Mid-term Evaluation and Learning Exercise of the Project

"Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico" (Mexico SME-EE)

Project Evaluation and Learning Exercises for the Mitigation Action Facility

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Final Report

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The results and analysis included in the report are based on an external and independent evaluation conducted by the consortium AMBERO-OPM. The conclusions drawn in the report do not necessarily reflect the official views of the Mitigation Action Facility and/or of the project under evaluation.

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Preface

The Mitigation Action Facility is a joint initiative of the German Federal Ministry for Economic Affairs and Climate Action (BMWK), the UK's Department for Energy Security and Net Zero, the Danish Ministry of Climate, Energy and Utilities (KEFM), the Danish Ministry of Foreign Affairs (MFA), the European Union and the Children's Investment Fund Foundation (CIFF). The Mitigation Action Facility evolved from the NAMA Facility, which was established in 2012. The Mitigation Action Facility's vision is to accelerate decarbonisation to keep temperature rises below 1.5 degrees Celsius by financing measures that shift priority sectors in a country towards a sustainable, carbon-neutral pathway. All projects with an overall duration of more than three years are subject to a mid-term and a final evaluation and learning exercise.

The Technical Support Unit (TSU) functions as the secretariat of the Mitigation Action Facility. The TSU commissioned AMBERO and Oxford Policy Management to conduct mid-term and final Evaluation and Learning Exercises (ELEs). Each ELE is conducted using the same Theoretical Framework (FW), which involves the application of a document review, participatory workshops, and stakeholder interviews to collect evidence about projects' results and lessons analysed using a Theory-based approach centred on the use of contribution analysis reinforced by elements of process tracing.

This document presents the findings of the **mid-term ELE of the project "Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico".** The report has been reviewed by Luca Petrarulo (Technical Lead, ELE programme). For further information, please contact vera@ambero.de.

Executive summary

This document presents the findings of the **mid-term Evaluation and Learning Exercise (ELE) findings of the project "Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico", hereafter also** referred to as the **Mexico SME-EE (Small and Medium Enterprise-Energy Efficiency) project.** The ELE was undertaken during the period June-August 2023. In accordance with the Terms of Reference, this ELE sought to address the following questions:

- Is the project achieving its planned results?
- Is the project starting to trigger transformational change?
- What can be learnt from the project so far?

More information about the focus of this ELE and the methodology followed can be found in Section **Error! Reference source not found.** and Section **Error! Reference source not found.**, respectively. The rest of the executive summary highlights the ELE's findings and key lessons. Please refer to Sections **Error! Reference source not found.** and 4 for the detailed findings and conclusions and Section 5 for the full lessons and recommendations.

At the time of finalising the drafting of the Mexico SME-EE project proposal, there were about 4.78 million micro, small and medium-sized enterprises (MSMEs)[1], of which about 27,000 were considered in the project proposal as having high potential for sustainable energy (and greenhouse gas (GHG) emission reduction) measures. MSMEs are of great importance to the country's economy, as they contribute to the largest number of economic units (about 99%), account for about half of the country's annual gross domestic product (GDP) and generate about three-quarters of the jobs in the country. They are responsible for about 12% of the total GHG emissions generated in Mexico. At the same time, MSMEs encounter several financial and economic barriers, human capacity barriers and awareness barriers to unlocking their sustainable energy potential and reducing the corresponding carbon footprint (see Section 1 for details).

