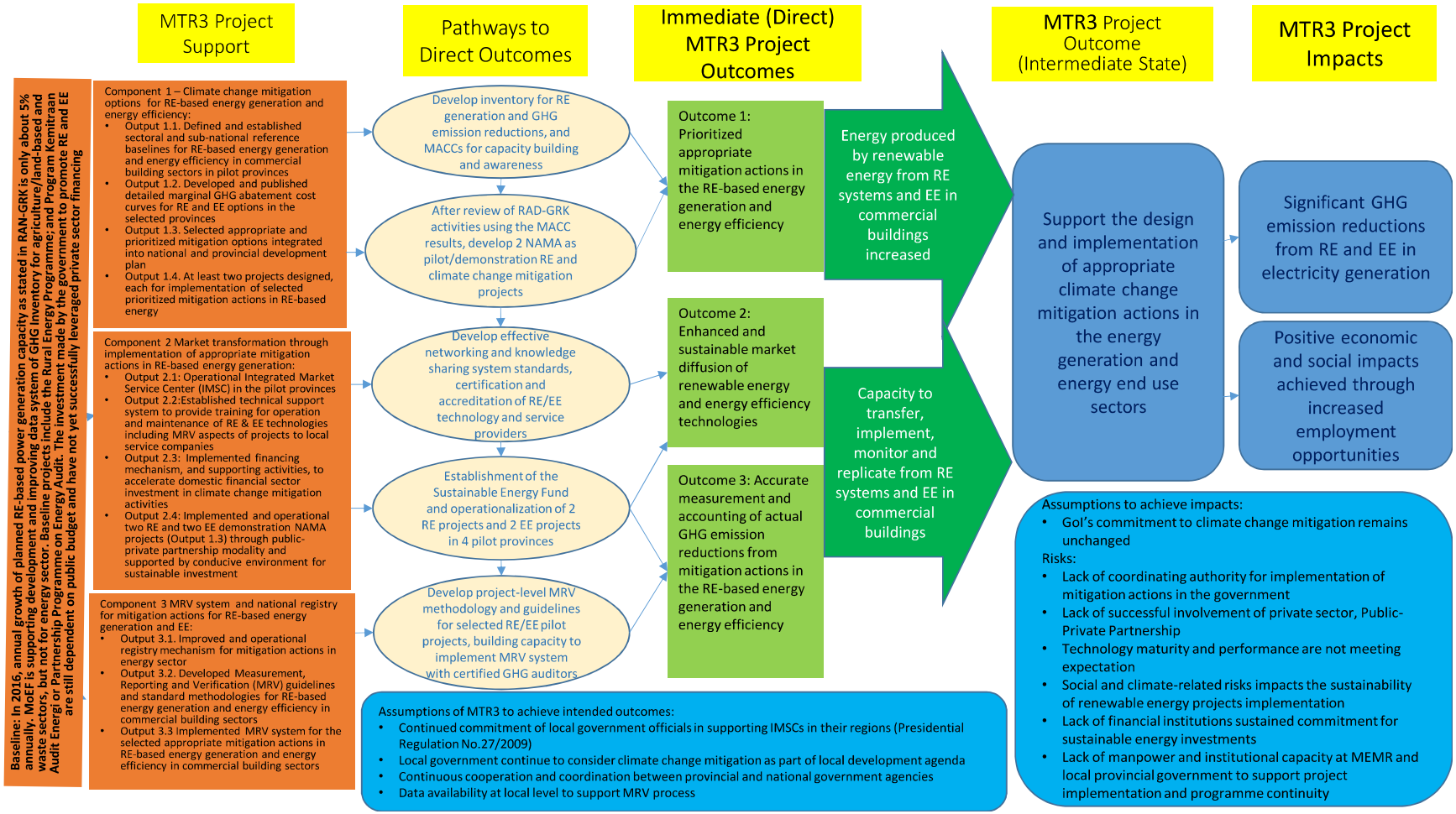
Table 2: Total Resources for MTRE3 Project

Component	GEF Resources	Planned Co-Financing Resources
Outcome 1	$1,816,296	n/a
Outcome 2	$4,952,900	n/a
Outcome 3	$873,700	n/a
Project Management	$382,104	n/a
Total	**$8,025,000**	**$60,100,000**

2.8 Main Stakeholders and Key Partners

28. The main stakeholders on the MTRE3 project are listed in Table 2. Key partners for the MTRE3 Project are the MEMR and MoEF. More details on these stakeholders are provided in Sections 3.1.4. and 3.2.2.

Figure 2: Theory of Change for MTRE3 Project



3. FINDINGS

3.1 Project Design and Formulation

29. The MTRE3 Project design was formulated in close consultation with a number of government institutions, financing agencies, energy experts and private sector energy development companies concerning their engagement on the Project. The result was a well conceived Project that was relevant to address the prevailing barriers and to achieve the overall objective.

30. These consultations provided valuable inputs to Project design, particularly during the workshop on the PRF. This workshop finalized activities to remove various policy, institutional, financial, technical, capacity and market-related barriers that promote and increase the share of RE and EE in the national primary energy mix and to reduce GHG emissions. The ProDoc envisaged this to be achieved by establishing enabling conditions to mobilize the required investments in RE based power generation and the application of EE technologies in the energy end-use subsectors. The overall approach of the MTRE3 Project was to be through NAMA implementation and MRV in 4 pilot provinces. Incremental value of the Project would be the enabling of the design, financing, and sustainable implementation of RE and EE projects at pilot provincial level, and their MRV.

3.1.1 Analysis of Project Results Framework for MTRE3 Project

31. The Project was designed based on a PRF that includes SMART indicators for the Project objective and for each Project outcome, with the corresponding target values. These indicators and their targets are listed in the PRF shown in Appendix F. While the indicators and targets all meet SMART criteria, there are 2 issues with the indicators and targets as follows:

- the indicator “cumulative volume of public and private investment mobilized for SEF” should be expressed as “cumulative volume of public and private investment mobilized by SEF” since the SEF is an incentive through which investments are made more bankable; and
- the indicator “cumulative amount of funds from the SEF used in financially supporting small-to-medium scale RE/EE projects” with a target of US$25 million is misleading. The target implies that US$25 million is to be the target amount for the SEF to leverage public and private financing. The correct target for this indicator should be US$ 2.68 million that will leverage US$25 million in public and private financing for RE and EE projects.

Corrections have been made in the PRF highlighted in red.

3.1.2 Assumptions and Risks

32. There are a lot of assumptions made under the MTRE3 PRF:

- under the Objective, GoI’s commitment to climate change mitigation remains unchanged;
- under Outcome 2:
  - continued commitment of local government officials in supporting IMSCs in their regions (Presidential Regulation No.27/2009);
  - continued support of GoI agencies and partner financing institutions to SEF;
  - local government continue to consider climate change mitigation as part of local development agenda;

- under Outcome 3:
  - continuous cooperation and coordination between provincial and national government agencies;
  - data availability at the local level to support MRV processes.

These assumptions as well as others appear to be reasonable.

33. There are 6 risks listed in the MTRE3 risk log comprising of:

- lack of coordinating authority for implementation of mitigation actions in the government;
- lack of successful involvement of private sector, Public-Private Partnership (PPP);
- technology maturity and performance are not meeting expectation;
- social and climate-related risks impact the sustainability of renewable energy projects implementation;
- lack of financial institutions sustained commitment for sustainable energy investments;
- lack of manpower and institutional capacity at MEMR and local provincial government to support project implementation and programme continuity.

The risks appear to be reasonable.

3.1.3 Lessons from Other Relevant Projects Incorporated into MTRE3 Project Design

34. There were lessons from other relevant RE/EE projects incorporated into the MTRE3 Project design to assist in the adoption of legislation from 2007 to 2017 where “new energy and RE resources shall be managed by the state and utilized in a just, sustainable, rational, optimum and integrated order for the greatest welfare and prosperity of the people” (Paras 18-20) including:

- the Mitigation Momentum (ECN) Indonesia in operation since 2011 that aims to support the development of NAMAs by contributing to the development of concrete NAMA proposals, and to foster cooperation and knowledge exchange within the NAMA community. Mitigation Momentum is a collaboration between ECN Policy Studies and Ecofys Germany;
- the Indonesia Clean Energy Development (ICED) Project, a technical assistance program funded by the USAID in the energy sector with ICED Phase I implemented from March 2011 to February 2015, and ICED Phase 2 from May 2015 to 2020; and
- UNDP-GEF BRESL/Japan Partnership Fund.

3.1.4 Planned Stakeholder Participation

35. The MTRE3 ProDoc details in very specific terms, the stakeholders to be involved on the Project (in the ProDoc on pages 9 and 10) including their roles. The stakeholders identified for engagement as mentioned in Para 28 had already been consulted during the PPG stages of the Project. Further stakeholder engagement during Project implementation was to be organized through extensive consultation processes through all stakeholders who will serve as information providers in their roles of raising public awareness of the MTRE3 Project. This was to include the participation of CSOs.

3.1.5 Linkages between the MTRE3 Project and other interventions in the sector

36. The MTRE3 Project was supposed to be linked with baseline investments as listed on pgs 7 to 9 of the MTRE3 ProDoc. Some of these investments are listed in as follows:

- *Rural Energy Programme* (2015-2019) under MEMR, annual budget allocation of about US$ 50 million), which aims to increase the country's electrification ratio;
- *Program Kemitraan Audit Energi or Partnership Programme on Energy Audit* (2011-2019, average annual budget allocation of about US$ 1.0 million), which facilitates energy efficiency improvements by providing free of charge energy audit services in the industry and building sectors, and for the certification of energy managers. The investment made by MEMR to promote RE and EE was still dependent on public budget and has not yet successfully leveraged private sector financing;
- the *GIZ, USAID and US-Millennium Challenge Account-Indonesia (MCA-I)* were conducting projects to promote implementation of RE in Indonesia. However, these projects either were not always realized and if implemented, usually not replicable. The fact these projects were not replicated was due to high grant financing of these projects;
- *Wind Hybrid Power Generation Market Development Project (WHyPGen)* that is supported by UNDP-GEF established cooperation with PT. SMI, the state-owned financing institution, to develop specific financing mechanism for wind power projects in Indonesia. PT. SMI managed US$ 300,000 of the project funds as seed funding that was leveraged by PT. SMI in combination with other financing resources to serve as loan guarantee or to reduce interest or other financial requirements; this reduced the financial risk of wind power project developers and investors. The ongoing RE projects supported by other development partners as well as the financing scheme with PT. SMI are among the baseline activities that were subsumed by the MTRE3 Project;
- The *UNDP-implemented Low Emission Capacity Building Programme (LECB)* has been working with six city governments in Greater Jakarta, including the Jakarta City Government, to prioritize mitigation actions for NAMA proposals. Two proposals that were NAMA-financed were the Bus Rapid Transit (involving 3 cities) and the unilateral NAMA proposal for Green Buildings to increase energy efficiency in Jakarta City Hall using the local government budget. Lessons from the LECB program in conducting a participatory approach in the prioritization of climate change mitigation actions was to be considered in the MTRE3 demonstration projects in pilot provinces.

3.1.6 Gender responsiveness of Project design

37. The MTRE3 Project was designed as a GEF-5 project without mandatory gender analysis of a gender action plan. As such, gender equality was not well addressed in the Project design using standards of GEF-6 onwards. Gender topics were "hidden" in the Social and Environmental Screening Template in the ProDoc, and not mentioned in the main text of the ProDoc. Though there was a target of ensuring at least 30% representation of women in Project-related technical trainings in the SESP, there was no Gender Action Plan formulated during the Project design. Furthermore, there is an absence of gender-disaggregated indicators in the PRF. In conclusion, the MTRE3 Project design is not responsive to the considerations of gender.

3.1.7 Social and Environmental Safeguards

38. There was one risk mentioned under UNDP's Social and Environmental Screening Procedures (SESP) for this Project, "social and climate-related risks impact the sustainability of renewable energy projects implementation". This risk is related to climate change hindering full performance of RE technologies due to disturbance to supply of renewable energy resources and impacts of climate events such as floods, droughts and landslides. This risk is also related to the low level of social acceptance by local communities of renewable energy projects due to benefit-sharing issues. The Project had planned to:

- take into account climate scenarios during feasibility studies on potential RE/EE demonstration projects, as well as in the design and engineering of selected RE/EE technology application demos;
- design the demonstration RE/EE projects to have climate-related risks considered for proper mitigation including getting insurance coverage; and
- implement the Free, Prior Informed Consent (FPIC) principle for RE projects as part of social and environmental safeguard measure.

This was all to be implemented in accordance with the SESP, the objectives of which were to: (a) integrate the SES Overarching Principles (human rights, gender equality and environmental sustainability); (b) identify potential social and environmental risks and their significance; (c) determine the Project's risk category (Low, Moderate, High); and (d) determine the level of social and environmental assessment and management required to address potential risks and impacts.

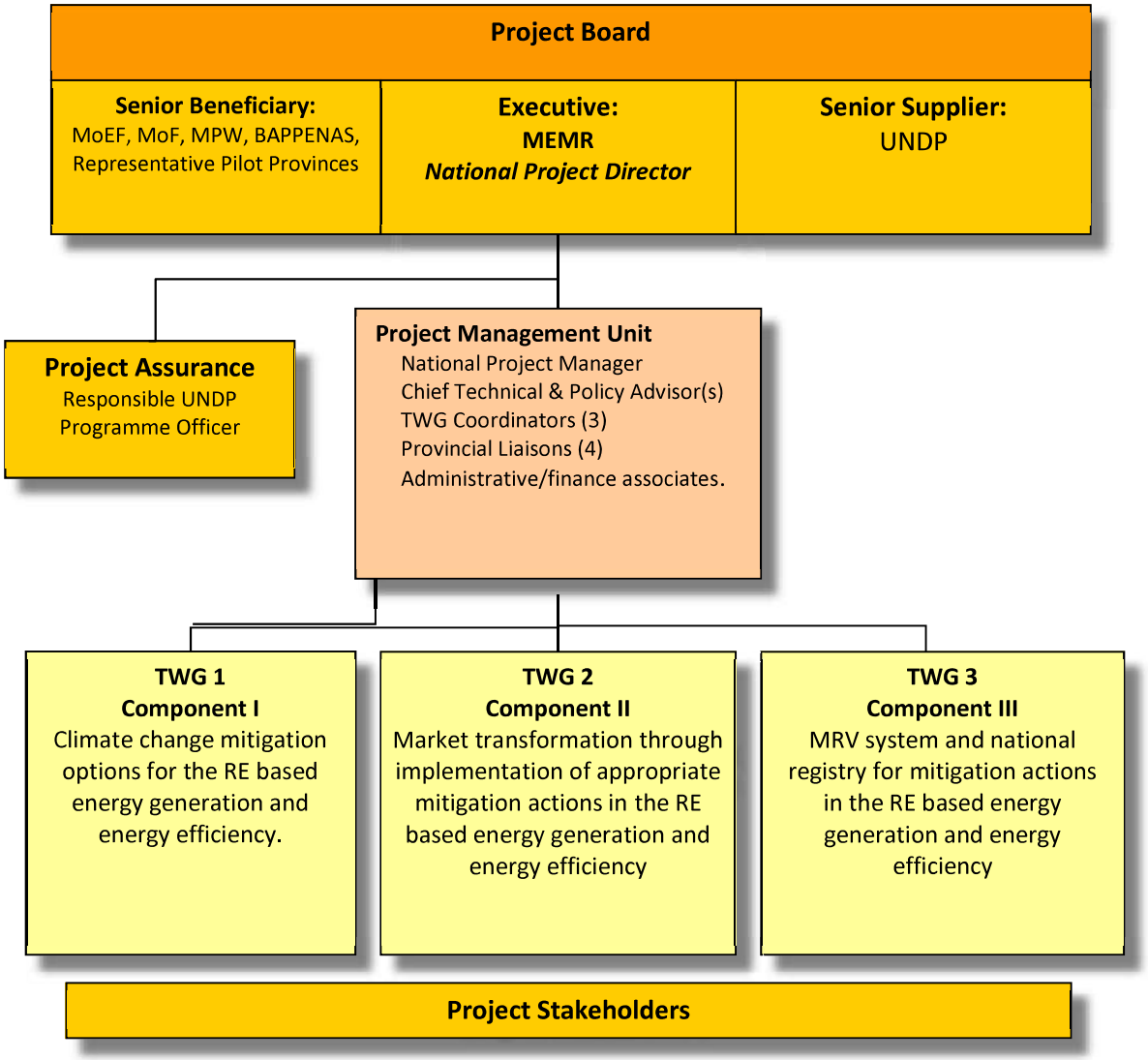
3.2 Project Implementation

39. The following is a compilation of significant events during implementation of the MTRE3 Project in chronological order:

- PIF Approved under GEF 5- 12 September 2013;
- GEF Endorsement (ProDoc) on 13 March 2017;
- Preparatory phase: the Inception Workshop held in Jakarta on 13 December 2017;
- Implementation of the Sustainable Energy Fund (SEF) to accelerate solar-PV rooftop investments during the period of February-December 2022;
- The Project received an extension with GEF approval for 9 months from 13 March 2022 to 31 December 2022 due to COVID-19 pandemic that delayed Project activities, particularly in the implementation of Sustainable Energy Fund (SEF);
- On 21 November 2022, the Project formally received its second extension from January to 30 June 2023.

40. The MTRE3 Project has been implemented according to the management arrangements in the ProDoc and as illustrated in Figure 3. The Project was managed using UNDP's National Implementation Modality with Country Office Support Services (NIM-COSS). The DG-NREEC under MEMR is the main national implementing partner, executing the Project on behalf of the GoI. MoEF, MoF, and BAPPENAS remain as the Senior Beneficiaries of the Project, while UNDP takes the role of the Senior Supplier.

Figure 3: MTRE3 Project Organization Structure



41. Project is overseen and strategically guided by the Project Board (PB), which is chaired by the Director General of DG-NREEC and composed of key Project stakeholders: MEMR, MoEF, MoF, BAPPENAS, UNDP and local government representatives from pilot provinces. Other stakeholders include financial institutions, private sector, academia, civil society and local communities. The PB has met on annual basis since December 2017 to review and approve annual work plans and budgets, review annual progress, provide guidance on implementation related issues and bottlenecks, and provide guidance on the effectiveness of Project interventions and results.