To address these barriers, a proposal for the Mexico SME-EE project was prepared for the then-called NAMA Facility[2]. The proposal was prepared through a collaboration between Mexican federal ministries, Nacional Financiera (NAFIN – Mexican development bank) and GIZ (German Development Agency), and it was accepted in 2019 with a grant support of EUR 16.2 million for financial mechanisms and technical assistance services. The project has been designed to include activities under a Technical Cooperation (TC) Component and a Financial Cooperation (FC) Component that will work together to trigger private investments in EE in SMEs[3] to help create a dynamic and robust market for EE as a contribution to a low-carbon economy in Mexico with a mix of capacity-building and investment

1 At present, in 2023, there are about 5.3 million MSMEs (INEGI data, accessed 2023).

2 The name was officially changed in 2023 to "Mitigation Action Facility'.

3 Although the project focuses mainly on SMEs, it also engages with companies that are micro or even large enterprises (i.e., larger than SMEs). This flexibility is used only for showcasing purposes. The terms MSME and SME are often used interchangeably in this report. Similarly, while the project proposal's thematic area is energy efficiency, the project's recommended measures also include the installation of solar technology (i.e., renewable energy). Therefore, often in the report, energy efficiency has to be interpreted as 'sustainable energy', i.e., including solar energy as well.

promotion measures. An extension of the project's end was granted from March 2023 until March 2025.

The FC Component aims to increase the supply and demand for services and products related to financing EE projects in the SME segment using: a) a strengthened bank guarantee scheme (with Mitigation Action Facility's support of EUR 7 million) that seeks to leverage significant participation of private finance for EE in SMEs, and b) complementary financing mechanisms (EUR 2.5 million) to stimulate project developers to perform EE audits and to establish operative protocols to ensure the mitigation ambition of the project (e.g. project technical validation, old equipment scrapping or disabling). The TC Component aims to increase the supply and demand for technical services linked to the development of EE projects in the SME segment, using: a) the offer of qualified EE services, integrated by certified consultants and distributors, b) successfully implemented awareness campaigns oriented to commercial banks and SMEs, regarding EE benefits, and c) new strategic implementation approaches and operative protocols to strengthen the implementation of the project. The project's design does not directly address policy-regulatory aspects, the occurrence of which should be regarded as 'external' factors in the project's Theory of Change (ToC).

The mid-term ELE of the Mexico SME-EE project found that some external factors, including the COVID-19 pandemic and changes in energy policy implementation at the federal level, have seriously hindered the project's start. The former severely limited (presential) meetings in 2020-21, while the latter implied a withdrawal from the Ministry of Energy (SENER) in 2020 as a political counterpart of the project. In addition, **SENER withdrew its co-financing of EUR 8 million,** which was meant to set up a financial guarantee mechanism in addition to the FC Component's funding of EUR 7 million. Only in 2022 could an agreement be reached on setting up the **guarantee scheme between GIZ and NAFIN** (with EUR 7 million), but it was **yet to be officially launched at the time of this mid-term ELE**. The guarantee scheme will allow commercial banks to provide loans for sustainable energy interventions in MSMEs at lower collateral requirements and more attractive interest rates. NAFIN is currently discussing their involvement in the scheme with three commercial banks, Banorte, BanRegio and BBVA.

At the sub-national level, the authorities of some states are taking a proactive approach to promoting 'green' development. An important strategic reorientation has been the **increasing participation of subnational organisations in identifying technical support and financing SMEs for implementing EE projects.** The project's strategy of involving state-level entities and organisations seems to bear fruits and offers scope for further replication in other states. For example, the project has supported the realisation of **energy audits** during 2022-23 with IYEM (Yucatecan Institute for Entrepreneurs) in Yucatán (15 MSMEs) and in Guanajuato (10 MSMEs), in addition to energy audits carried out with AMENEER (Mexican Association of Energy Service Companies) in 20 MSMEs. Based on these, a benchmarking analysis of energy audit costs was also carried out.

In the TC Component, the project has started with **capacity-building activities** of project developers, and it is setting up a Learning Network (in cooperation with AMEXGEN, the Mexican Association of Energy Management Companies). The project has supported the Efficiency Valuation Organisation's (EVO) International Energy Efficiency Financing Protocol (IEEFP) in the Mexican context with accompanying capacity building on energy financing. Operative protocols and guidelines are under development for energy audits, project validation, registration of project developers and registration

of MSMEs for the FC Component's financial mechanisms. However, a larger-scale communication effort will only start when the guarantee scheme with NAFIN is launched in 2023.