42. The Director General of DG-NREEC was the designated National Project Director (NPD). The NPD has been responsible for the overall achievement of Project objectives through institutional coordination with the key stakeholder members of the PB and overall alignment of the Project with relevant national RE and EE programs of Indonesia. The NPD was responsible for timely Project reporting, including the submission of Annual Work Plans (AWP), Annual Project Reports (APRs), Project Implementation Reviews (PIRs), Project Assurance Reports (PARs) and financial reports. The NPD

took full ownership of the Project by leading and implementing the Project with keen interest and providing facilitation, management and oversight support during implementation of the Project. The NPD is supported by his Secretary of Directorate General (Echelon 2) as Deputy NPD in Project-related affairs.

43. A Project Management Unit (PMU) was established for day-to-day management and implementation of all Project activities. The main functions of PMU included provision of implementation support, coordination among stakeholders, monitoring and evaluation, progress reporting, and formulation of annual work plans. The PMU was managed by a National Project Manager (NPM), who was supported by the component coordinators and administrative staff. The Project never employed a Chief Technical Advisor to provide technical and policy related guidance to Project implementation. This duty fell to the NPM who has been looking after both the technical and administrative affairs and looking to the CO for necessary technical advice. The Project structure also had 3 thematic working groups (TWGs) for each outcome. The Project was well managed due to intense communication of MEMR teams with the Project. Success of Project management can be seen from the IMSC where the "LINTAS" information platform at the national level has been integrated into the provincial level.

3.2.1 Adaptive Management

44. Adaptive management is discussed in UNDP evaluations to gauge performance of Project personnel to adapt to changing regulatory and environmental conditions and unexpected situations encountered during the course of implementation, both common occurrences that afflict the majority of UNDP projects. Without adaptive management, donor investments into UNDP projects would not be effective in achieving their intended outcomes, outputs and targets. Much of the adaptive management by MTRE3 staff was implemented to reduce Project risks as described in Para 59. UNDP's efforts to adaptively manage this Project were sincere and ***satisfactory*** in consideration of the limitations under the COVID-19 pandemic situation and the successful outcomes from the MTRE3 Project.

3.2.2 Actual Stakeholder Participation Partnership Arrangements

45. The key to successful stakeholder participation arrangements for the MTRE3 Project were the close involvement and consultations between key ministries to collect information on their key baseline activities, and to secure their collaboration during the Project. The same can be said for CSOs, private sector firms and Project beneficiaries who were contacted for their willingness to be involved on the Project, notably on the outreach activities of Component 3.

46. During Project implementation, this translated into useful Project activities, much of which was facilitated by the MEMR, and harnessed into useful activities such as:

- the TWGs that managed technical inputs into MACCs, market transformation activities of appropriate CCM actions in RE and EE, and an operational MRV system (Paras 71-72);
- engaging MEMR and other national stakeholders with provincial stakeholders to integrate the national LINTAS information platform of the IMSC with the provincial level (Paras 76-78);
- engagement of the Indonesia Environment Fund (IEF) and other stakeholders to implement Performance Based Payments (PBPs) as a part of the SEF, notably for the rooftop solar-PV mini-

grid incentive and distribute incentive funds to increase RE and EE investment bankability (Paras 57, 80 and 136).

47. Overall efforts by the MTRE3 team to forge effective partnership arrangements with various stakeholders have been ***satisfactory***.

3.2.3 Project Finance

48. The total GEF budget for the MTRE3 Project was US$8.025 million that was to be disbursed over a 60-month period, managed by a UNDP-PMU under the direction of a Project Steering Committee. Table 3 depicts disbursement levels up to 31 December 2022, 6 months prior to the actual terminal date of the MTRE3 Project of 30 June 2023, revealing the following:

- There was decent start to the Project in 2017 and 2018 with 78% and 107% of the intended budget being spent mainly on Outcomes 1 and 2. With expenditures behind intended targets in 2019, expenditures came back on track during the pandemic years of 2020 and 2021 with the balance spent in 2022 and 2023;
- There is still US$551,448 to be spent in 2023;
- There were very minor deviations of actual expenditures from the ProDoc budget. The largest deviations projected are an underspent Outcome 1, and over-expenditure in Outcome 3;
- The majority of funds were expended on Contractual Services – Individuals (71400), Contractual Services – Individual Impl. Partner (71800), Micro Capital Grants - Credit (72600), Training, Workshops and Conference (75700) and Contractual Services Companies/National (72100a). These are revealed in Table 4.

49. The Project has also demonstrated that appropriate financial controls are in place, notably through:

- Combined Delivery Reports (CDRs) and Project Budget Balance Report which shows the expenditure and commitments in the current year up to date (both as generated by Atlas);
- manual monitoring of Project expenditures against budget lines to attain an in-depth understanding of the financial progress and the pending commitments;
- other financial controls including the PIMS+ platform and signed Annual Work Plans (AWPs).

50. Project co-financing was estimated to be more than US$60.709 million, above the expected co-financing of US$60.1 million. Co-financing summary and details can be found on Tables 5 and 6 respectively. The TE team observes the following details of Project co-financing:

- The majority of co-financing (US$57.42 million) was from the private sector, mostly in the form of equity;
- In-kind support was brought in from UNDP and the GoI;
- A CSO, BAZNAS and the Jambi Bank provided grants for community development (Para 71).

51. Overall, the cost effectiveness of the MTRE3 Project has been **satisfactory** in consideration of the excellent results achieved in the capacity building of the stakeholders involved, and the high amounts of co-financing leveraged for RE and EE projects.

Table 3: GEF Project Budget and Expenditures for MTRE3 Project (in USD as of 31 December 2022)

Outcomes	Budget (from Inception Report)	2017[17]	2018	2019	2020	2021	2022[18]	Total Disbursed	Total to be expended in 2023	Total remaining
Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency	1,816,296	229,808	467,076	804,527	46,793	272,713	23,762	1,844,679	0	-28,383
Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies	4,952,900	246,948	634,572	257,236	889,896	618,033	1,852,922	4,499,607	401,893	51,400
Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency	873,700	51,185	85,508	145,353	161,994	179,216	161,994	785,250	88,450	
Gain/Loss	-	313	2,970	-134	-	-314	20,182	23,017		-23,017
Project Management	382,104	66,139	186,034	17,454	2,822	2,273	46,277	320,999	61,105	
Total (Actual)	**8,025,000**	**594,393**	**1,376,160**	**1,224,436**	**1,101,505**	**1,071,921**	**2,105,137**	**7,473,552**	**551,448**	**0**
Total (Cumulative Actual)		594,393	1,970,553	3,194,989	4,296,494	5,368,415	7,473,552			
Annual Planned Disbursement (from ProDoc)	8,025,000	766,296	1,290,450	3,974,226	1,076,202	917,826				
% Expended of Planned Disbursement		**78%**	**107%**	**31%**	**102%**	**117%**				

[17] Starting 13 March 2017

[18] Up to 31 December 2022

Table 4: Expenditures by ATLAS Code

ATLAS Code	Expenditure Description	Spent to 31 December 2022 (US$)
71200	International Consultants	57,017
71300	Local Consultants	441,983
71400	Contractual Services - Individuals	1,333,140
71500	UN Volunteers	153,447
71600	Travel	287,116
71800	Contractual Services-Individual Impl. Partner	893,893
72200	Equipment and Furniture	47,320
72300	Materials & Goods	4,845
72400	Communications and Audio Visual Equipment	99,316
72600	Micro Capital Grants – Credit	1,483,685
73200	Premises Alterations	33,584
73400	Rental and maintenance of other office equipment	29,846
74200	Audio Visual & Print Prod Costs	52,447
74500	Miscellaneous Expenses	7,950
74700	Contingency	8,857
76100	Realized loss	23,156
75700	Training, Workshops and Conference	1,102,534
72100a	Contractual Services - Companies / Nat	1,107,729
72100b	Contractual Services - Companies / Int	0
72800	Information Technology Equipment	14,558
64397	Services to projects -CO staff	64,559
74596	Services to projects	30,715
72500	Supplies	48,851
73100	Rental & Maintenance-Premises	139,050
74100	Professional Services	7,956
Total		**$7,473,552**

Table 5: Co-Financing for MTRE3 Project (as of 31 December 2022)

Co-financing (type/source)	UNDP own financing (million USD)		Government (million USD)		Partner Agency (million USD)		Private Sector (million USD)		Total (million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants						0.350			0.000	0.350
Loans/Concessions									0.000	0.000
• In-kind support	0.100	0.255	8.000	2.683					8.100	2.938
• Other (equity investment)							52.000	57.421	52.000	57.421
Totals	0.100	0.255	8.000	2.683	0.000	0.350	52.000	57.421	60.100	60.709

Table 6: Co-Financing Details

Classification	Name of Co-financier (source)	Type	Financing Committed	Actual committed
Partner agency	UNDP	In-kind	100,000	255,568
Government	MEMR	In-kind	8,000,000	1,349,331
Government	Energy and Mineral Resources Provincial Office, West Sulawesi Province	In-kind		96,666
Government	Energy and Mineral Resources Provincial Office, Riau Province	In-kind		1,236,544
Private Sector	PT Pasadena Biofuels Mandiri for 3MW on biogas project	Equity investment	10,000,000	2,206,896
Private Sector	PT. Daun Biru	Equity investment	40,000,000	0
Private Sector	PT. Multi Fabrindo Gemilang	Equity investment	2,000,000	0
Private Sector	PT Megah Tua Raya for 16MW on Hydro project	Equity investment		579,310
Private Sector	PT Kundur Energi Baru for 2.4 MW on biomass project	Equity investment		348,000
Private Sector	PT. AKA Sinergi Group for 4.4 MW, 4 MW, and 2.8 MW on mini hydro project (PLTMs)	Equity investment		16,500,000
Private Sector	PT Pasadena Biofuel Mandiri for 5 MW on biomass project	Equity investment		66,666
Private Sector	PT Brantas Hidro Energi for 19 MW on hydro project	Equity investment		448,275
Private Sector	PT Brantas Hidro Energi PLTM for 7	Equity investment		14,635,333
Private Sector	Menara Ravindo	Equity investment		286,667
Private Sector	Hotel Pullman Bali	Equity investment		12,143
Private Sector	Pertamina RU 4	Equity investment		18,986
Private Sector	AP 2 (T3 Soekarno Hatta International Airport)	Equity investment		3,142
Private Sector	AP 1 (I Gusti Ngurah Rai Airport)	Equity investment		3,000
Private Sector	Banyuwangi Airport	Equity investment		34,483
Private Sector	Graha Niaga	Equity investment		406,667
Private Sector	PT Brantas Prospek Energi for 8MW on mini hydro project (PLTM) Maiting Hulu-2	Equity investment		18,666,667
Private sector	Incentive for Solar PV Rooftop (15.5 MWp)	Equity investment		2,923,300
Private Sector	Bank Jambi	Grant (in-kind)		281,394
Civil Society Organization	BAZNAS	Grant		350,000

Total Co-financing	**60,100,000**	**60,709,038** [19]

3.2.4 M&E Design at Entry and Implementation

52. The ProDoc does provide for an M&E design on pages 44-49 in the ProDoc. The design is presented in a fairly generic manner, similar to other M&E designs from other GEF projects, and with preparations for a detailed M&E plan left to the implementation phase of the Project. Moreover, in terms of budgeting for M&E activities, US$158,000 was the total M&E budget (as broken down on page 47 of the ProDoc) for a number of indicators that were easy to be monitored. As such, the M&E design is rated as ***satisfactory***.

53. In terms of M&E plan implementation, the Evaluation Team had access to progress reports from 2017 to 2022 (including PIRs from 2017 to 2022 and PARs from 2019 to 2022) which were informative in terms of the progress made on various studies, actions taken by the Project, indicators against Project targets and extra activities in collaboration with other donors. reports. In addition, PMU personnel were urged by the Chair of the PB as well as Board members to meet Project targets[20].

54. As such, *M&E plan implementation is rated as* ***satisfactory***. Ratings according to the GEF Monitoring and Evaluation system[21] are as follows:
    - *M&E design at entry – 5;*
    - *M&E plan implementation – 5;*
    - *Overall quality of M&E – 5.*

3.2.5 Performance of Implementing and Executing Agencies

55. MEMR and UNDP have been efficient in managing the execution of the Project. They have been responsive to stakeholders and proactive in seeking their expert inputs through commissioned sub-contracts for achieving the Project's outcomes. This was a strong and common opinion of all Project stakeholders.

56. There was positive collaboration between the MEMR, the PMU and UNDP for the Project's execution and alignment to developing national policy. UNDP has provided timely advice on Project implementation, monitoring, and reporting to MEMR personnel. The private sector developers, solar PV suppliers and manufacturing companies, and sub-contractors all mentioned that they have been able to participate in and contribute meaningfully to Project implementation due in large part to Project management by the PMU, MEMR's cooperation, and UNDP's coordination and facilitation.

57. As examples of MEMR and UNDP collaboration, Project activities consisted of:

[19] This equates to US$ 57,420,929 from the private sector, US$ 2,682,541 from the Government, US$ 255,568 from a partner agency, and US$350,000 from CSOs

[20] Information from interviewees and PB meeting notes.

[21] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory
U/A = Unable to assess
N/A = Not applicable.

- successful support from the Project and the Directorate General of Renewable Energy and Energy Conservation (DJEBTKE) under MEMR for an MEMR building to secure the ISO 50001-Energy Management certification. This move was strategic for DJEBTKE in becoming a leading example in the sector, and replicated through EnMS implementation for 3 other entities: T3 Soekarno-Hatta Airport, I Gusti Ngurah Rai Airport, and Pertamina RU IV;
- successfully mainstreamed Project studies and energy policies (such as the local energy plan or RUED, IGRK, RAD-GRK Review, and MACC) that were incorporated through DG-NREEC into local planning and budgeting of the 4 pilot provinces through RPJMD as outlined in Para 75;
- engagement of PT. SMI as one of the central figures in the financing sector for infrastructure that included RE power plants in addressing the financing barriers and increasing the project bankability (see Para 83);
- development of a national methodology of emission reduction in the energy sector (renewable energy power plant and energy efficiency in building) that includes MRV reports on emission reductions for 6 pilot projects[22]:
  - 6 MW run-of-river mini-hydro power plant (PLTM) at Padang Guci 1;
  - 5 MWp solar-PV power plant in Kupang;
  - 1 MW biomass (woodchips gasification) power plant at Tanjung Batu;
  - 2.4 MW biogas power plant at a palm oil mills effluent (POME) Waste Treatment facility;
  - energy efficiency in buildings at Gedung Slamet Bratanata;
  - energy efficiency in buildings at Menara Ravindo;
- engagement of IEF to implement PBPs as a part of the SEF, notably for the rooftop solar-PV incentive and the distribution of incentive funds, to increase RE and EE investment bankability and smoothing the process in securing PPA or financial closure. IEF is a Public Service Agency under the MoF mandated to manage funds and financing related with environmental preservation, including the energy sector (see Para 80).

58. The performance of implementing and executing entities can be summarized as follows:

- *Implementing Partner (MEMR)* – 5;
- *Implementing Entity (UNDP)* – 5;
- *Overall quality of implementation/execution (UNDP/ MEMR)* – 5.

3.2.6 Risk Management

59. During implementation, the Project identified risks that were resolved through adaptive management for mitigation measures:

- In 2019, the function and utilization of GEF funding for developing Sustainable Energy Fund was still being discussed within UNDP with respect to clarification on the kind of modality that should have been applied. However, the SEF was to be used for supporting proposal development through a grant modality by using the UNDP procurement system to support a social and environment impact assessment for Pasadena Biogas power plant proposal with the aim to prepare a bankable proposal to get financing from institutions. With no complete regulations on how to use and govern SEF and clarity on how to utilize the loan guarantee mechanism of SEF,

[22] Project Design Documents (PDDs) and PIRs were developed for each project to support Indonesia's readiness for the domestic carbon market and the achievement of NDCs.

the target to achieve US$25 million of public and private investment in RE and EE projects was delayed;

- In 2021, delivery of the Project was 60% with less than 1 year implementation time remaining. The Project was at risk of not realizing a satisfactory level of delivery by EOP. An extension request was processed in late 2021 which offered more time for the operationalization of the SEF, a fund crucial for increasing the implementation progress. The PMU and the UNDP CO adaptively managed actions to operationalize the SEF with a 9-month Project extension. This included design for a financial support mechanism for solar rooftop (that was approved by the RTA and PTA). The Project team also received a second extension in 2022 from the Project Board to its current EOP date of 30 June 2023;
- In 2021, risk related to land management was identified and addressed by an appropriate risk mitigation plan and adaptive management involving key stakeholders such as park authorities, village governments, village communities and the contractor. During review of the SESP, it was noted that the original SESP risk level dating back to 2016, needed to be corrected in PIMS to identify appropriate mitigation measures;
- In 2020 and 2021, the COVID pandemic led to challenges in Project implementation due to limitations in travel, work from home and restrictions for in-person meetings. The Project applied adaptive management measures such as online meetings and home-based consultancies in 2020 and 2021.

3.3 Project Results and Impacts

60. This section provides an overview of the overall results of the MTRE3 Project and an assessment of the relevance, effectiveness and efficiency, country ownership, mainstreaming, sustainability, and impact of the MTRE3 Project. For Table 7, the "status of target achieved" is color-coded according to the following color-coding scheme:

Green: Completed, indicator shows successful achievements	Yellow: Indicator shows expected completion by the EOP	Red: Indicator shows poor achievement – unlikely to be completed by Project closure

3.3.1 Progress towards objective

61. With the overall goal of this Project being to reduce GHG emissions, work with Project beneficiaries, and mobilize additional public and private funds, a summary of achievements of the MTRE3 Project at the objective level is provided with evaluation ratings on Table 7. The GEF Tracking Tool for the MTRE3 Project is contained in Appendix E.

62. With respect to the target of "*27,019 tCO_{2eq} of cumulative GHG emissions reductions*", a total of 217,509 tons CO_{2eq} was reduced during the project duration, exceeding the Project targets by a factor of 2.3. This breaks down into cumulative GHG emission reductions from renewable energy projects of 102,220 tCO_{2eq} and energy efficiency projects of 115,289 tCO_{2eq} as shown on Table 8. The lifetime direct GHG emissions avoided is 2,137,012 tCO_{2eq} considering 20 years lifetime of renewable energy technology. The target of 27,019 tCO_{2eq} cumulative GHGs emission reduction as stated in the Project Document is different to the target in the Tracking Tool (for CER) as the target in the Project Document was calculated for cumulative GHG emissions reductions within project duration (End of

Project), while it was calculated for 20 years lifetime of renewable energy technology in the Tracking tool for CER (1,267,046 tCO2eq).