The project was designed assuming its activities address barriers and gaps in the two components mutually reinforcing each other. Yet, the FC Component's primary mechanism will only start in 2023. **Therefore, it has been difficult for the ELE team to appraise whether the assumptions underlying the analysis of barriers and proposed project interventions are correct and whether the causal pathways (in the FC and TC components) underlying the theory of change need adjustment.** For example, while some progress can be reported in the capacity strengthening of project developers and consultants, at this point, the guarantee scheme and a more massive awareness campaign still need to be implemented. Thus, we cannot yet assess how these will effectively convince SMEs to undertake energy audits and consider financial support to invest in sustainable energy measures.

A scaling-up will be achieved only after the guarantee scheme is launched. Although the involvement of commercial banks is still incipient, **the project shows some signals pointing to sustainability.** These include the first results of pilot activities (audits, validations, and actual implementation of EE measures), the backing of NAFIN in both TC and FC Components (taking advantage of its experience in working with MSMEs), and alliances at the subnational level (with state and other entities), in particular with those states with proactive 'green' policies.

Although the de facto project implementation is at an early stage, **evidence shows the potential viability of a business model that mobilises financial resources for developing sustainable energy projects in MSMEs** in payment schemes based on energy savings that have the environmental benefit of reducing GHG emissions. **Much of the replication and scaling-up will depend on the results of launching the guarantee fund**, which aims to have 1,200 projects financed with a total investment value of about EUR 100 million.

The ELE team has identified **key lessons**[4] drawn from the project for its subsequent implementation and for other projects being supported by the Mitigation Action Facility.

For the project team:

1. *Partnerships facilitating the reaching out and engagement of SMEs with sectoral transformation efforts are crucial*. Partnering with stakeholders that can connect one or more interest groups and have earned the trust of micro and small enterprises, in particular, can significantly reduce the effort and time required to engage with them and increase the likelihood of success. State governments, (local) trade associations or even trusted federal government agencies are among those potential partners.
2. *Flexibility is key to ensure that the project can adapt to a changing environment and the diverse needs of a broad beneficiary base.* To respond to the changes governance-institutional environment, the Implementing Organisation (GIZ) and partner (NAFIN) had to continually review and adjust their expectations and demands for the partner ministries and local executing organisation

4 Refer to Section 5 for more detailed lessons.

3. *Achieving the sectoral transformations desired will require support from multiple stakeholders. It will be important to manage their expectations according to the project goal. Here, communication with all stakeholders, but more importantly, with key project partners, is important.* Managing the expectations of key stakeholders and keeping open communication channels can make the difference between a project in which all the burden and effort falls upon the implementation organisation, or in which the private sector (and beneficiaries themselves) assumes a leading role in marketing and implementing EE actions. Stakeholders can see the project as an opportunity to improve opportunities for business and/or achieve environmental goals. This may generate expectations amongst stakeholders that cannot be met and might even create tensions between the stakeholders, which should be managed to prevent them from affecting the project's course.
4. *For a wider acceptance of energy audit and project validation protocols, it is important that the costs of carrying out audits and validation are given due consideration*. Concerns may arise about the longer-term viability of such audits in micro and small companies, particularly when MSMEs have to pay for (a substantial part of) the audit costs, of which the cost may not be in accordance with the small size of the enterprise. Towards the end of the project, a survey should be done by the project team on the influence of the cost of audits on taking energy-related investment decisions.
5. In the current project governance structure NAFIN has ended up with the responsibility of tendering for audits and technical validations, functions that a bank normally does not perform. *With the advantage of hindsight, one lesson is that technical activities (audits, scrapping old equipment, validation) should better be part of a technical rather than financial component.*

For future project design:

1. *The usefulness of a Detailed Preparation Phase (DPP) in project design appears to be demonstrated by Mexico SME-EE.* This allowed addressing challenges posed by the different demands of a sector with a wide range of technology and SME market segments and bringing together project partners**.** *However, the timing of submission of a project concept, outline and DPP proposals should, where and if possible, find a balance between a country's political and government decision-making cycle and the Mitigation Action Facility's competitive proposal submission cycle, to avoid possible time-consuming re-design.*
2. Sectoral transformation efforts may originate from national governments, but the support and engagement of local governments often play a similarly pivotal role in transformational change. It is important to consider from early on which partners from local governments, chambers of commerce or private sector associations can shorten the times and reduce the resources needed to start and consolidate the transformation.
3. *Long project cycles make projects likely affected by external events, particularly changing policies and government support. Projects should consider these changes when planning the projects.* The long time over which sector transformation efforts take place usually means that they will cross administrations, and it has been seen in many other Mitigation Action Facility-supported projects that support and commitment vary when administrations change
4. *Effective and sustainable sectoral transformation efforts require strong foundations that take time to build. It should not be concerning to have a delivery plan with low output achievement*

during a moderately long inception phase, once such a phase builds strong foundations for swift implementation upscaling. Effective and sustainable large-scale adoption of EE measures by MSMEs involves taking the appropriate time and preparing the measures necessary for large-scale deployment to take place. These measures have to be in accordance with the typical S-curve of the development of technology-market-segment clusters. Rushing to execute and deliver results may cause the project managers to reduce time and effort in preparing the foundations, compromising the project's ability to deliver the longer-term transformational change sought. The lesson learnt is that the design of targets (indicators) and appropriate measures should align with the market development phase of different technology-market clusters.

5. *With the advantage of hindsight, one lesson is that technical activities (audits, scrapping old equipment, validation) should be part of a technical rather than financial component.* In the Mexico SME-EE project, NAFIN has ended up with the responsibility of tendering for audits and technical validations, functions that a bank normally does not perform.

The ELE has formulated the following **recommendations[5]:**

To the project team:

1. *Continue and deepen the process of partnering with state governments.*
2. *Explore the possibility of partnering with larger companies to encourage their SME suppliers to adopt EE*. This could mean a win-win-win scenario for the project to progress towards its goals, for the SMEs that adopted the EE measures, and for the anchor companies to showcase better sustainability compliance in their reports.
3. *Consider using pilot or other project beneficiaries on a regular basis as "peer ambassadors" to showcase the opportunities and benefits of EE to other SMEs*. Micro or small enterprises may trust peers' experiences more than marketing efforts.
4. *Consider reviewing the capacity building strategy to include a substantial component of 'training of trainers', which will improve the efficiency and sustainability of the training activities.* Expanding technical capacity in a large country like Mexico cannot be achieved only by direct training of beneficiaries but by using 'training of trainers'. This refers not only to project developers or consultants but also to the SME staff/owners spreading knowledge and experience to their peers.
5. *Consider different solutions and approaches to engage and commit SMEs to EE.* Targeting the message tailored to different sectors, SME subsectors, and climatic and economic conditions of geographical zones can help make it easier for business owners, particularly micro and small enterprises, to see the benefits and decide to commit.
6. *Review and strengthen the communication strategy.* the project team should maintain constant communication with them, during and in between project activities.
7. *Reinvigorate the project's Steering Committee, particularly its coordination role*. The Steering Committee can be an important asset for the strategy to connect with the federal government

[5] Refer to Section 5 for more detailed recommendations.

set to take office in 2024. This could mean that the Steering Committee's membership is reviewed, adding representatives from state governments or private sector organisations, as long as expanded membership does not compromise its decision-making ability.