63. With respect to the target of "*79,170 MWh of cumulative energy savings produced from RE systems*", significant cumulative energy savings of 128,704 MWh came from renewable energy projects such as the 8 MW Maiting Hulu-2 PLTM, the 7 MW Padang Guci-2 PLTM and the 15.5 MWp of rooftop solar PV.

64. With respect to the target of "*8,550 MWh of cumulative energy saved from EE in commercial buildings*", significant cumulative energy savings of 248,952 MWh came from Energy Management System (EnMS) in mega buildings such as International Airports (Soekarno Hatta and I Gusti Ngurah

Table 7: Project-level achievements against MTRE3 Objectives

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved (by end January 2023)	Evaluation Comments	Rating[23]
Project objective: *To support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors*	Cumulative CO_2 emissions reduction, tCO_{2eq}	0	27,019 tCO_{2eq}	217 ,509 tCO_{2eq}	See Para 62	6
	Cumulative energy produced from RE systems facilitated by the project, MWh	0	79,190 MWh	128,704 MWh	See Para 63	5
	Cumulative energy saved from EE in commercial buildings facilitated by the project, MWh	0	8,550 MWh	248,952 MWh	See Paras 64-65	
	Cumulative volume of public and private investment mobilized ~~for~~ by the SEF, US$ million	0	US$25 million	US$57.77 million	See Para 66	
	Cumulative number of additional households (from baseline) having access to electricity in pilot provinces	0	80,000	327,667	See Paras 67-68	5
Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency	Number of provinces with updated sub-national GHG Inventory and GHG Marginal Abatement Cost Curve (MACC) for energy sector	0	4	4	See Paras 71-72	6
Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies	Total number of provinces with operational "Integrated Market Service Center" (IMSC) to support sustainable RE & EE investments	0	4	4	See Para 75-78	
	No. of small-to-medium scale RE/EE projects that were financially supported by the Sustainable Energy Fund	0	10	11	See Para 79-80	

[23] Ibid 17

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved (by end January 2023)	Evaluation Comments	Rating[23]
	Cumulative amount of funds from the SEF used in financially supporting small-to-medium scale RE/EE projects, US$ million	0	2.68	US$ 2,351,814 from the total US$ 2,680,000 of SEF budget grants in the MTRE3 Project has been used to support 12 projects under the SEF	See Paras 81-83	
	Cumulative number of NAMAs proposals developed for RE and EE projects in pilot provinces, based on the identified and prioritized RE/EE projects.	1	4 (2 RE and 2 EE)	7 Climate Mitigation Proposals being developed and registered to SRN	See Para 84	
	Cumulative capacity of RE investment projects implemented, MW	0	15 MW	30.72 MW	See Para 85	
	Cumulative floor area of buildings that were made energy efficient, m^2.	0	50,000 m^2	806,956 m^2	See Paras 86-89	
Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency	No. of registered mitigation actions in energy sector that are endorsed by the MEMR and MoEF	0	14	15	See Paras 92-93	
	Total number of MRV reports submitted to MoEF following nationally agreed standard method and guideline	0	4	6	See Para 94-98	

Rai Bali) by implementing a "No Cost Investment" (shutting down lighting and chiller in particular areas within the airports that have no impact to reduce the level of passenger service standard). EE savings also came from the Pertamina Refinery Unit IV though the energy efficiency is not in building sector, but more in residue fluid catalytic cracking (RFCC) process technology in which the optimalization of steam excess in the RFCC to medium pressure steam. This is in line with the energy transition goal and related to UNDP Energy's Global Agenda. EE facilitation to the Pertamina Refinery Unit IV is MTRE3's support to MEMR's target of encouraging oil and gas companies to start implementing energy efficiency.

65. Due to COVID-19, the data used for energy savings calculation has been normalized using the adjusted working hours in each building. This achievement contributed to reduce cost of energy consumption for the buildings and emission reduction.

66. With respect to the target of "*US$25 million cumulative volume of public and private investment mobilized for SEF*", US$ 57.77 million was mobilized, exceeding the Project target by a factor of 2.31. This consisted of US$ 54.6 million leveraged from SEF and US$ 3.1 million from non-SEF projects. These projects are listed in Table 8.

67. With respect to the target of "*80,000 for cumulative number of additional households having access to electricity in pilot provinces*", the Project has facilitated 7 RE projects that can electrify 327,667 households from clean electricity, with assumption that every household has 450 Watts power capacity, consists of:

- 2 micro hydropower plants (PLTMH) and 3 revitalized PLTMHs providing electricity access to 916 households to be formally handed over the communities in May 2023;
- 2 mini hydropower plants (PLTMs) at Maiting Hulu-2 (8 MW) and Padang Guci-2 (7 MW), which were put on-line in December 2021 to provide electricity for 33,333 households;
- the 15.5 MW of rooftop solar PV to provide electricity to 32,122 households; and
- 5% biomass cofiring in 33 coal power plants under PLN's cofiring project to provide electricity for 261,111 household

68. There is also evidence of CSR funds (zakat) that support communities with PLTMHs. BAZNAS (with funds from the national zakat) along with the Jambi Bank have allocated CSR funds in Kerinci and for villages around Lubuk Bangkar and Renah Kasah in Jambi province where the PLTMHs are located. The local government also provided an in-kind contribution for clearing the land status for the micro-hydro development. BAZNAS has assisted Lubuk Bangkar in economic development activities such as coffee, bamboo, handicrafts, food processing (banana chips). To qualify for Zakat funds for the poor or "Mustahig", 8 criteria need to be satisfied. Without the Project, it would have been difficult for BAZNAS to access the national zakat funds. The Project assisted in PLTMH implementation which has helped BAZNAS collaborate with local NGOs. The Project's assistance in their Renah Kasah 40 kW MHPP in Kerinci, Jambi, may mean a continuation of zakat assistance to communities.

69. Overall, the work by the Project to assist Indonesia in supporting design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors, is rated as **satisfactory**.

Table 8: GHG Emission reductions of RE and EE projects

Project	Cumulative GHG emission reduction (tCO_{2eq})	Annual GHG emission reduction (tCO_{2eq}/yr)	Cumulative electricity saved (MWh)	Annual electricity saved (MWh/yr)	Funds leveraged (US$)
Renewable Energy projects:					
5 PLTMHs at Lubuk Bangkar (60 kW), Renah Kasah (40 kW), Air Liki (40 kW), Air Liki Baru (40 kW), Ngaol (40 kW)	3,126	797	3,564	1,212	631,394[24]
8 MW Maiting Hulu-2 PLTM (from December 2021)*	30,275	30,275	41,472	41,472	18,666,667
7 MW Padang Guci-2 PLTM (from December 2021)*	41,772	41,772	56,448	56,448	14,635,333
15.5 MWp of rooftop solar PV (operated since 2022)	27,047	27,047	27,220	27,220	2,923,300
3 MW Ujung Batu Biogas project	0		0		2,206,896
16 MW Luteung Hydro project*	0		0		579,310[25]
2.4 MW Kundur biomass project*	0		0		348,000
3 PLTMs at Cimandiri (4.4 MW), Cisomang (4 MW)*, and Pareang (2.8 MW)*	0		0		16,500,000
5 MW Ujung Batu biomass project*	0		0		66,666[26]
19 MW Sangir Hydro project*	0		0		448,275[27]
Sub-Total:	*102,220*	*99,891*	*128,704*	*126,352*	*57,005,841*
Energy efficiency projects:					
Transmart (from November 2018)	9,041	2,695	11,991	3,307	0
Menara Ravindo (from September 2019)	1,611	523	2,568	642	286,667

[24] With MEMR and UNDP contributing in-kind, funds from Baznas and Bank Jambi were utilized for developing the 2 New MHPPs, namely Lubuk Bangkar and Renah Kasah, and revitalized to existing MHPPs, namely Ngaol, Air Liki and Air Liki Baru

[25] The SEF invested in the Luteung Hydro project for pre-construction development stage. As of January 2023, progress of this PLTM was that it has passed the DPT (fixed provider's list), it was waiting for the quota tender from PLN, and has finalized the environmental assessment document (Analisis Mengenai Dampak Lingkungan or AMDAL) and received the Environmental Permit.

[26] The SEF invested in the Ujung Batu biomass project for pre construction development stage. As of January 2023, progress of this biomass project was that it had passed the DPT and was waiting for PLN tender.

[27] The SEF invested in the Sangir Hydro project for pre construction development stage. As of January 2023, progress of this project was that it had passed the DPT and was waiting for PLN tender.

DJEBTKE through the implementation of ISO 50001 certification (from August 2019)	462	248	565	304	0
AP 1 – I Gusti Ngurah Rai, Bali Airport (from June 2021)	17,936	8,917	22,704	10,941	3,000
AP 2 – T3 Soekarno-Hatta Airport (from 2020)	38,465	14,505	47,081	17,798	3,142
Pertamina Unit 4 (from May 2021)	46,955	19,010	163,039	23,325	18,986
AP 2 – Banyuwangi Airport (from 2022)*	92	92	113	113	34,483
Graha Niaga (from 2022)*	727	727	891	891	406,667
Pullman Hotel, Bali	0		0		12,143
Sub-Total:	*115,289*	*46,717*	*248,952*	*57,321*	*765,088*
Total:	***217,509***	***146,608***	***377,656***	***183,673***	***57,770,929***

*Supported by SEF

3.3.2 Progress towards Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency

70. To achieve Outcome 1, 4 provinces needed to have updated sub-national GHG Inventory and GHG Marginal Abatement Cost Curves (MACC) for the energy sector. This was to be achieved through 4 outputs:

- *Output 1.1: Defined and established sectoral and sub-national reference baselines for the RE-based energy generation and energy efficiency in commercial building sectors in pilot provinces*;
- *Output 1.2: Developed and published detailed marginal GHG abatement cost curves for renewable energy and energy efficiency options in the selected provinces*;
- *Output 1.3: Selected appropriate and prioritized mitigation options that are integrated into national and provincial development plan*;
- *Output 1.4: At least two projects designed, each for the implementation of selected prioritized mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors*.

71. With regards to the target of "*4 provinces with updated sub-national GHG Inventory and GHG Marginal Abatement Cost Curve (MACC) for energy sector*", a MACC final report for 4 provinces was completed by a group led by the Technical Working Group (TWG) and accepted as DG-NREEC property in August 2020 as shown on Table 7. The MACC documents were used as a tool for the local government to choose RE and EE technologies in more efficient and environmentally-friendly way. Training of Trainers (ToT) was conducted for knowledge transfer from consultants to Implementing Partners, DJEBTKE, KESDM and stakeholders at the national and provincial levels, using LEAP software with the LEAP developer to develop national and provincial MACCs.

72. The results of MACC for 4 provinces were incorporated into the provincial policies through the RAD-GRK energy review in the 4 provinces. Given the date of approval of the MACCs, the Project explored "COVID Recovery Planning" and to implement MACCs within the Project timeframe and harmonize the result of MACC with the Project supported by SEF. A further step to mainstreaming MTRE3 studies (that incorporates local energy plans or RUEDs, IGRK, RAD-GRK Review and MACC[28]) was to include these materials in the Medium-Term National Development Plan (Technocratic RPJMD) which was used to analyze several development scenarios using scientific methods and frameworks to prepare the Ministry Strategic Plans in 4 pilot provinces:

- Jambi status: A "Strategic Environmental Assessment in Energy Sector" or KLHS is being finalized by Environment Unit (Dinas LHK Jambi) to be included to Technocratic RPJMD;
- West Sulawesi status: KLHS in Energy Sector has been officiated with the content requiring further enhancement and revision. Dissemination activities by the Project has been held on 2 June 2021;
- East Nusa Tenggara (NTT) status: The preparation of the NTT RUED was completed in 2018 (the first in Indonesia with the assistance of the National Energy Council), with long-term energy plans for 50 years with a budget to support renewable energy development. The 2019-2023 RPJMD already mentions renewable energy and is budgeted to regional finances. However, the COVID-19 pandemic hampered RUED development that was compiled for 2019-2050. In 2019, local regulations were formulated which strengthened this RUED. The KLHS in Energy Sector for NTT was approved by the Government of NTT. The data validation and synchronization in provincial, municipal and regency, and the ToT in NTT to update NTT's AKSARA (National Platform for Climate Mitigation Action in Provincial level[29]) has been conducted. This has led to a study on MACCs for NTT with an analysis of the potential[30];
- Riau Status: The Riau Green Energy regulations, RUED and KLHS have been approved by the Government of Riau in 2021.

73. Overall, the work by the Project to assist in prioritizing appropriate mitigation actions in the RE-based energy generation and energy efficiency, is rated as **satisfactory**. This is primarily due to the Project achieving a MACC final report for 4 provinces that was completed and accepted as DG-NREEC property and was to be used as a tool for the local government to select RE and EE technologies more efficiently and environmentally-effectively.

3.3.3 Progress towards Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies

74. To achieve Outcome 2, Project resources would be used to generate 4 outputs:

- *Output 2.1: Operational Integrated Market Service Center (IMSC) in the pilot provinces*;
- *Output 2.2: Established technical support system to provide training for operation and maintenance of RE & EE technologies including MRV aspects of projects to local service companies*;

[28] The Strategic Environmental Study (KLHS) in the energy sector is a tool and entry point for mainstreaming Provincial General Energy Planning (RUED) and other Project Technical Studies (MACC, RAD-GRK Review, GHG Inventory and SEC Benchmarking) to RPJMD in 4 pilot provinces. The KLHS is a technical reference for provincial governments to base the "Next Regional Mid-term Development Planning" (RPJMD).

[29] AKSARA was developed by LCDI Secretariat, BAPPENAS.

[30] Ideally, the MACCs should have been first produced, followed by the RUED.

- *Output 2.3: Implemented financing mechanism, and supporting activities, to accelerate domestic financial sector investment in climate change mitigation activities*;
- *Output 2.4: Implemented and operational two RE and two EE demonstration NAMA projects (Output 1.3) through public-private partnership modality and supported by conducive environment for sustainable investment*.

A summary of actual achievements of Outcome 2 with evaluation ratings is provided on Table 7.

75. With regards to the target of "*4 provinces with operational 'Integrated Market Service Center' (IMSC) to support sustainable RE & EE investments*", 4 pilot provinces have received training as part of institution capacity enhancement on:

- RE potential mapping; and
- "RE/EE projects: introduction, process and activity".

This target is closely tied to Output 2.1 with IMSCs aiming to facilitate the process of investing in the new RE sector in 4 pilot provinces. During 2018-2021, a One-Stop Permit Service Board (DPMPTSP) was formed in the provinces with an integrated investment permit system through an "Online Single Submission" (OSS) system. Training was provided to staff at DPMPTSP, ESDM and BAPPEDA.

76. This target is also tied closely to Output 2.2 in establishing a technical support system to provide training for operation and maintenance of RE & EE technologies. In 2020, a study on "'RE/EE Investment Guideline and Recommendations" was prepared by the Project and submitted to DJEBTKE of MEMR for the IMSC, covering procedures for investing in the RE sector, the flow of the investment process through OSS, and potential lenders. Dissemination of these Guidelines to local governments in 4 MTRE3's pilot provinces (NTT, Jambi, Riau, West Sulawesi) has been conducted with the objective of training to enhance the capacity of local government in RE/EE investment, specifically to DPMPTSP and ESDM, as they hold strategic roles in regional investment and are expected to function as the offline IMSC. The Guideline also serves as a reference for both EBTKE and the 4 pilot provinces in promoting investment in RE and EE. The Guideline was posted on the LINTAS website platform under Information and Investment Services. The Project also enhanced the RE/EE investment information system by improving LINTAS.

77. The IMSC was able to relate to an enhancement of the LINTAS-EBTKE website[31] managed by MEMR as a one-stop information center for RE/EE investment focused on improving the acceleration of investment in RE and EE by including all relevant information on the RE/EE investment process and procedure (including potential, business process, permitting system and public services). The connection between LINTAS-EBTKE in the central government and the local information system at the 4 pilot provinces was developed to support the full operationalization of the IMSC and potential RE inventory and data in each of the 4 provinces. The LINTAS-EBTKE website contains all relevant information on the RE/EE investment process and procedure including business process, permitting system and public services. The connection between the LINTAS-EBTKE website in the central government and the local information system at the provincial level (with the 4 pilot provinces of the Project) is expected to support the full function of online IMSC. The RE data source on LINTAS was obtained from the MACC report that was reviewed by the Project. RE information for other

[31] https://ebtke.esdm.go.id/lintas/id

provinces, however, has not been filled in with the Project currently coordinating with the Secretary of the DG-MEMR to complete provincial data on LINTAS.

78. All permits are carried out through the OSS managed by the provincial MEMR office. The procedure is that entrepreneurs must register through OSS with technical documents and be verified if all requirements have been met. All documents are then forwarded by MEMR to the Investment Service and the DEMR for issuance of a permit with no face-to-face meetings. The Project has added service features to the LINTAS website to be connected with the permit. Notwithstanding, the RE permit is new for DPMPTSP services, requiring awareness raising regarding the RE business permit mechanism for all 40 provinces. Capacity building on the LINTAS-EBTKE website operationalization for local governments in 4 pilot provinces was held on 29 September 2022. After the training on the RE/EE Investment Guideline and Recommendations, the training focused on enhancing the capacity of local government in RE/EE Investment, specifically to DPMPTSP and ESDM, as they hold strategic roles in regional investment and are expected to function as the offline IMSC.

79. With regards to the target of "*10 small-to-medium scale RE/EE projects that were financially supported by the SEF*", a total of 12 projects comprising energy efficiency and 84.1 MW of RE projects are being supported through SEF, 110% against the EOP target:

- 8 MW Maiting Hulu-2 PLTM;
- 7 MW Padang Guci-2 PLTM;
- 16 MW Luteung Hydro project;
- 2.4 MW Kundur biomass project;
- 5 MW Ujung Batu biomass project;
- 19 MW Sangir Hydro project;
- 4.4 MW Cimandiri PLTM;
- 4 MW Cisomang PLTM;
- 2.8 MW Pareang PLTM;
- 15.5 MW of rooftop solar PV;
- EE at AP 2 – Banyuwangi Airport Building;
- EE at Graha Niaga Building.