8. *New national (federal) and state elections will occur before the project ends. Plans should be formulated and prepared to respond to the inevitable influence the elections' results will have on the project implementation.*

9. *Develop and adopt a partner engagement policy that seeks an appropriate balance between the project's objectives and the partner organisation's goals to facilitate and speed up implementation and minimise controversies between these stakeholders.*

To the Mitigation Action Facility:

1. *Reinforce the knowledge-sharing resources (documents and spaces) between projects in similar sectors and consider funding thematic evaluations of the Mitigation Action Facility portfolio.* By sharing and compiling knowledge and experiences in the Mitigation Action Facility knowledge hub or other knowledge-sharing spaces, projects can be formulated and implemented effectively. Similarly, sharing the experiences and lessons learned from a project (such as Mexico SME-EE) with new Facility proponents can be helpful for them in formulating their proposals.

2. *Consider funding thematic evaluations of the Mitigation Action Facility portfolio.* Evaluation of a portfolio of MSME projects can provide common themes and issues (rather than being tied to a particular country setting), which can help to avoid pitfalls in the formulation of new projects.

3. *Consider either extending the project beyond March 2025 or formulating a successor project.* The length of the above-described EE project cycle in many SMEs is likely to surpass the project's end date. Thus, results will only be partly monitored and evaluated. The project should be extended to allow SMEs that have successfully been selected after Calls for Proposals to finish their EE project from concept to monitored implementation. A follow-up project should be considered given the fact that, generally speaking, sustainable energy in SMEs in Mexico is still in the deployment phase of market development, and targeted support in a new Mitigation Action Facility project may be needed to move towards a scaled-up diffusion.

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List of abbreviations

AMENEER	Mexican Association of Energy Service Companies (Asociación Mexicana de Empresas de Eficiencia Energética)
AMEXCID	Mexican Agency of International Cooperation for Development
AMEXGEN	Mexican Association of Energy Management Companies (Asociación Mexicana de Empresas de Gestión Energética)
BMWK	German Federal Ministry for Economic Affairs and Climate Action
CAMEXA	Mexican-German Chamber of Commerce and Industry
CFE	Federal Electricity Commission (Comisión Federal de Electricidad)
CONCAMIN	Confederation of Industrial Chambers of Mexico (Confederación de Cámaras Industriales de los Estados Unidos Mexicanos)
COCANACO	Confederation of the National Chambers of Commerce, Services and Tourism
CONUEE	National Energy Efficiency Commission
COPARMEX	Employers Confederation of the Mexican Republic (Confederación Patronal de la República Mexicana)
CRE	Energy Regulatory Commission (Comisión Regukadora de Energía)
COVID-19	Corona Virus Disease 2019
DPP	Detailed Preparation Phase
EE	Energy Efficiency
ELE	Evaluation and Learning Exercise
EMS	Energy Management System (SGEn, Sistema de Gestión de Energía)
ESCO	Energy Service Company
ETL	Mexican Energy Transition Law (LTE, Ley de Transición Energética)
ELEQ	Evaluation and Learning Exercise Question
EUR	Euro
EVO	Efficiency Valuation Organisation
FC Component	Financial Cooperation Component
FIDE	Trust Fund for Energy Savings Trust (Fideicomiso para el Ahorro de Energía)
FW	Framework
GCF	Green Climate Fund
GHG	Greenhouse Gases
GIZ	Gesellschaft für Internationale Zusammenarbeit
IEA	International Energy Agency
IEEFP	International Energy Efficiency Financing Protocol
IYEM	Yucatecan Institute for Entrepreneurs (Instituto Yucateco de Emprendadores)
KfW	KfW Development Bank (KfW – Kreditanstalt für Wiederaufbau)

KII	Key Informant Interview
Logframe	Logical Framework
M&E	Monitoring and Evaluation
MRV	Measuring, Reporting, and Verification
MSMEs	Micro, small and medium-sized enterprises
MXN	Mexican peso
NAFIN	Nacional Financiera
NAMA	Nationally Appropriate Mitigation Action
NBFI	Non-Banking Financial Institutions
NDC	Nationally Determined Contributions
NSP	NAMA support project
OECD DAC	Organisation for Economic Co-operation and Development's Development Assistance Committee
OPM	Oxford Policy Management
Q&A	Questions and Answers
QA	Quality Assurance
QC	Quality Control
RAG	Red Amber Green
RE	Renewable Energy
SDES	Secretaría de Desarrollo Económico Sustentable (Guanajuato)
SE	Secretaría de Economía (Ministry of Economy)
SEFOET	Secretaría de Fomento Económico y Trabajo (Yucatán)
SEMARNAT	Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales)
SENER	Ministry of Energy (Secretaría de Energía)
SHCP	Ministry of Finance (Secretaría de Hacienda y Crédito Público)
SMAOT	Secretaría de Medio Ambiente y Ordenamiento Territorial (Guanajuato)
SMEs	Small and medium-sized enterprises
TC Component	Technical Cooperation Component
TCMF	Transformational Change Measurement Framework
ToC	Theory of Change
TP	Third Party
TS	Types of Sources
TSU	Technical Support Unit, Mitigation Action Facility
USD	United States Dollar

1 Introduction

This document presents the findings of the **mid-term Evaluation and Learning Exercise (ELE) of the project "Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico", hereafter also** referred to as the **Mexico SME-EE (Small and Medium Enterprise-Energy Efficiency) project.** The ELE was undertaken during the period June-August 2023.

1.1 Overview of the project

Background

Micro, small and medium-sized enterprises (MSMEs) are of great importance to Mexico's economy, as they contribute to the largest number of economic units (about 99%), account for about 52% of the country's annual gross domestic product (GDP) and generate 74% of the of jobs in the country[6]. Generally, MSMEs are characterised by the number of workers and their total annual sales. In 2018, at the time of the Mexico SME-EE project proposal formulation, there were about 4.78 million MSMEs. Their number dwindled to 3.9 million during the COVID-19 pandemic but, by 2023, bounced back to 5.33 million (see **Error! Reference source not found.**). MSMEs are responsible for 17% of the country's total energy consumption (electrical and thermal energy) and 12% of the total greenhouse gas (GHG) emissions generated in Mexico[7]. This demand for electricity makes MSMEs a strategic sector to carry out energy efficiency measures and implement renewable energy on a small scale. Reducing their electricity consumption, making their production processes efficient, and considering new energy sources would significantly decrease GHG emissions in the country.

Table 1. Number of registered MSMEs in Mexico (2023)

	Total	Commercial	Services	Industry	Other	Definition
Micro	4,999,874	2,216,651	2,156,893	549,099	77,231	0 - 10 workers Annual sales of < MXN 4 million
Small	285,578	56,869	166,100	37,995	24,614	Sales of MXN 4.01-100 million Commerce: 11-30 workers Other: 11-50 workers
Medium	48,616	17,495	15,090	11,270	4,761	Sales of MXN 4.01-100 million Commerce: 31-100 workers. Services: 51-100 workers; Industry: 51-250 workers
Large	30,194	6,613	12,516	5,178	5,887	Criteria above medium enterprises
TOTAL	**5,364,262**	**2,297,628**	**2,350,599**	**603,542**	**112,493**	

Data compiled using https://www.inegi.org.mx/app/mapa/denue/default.aspx (accessed in July 2023)

6 Ministry of Economy, 2020. T-MEC Report, Chapter 25: Small and Medium Enterprises, No. 34.

7 With a potential total reduction of about 6.9 million tons of CO2 annually (source: Mexico SME-EE project proposal (2018)). Estimates based on the number of 4.2 million MSMEs in 2013.

In 2011, *Nacional Financiera* (NAFIN)[8] and the Ministry of Energy (SENER) created the Business Energy Saving and Efficiency Programme (PAEEEM), later called the Business Eco-Credit Programme (*Eco Crédito Empresarial*). The purpose of this Programme is to provide financial support to MSMEs, aiming at modernising their electrical equipment to promote savings, energy efficiency, and alternative energy sources. Through this programme, NAFIN offers a credit line to the Energy Savings Trust Fund (FIDE), which provides credits to the final beneficiaries. Financing is offered at preferential rates, and payments are made through electricity billing. While Business Eco-Credit had reached over 30,000 MSMEs by 2021 (GCF, 2021), this is still a small fraction of the MSME universe in Mexico. Also, Business Eco-Credit focuses on a limited range of technologies (e.g., it does not include improving the efficiency of thermal technologies). Financing is limited to loan repayment through the electricity bill but does not extend to other financial mechanisms (e.g., bank lending). Thus, NAFIN has sought ways to expand the Business Eco-Credit programme to address the barriers MSMEs face in implementing sustainable energy actions.