80. This target is closely tied to Output 2.3 in the context of implementing a financing mechanism, the SEF that provides government-backed credits to project developers who have equity in the projects they have developed, to accelerate domestic RE/EE investments. During the period of February-December 2022, the SEF supported 11 projects, 7 projects are being supported through SEF with RPA implementation with PT. SMI, and 4 projects (2 RE projects and 2 EE projects) have been approved by the RTA in 2021 as projects under SEF facilitation. SEF support for these projects includes:

- review on the project's document for technical, financial, legal and social-environmental aspects;
- enhancement on the financial analysis;
- assistance in the negotiation process with PLN in obtaining the PPA for pre-PPA projects, and with potential lenders to achieve financial closure for post-PPA projects;
- assistance in fulfilling a corrective action plan to sustain financing from PT. SMI to the Project;
- assistance in preparing buildings to implement an ESCO scheme for energy efficiency and to achieve Green Building certification; and

- implementing PBPs for SEF, notably for the rooftop solar-PV mini-grid incentive by engaging IEF to distribute incentive funds (see the ISURYA website[32] application for complete information on the criteria, requirements, and flow of application of the SEF grant for rooftop solar systems incentive). Rooftop solar PV is one of the key actions to reach the target of 23% RE in the national energy mix (Government Regulation No.79/2014 on the NEP on Para 18, 2nd bullet) where the solar incentive is paid using the PBP mechanism only if the prospective beneficiaries pass a verification process against the established performance criteria that has been agreed or developed by a Verification Team (MEMR, UNDP, IEF, and PLN).

81. With regards to the target of "*US$ 2.68 million from the SEF used in financially supporting small-to-medium scale RE/EE projects*", has managed US$2.35 million from the SEF budget of US$ 2.6 million (Batch 1 consisting of 11 RE/EE projects for a total SEF withdrawal of US$ 817,981 and Batch 2 consisting of the Solar PV Rooftop Incentive for an SEF withdrawal of US$ 1,524,874). The main objective of SEF support for RE projects was to increase the project bankability to reach financial closure. The SEF was delayed by the COVID-19 pandemic. During the pandemic, it was difficult to identify proposed projects as most of PLTMHs and PLTMs were located in remote areas with mobilization limited by government-backed transport lock-downs. During the February-June 2022 period, the Project facilitated implementation of SEF Grant Incentive for the rooftop solar PV program in collaboration with DJEBTKE and IEF (under an RPA) who were to distribute a total incentive fund of US$2.68 million to potential beneficiaries. This achievement supported IPPs to get financing from the potential financial institutions, and a green image for building owners. According to the Solar PV Rooftop Incentive program implementation during February to December 2022, there were 383 beneficiaries with a total incentive fund US$ 1,483,833 (IDR 23 billion) with the potential:

    - for solar-PV rooftop installations of 15,494 kWp;
    - for investment of US$ 2.9 million (IDR 43.85 billion) for the solar PV rooftop installations; and
    - to generate 27,047 tonnes of CO_{2eq} emission reductions per year starting in 2022.

    The SEF Budget was able to mobilize and generate a total of US$54.6 million in RE/EE investment. Table 9 shows the allocation of SEF funds.

82. MEMR has tried to make the RE, specifically rooftop solar PV, attractive for people. However, due to low electricity prices, the MEMR rooftop policy had become ineffective in 2021. In October 2022, the Project tried to boost incentive funds disbursement through the implementation of a "100% incentive scheme for the Solar PV Rooftop instalment" under PBP. The 100% incentive scheme was implemented from 24 October to the early November 2022. As of 15 November 2022, the 100% incentive scheme had successfully boosted the incentive disbursement around US$16.6 million (IDR 15,415,322,794). This was important since solar energy is likely to dominate in 2060 according to MEMR policy due to the lower cost of investment and solar irradiation resources in all provinces, and solar energy being able to meet the demand of electricity in remote areas. Local governments have invested in awareness raising efforts to future solar energy development. There are currently efforts to revise the MEMR rooftop policy although it is not clear to the Evaluation Team what is required to resolve the policy problem.

[32] www.isurya.mtre3.id

Table 9: SEF Allocations

SEF Allocation Descriptor	Utilization Amount (US$)	Total (US$)
SEF Fund Allocation		**2,680,000**
SEF Utilization:		**2,342,855**
SEF batch 1 (PT SMI)	695,019	
Travel (PT SMI)	15,359	
Technical Assistance (TA) for type C RE projects and EE projects (PLTM Padang Guci-2, PLTM Maiting Hulu-2, ESCO GNTU, Green building at Banyuwangi Airport)	107,603	
SEF batch 2 (Solar PV Rooftop Incentive)	1,524,874	
Remaining Balance		**337,145**
Allocation for remaining SEF fund:		337,145
TA for PLTM Sako (type C RE project)	36,686	
Impact result development - Solar PV Rooftop Incentive	8,959	
Plan for solar home system facilitation	291,500	

83. One of the main obstacles to the Solar PV Rooftop Incentive program, however, is the length of time for the incentive's applicants to get the PLN approval. The PLN's approval document is one of the required documents that needs to be fulfilled by the applicants as their performance criteria. There is a challenge from the PLN's policy regarding the limitation of Solar PV Rooftop utilization, where only 10-15% capacity from the on-grid solar-PV rooftop installation can be connected to the PLN grid. To overcome this obstacle, MEMR and the Project agreed to update the terms and condition and performance criteria for the Solar PV Rooftop incentive program including a broader range of potential for household, industrial, and social beneficiaries.

84. With regards to the target of "*4 NAMA proposals developed for RE and EE projects in pilot provinces, based on the identified and prioritized RE/EE projects*", the total number of projects is 7, exceeding the target including:

- 4 Climate Mitigation Concept Notes that served as a starting point to develop more elaborated version for 4 climate mitigation proposals in the energy sector in November 2020. This includes one Climate Mitigation Proposal in hydrogen with HDF Energy that has passed an initial stage of GCF approval through the National Focal Point of MoF; and
- 3 renewable energy climate mitigation and 4 energy conservation climate mitigation proposals.

This target is somewhat related to Output 2.4 with the NAMA proposals to be implemented at provincial level, and to have a transformational impact for promoting investment in RE/EE sectors. These proposals were registered into the National Registry System (SRN) managed by MoEF commencing in 2021.

85. With regards to the target of "*15 MW target cumulative capacity of RE investment projects implemented*", 30.72 MW have been achieved meeting the target as illustrated on Table 8. This achievement has also directly contributed to electricity access for households.

86. With regards to the target of "*50,000 m^2 of cumulative floor area of buildings that were made energy efficient*", over 800,000 m^2 of floor area has been made energy efficient, exceeding the target 16-fold that includes:

- Ditjen EBTKE building - 12,120 m^2;
- Transmart Pekan Baru - 29,218 m^2;
- Menara Ravindo - 11,549 m^2;
- Terminal 3 at the International Soekarno Hatta Airport - 422,804 m^2;
- Pertamina Unit 4 - 137,220 m^2; and
- I Gusti Ngurah Rai Airport - 194,046 m^2.

87. The EE awareness raising strategy of the Ditjen EBTKE building was to replicate the good practice of this Project pilot to other stakeholders inside and outside MEMR. Three other buildings in MEMR replicated the pilot energy efficiency project and received ISO 50001 certification. This was deemed important for raising awareness of consumers and end users without whom energy efficiency goals cannot be reached. Outside MEMR, Terminal 3 of International Soekarno Hatta Airport, Pertamina Unit 4, and the I Gusti Ngurah Rai Airport all implemented an energy management system through the certification of ISO 50001 in March 2021. Other airports under the management of the Angkasa Pura 2 (State Owned Company engaged in the business of airport services and airport-related services) are expected to follow. Due the high cost of the ISO 50001 certification, EBTKE preferred to encourage building owners to implement an energy management system to accrue energy and cost efficiency benefits.

88. PT Grahaniaga Tata Utama (GNTU) is a state-owned company subsidiary in the field of property management that embarked on a 10-year energy efficiency programme starting in 2010. With the GoI trying to introduce ESCO models in Indonesia since 2012, GNTU has received benefits from ESCOs in 2022 that have reduced electricity costs by 60%. The Project and the DG-NREEC introduced GNTU to several ESCOs in May 2020. Initial contacts with ESCOs resulted in unattractive RoIs[33]. Eventually, GNTU secured services in 2021 to install LED lights through PT Phillips through an ESCO scheme with an agreement on a 60-65% saving guarantee from previous lamp usage; the RoI for the investment was 60 months. With LEDs being installed from October-December 2022, an estimated 3.3% of overall energy was saved from the ESCO arrangement. With GNTU preparing its own budget for EE, there are opportunities for other ESCOs to participate, though the investment conditions (reasonable RoI of 5 to 7 years, and size of the investment) have to be right for their participation.

89. In December 2022, the DG-NREEC conducted several awareness raising events to financial stakeholders for the first time on the GNTU experience with an ESCO as a best practice. At GNTU, an energy efficiency programme was carried out because there is awareness amongst the board of directors. Further to awareness raising of EE to building owners, EE was considered in 2012 to be a first step in Net Zero Energy buildings. There was:

- EBTKE support for EE at the household level through labeling of the household appliances;
- awareness raising campaigned in communities; and

[33] Such as 25 years RoI for chiller replacements with GNTU eventually buying a chiller with their own budget. Another failed ESCO deal involved WIKA Energy proposing to do LED installations with MRV to be independently conducted by the State Institution on Adapted Innovative Technology (BPPT), and a bank loan for the LEDs to be taken out by GNTU; this did not materialize because of the unwillingness of GNTU to take out bank loans.

- campaigning of EE at schools in support of the Adiwiyata Environmental Award.

90. In conclusion, the work by the Project to assist in achieving Outcome 2, enhancing sustainable market diffusion of renewable energy and energy efficiency technologies, is rated as **satisfactory**. This is based on the streamlining of permitting for RE/EE investments, the work towards using the IMSCs and the SEF to improve investment bankability and increasing the capacities of government personnel and project proponents to improve access to financing for RE/EE projects.

3.3.4 Progress towards Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency

91. To achieve Outcome 3, Project resources would be used to generate 2 outputs:

- *Output 3.1: Improved and operational registry mechanism for mitigation actions in energy sector*;
- *Output 3.2: Developed Measurement, Reporting and Verification (MRV) guidelines and standard methodologies for RE-based energy generation and energy efficiency in commercial building sectors*; and
- *Output 3.3: Implemented MRV system for the selected appropriate mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors*.

A summary of actual achievements of Outcome 3 with evaluation ratings are provided on Table 7.

92. With regards to the target of "*14 registered mitigation actions in energy sector that are endorsed by the MEMR and MoEF*", 15 actions were submitted by the Project to SRN and approved by MoEF including:

- the Pulau Nain 300 kWp PLTS-PLTD hybrid power plant, Wori District, North Sulawesi;
- the 150 kWp Manado Tua Island PLTD hybrid power plant, Manado City Islands, North Sulawesi;
- the Renah Kasah 50 kW PLTMH, Kerinci, Jambi;
- the Air Liki Baru 40 kW PLTMH, Merangin, Jambi;
- the Air Liki 40 kW PLTMH, Merangin, Jambi;
- the Ngaol 40 kW PLTMH, Merangin, Jambi;
- the Lubuk Bangkar 60 kW PLTMH, Sorolangun, Jambi;
- the 6 MW PLTM at Padang Guci 1 Run-off River;
- 5 MWp solar PV power plant in Kupang;
- 1 MW Tanjung Batu Woodchips Gasification biomass power plant;
- 2.4 MW POME Waste Treatment at Sukadamai Biogas Power Plant in Tanah Bumbu, South Kalimantan;
- energy efficiency in buildings at Menara Ravindo;
- utilization of green chiller technology in the Pullman Bali Hotel building;
- implementation of an EMS in Ratu Indah Mall Makassar building; and
- implementation of an EMS in Slamet Bratanata building.

Coordination between MoEF and MEMR has been strengthened.

93. These actions tie in with Output 3.1 to improve an operational registry mechanism for mitigation actions in the energy sector. MEMR received support from the Project on upgrading the reporting online system on energy management on which every company can report energy use and energy

management annually to the government in accordance with MEMR Regulation 70/2009 concerning Energy Conservation[34]. The upgraded online system facilitates online reporting energy users allowing the GoI to monitor building and industrial energy management that complies with ISO 50001 certification. The benefits of on-line POME energy management reporting are to:

- help industry to benchmark energy efficiency performance;
- obtain recommendations and advice from MEMR on energy savings;
- obtain recommendations to participate in the Subroto Award Program[35];
- enhance corporate innovation supporting Indonesia's efforts on sustainable development; and
- support Indonesia to achieve the energy efficiency target of 17% by 2025 and CO_2 emission reductions of 29% by 2030.

94. With regards to the target of "*4 MRV reports submitted to MoEF following nationally agreed standard method and guideline*" 6 MRV reports have been submitted to SRN including excel calculations by operators and IPPs. The Project hired a consulting company to provide technical assistance to prepare MRV reports and to build capacities of building and RE power plant managers including 15 new methodologies to measure the emission reduction[36]. With the consulting assignment ended in December 2021, the following RE and EE pilot projects were verified by an accredited but more costly institutional third party GHG verifier:

- 6 MW Padang Guci 1 Run-of-River PLTM;
- 5 MWp Kupang Solar PV Power Plant;
- 1 MW Tanjung Batu Woodchips Gasification Biomass Power Plant;
- 2.4 MW POME Waste Treatment at Sukadamai Biogas Power Plant in Tanah Bumbu, South Kalimantan;
- energy efficiency in buildings at Gedung Slamet Bratanata;
- energy efficiency in buildings at Menara Ravindo.

The 4 MRV reports for the 4 RE power plants included the development of emission reduction methodologies for adding capacity, retrofit and rehabilitation of existing RE powerplants; biomass co-firing; and refuse derived fuel (RDF) co-firing. For energy efficient buildings, the Project supported 2 surveys on building energy consumption and energy audits, to build a Building Energy Consumption Standard using a Building Consumption Energy Index. This standard has not yet been approved as it needs to undergo discussions with other stakeholders such as MPW. This ties in with Output 3.2 to develop MRV guidelines and standard methodologies for RE-based energy generation and energy efficiency in commercial building sectors.

95. The methodologies have facilitated a more efficient verification process, becoming more important after the issuance of the Presidential Regulation 98/2021 on the implementation of carbon economy to achieve national targets. This Regulation has mentioned that the reported mitigation action

[34] All energy users, both industry, buildings and transportation service providers who use energy >6000 TOE/year are required to report energy consumption and energy management activities to the government in accordance with the mandate contained in PP70 of 2009 concerning Energy Conservation in Para 18 (https://simebtke.esdm.go.id/sinergi/page/panduan_pelaporan).

[35] The number of companies participating in the Subroto Award increased from 112 in 2021 to 196 in 2022.

[36] Methodologies have been prepared by MEMR and are to be reviewed by a Team Panel for acceptance at the national level by issuance of a letter from the Directorate General. The basis of methodologies is RAN-GRK with the scope of mitigation to be changed from time to time.

should explain the used methodology to measure the carbon[37]. As a consequence of having acknowledgement at the national level, the methodology of carbon measurement must be agreed by all relevant stakeholders. The Project facilitated review of MRV methodologies with a panel with the agreed methodologies allowing MoEF to verify reported mitigation actions prior to their registration in SRN. With the development of MRV methodologies since 2017, MEMR and other ministry staff have become familiar with the methodologies with field visits conducted to test methodologies[38]. MRV Guidelines for each type of RE power plant and EE building have been developed by the Project as well as a book of methodology on emission calculation from MoEF as a focal point on emission reduction in Indonesia.

96. According to Presidential Regulation 98/2021, the end users or companies will receive a Certificate of Emission Reduction (CER) at the end of the MRV process, which serves as a basis for carbon trading. MoEF with the assistance of the Project facilitated training for energy efficiency users on how to develop a Mitigation Action Plan (MAP). Some steps in the business process for end-users to obtain CERs include:

- the user should provide information for the MAP document;
- submit the MAP document for review where the methodology is part of the MAP;
- the user must submit the last report of "Implementation of the Mitigation Action" to be validated by an independent third party GHG verifier (preferably an individual as opposed to an institutional verifier). The result of the validation process will be issuance of the CER by MoEF.

Currently, the SRN are reviewing MAPs with no independent individual verifiers available, resulting in no CERs having been issued[39]. However, the Project can take credit for accelerating progress of SRN development by contributing to the emission reduction methodologies.

97. To support the implementation of MRV process for mitigation actions that is integrated with the carbon trading system, the Project has been facilitating the integration between the power plant mitigation action registration at the "APPLE Gatrik" system from MEMR and the SRN carbon registry system from MoEF through a series of FGDs. MoEF requires Ministerial Regulation 21/2022 on 21 September 2022 to implement "Procedures for Implementing Carbon Economic Values". This ties in with Output 3.3 which is implemented MRV systems for selected appropriate mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors

98. Output 3.3 is also tied to the need for competency standards to be developed for individual third party GHG verifiers. With the verification process previously conducted by institutions at high cost for small-scale mitigation actions, the Project conducted activities from February to March 2022 on data input mitigation actions for isolated grids to related stakeholders including:

[37] The Project facilitated rules for Presidential Regulation number 98/2021, by passing regulations from the Minister of Environment and Forestry Regulation on "Governance of Carbon Trading" and the Minister of Energy Regulation on "Governance of Carbon Pricing on Power Sector". Both regulation reports were reviewed during the period of January-October 2022, with stakeholder consultations with the Power Sector (PLN and IPPs) and several line ministries including Ministry of Maritime and Investment, MEMR, MoEF, Ministry of Law, and a UNDP Expert.

[38] For example, the MRV tools for biofuels energy were tested to ensure that the data can be collected later. Knowledge transfers on the methodologies have been done during the process of methodology development.

[39] According to Ministerial regulation, if there is no independent verifier provided, institutional verifiers who are listed in the SRN can be used. Currently, MOEF are training the staff on validation services.

- ToT training to DJK-MEMR staff for input data mitigation action by Zoom;
- training and data inputs for 150 power plant managers and staff from 145 power plants by Zoom;
- facilitated a meeting during the period of 28-30 March 2022 for a coal power plant management unit to input the inventory data which was used by the government to set emission caps for 2022.

This activity contributed to the development of standard methods and guidelines for implementation of MRV for projects in RE-based power generation and energy efficiency in commercial building sectors, which will be implemented by less costly individual third party GHG verifiers.

99. In conclusion, the results of Outcome 3 in the accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency, can be rated **satisfactory** in light of reaching the target number of registered mitigation actions in energy sector endorsed by the MEMR and MoEF, efforts to integrate MRV processes with the carbon trading system, and training for individual third party GHG verifiers. These activities follow nationally agreed standard methods and accelerate NDC development only if SRN is fully functioning to produce CERs. For SRN to fully function, it needs to overcome the shortage of individuals and institutions for independent verifiers.

3.3.5 Relevance

100. The MTRE3 Project is relevant to the development priorities of Indonesia related to a number of national strategies and plans including:

- Indonesia's Energy Law that includes Government Regulation No.79/2014 on the NEP, which sets a target by 2025 of a 23% contribution from RE in the national primary energy mix;
- Presidential Regulation No. 02/2015 on the RPJMN 2015-2019 emphasizing the importance of the contributions of renewable energy, energy efficiency and access to energy to support national energy sovereignty;
- MEMR Regulation No. 4/2020, which sets out the general governance on the use of renewable energy for the public supply of electricity;
- Government regulation 112/2022 on the "Acceleration of Renewable Energy Development for Electricity Supply", that sets out the provisions to push the establishment of large-scale renewable energy plants by both the state electricity company (PT. PLN) and the private sector; and
- Indonesia's ENDCs of 23 September 2022 to increase emission reduction target from 29% in First NDC and Updated NDC to 32% unconditionally (BAU) and from 41% in the Updated NDC to 43.2% conditionally (with multilateral assistance).

101. Moreover, the MTRE3 Project is also relevant to:

- the UNDP CPD that will strengthen private sector engagement in coordination with the Government through a platform approach, and innovative financing models to address renewable energy and energy efficiency, specifically Output 3.3: Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low - carbon development;
- UNDP's Strategic Plan, 2018-2021 that has "Signature solution 5: Close the energy gap" where access to clean and affordable energy is a critical enabler for sustainable development. The

solution is to focus on increasing energy access, promoting renewable energy and enhancing energy efficiency in a manner that is inclusive and responsive to the needs of different sectors of the population (urban/rural, women/men, household/business), and in line with the aspirations of SDG 7;

- the UNSCDF Priority Area 3 – Climate Change, Sustainable Environment and Liveable Cities: This priority area addresses reduction of greenhouse gas emissions through renewable energy and energy efficiency, climate change adaptation, zero waste approach, responsible production and consumption, sustainable use of natural resources, disaster risk reduction and emergency management. Specifically, Cooperation Framework Outcome involving UNDP #3.1: By 2025, all relevant actors take measures to accelerate climate action, to promote responsible production and consumption, to improve the management of risks and threats to people, and to ensure sustainable management of the environment and natural resources in urban and ecosystem hinterlands;
- SDGs in particular No. 5 - Gender Equality: there are gender targets for every indicator involving project beneficiaries or stakeholders; No. 7 – Affordable and clean energy: Ensuring affordable, reliable, sustainable and modern energy for all; No. 11 – Sustainable cities and communities: make cities and human settlements inclusive, safe resilient and sustainable; and No. 13 – Climate action: take urgent action to combat climate change and its impacts;
- GEF-5 focal areas of Outcome 3.1: Favourable policy and regulatory environment created for renewable energy investments, and Outcome 3.2: Investment in Renewable Energy Technologies increased.

102. The ToC applied to the Project is relevant to promoting investment in renewable energy and energy efficiency technologies and expanding access to environmental and energy services for households. However, it is not within the framework of “leave no one behind agenda”. The Project objective, outcomes and outputs are clear, practical and feasible within its frame, clearly addressing government personnel as well as private sector RE and EE companies, and to a certain extent, beneficiaries of RE and EE investments. There were no lessons from other projects incorporated into the MTRE3 Project design (Para 34).

103. Though the Project was designed as rights-based and gender sensitive according to the SESP, the Project made minimal efforts to include gender dimensions on the design and implementation of RE and EE investments (Para 37). There were linkages to other Project interventions in Indonesia to create synergies (Para 36).

104. Thus, it can be concluded that the MTRE3 Project is **relevant** to the development priorities in Indonesia.

3.3.6 Effectiveness

105. The effectiveness of the MTRE3 Project has been ***highly satisfactory***, in consideration of the highly successful technical assistance provided, additional resources leveraged by the Project to develop RE (especially the PLTMs and PLTMHs in remote areas which has no access to electricity), and all stakeholders (national and local government, academic, community and developers) supporting development of RE and EE measures. This was all done within a 6.25 year span, just over the 5-year design period of the MTRE3 Project.

106. The partnership and collaboration with MEMR and MoEF has been extremely appropriate and effective. This has led to RE and EE projects being implemented to an extent that all the objective-level targets (i.e. the GHG emission reductions, energy saved, volume of public and private investment mobilized) and outcome-level targets (i.e. number of provinces with updated MACCs for energy sector, number of provinces with operational IMSCs, capacity of RE investment projects implemented, number of registered mitigation actions in energy sector that are endorsed by the MEMR and MoEF) have all been exceeded. This translates into participatory project management and implementation with all relevant stakeholders contributing towards achievement of MTRE3 Project objectives. The Project has been very responsive to the needs of all relevant stakeholders. The Project has also attempted to contribute to the well-being and human rights of vulnerable groups, including women, youth and indigenous people, effectively contributing to "leave no one behind agenda" and successfully integrating a human rights-based approach.

107. Special mention should be made towards the grant-blended SEF towards its effectiveness in improving implementation of RE and EE investments. SEF grants have been notably effective in improving the RoI periods for several RE and EE investments, increasing the awareness of many project developers. As a result, the SEF grants have been effective in creating awareness amongst Project developers and potential beneficiaries in demonstrating a viable financing model that improves the bankability of the investment.

3.3.7 Efficiency

108. The efficiency of the MTRE3 Project has been rated as ***satisfactory*** in consideration of the cost efficiencies of the technical assistance financed by the GEF funds, followed by co-financing from the private developers and the GoI. The usage of funds allocated to each stakeholder was determined by the GoI, specifically the MEMR. The fact that most of the funds allocated were used to meet the targets also contributes to the overall efficiency for which GEF funds were utilized and GHG emission reductions achieved, notwithstanding delays caused by the COVID-19 pandemic and changes in government, *not* inefficiencies in Project management.

109. When considering this Project started in March 2017 (for a design period of 5 years) and needed an additional 16 months to complete its activities, the Project was efficient in its implementation. Though COVID-19 had a slight impact on MTRE3 activities for about 16 months, technical assistance and meetings with the beneficiaries during that period was delivered online. There has been an economical use of financial and human resources (funds, staff, time, expertise) that have been allocated strategically and cost-effectively to achieve outcomes. Monitoring and evaluation systems used by UNDP ensured effective and efficient Project management.

3.3.8 Mainstreaming

110. The MTRE3 Project has managed to mainstream *renewable energy and energy efficiency*. Most notable Project activities to mainstream RE and EE opportunities were:

- all stakeholders (national and local government, academic, community and developers) supporting development of RE;
- the GoI becoming more solid in providing the policy and regulation;
- the Ministry of Home Affairs releasing Presidential Regulation 11/2023 on "Additional Authority of the Local Government on Renewable Energy", a strong policy to mobilize the local funds for

RE, mainstreaming RE at the local government level. This policy overcomes the issue of many provinces having a local energy plan, but with no authority to manage RE.

3.3.9 Overall Project Outcome

111. The intended Project outcomes have been ***satisfactory***:

- the Project has been successful in achieving GHG emission reduction and energy saving targets from RE and EE investments, meeting the target for RE investments and total floor area for buildings that were made energy efficient;
- the Project has been able to update GHG inventories and GHG MACCs for the energy sector;
- a total credit line of US$2.3 million was availed for the SEF out of which US$54.6 million was leveraged for RE and EE development;
- the targeted number of registered mitigation actions in energy sector (endorsed by the MEMR and MoEF) and MRV reports submitted to MoEF was met.

3.3.10 Sustainability of Project Outcomes

112. In assessing sustainability of the MTRE3 Project, the Evaluators asked "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of MTRE3's outcomes was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability.

Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions. Details of sustainability ratings for MTRE3 Project are provided on Table 10.

113. *The overall MTRE3 Project sustainability rating is moderately likely (ML).* This is primarily due to the risk of insufficient capacities to manage the expected heavy workload of RE and EE development with a scaled-up phase of RE and EE development notwithstanding a steady stream of RE project that are being developed with financing having a marginal RoI period, and the SEF being in a position to improve the RoI on RE/EE investments. This is a role for a donor agency to contribute to the scale-up of RE and EE activities towards RUPTL's plan of 30% RE generating capacity by 2028.

114. Otherwise, there are no other issues with sustainability of the MTRE3 Project. Project developers and beneficiaries will benefit from RE project interventions in the long-term, especially those beneficiaries in remote areas where there are poor electricity services, and stakeholders whose electricity bills can be reduced from solar PV installations. UNDP is exiting the MTRE3 Project with the RE and EE sectors with good support from the GoI. The GoI seems highly motivated to develop renewable energy and energy efficiency with a number of policies and regulations designed to stimulate their development including a proposed hike in the electricity tariff (that would also remove subsidies from the tariff); the RUPTL is designed to have up to 30% RE or 56 GW of RE electricity generation capacity to be added by 2028 with commitments of RE and EE project developers to provide continuing support as long as project investments have a decent RoI. As long

as the GoI provides funds to the SEF, the SEF will play a role in making RE and EE investments more attractive. Thus far, there is little risk of GoI not supporting the SEF.

3.3.11 Country Ownership

115. The applicability of MTRE3 approaches to government-backed legislation and legal and policy frameworks has created strong government ownership and drivenness to apply MTRE3 methodologies from studies to government and private sector planning processes. With the MTRE3 Project involving the MoEF, BAPPENAS, MPW, MoF, BUMN as well as other line ministries, these teams were active in providing feedback on MTRE3 methodologies that facilitated constant improvement of the methodologies.

3.3.12 Gender equality and women's empowerment

116. A gender gap amongst energy conservation professionals exists, with less than 4.6% of women involved in the energy efficiency field in Indonesia (US Energy and Employment Report 2020). In Indonesia, less than 5% of women accounted for total certified energy managers and certified energy auditors (MEMR 2021). From observations and discussions with stakeholders and interviews with women, the low participation of women in EE work is related to the energy sector mindset that being energy auditor and energy manager is a dangerous and risky job.

Table 10: Assessment of Sustainability of Outcomes

Actual Outcomes (as of March 2023)	Assessment of Sustainability	Dimensions of Sustainability
Actual Outcome 1: Appropriate mitigation actions in the RE-based energy generation and energy efficiency were prioritized in 4 pilot provinces.	● *Financial Resources:* Funding is available to review MACC documents every 5 years; ● *Socio-Political Risks*: No socio-political risks; ● *Institutional Framework and Governance:* No institutional and governance risks; ● *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 2: Market diffusion of renewable energy and energy efficiency technologies was enhanced from the streamlining of permitting for RE/EE investments, the work towards using the IMSCs and the SEF, and increasing the capacities of government personnel and project proponents to improve access to financing for RE/EE projects.	● *Financial Resources:* There is a steady stream of RE project developers with financing. Low energy prices make the RoI period longer, placing the SEF in a unique position to improve the RoI. With the Project ending, the GoI will take over the SEF with a sustainable source of grant financing for RE and EE investments, through support from any other potential government institutions (such as PT SMI), private sector financers and banks; ● *Socio-Political Risks*: Capacities of energy professionals, suppliers and installers maybe challenged with a scaled-up phase of RE and EE development; ● *Institutional Framework and Governance:* No institutional and governance risks; ● *Environmental Factors:* No risk. ***Overall Rating***	4 3 4 4 **3**
Actual Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency	● *Financial Resources:* Funds are available for developing accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency; ● *Socio-Political Risks: No socio-political risks;* ● *Institutional Framework and Governance*: Arrangements are being made to integrate MRV processes with the carbon trading system. Training for individual third party GHG verifiers is being implemented; ● *Environmental Factors: No risk*. ***Overall Rating***	4 4 4 4 **4**
	Overall Rating of Project Sustainability:	**3** ***Moderately Likely (ML):*** **moderate risks to sustainability**

117. Gender equality was managed and monitored throughout the Project including the training to 24 female energy managers in October 2021, necessary considering small number of female energy managers and auditors[40]. Training on energy auditing and energy management was popular amongst women, many of whom are government personnel as well as the private sector:

- During EnMS training series with 3 SOEs, the MTRE3 Project, UNDP Indonesia and a hired consultant (EnerCoss) have encouraged more women to participate;
- The Srikandi of Energy Conservation Training (consisting of 23 females and 5 males) facilitated certification of 3 females as Energy Managers and 3 females as Energy Auditor and served as the means to reverse this high risk mindset by creating a separate training course dedicated for women. This training found that women's enthusiasm for energy sector jobs as an energy auditor and energy manager is high, reversing the mindset of jobs in energy being dangerous and high-risk;
- Training in Gender Responsive Budgeting and Planning in the Energy Sector. The training was conducted in Jambi with total 75 participants: 27 males and 48 females;
- Youth Photo Competition where the theme was “Women in Sustainable Energy” with 4 males and 5 females. The event aims to raise youth awareness about energy efficiency and renewable energy and empower women in the sustainable energy sector in Indonesia by putting forward the role and importance of active participation amongst women and youth in EE and RE issues in Indonesia through the Project’s photo competition.

118. During the MTRE3 Project’s implementation, the Project developed 5 PLTMHs in the Jambi province that give access to electricity to 916 households and other public facilities. Out of 3,534 people in the pilot areas, 1,720 women benefited directly by having their livelihoods and quality of life improved. Women interviewed at Lubuk Bangkar village were satisfied with the more sustainable source of electricity produced by the power plant and the price they had to pay for the electricity. They confirmed that their living conditions have improved with changes such as brighter outdoor areas, indoor lighting, cooking and possibility to carry out economic activities such as coffee production and making frozen food and beverages for sale.

3.3.13 Cross cutting issues

119. A cross-cutting issues checklist is provided on Table 11 to highlight issues of the MTRE3 Project including human rights issues have been monitored internally and reported PARs of 2019 to 2022:

- discrimination, inequality and marginalization have been addressed;
- beneficiaries had participated in a meaningful engagement with all stakeholders incorporated into Project activities;
- a thorough human right analysis was conducted with gender disaggregated data and other elements of social inclusion.

120. Inconsistencies between the SESP checklist review and the Management of Environmental Risk were rectified:

- climate factors and scenario were taken into account in feasibility studies, design and engineering for RE and EE projects implemented;

[40] Out of 1,128 energy auditors, only 4.5% are female and out of 1,273 energy managers, only 3.4% are female.

Table 11: Cross-cutting issue checklist

Principles		Status of Potential Risk
1. Human rights		No risk
2. Gender equality and women empowerment		The Project proposal would have impact of gender equality and or situation of women and girls (see Para 116)
3. Environmental sustainability	Standard 1: Biodiversity	No risks
	Standard 2 Climate Change Mitigation and Adaptation	Climate factors were taken into in the design and engineering of those demonstrations
	Standard 3: Community health, safety and working condition	Project construction, operation or decommissioning pose potential safety risks to local community
	Standard 4: Cultural Heritage	No Risks
	Standard 5: Displacement and Resettlement	No Risks
	Standard 6: Indigenous People	A completed study on potential impacts on indigenous people of the PLTM Maiting Hulu-2 (8MW) project in Maiting Hulu, North Toraja.
	Standard 7: Pollution prevention and resource efficiency	Project would potentially result in the release of pollutants to the environment due to routine or non-routine circumstances.

- design of the demonstration projects incorporated direct and indirect climate-related risks that were considered for proper mitigation including insurance coverage;
- a study on the potential impacts on indigenous people of the PLTM Maiting Hulu-2 (8MW) project in Maiting Hulu, North Toraja was completed in October 2022 with recommendations on the mitigation measures on socio-cultural aspects around the project site;
- FPIC principle was implemented for all RE projects as part of social and environmental safeguard measure;
- the PMU has maintained communication with the relevant GoI agencies, project developers, RE/EE technology hardware manufacturers and suppliers, and community leaders, to ensure proper evaluation, engineering, construction and operation of demo RE/EE projects.

3.3.14 GEF Additionality

121. The issue of GEF additionality is quite clear on this MTRE3 Project. Without the Project, there would be no activity regarding the formulation of MACCs, no setup of IMSCs, no streamlining of the permitting processes for RE and EE investments, no setup of RE/EE investment guidelines and financing mechanisms by the SEF, fewer NAMA proposals, no efforts to improve the registry mechanism for mitigation actions in energy sector, no capacity building amongst all stakeholders concerned with implementing green business, and no efforts of technical assistance to plan, design, implement and maintain RE-based energy generation and energy efficiency projects in Indonesia. Hence, there is GEF additionality for the MTRE3 Project.

3.3.15 Catalytic/Replication Effect

122. Some of the catalytic and replication effects of the MTRE3 Project are as follows:

- Terminal 3 of International Soekarno Hatta Airport, Pertamina Unit 4, and the I Gusti Ngurah Rai Airport all implemented an EnMS through the certification of ISO 50001 in March 2021. Other airports under the management of the Angkasa Pura 2 (the state-owned company engaged in the airport-related services) are expected to follow;
- The ISO 50001 certified MEMR buildings were catalytic for the replication of other government buildings. The EBTKE building received an ASEAN award on energy management in 2020 and participated in the Soebroto Energy Efficiency award. This has led to 24 other MEMR buildings applying for ISO 50001 certified energy management;
- the GoI are currently considering support from the project "Partnering for Accelerated Climate Transitions" (UK-PACT), a flagship programme under the UK's International Climate Finance to implement energy management in local government buildings throughout Indonesia;
- if the SEF is supported by the GoI, there should be a catalytic and replicable effect on solar PV installations throughout Indonesia, creating many more solar PV investments with an improved RoI and cheaper electricity. The same can be said for other RE installations such as PLTMs, PLTMHs and biomass plants.

123. Challenges to replication effects of the Project include:

- a need to build awareness of a champion in energy efficiency. Technical support from a champion can come from awareness raising activities, socialization at workshops, and the Subroto Award for best EE practices;
- a need to build capacity in building management. While EBTKE buildings have certified energy managers, MEMR buildings do not have such positions. MEMR has trained 16 energy managers for 24 buildings with support from another donor, and the Project has supported the training to 24 female energy managers in October 2021;
- insufficient personnel (i.e energy professionals, suppliers, installers, maintenance personnel) to manage the increase in EE and RE activity.