The project

In 2012, the Ministry of Energy of Mexico developed an EE-based Nationally Appropriate Mitigation Action (NAMA) to promote replacing old equipment within SMEs. As a follow-up to the SME-NAMA[9], in 2018, the government, in collaboration with NAFIN and the Gesellschaft für Internationale Zusammenarbeit (GIZ - German Development Agency) formulated the "**Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico**" (Mexico SME-EE) project[10], focussing on producing a paradigm shift among key actors in the EE market by showcasing EE as a smart business decision. This was approved and supported by a Mitigation Action Facility[11] grant of EUR 16.2 million.

The project was designed to include activities under a **Technical Cooperation (TC) Component** and a **Financial Cooperation (FC) Componen**t that would work together to trigger EE private investments in SMEs with a mix of capacity-building and investment promotion measures. Starting in March 2019, the implementation was severely delayed in the aftermath of the change of government in Mexico in December 2018 and then during the COVID-19 pandemic (2020-2021). **An extension of the project's end was therefore granted from March 2023 until March 2025**.

Overall, the project aims to address several barriers faced on the demand side (by the beneficiary MSMEs) and the supply side (by finance providers, technology providers and suppliers of energy consultancy services). The project proposal mentions that "by optimising the production process of SMEs, saving opportunities in both electricity use (10-30%) and fuel consumption (5-25%) could be reached".

8 NAFIN is the Mexican development bank which aims to contribute to the country's economic development by facilitating access for MSMEs and entrepreneurs to priority investment projects.

9 The programme has been listed in the National NAMA Register under log number MX-26. https://www.gob.mx/inecc/acciones-y-programas/acciones-nacionalmente-apropiadas-de-mitigacion-namas.

10 Although the project's title suggests a focus on EE, in addition, investments may also encompass renewable energy (RE), such as solar photovoltaics, together referred to as 'sustainable energy'.