3.3.16 Progress to impact

124. In progress to impact, the MTRE3 Project has provided an enabling environment and basis for deployment of RE and EE installations in rural and urban areas. It has done so through:

- establishing sectoral and sub-national reference baselines for the RE-based energy generation and energy efficiency in commercial building sectors in pilot provinces;
- publishing detailed MACCs for renewable energy and energy efficiency options in the selected provinces;
- setting up appropriate and prioritized mitigation options that are integrated into national and provincial development plans;
- establishing and implementing IMSCs and the SEF to accelerate domestic financial sector investments in RE and EE activities that feed into climate change mitigation activities;
- establishing an improved and operational registry mechanism for climate change mitigation actions in the energy sector; and
- implementing an MRV system for the appropriate mitigation actions in RE-based energy generation and energy efficiency in commercial building sectors;

125. PLTMHs in small villages have revitalized and catalyzed economic activity with electricity bringing more diverse livelihoods to communities. This including carpenters being able to use their electronic

tools wood, women preparing their cash crop products in the evening before transporting to the market in town in the morning, and barber shops. Two 2 PLTMH villages, Bukit Tempurung and Lubuk Bangkar, have eco-tourism facilities with 3,000 visitors per year, increasing village income to support the village government to undertake expanded development programs (see Para 134). Lubuk Bangkar received a 2021 award for village eco-tourism from GoI. The Project has had positive impacts by increasing and accelerating community livelihoods[41].

[41] BAZNAS has become a transformative institution for "Inclusive Zakat" through renewable energy, conducting innovative zakat fund disbursements of 50% cash transfer and 50% community empowerment that has resulted in BAZNAS receiving awards from MoEF, and an invitation from ESCAP in late 2018 to be a speaker at UN Headquarters, New York, to present the government program of Inclusive Zakat. BAZNAS has successfully taken the attention of related government institutions to prioritize their services to isolated areas of marginalized people, very much related to the SDG "no one left behind".

4. FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS

4.1 Findings

126. The MTRE3 Project has managed to exceed the Project GHG emissions reduction targets by a factor of 8. This breaks down GHG emission reductions from renewable energy projects of 114,562 tCO_{2eq} and energy efficiency projects of 102,220 tCO_{2eq}. The key to this success has been successful stakeholder participation arrangements and close involvement and consultations between the PMU and key ministries to collect information on their key baseline activities, and to secure their collaboration during the Project as well as CSOs, private sector firms and Project beneficiaries who were contacted for their willingness to be involved on the Project (Paras 45-46). Inconsistencies between the SESP checklist review and the Management of Environmental Risk were rectified (Paras 119-120). This has led to other targets being achieved:

- an MACC final report for 4 pilot provinces that was accepted as DG-NREEC property;
- 4 operational IMSCs equipped with the "RE/EE Investment Guideline and Recommendations", an integrated investment permit system through an "Online Single Submission" (OSS) system, and improved access to the Sustainable Energy Fund (SEF);
- US$57.77 million cumulative volume of public and private investment mobilized by SEF against a target of US$25 million;
- 327,667 households who will benefit from renewable energy in 2023 from 5 PLTMHs, 2 PLTMs, solar PV rooftop installations and biomass co-firing in 33 coal power plants;
- 6 registered mitigation actions in energy sector endorsed by the MEMR and MoEF against at target of 4;
- gender equality being managed and monitored throughout the Project including the training to 24 female energy managers that increases the small number of female energy managers and auditors (Para 117). As well, the 5 PLTMHs in Jambi province that give access to electricity to 916 households benefitted 1,720 women directly by having their livelihoods and quality of life improved (Para 118).

127. There were a few issues with the implementation of MTRE3 Project involving:

- the length of time to get the PLN approval for the applicants to the Solar PV Rooftop Incentive program. This is related to a challenge from the PLN's policy regarding the limitation of Solar PV Rooftop utilization, where only 10-15% capacity from the on-grid solar-PV rooftop installation can be connected to the PLN grid. To overcome this obstacle, MEMR and the Project agreed to update the terms and condition and performance criteria for the Solar PV Rooftop Incentive program (Para 83);
- ESCO participation in RE and EE projects is limited by enabling investment conditions (Para 88);
- the need for individual third party GHG verifiers instead of more costly institutional third party GHG verifiers (Paras 94 and 99).

4.2 Conclusions

128. The MTRE3 Project provided significant support to the design and implementation of climate change mitigation actions in renewable energy generation and energy efficiency investments. This included an enhancement of the LINTAS-EBTKE website as a one-stop information center for RE/EE

investment focused on improving the acceleration of investment in RE and EE by including all relevant information on the RE/EE investment process and procedure (Para 77) and a website implementing for SEF, notably for the rooftop solar-PV mini-grid incentive (see Para 80, 6th bullet). The Project implementation was timely with few delays notwithstanding the COVID-19 pandemic which delayed activities for up to 18 months. MEMR is now in a position to scale up the results of the MTRE3 Project:

- MACCs for the 4 pilot provinces can be used as a template for the local governments of all 40 provinces to select RE and EE technologies more efficiently and environmentally-effectively;
- The 4 IMSCs improving access to the SEF in the 4 pilot provinces can be used as models for RE/EE project support for all 40 provinces to improve RE/EE feasibility and increase their bankability to reach financial closure; and
- The 6 registered energy sector mitigation actions endorsed by the MEMR and MoEF can be used as a templates for integrating MRV processes with a carbon trading system, provided there is training for additional individual third party GHG verifiers.

4.3 Recommendations

129. The recommendations made in this Evaluation are made in the spirit of improving ongoing future delivery of projects similar to MTRE3, and on the basis of the lessons learned during implementation of the MTRE3 Project.

Rec #	Recommendation	Entity Responsible	Time Frame
	Recommendation 1:		
130.	*Support the continued uptake of RE/EE policies and a scale-up phase to raise awareness and promote replication of MACCs, IMSCs and RE and EE investment projects that have already been implemented under the MTRE3 Project*. The following actions are required to be completed before the EOP: ● download RE data from provincial MEMR offices onto LINTAS. Some information about RE potential and inventory for all 38 provinces is incomplete on the LINTAS website. There is an urgency to ensure that this RE information is available; ● provide a link to LINTAS on the DPMPTSP website for provincial-level investors and permit holders; ● advocate the continued uptake of RE/EE policies. UNDP is keen on this uptake of RE/EE policies as it will accelerate the pace of RE and EE implementation. This should be presented at the PB meeting to conclude the Project.	UNDP DG-NREEC (Government of Indonesia)	Immediate
B	**Recommendation 2**		

Rec #	Recommendation	Entity Responsible	Time Frame
131.	*The GoI through MEMR consider continuing the program on training verifiers to assess GHGs emission reduction from mitigation action for issuance of Certified Emission Reduction (CER)*. The Project has been needing individual verifiers for PLTMHs in Lubuk Bangkar in Jambi Province and other RE and EE project investments in Indonesia. Verification services could come from 3 institutions that are capable of providing that service but at a higher cost. Training of individual GHG emission reduction verifiers should be a priority (Paras 99 and 123).	UNDP MEMR (Government of Indonesia)	Immediate
C	**Recommendation 3**		
132.	*BAZNAS should widely share its best practices in community development after the commissioning of a PLTMH*. BAZNAS and Bank Jambi were instrumental in the distribution of inclusive zakat to communities that received the benefits of the 5 PLTMHs. The GoI have been a part of and witness to inclusive zakat from the philanthropic sector achieving several SDGs[42]. More awareness raising is required of inclusive zakat best practices of BAZNAS and Bank Jambi to other CSR and philanthropic institutions, notably in Indonesia	UNDP BAZNAS	Medium term
D	**Recommendation 4**		
133.	*Disseminate information through the Directorate of Energy Conservation and BOMA to banks of best practices for ESCOs using GNTU as a model*. With ESCO as a "new" business model in Indonesia, best practices of a workable ESCO scheme needs to be disseminated to building managers and financial institutions through BOMA. With GNTU being the first building manager to use a successful ESCO scheme in December 2022, the MTRE3 Project has provided an important lesson for ESCOs in Indonesia	UNDP DG-NREEC (Government of Indonesia)	Medium term

[42] Useful links to BAZNAS:
1. BAZNAS Wins Two Global Good Governance Awards 2023 from IFA - News Liputan6.com
2. https://www.bing.com/ck/a?!&&p=ee933fea671b553fJmltdHM9MTY4Mzg0OTYwMCZpZ3VpZD0wODRhYjZmZC0wMmUwLTYyNjYtMjE5MS1hNDE2MDM4MDYzNzQmaW5zaWQ9NTM2Mw&ptn=3&hsh=3&fclid=084ab6fd-02e0-6266-2191-a41603806374&psq=baznas+sdgs+indonesia&u=a1aHR0cHM6Ly9pamF6YmF6bmFzLmN
3. Unlocking The Potential of Zakat and Other Forms of Islamic Finance to Achieve the SDGs in Indonesia | United Nations Development Programme (undp.org)

4.4 Lessons Learned

134. *Lesson #1: The Project has covered a lot of different aspects in supporting the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors. However, there is still a lot to be done with donor agency guidance* such as:

- replicate formulation of the MACCs and the setup of IMSCs in the other 34 provinces similar to setups on the MTRE3 Project;
- further raising awareness of the RE business permit mechanism as this was something new for the DPMPTSP service;
- extending coordination to other sectors, using the best practices on strong coordination between MoEF and MEMR from the MTRE3 Project;
- advocating the continued uptake of RE/EE policies. As mentioned in Recommendation 1 (Para 130), UNDP is keen on this uptake of RE/EE policies as it will accelerate the pace of RE and EE implementation;
- foreseeing current and forecasted economic situation in the design of solar PV program to minimize adjustments to program design. This can be implemented with involvement of:
  - government personnel that can include PLN personnel who grant permission for the operationalization of a solar PV rooftop installation;
  - solar PV industry associations who will have intimate knowledge of foreign exchange and global events that will affect the prices of solar PV equipment;
- documenting CCM actions so that carbon credits can be generated to improve the RoI for several RE and EE investments. These documents can be augmented by highlighting other cross-cutting CCM benefits such as the improvement on air quality and health benefits. This will require strong coordination between MoEF and MEMR where there is strong ownership in MRV.

135. *Lesson #2: The PLTMH in Lubuk Bangkar has attracted attention to its best practices on village development*. There were innovative uses of Islamic financing through BAZNAS is worth in light of the fact that this project was the first in the world to have successfully applied Zakat for improving energy access. Many good developments have occurred in Lubuk Bangkar:

- The government has constructed road infrastructure to access village, reducing travel time by 2 hours from the main road;
- PLN has provided access to the grid for the RE plant;
- The community has been organized to collect funds to:
  - develop good governance, particularly to develop and agreed on village regulations on sustainable management of the community based PLTMH;
  - operate and maintain the PLTMH, in particular how to maintain and repair the generator house;
  - protect and preserve water catch management to ensure there is sufficient water flow to run the generator (with the Lubuk Bangkar village being in the buffer zone of Bukit Raya National Park;
  - provide sustainable management under a village-owned enterprise;
- Several social and economic activities have increased such as food processing, creative handicrafts, improvement of health community activities, and increased local religious activities particularly in the evening;

- The status of the village has gone up 2 levels to a growing village. Upon the urging of the Ministry of National Planning, the head of Lubuk Bangkar village was invited by the President in 2021 to the palace for a national award.

136. *Lesson #3: The success of the MTRE3 Project was the result of strong collaboration of all relevant stakeholders*. Failure to address all relevant stakeholders would certainly delay or even derail the process of approving projects. All relevant stakeholders were consulted and addressed paving the way for efficient approvals of RE and EE projects. This included:

- the national level where the program was developed by the DG NREEC of the MEMR and UNDP;
- the SEF which needed approvals from GEF with distribution of SEF-RE incentives implemented in collaboration with the IEF, a Public Service Agency under the MoF mandated to manage funds and financing related with environmental preservation, including on energy sector.
- the IEF where the program was supported with a Project Management Unit from professionals to assist in day-to-day activities, and a dedicated IEF Management Team to support the disbursement process with a Trustee Mechanism to ensure the efficiency of disbursement to beneficiaries;
- the IEF forming a dedicated Verification Team consisting of representatives from DG NREEC, UNDP Indonesia, PT PLN, and IEF as part of the verification to attest the potential beneficiaries;
- Engineering, Procurement, and Construction (EPC) companies who were engaged with solar PV rooftop. It has been identified from solar-PV beneficiaries that as many as 366 beneficiaries were supported by 64 EPCs. From the 64 EPCs, as many as 12 are classified small-scaled, 13 are medium scale EPC, and 7 EPC with large scale qualifications[43]. The engagement with EPCs has assisted the promotion of solar-PV and the SEF to wider markets, engaging more potential beneficiaries for the program;
- collaboration with the Directorate General of Electricity was initiated to ensure that the beneficiaries follow the appropriate procedures in obtaining necessary permits for the operationalization of solar PV rooftop. This collaboration has been successful in addressing bottleneck issues faced by various EPCs for obtaining the necessary permits and documents to obtain permits.

[43] Based on registered data in SiUjang Gatrik portal (www.siujang.esdm.go.id)

APPENDIX A - MISSION TERMS OF REFERENCE FOR MTRE3 PROJECT TERMINAL EVALUATION

BASIC CONTRACT INFORMATION

Location: **Home based (with possible travel in country)**
Application Deadline: **30 June 2022**
Type of Contract: **Individual Contract**
Post Level: **Senior Specialist Consultant (Terminal Evaluation Team Leader - International)**
Languages Required: **English**
Starting Date: **1 August 2022**
Duration of Initial Contract: 1 August – 30 September 2022
Expected Duration of Assignment: 30 working days

1. INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the *full -sized* project titled **Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3) – PIMS 4673** implemented through the Directorate General of Renewable Energy and Energy Conservation, Ministry of Energy and Mineral Resources (MEMR) as *Implementing Partner*. The project started on the 13th of March 2017 and is in its *5* year of implementation. The TE process must follow the guidance outlined in the document 'Guidance For Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects' (http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf)

2. PROJECT BACKGROUND AND CONTEXT`

Indonesia faces a significant electricity challenge in the coming years with an electricity demand increase of 6.8 % annually while still having over 30 million people without electricity access. Indonesia's primary energy mix consists mainly of fossil fuels such as crude oil, coal, and natural gas while renewable energy generates only about 7% of the total final energy demand. The heavy reliance on fossil fuels leaves Indonesia vulnerable to price fluctuations of imported oil and makes the energy sector one of the largest greenhouse gas (GHG) emitters, accounting for one-third of the country's total GHG emissions. Meanwhile, renewable energy resources have an abundant potential in Indonesia, and, together with energy efficiency technologies, can provide clean solutions necessary to address the country's electricity demand, increase access to modern energy, reduce the over-reliance on fossil fuels and contribute to GHG emission reductions.

Despite the Government of Indonesia's efforts in promoting renewable energy development and utilization and energy efficiency technology applications, the increased share of renewable energy in the national primary energy mix and the improved primary energy consumption index both remain much to be desired. Significant policy, institutional, financial, and technical barriers remain that hinder the realization of the energy saving and GHG emission reducing potential of renewable energy and energy efficiency technologies in Indonesia.

Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3) is a five-year project (2017-2022) funded by GEF. Total project fund from the GEF is USD 8,025,000 with total planned in kind co-financing of USD 60,100,000 expected coming from the Government (USD 8 million), UNDP (USD 100k) and private sectors (USD 52 million). The project's objective is to support Government Indonesia in the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors in Indonesia, focusing on renewable-based electricity generation and energy efficiency in buildings. To achieve the objective, the MTRE3 project addresses the barriers to investments

in renewable based power generation and the application of energy efficient technologies in the energy end use sectors and is arranged around three components: 1) Climate change mitigation options for the renewable energy based energy generation and energy efficiency; 2) Market transformation through implementation of appropriate mitigation actions; 3) Measurement, Reporting, and Verification (MRV) system and national registry for mitigation actions. The project has selected four provinces (West Sulawesi, East Nusa Tenggara, Riau and Jambi) and cities (Bandung, Surabaya, Medan) as demonstration sites for the project activities. These pilot sites were determined based on the potential implementation of renewable energy and energy efficiency activities. The project is fully implemented by UNDP for the Ministry of Energy and Mineral Resources, Directorate General of New, Renewable and Energy conservation (DG NREEC) as the government implementing partner. Key stakeholders involved in the project implementation include Ministry of Energy and Mineral Resources, Ministry of Finance, private sectors, financing institutions, local governments, commercial building owners, and Energy Service Company (ESCO).

Since its inception, the project has been extended with GEF approval for 9 months from original end date of project 13 March 2022 to 31 Dec 2022 due to COVID-19 pandemic that delayed project activities, particularly in the implementation of Sustainable Energy Fund (SEF). There is no change in the project log-frame from its original GEF- approved version. Adjustment has been made in terminology of Nationally Appropriate Mitigation Actions (NAMAs) to any mitigation actions that reduces emissions in the country. This adjustment is made due to the end of NAMAs regime under UNFCCC (https://unfccc.int/topics/mitigation/workstreams/nationally-appropriate-mitigation-actions) and application of the Nationally Determined Contributions (NDC) approach for climate mitigation actions at the national level. The MTRE3 project contributes to the achievement of the Country Programme Document (CPD) 2021-2025 under Outcome 3. Institutions, communities and people actively apply and implement low carbon development, particularly Output 2.3 Low emission and climate-resilient objectives addressed in development plans and policies to promote economic diversification and green growth. Also, it links to the UNDP Strategic Plan target 5.1 on Energy Gap closed and 5.2 transition to renewable energy accelerated. The project has implemented affirmative actions to reduce gender inequality gap and prioritizing marginal communities. The highlight project's achievements in this front include women involvement in every capacity building event and conducted Srikandi energy programme, in which women employees of the commercial building sector are trained and being certified as the energy managers. MTRE3 project has targeting communities without access to electricity by building and revitalizing microhydro power plants in four remote villages in Jambi province by using blended funding schemes in collaboration with Provincial Development Bank and National Zakat Agency (BAZNAS).

Indonesia situation of COVID pandemic. According to WHO (https://covid19.who.int/region/searo/country/id), from 3 January 2020 to 24 February 2022 there have been 5.4 million confirmed cases of COVID-19 with 147,342 deaths, reported to WHO. As of 14 February 2022, a total of 333 million vaccine doses have been administered (around 64% population). Indonesia government has applied Community Activities Restriction Enforcement (CARE/PPKM) with different level as way to anticipate spread of COVID virus. During 2020, large scale social activity restriction was applied, since January 2021 CARE/PPKM system has been enforced by national government following the changes of pandemic situation in the country. Currently, full vaccination is required for travelers coming to Indonesia. Referring to the Indonesian Ministry of Health in mid-February 2022 the trend of positive case of omicron variant has been going down. Furthermore, the COVID pandemic has affected project activities. Online method, limited travel and meeting activities have been conducted by the project in accordance with CARE level regulation and COVID protocol. It caused lengthy process for coordination and collaboration process and impact effectiveness of the meetings to support climate change mitigation actions in the energy generation and energy end user sectors.

3. TE PURPOSE

The TE report will assess the achievement of project results against what was expected to be achieved and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency and assesses the extent of project accomplishments.

The specific objectives of the evaluation are:

1. to provide an independent assessment of the progress and performance of the project towards the expected outputs and outcomes set forth in the results framework of the project, incorporating findings from reviews and assessments carried out prior to the TE;
2. to draw key lessons from past and current cooperation and provide a set of clear and forward-looking options leading to strategic and actionable recommendations for the next programming;
3. to assess UNDP's comparative advantage in the four programme areas in both development to provide an analysis of how the project has positioned itself within the development community and national partners with a view to adding value to the country development results; and
4. to draw key lessons from past and current cooperation and provide a set of clear and forward looking options leading to strategic and actionable recommendations.

The evaluation will cover the time period from 13 March 2017 to 31 December 2022; and will include all activities planned and/or implemented at a national level and in selected target districts during this period within each project component. Besides the assessment of the intended effects of the project, the evaluation also will identify unintended effects

The main audience and primary users of the evaluation are Ministry of Energy, UNDP and Project Management Unit. The results of TE will be used by the Project Management Unit, Implementing Partner (MEMR) and UNDP to review the performance and compliance of the project to the GEF standards.

4. TE APPROACH & METHODOLOGY

The TE report must provide evidence-based information that is credible, reliable, and useful.

The TE team will review all relevant sources of information including documents prepared during the preparation phase (i.e., PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the Project Document, project reports including annual PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based evaluation. The TE team will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE team is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office(s), the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project beneficiaries, academia, local government and CSOs, etc. **Additionally, the TE team *(National Consultant only in case travel to and within country is not possible for the International Consultant)* is expected to conduct field missions to pilot provinces including the following project sites in Bengkulu (Minihydro Padang Guci -2) and West Sulawesi province.**

The specific design and methodology for the TE should emerge from consultations between the TE team and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE team must, however, use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.
The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders, and the TE team.

The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

If it is not possible to travel to or within the country for the TE mission then the TE team should develop a methodology that takes this into account the conduct of the TE virtually and remotely, including the use of remote interview methods and extended desk reviews, data analysis, surveys and evaluation questionnaires. This should be detailed in the TE Inception Report and agreed with the Commissioning Unit.
If all or part of the TE is to be carried out virtually then consideration should be taken for stakeholder availability, ability or willingness to be interviewed remotely. In addition, their accessibility to the internet/computer may be an issue as many governments and national counterparts may be working from home. These limitations must be reflected in the final TE report.
If a data collection/field mission is not possible then remote interviews may be undertaken through telephone or online (skype, zoom etc.). International consultants can work remotely with national evaluator support in the field if it is safe for them to operate and travel. No stakeholders, consultants or UNDP staff should be put in harm's way and safety is the key priority.
A short validation mission may be considered if it is confirmed to be safe for staff, consultants, stakeholders and if such a mission is possible within the TE schedule. Equally, qualified, and independent national consultants can be hired to undertake the TE and interviews in country as long as it is safe to do so.

5. DETAILED SCOPE OF THE TE

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects (http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf). The Findings section of the TE report will cover the topics listed below.

A full outline of the TE report's content is provided in ToR Annex C.

The asterisk "(*)" indicates criteria for which a rating is required.

i. Project Design/Formulation

- National priorities and country driven-ness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Safeguards
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementation and execution (*)
- Risk Management, including Social and Environmental Standards

iii. Project Results

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
- Sustainability: financial (*) , socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*)
- Country ownership
- Gender equality and women's empowerment
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE team will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.
- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses and results of the project, respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.
- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.
- The TE report should also include lessons that can be taken from the evaluation, including best and worst practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE team should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to include results related to gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown below:

Table 2: Evaluation Ratings Table for Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3) – PIMS 4673

Monitoring & Evaluation (M&E)	Rating[44]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	**Rating**
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Assessment of Outcomes	**Rating**
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	**Rating**
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

6. TIMEFRAME

The total duration of the TE will be approximately **30 working days over a time period of 2 months starting on 1 August 2022 to 30 September 2022.** The tentative TE timeframe is as follows:

Timeframe	Activity
30 June 2022	Application closes
1 - 29 July 2022	Selection of TE team, contract issuance
1 August 2022	Preparation period for TE team (handover of project documents)
1 – 6 August 2022 (4 days)	Document review and preparation of TE Inception Report *Note: Options for site visits should be provided in the TE Inception Report.*
8 August 2022 (1 day)	Finalization and submission of TE Inception Report
9 – 25 August 2022 (12 days)	TE mission: stakeholder meetings, interviews, field visits, etc.
26 August 2022 (1 day)	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
29 August – 10 September 2022 (9 days)	Preparation of draft TE report
10 – 19 September 2022	Circulation of draft TE report for comments
20 – 22 September 2022 (3 days)	Incorporation of comments on draft TE report, TE audit trail & finalization of TE report
27 September 2022	Preparation and Issuance of Management Response **by implementing partner**, concluding Stakeholder Workshop/PBM.
30 September 2022	Expected date of full TE completion

[44] Outcomes, Effectiveness, Efficiency, M&E, I&E Execution, Relevance are rated on a 6-point rating scale: 6 = Highly Satisfactory (HS), 5 = Satisfactory (S), 4 = Moderately Satisfactory (MS), 3 = Moderately Unsatisfactory (MU), 2 = Unsatisfactory (U), 1 = Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4 = Likely (L), 3 = Moderately Likely (ML), 2 = Moderately Unlikely (MU), 1 = Unlikely (U)

7. TE DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	TE Inception Report	TE team clarifies objectives, methodology and timing of the TE	No later than 2 weeks before the TE mission: *8 August 2022*	TE team submits Inception Report to Commissioning Unit and project management
2	Presentation	Initial Findings	End of TE mission: 26 August 2022	TE team presents to Commissioning Unit and project management
3	Draft TE Report	Full draft report *(using guidelines on report content in ToR Annex C)* with annexes	Within 3 weeks of end of TE mission: *10 September 2022*	TE team submits to Commissioning Unit; reviewed by BPPS-GEF RTA, Project Coordinating Unit, GEF OFP
5	Final TE Report* + Audit Trail	Revised final report and TE Audit trail in which the TE details how all received comments have (and have not) been addressed in the final TE report (*See template in ToR Annex H)*	Within 1 week of receiving comments on draft report: *22 September 2022*	TE team submits both documents to the Commissioning Unit

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[45]

8. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is UNDP Country Office, represented by Head of Quality Assurance and Results Unit (QARE) and Head of Environment Unit UNDP

The Commissioning Unit will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the TE team. The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

9. DUTY STATION

Travel:

- *If possible*, travel will be required to Jakarta, Indonesia; and to project locations in Bengkulu Province and West Sulawesi Province during the TE mission;
- The BSAFE course must be successfully completed prior to commencement of travel. Here is the link to access this training: https://training.dss.un.org/course/category/6;
- Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director.
- Consultants are required to comply with the UN security directives set forth under: https://dss.un.org/dssweb/.

[45] Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

- All related travel expenses will be covered and will be reimbursed as per UNDP rules and regulations upon submission of an F-10 claim form and supporting documents.

10. TE TEAM COMPOSITION

A team of *two independent evaluators* will conduct the TE – one International Consultant as team leader (with experience and exposure to projects and evaluations in other regions) and one National Consultant as team expert, from the country of the project. The team leader will be responsible for the overall TE design, lead the presentation, and writing of the TE report, The national team expert will assess emerging trends with respect to regulatory frameworks, budget allocations, capacity building, work with the Project Team in developing the TE itinerary, field visit with Project Team and direct interview with stakeholders.

The evaluator(s) cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

The selection of evaluators will be aimed at maximizing the overall "team" qualities in the following areas. All of requirements are applicable for both International and National consultants, except for Level of Education and Years of Experience, which is specific for each of Consultant.

Education

- Master's degree (for international lead-consultant) in a field related to Environment, Energy, Climate Change, or other closely related field from an accredited college or university

Experience

- Experience in relevant technical areas for at least *10 years* for international lead consultant.
- Experience in evaluating GEF projects;
- Relevant experience with results-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to climate change mitigation and/or promotion of sustainable and modern energy services in communities
- Experience working with climate change related projects in Indonesia or Southeast Asia
- Demonstrated understanding of issues related to gender and climate change mitigation and/or promotion of sustainable and modern energy services in communities experience in gender responsive evaluation and analysis;
- Experience in conducting interview, stakeholders consultation;
- Demonstrable analytical skills;
- Project evaluation/review experience within United Nations system will be considered an asset;

Language

Fluency in written English.

Approach of Assignment

- Understands the task and applies a methodology appropriate for the task
- Important aspects of the task addressed clearly and in sufficient detail
- Planning is logical, realistic for efficient project implementation

11. EVALUATOR ETHICS

The TE team will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator must safeguard the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

12. PAYMENT SCHEDULE

- 20% payment upon satisfactory delivery of the final TE Inception Report and approval by the Commissioning Unit
- 40% payment upon satisfactory delivery of the draft TE report to the Commissioning Unit
- 40% payment upon satisfactory delivery of the final TE report and approval by the Commissioning Unit and Regional Technical Advisor (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

Criteria for issuing the final payment of 40%:

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
- The Audit Trail includes responses to and justification for each comment listed.

In line with the UNDP's financial regulations, when determined by the Commissioning Unit and/or the consultant that a deliverable or service cannot be satisfactorily completed due to the impact of COVID-19 and limitations to the TE, that deliverable or service will not be paid.

Due to the current COVID-19 situation and its implications, a partial payment may be considered if the consultant invested time towards the deliverable but was unable to complete to circumstances beyond his/her control.

PAYMENT METHOD

Consultant shall quote an all-inclusive fixed total contract price in USD for International Consultant, supported by a breakdown of costs, as per template provided for the entire assignment. The term "all-inclusive" implies that all costs (professional fees, communications, consumables, etc.) that could be incurred by the IC in completing the assignment are already factored into the proposed fee submitted in the proposal. The contract price will be fixed output-based price regardless of extension of the herein specified duration. Payment terms around specific and measurable (qualitative and quantitative) deliverables (i.e. whether payments fall in instalments or upon completion of the entire contract).

In line with the UNDP's financial regulations, when determined by the Commissioning Unit and/or the consultant that a deliverable or service cannot be satisfactorily completed due to the impact of COVID-19 and limitations to the TE, that deliverable or service will not be paid.

Due to the current COVID-19 situation and its implications, a partial payment may be considered if the consultant invested time towards the deliverable but was unable to complete to circumstances beyond his/her control.

13. APPLICATION PROCESS[46]

Financial Proposal:

- Financial proposals must be "all inclusive" and expressed in a lump-sum for the total duration of the contract. The term "all inclusive" implies all cost (professional fees, travel costs, living allowances etc.);
- All living allowances required to perform the demands of the ToR must be incorporated in the financial proposal, whether the fees are expressed as daily fees or lump sum amount.)
- The lump sum is fixed regardless of changes in the cost components.

[46] Engagement of evaluators should be done in line with guidelines for hiring consultants in the POPP https://popp.undp.org/SitePages/POPPRoot.aspx

Recommended Presentation of Proposal:

a) **Letter of Confirmation of Interest and Availability** using the template[47] provided by UNDP;
b) **CV** and a **Personal History Form** (P11 form[48]);
c) Brief description **of approach to work/technical proposal** of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)
d) **Financial Proposal** that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

All application materials should be submitted by email at the following address ONLY: martin.kurnia@undp.org by 30 June 2022 at 24:00 Jakarta time. Incomplete applications will be excluded from further consideration.

Criteria for Evaluation of Proposal: Only those applications which are responsive and compliant will be evaluated. Offers will be evaluated according to the Combined Scoring method – where the educational background and experience on similar assignments will be weighted at 70% and the price proposal will weigh as 30% of the total scoring. The applicant receiving the Highest Combined Score that has also accepted UNDP's General Terms and Conditions will be awarded the contract.
When using the weighted scoring method, the award of the contract will be made to the individual consultant whose offer has been evaluated and determined as:

- Responsive/compliant/acceptable; and
- Having received the highest score out of set of weighted combine technical evaluation of desk review and interview (70%), and financial criteria (30%). Financial score shall be computed as a ratio of the proposal being evaluated and the lowest priced proposal received by UNDP for the assignment.

Criteria	Weigh t	Maximum Point
Technical Criteria	**70%**	**100**
1. Master's degree (for international lead-consultant) and Bachelor degree (for national consultant) in a field related to Environment, Energy, Climate Change, or other closely related field from an accredited college or university		**10**
2. Relevant experience with result-based management evaluation methodologies;		**10**
3. Experience applying SMART indicators and reconstructing or validating baseline scenarios;		**5**
4. Experience in GEF evaluating projects;		**10**
5. Experience in data collection and analysis;		**10**
6. Experience working with climate change related projects in Indonesia;		**10**

[47] https://intranet.undp.org/unit/bom/pso/Support%20documents%20on%20IC%20Guidelines/Template%20for%20Confirmation%20of%20Interest%20and%20Submission%20of%20Financial%20Proposal.docx
[48] http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc

7. Experience in relevant technical areas for at least 10 years for international lead consultant		**10**
8. Demonstrated understanding of issues related to gender and climate change mitigation and/or promotion of sustainable and modern energy services in communities; experience in gender sensitive evaluation and analysis.		**5**
9. Experience in conducting interview , stakeholders consultation.		**5**
10. Project evaluation/review experiences within United Nations system will be considered an asset;		**5**
11. Fluency in written English.		**10**
Criteria B: Brief Description of Approach to Assignment		**10**
Understands the task and applies a methodology appropriate for the task?		
Important aspects of the task addressed clearly and in sufficient detail?		
Is planning logical, realistic for efficient project implementation?		
Financial Criteria	**30%**	

14. TOR ANNEXES

- ToR Annex A: Project Logical/Results Framework
- ToR Annex B: Project Information Package to be reviewed by TE team
- ToR Annex C: Content of the TE report
- ToR Annex D: Evaluation Criteria Matrix template
- ToR Annex E: UNEG Code of Conduct for Evaluators
- ToR Annex F: TE Rating Scales
- ToR Annex G: TE Report Clearance Form
- ToR Annex H: TE Audit Trail

APPENDIX B - MISSION ITINERARY (FOR FEBRUARY-MARCH 2023)

#	Activity	Stakeholder involved	Place
1st February 2023 (Wednesday)			
1	Technical briefing from MTRE3 program manager	MTRE3 team and UNDP	online
22nd February 2021 (Wednesday)			
2	Meeting on Inception Report	MTRE3: Mr. Boyke Lakaseru, Ms. Yovi Rachmawati, Ms Devy	online
27th February 2023 (Monday)			
3	Interview with Secretary of Directorate General EBTKE, Ministry of Energy and Natural Resources	Respondent (Mr. Sahid Junaidi), MTRE3 (Mr. Boyke Lakaseru, Ms Yovi Rachmawati)	online
1st March 2023 (Wednesday)			
4	Interview with PT SMI	PT SMI: Mr Ashadi, MTRE3: Mr.Boyke Lakaseru, Ms. Yovi D. Rahmawati	Jakarta
5	Interview with National Energy Council	DEN: Mr Nanang Kristanto MTRE3: Mr.Boyke Lakaseru, Ms. Yovi D. Rahmawati	Jakarta
3rd March 2023 (Thursday)			
6	Meeting with the core team of the Renah Kasah Village Administration	Head of village, Secretary of Village Government, Village Representative Body, Village Facilitator, Trainers team of Microhydro, Evaluator (Ms, Eri Trinurini Adhi), Mr Village Secretary, Head of PLMTH Renah Kasah Management Team, UNDP team (Mr. Boyke Lakaser, Ms. Devy)	Jambi
7	Meeting with women group	Ms Nilis, Ms,Yulisni and other 10 female respondents	Jambi
4th March 2023 (Friday)			
8	Training the management team of the Micro Hidro Renah Kasah	Head of village, Secretary of Village Government, Trainers team of Microhydro, Evaluator Ms, Eri Trinurini Adhi, Mr Village Secretary, Head of HMPP Renah Kasah Management Team, Village Facilitators, UNDP (Mr. Boyke Lakaser, Ms. Devy)	Jambi
9	Interview the woodcrafter	Respondent	Jambi
10	Visits the mini micro hydro generator	Mr Village Secretary, Head of PLTM Renah Kasah Management Team, Mr. Boyke Lakaser, Ms. Devy	Jambi
9th March 2023 (Thursday)			
11	Interview with Technical Coordinator and partnership, Directorate General of Energy Conservation, Ministry of Energy and Natural Resources	Ditjen EBTKE (Mr Hendro and Mr. Arif) MTRE3 (Mr. Boyke Lakaser, Ms Yovi Rahmawati)	online
15th March 2023 (Wednesday)			

#	Activity	Stakeholder involved	Place
12	Interview with Directorate Green Houses Gasses, Ministry of Forestry and Environment	Ministry of FE (Mr. Hari Wibowo) MTRE3 (Mr. Boyke Lakaseru, Ms Yovi Rahmawati)	Jakarta
16th March 2023 (Thursday)			
13	Interview with Technical Agency of Energy and Mineral Resources, Province of NTT	Local Gov: Ms. Sovi, Evaluator (Mrs. Eri Trinurini Adhi), MTRE3 (Ms. Yovi Rachmawati)	online
17th March 2023 (Friday)			
14	Interview with BAZNAS	Basnaz (Mr. Eka Budi Sulistyo), MTRE3 (Ms Yovi Rachmawati)	online
21th March 2023 (Tuesday)			
15	Interview with Building Manager of PT Graha Niaga Tata Utama	Company (Mr. Yodhie Imam Putranto), MTRE3 (Ms Yovi Rachmawati)	online
24th March 2023 (Firday)			
16	Interview with Technical Agency of Investment, Province of Jambi)	Local Government: Ms Rohl, MTRE3 (Ms. Yovi Rachmawati)	online

Total number of meetings conducted: 16

● APPENDIX C - LIST OF PERSONS INTERVIEWED

This is a listing of persons contacted in the MTRE3 Team (unless otherwise noted) during the Terminal Evaluation Period only. The Evaluators regrets any omissions to this list.

1. Ms. Aretha Aprilia, Head of Environment Unit, UNDP;
2. Ms. Verania Andria, Senior Advisor for Sustainable Energy, UNDP;
3. Mr. John Kimani, Planning and Reporting Specialist, UNDP;
4. Mr. Boyke Octavian Lakaseru, National Project Manager, MTRE3 Project;
5. Ms. Yovi Dzulhijah Rahmawati, M&E and KM Officer, MTRE3 Project;
6. Mr. Sahid Junaidi, Secretary of Directorate General EBTKE, Kementerian ESDM;
7. Mr Ashadi, PT SMI;
8. Mr Nanang Kristanto, National Energy Council;
9. Mrs. Nilis, Female Beneficiaries of Village Ranah Kasah;
10. Mr. Secretary of Village Government Ranah Kasah;
11. Mr.Hendro Gunawan, Technical Coordinator and Partnership, Directorate General of Energy Conservation, MEMR;
12. Mr. Arif, Technical Coordinator and Partnership, Directorate General of Energy Conservation, MEMR;
13. Mr. Hari Wibowo, Directorate Green House Effect, MoEF;
14. Ms. Sovi, Technical Agency of Energy and Mineral Resources, Province of NTT;
15. Mr. Eka Budi Sulistiyo, BAZNAS, PLT Dir Pendaya Gunaan;
16. Mr. Yodhie Imam Putranto, Building Manager, PT Graha Niaga Tata Utama;
17. Ms. Rohul, Technical Agency of Investment (local government);
18. Mr. M. Iqbal, EBTKE;
19. Amanda Stevi, MEMR.

● APPENDIX D - LIST OF DOCUMENTS REVIEWED

1. UNDP-GEF Project Document. Market Transformation through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector (MTRE3)

2. Khan, Nisar Ahmad Khan and Swarna, Asep. 2019. Mid-term Review Report of Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3). UNDP-GEF

3. UNDP – GEF. Project Implementation Report (PIR). RE Market Transformation. MTRE3. 2022

4. UNDP – GEF. Project Implementation Report (PIR). RE Market Transformation. MTRE3. 2021

5. UNDP – GEF. Project Implementation Report (PIR). RE Market Transformation. MTRE3. 2020

6. UNDP – GEF. Project Implementation Report (PIR). RE Market Transformation. MTRE3. 2019

7. UNDP Indonesia – MTRE3. Project Assurance Report (PAR). 2nd Semester 2022.

8. UNDP Indonesia – MTRE3. Project Assurance Report (PAR). 2nd Semester 2021.

9. UNDP Indonesia – MTRE3. Project Assurance Report (PAR). 2nd Semester 2020.

10. UNDP Indonesia – MTRE3. Project Assurance Report (PAR). 2nd Semester 2019

11. UNDP Indonesia – MTRE3. Quality Monitoring Report Q1-4. 2018

12. UNDP Indonesia – MTRE3. Quality Monitoring Report Q1-4. 2017

13. Royal HaskoningDHV. Report of Indigenous People and Chance Find Procedure – Mai'ting Hulu II MHP, Notyh Toraja. MTRE3 UNDP.

14. Royal HaskoningDHV. Report of Indigenous People. Mai'ting Hu;I II MHPP, North Toraja. MTRE3 UNDP.

15. UNDP Indonesia. Marginal Abatement Cost Curve Jambi Province. Development of Marginal Abatement Cost Curve for Renewable Energy Power Plant at Four Pilot Provinces of MTRE3 Project. Final Report.2020

16. UNDP Indonesia. Marginal Abatement Cost Curve East Nusa Tenggara Province. Development of Marginal Abatement Cost Curve for Renewable Energy Power Plant at Four Pilot Provinces of MTRE3 Project. Final Report.2020

17. UNDP Indonesia. Marginal Abatement Cost Curve Riau Province. Development of Marginal Abatement Cost Curve for Renewable Energy Power Plant at Four Pilot Provinces of MTRE3 Project. Final Report.2020

18. UNDP Indonesia. Marginal Abatement Cost Curve West Sulawesi Province. Development of Marginal Abatement Cost Curve for Renewable Energy Power Plant at Four Pilot Provinces of MTRE3 Project. Final Report.2020

19. UNDP – GEF. Guidance for Conducting Terminal Evaluation of UNDP – Supported, GEF-Financed Project. 2020.

● APPENDIX E - COMPLETED TRACKING TOOL

Figure E-1: Screenshot of General Data for MTRE3 Project Tracking Tool

Tracking Tool for Climate Change Mitigation Projects (For Terminal Evaluation)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **during the project's supervised implementation period**, totaled over the respective lifetime of the investments.
Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.
Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO_2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Results at Terminal Evaluation	Notes
Project Title	Market Transformation through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector (MTRE3)	
GEF ID	5339	
Agency Project ID	4673	
Country	INDONESIA	
Region	EAP	
GEF Agency	UNDP	
Date of Council/CEO Approval	September 12, 2013	Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)	8,025,000	
Date of submission of the tracking tool	May 18, 2023	Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cumulative cofinancing realized (US$)	60,709,038	
Cumulative additional resources mobilized (US$)		additional resources means beyond the cofinancing committed at CEO endorsement

Figure E-2: Screenshot of Objective 2 of MTRE3 Project Tracking Tool

Objective 2: Energy Efficiency			
Please specify if the project targets any of the following areas			
Lighting		Yes = 1, No = 0	
Appliances (white goods)		Yes = 1, No = 0	
Equipment		Yes = 1, No = 0	
Cook stoves		Yes = 1, No = 0	
Existing building	1	Yes = 1, No = 0	
New building	1	Yes = 1, No = 0	
Industrial processes	1	Yes = 1, No = 0	
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0	
Other (please specify)			
Policy and regulatory framework	4	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced	
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	4	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient	
Capacity building	4	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained	
Lifetime energy saved	1,359,562,000	MJ (Million Joule, IEA unit converter: http://www.iea.org/stats/unit.asp) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings	
Lifetime direct GHG emissions avoided	115,289	tonnes CO2eq (see Special Notes above)	No revolving fund scheme was implemented under SEF facility. During the CER, SEF facility was at design stage and revolving fund was one of potential scheme to be implemented. The value in MTR referred to the CER early estimate.
Lifetime direct post-project GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)	
Lifetime indirect GHG emissions avoided (bottom-up)	172,934	tonnes CO2eq (see Special Notes above)	
Lifetime indirect GHG emissions avoided (top-down)	233,750	tonnes CO2eq (see Special Notes above)	

Figure E-3: Screenshot of Objective 3 of MTRE3 Project Tracking Tool

Objective 3: Renewable Energy			
Please specify if the project includes any of the following areas			
Heat/thermal energy production	0	Yes = 1, No = 0	
On-grid electricity production	1	Yes = 1, No = 0	
Off-grid electricity production	0	Yes = 1, No = 0	
Policy and regulatory framework	4	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not accepted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced	
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	4	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient	
Capacity building	4	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained	
Installed capacity per technology directly resulting from the project			
Wind		MW	
Biomass	3.0	MW el (for electricity production)	3 MW Biogas Ujung Batu was installed in 2022.
Biomass		MW th (for thermal energy production)	
Geothermal		MW el (for electricity production)	
Geothermal		MW th (for thermal energy production)	
Hydro	15.22	MW	
Photovoltaic (solar lighting included)	15.5	MW	
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m² = 0.7kW)	
Solar thermal power		MW el (for electricity production)	
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW	
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)			
Wind		MWh	
Biomass	-	MWh el (for electricity production)	The Biogas power plant 3MW Ujung Batu from Palm oil mill effluent has not yet produced electricity by January 2023 (the baseline data for TE), the COD took place in April 2023. The GHGs emission reduction value during MTR was an estimate of potential annual energy production from the biogas project.
Biomass		MWh th (for thermal energy production)	
Geothermal		MWh el (for electricity production)	
Geothermal		MWh th (for thermal energy production)	
Hydro	101,484	MWh	
Photovoltaic (solar lighting included)	27,220	MWh	
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)	
Solar thermal power		MWh el (for electricity production)	
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh	
Lifetime direct GHG emissions avoided	2,137,012	tonnes CO2eq (see Special Notes above)	Cumulative GHG emissions reduction in the Project Document (27,019 tCO2eq) was estimated based on direct GHG emissions within project duration (End of Project), while in the Tracking Tool at CER (1,267,046 tCO2eq) considered the lifetime direct GHG emissions reduction with 20 years of the RE technology.
Lifetime direct post-project GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)	No revolving fund scheme was implemented under SEF facility. During the CER, SEF facility was at design stage and revolving fund was one of potential scheme to be implemented. The value in MTR referred to the CER early estimate.
Lifetime indirect GHG emissions avoided (bottom-up)	3,205,519	tonnes CO2eq (see Special Notes above)	RF = 1.5
Lifetime indirect GHG emissions avoided (top-down)	5,947,423	tonnes CO2eq (see Special Notes above)	CF = 40%

● APPENDIX F - PROJECT RESULTS FRAMEWORK FOR MTRE3 PROJECT (FROM JULY 2016)

Project Title	**Market Transformation through Design and Implementation of Appropriate Mitigation Actions in the Energy Sector (MTR3)**
Project Objective:	To support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors
UNDP Integrated Results and Resources Framework 2014-2017 Outputs:	Output 1.5. Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy).
Expected CPAP 2010-2015 Outputs	2.2.1. National energy policies and guideline developed and integrated into sub-national development plan. 2.2.2. Sub-national authorities and key partners are able to implement programmes, mobilize resources and develop public-private partnership for RE/EE, which will contribute to the reduction of national greenhouse gases emission.
Applicable GEF-5 Strategic Objectives:	Climate Change Mitigation Objective-2: Promote Market Transformation for Energy Efficiency in Industry and the Building Sector. Climate Change Mitigation Objective-3: Promote Investment in Renewable Energy Technologies
Applicable GEF-5 Outcomes:	Outcome 2.2: Sustainable financing and delivery mechanisms established and operational. Outcome 3.1: Favorable policy and regulatory environment created for renewable energy investments. Outcome 3.2. Investment in renewable energy technologies increased Outcome 3.3. GHG emissions avoided.

Project Outcomes	Indicators	Baseline	Targets (End of the Project)	Source of Verifications	Critical Assumptions
Objective: To support the design and implementation of appropriate climate change mitigation actions in the energy generation and energy end use sectors	● Cumulative CO_2 emissions reduction, tons CO_2 eq ● Cumulative energy produced from RE systems facilitated by the project, MWh ● Cumulative energy saved from EE in commercial buildings facilitated by the project, MWh ● Cumulative volume of public and private investment mobilized for SEF, US$ million ● Cumulative number of additional households (from baseline) having access to electricity in pilot provinces	● 0 ● 0 ● 0 ● 0 ● 0[49]	● 27,019 ● 79,190 ● 8,550 ● 25 ● 80,000	● Report of RAN/ RAD-GRK; Report of Registry and MRV Agency ● Annual government expenditure report. ● PLN Annual Report, MEMR & ESCOs report. ● Project monitoring report, MRV report.	GOI's commitment to climate change mitigation remains unchanged.
Component 1: Climate Change Mitigation Options for the RE-based Energy Generation and Energy Efficiency.					

[49] The baseline value is 2,066,689 households (HHs). This comprise: 511,233 HHs (@ 61% ratio electrification) in Jambi Province; 900,679 HHs (@ 60.8%) in Riau; 132,556 HHs (@ 47%) in West Sulawesi; and, 522,221 HHs (@ 48%) in NTT. Source: PLN Annual Report 2013.

Project Outcomes	Indicators	Baseline	Targets (End of the Project)	Source of Verifications	Critical Assumptions
Outcome 1: Prioritized appropriate mitigation actions in the RE-based energy generation and energy efficiency.	Number of provinces with updated sub-national GHG Inventory and GHG Marginal Abatement Cost Curve (MACC) for energy sector	0[50]	4	GHG Inventory Report Publication of provincial MACC.	
Component 2: Market Transformation through Implementation of Appropriate Mitigation Actions in the RE-based Energy Generation and Energy Efficiency.					
Outcome 2: Enhanced and sustainable market diffusion of renewable energy and energy efficiency technologies.	Total number of provinces with operational "Integrated Market Service Center" (IMSC) to support sustainable RE & EE investments.	0	4	Annual report of Provincial Investment Agency. Reports from the IMSCs on RE/RE projects that were assisted in development and implementation	Continued commitment of local government officials in supporting IMSCs in their regions (Presidential Regulation No.27/2009).
	No. of small-to-medium scale RE/EE projects that were financially supported by the Sustainable Energy Fund Cumulative amount of funds from the SEF used in financially supporting small-to-medium scale RE/EE projects, US$ million	0[51] 0	10[52] 25[53]	Reports on SEF-financed RE/EE projects Financing agreements for SEF-financed RE/EE projects	
	Cumulative number of NAMAs proposals developed for RE and EE projects in pilot provinces, based on the identified and prioritized RE/EE projects.	1[54]	4 (2 RE and 2 EE)	Registry system database/Secretariat of RAN-GRK for submission of NAMAs proposals.	Continues support of GOI agencies and partner financing institutions to SEF

[50] Data in Provincial GHG inventory 2012 are available with MoEF for all 34 provinces in Indonesia; but no sub-national MACC available.

[51] A Letter of Agreement between UNDP/WHyPGen and PT.SMI on financing support for wind power projects was signed in 2013.

[52] The average size of the identified demo RE projects for demonstration is below 2 MW.

[53] The SEF is expected to mobilize investments of US$ 25 million, targeting the MTRE3 demonstration of 15 MW RE-based power generation and energy efficiency improvement projects in commercial buildings with floor area of 50,000m^2.

[54] This is a financed-ready NAMA on energy efficiency in buildings developed for the Jakarta City Hall.

Project Outcomes	Indicators	Baseline	Targets (End of the Project)	Source of Verifications	Critical Assumptions
	Cumulative capacity of RE investment projects implemented, MW	0	15	Reports on approved, financed and implemented RE projects.	Local government continue to consider climate change mitigation as part of local development agenda.
	Cumulative floor area of buildings that were made energy efficient, m^2.	0	50,000	Reports on approved, financed and implemented EE projects.	
Component 3: MRV System and National Registry for Mitigation Actions in the RE-based Energy Generation and Energy Efficiency.					
Outcome 3: Accurate measurement and accounting of actual GHG emission reductions from mitigation actions in the RE-based energy generation and energy efficiency.	No. of registered mitigation actions in energy sector that are endorsed by the MEMR and MoEF.	0	14[55]	Documents of registered projects Website of Registry system of MoEF.	Continuous cooperation and coordination between provincial and national government agencies.
	Total number of MRV reports submitted to MoEF following nationally agreed standard method and guideline.	0	4[56]	Submitted MRV reports.	Data availability at local level to support MRV process.

[55] At least 10 small-medium size RE/EE demonstration projects, 2 RE and 2 EE NAMAs

[56] MRV reports for implemented RE and EE NAMAs projects.

APPENDIX H - EVALUATION CONSULTANT AGREEMENT FORM

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[57]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Roland Wong

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Surrey, BC, Canada* on *June 8, 2023*

[57] www.unevaluation.org/unegcodeofconduct

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[58]

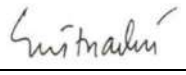
Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Eri Trinurini

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Jakarta, Indonesia* on *June 8, 2023*



[58] www.unevaluation.org/unegcodeofconduct

APPENDIX I – TE REPORT CLEARANCE FORM

Terminal Evaluation Report for *Market Transformation through Design and Implementation of Appropriate Mitigation Actions in Energy Sector (MTRE3 Project) & UNDP PIMS ID 4673* (Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: Ari Yahya Pratama

Signature: DocuSigned by: A9E92855636D444... Date: 20-Jun-2023

Regional Technical Advisor (Nature, Climate and Energy)

Name: Bahtiyar Kurt

Signature: DocuSigned by: 8CD90396275549F... Date: 19-Jun-2023

Resident Representative, UNDP Indonesia

Name: Norimasa Shimomura

Signature: DocuSigned by: Norimasa Shimomura 4B63DD0498CD41A... **Date:** 28-Jun-2023

DocuSign

Certificate Of Completion

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Subject: Complete with DocuSign: MGT RESPONSE_TE REPORT_MTRE3 280623.pdf
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New York, NY 10017
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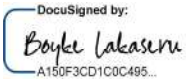
Boyke Lakaseru boyke.lakaseru@undp.org Security Level: Email, Account Authentication (None)	DocuSigned by:  A150F3CD1C0C495...	Sent: 6/28/2023 3:36:19 AM Viewed: 6/28/2023 3:39:31 AM Signed: 6/28/2023 3:40:14 AM
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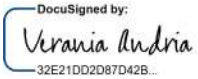
Verania Andria verania.andria@undp.org Senior Advisor for Sustainable Energy UNDP Indonesia Security Level: Email, Account Authentication (None)	DocuSigned by:  32E21DD2D87D42B...	Sent: 6/28/2023 3:40:23 AM Viewed: 6/28/2023 3:43:07 AM Signed: 6/28/2023 3:43:11 AM
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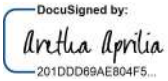
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Aretha Aprilia aretha.aprilia@undp.org Security Level: Email, Account Authentication (None)	DocuSigned by:  201DDD69AE804F5...	Sent: 6/28/2023 3:43:24 AM Viewed: 6/28/2023 3:46:30 AM Signed: 6/28/2023 3:47:38 AM
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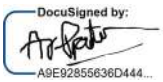
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Ari Yahya Pratama ari.pratama@undp.org UNDP Headquarters Security Level: Email, Account Authentication (None)	DocuSigned by:  A9E92855636D444...	Sent: 6/28/2023 3:47:49 AM Viewed: 6/28/2023 3:48:26 AM Signed: 6/28/2023 3:48:41 AM
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Electronic Record and Signature Disclosure: Not Offered via DocuSign		

Signer Events	Signature	Timestamp
Norimasa Shimomura norimasa.shimomura@undp.org UNDP Resident Representative United Nations Development Program - Global Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by:  4B63DD0498CD41A... Signature Adoption: Pre-selected Style Using IP Address: 183.91.86.162	Sent: 6/28/2023 3:50:49 AM Viewed: 6/28/2023 3:52:35 AM Signed: 6/28/2023 3:53:05 AM

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp
Pramudita Lestari pramudita.lestari@undp.org UNDP Headquarters Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	VIEWED Using IP Address: 182.253.250.33 Viewed using mobile	Sent: 6/28/2023 3:48:50 AM Viewed: 6/28/2023 3:50:49 AM

Carbon Copy Events	Status	Timestamp

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	6/28/2023 3:36:19 AM
Certified Delivered	Security Checked	6/28/2023 3:52:35 AM
Signing Complete	Security Checked	6/28/2023 3:53:05 AM
Completed	Security Checked	6/28/2023 3:53:05 AM

Payment Events	Status	Timestamps