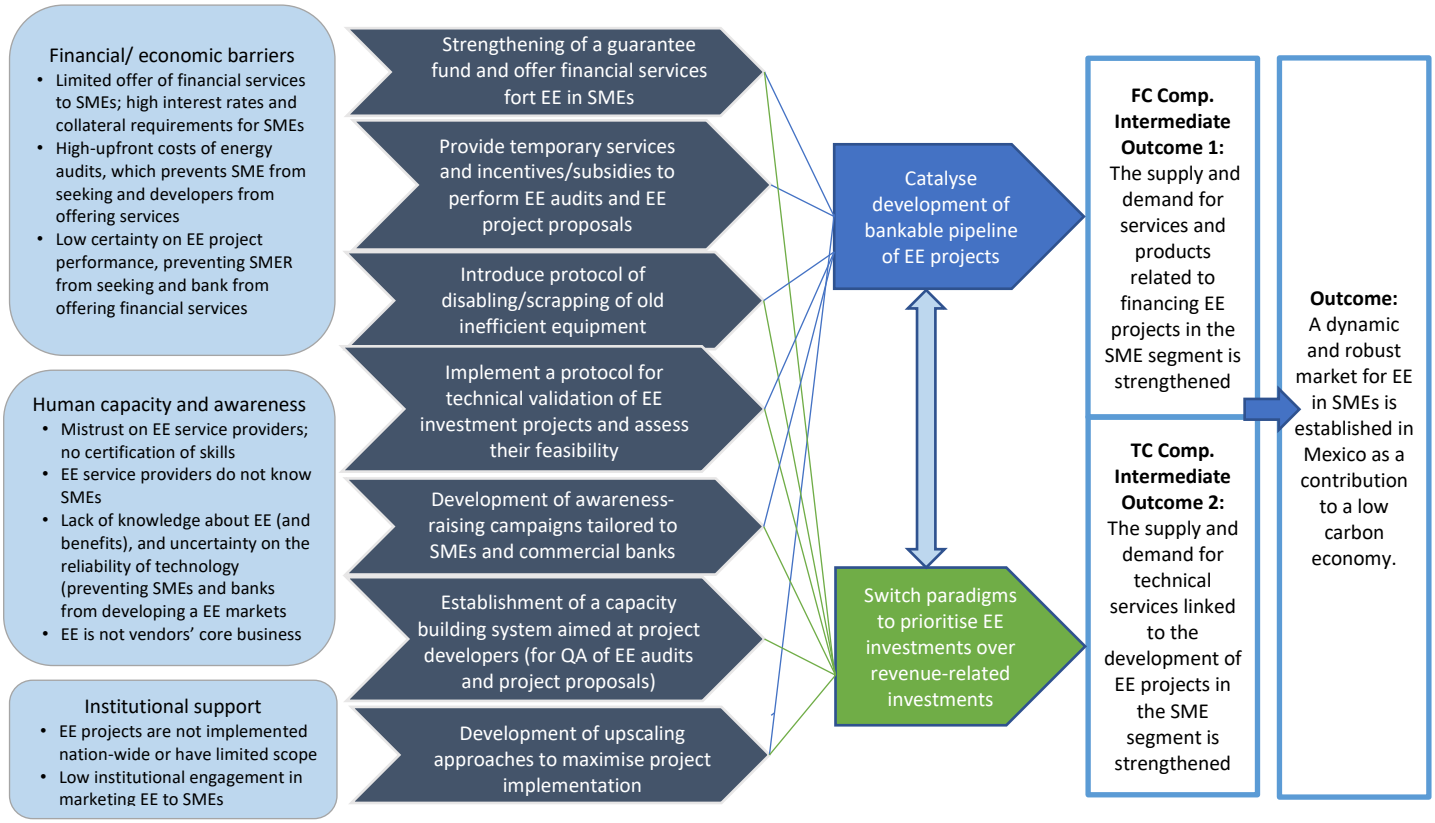
11 Please note that the name of NAMA Facility was officially changed in 2023 to "Mitigation Action Facility'.

Expected project outcomes and impact

The **final outcome** is "A dynamic and robust market for EE in SMEs is established in Mexico as a contribution to a low carbon economy". In order to progress from the initial problem and barriers identified to the achievement of the outcome presented, the ELE team has identified two main causal pathways illustrated in Figure 1**,** each sustaining the intermediate and final outcome of the two project components.

The **FC Component** includes the project's main financial mechanism consisting of a guarantee fund (EUR 7 million) that is to provide an attractive environment for commercial banks to offer financial services for EE projects in MSMEs. This enables banks to offer financing with preferential and attractive conditions to MSMEs, such as a) interest rates lower than regular rates banks typically charge MSMEs, b) longer loan tenures, and c) lower collateral requirements. In addition to this main financial mechanism, complementary financing mechanisms (CFMs) for a total of EUR 2.5 million have been or will be put into operation for financially supporting energy audits and technical validation of investment proposals as well as for the disabling or scrapping of old inefficient equipment.

Figure 1. Causal pathways of the Theory of Change of the Mexico SME-EE project



The **TC Component** focuses mainly on capacity strengthening, formulation of protocols for the abovementioned audits, validation of proposed measures in selected MSMEs (EE projects), and awareness of the benefits of implementing EE projects.

The project seeks to produce a sensitive paradigm change in the EE market's key actors (SME business owners, commercial banks and other financial service providers, and project consultants and

developers) to regard 'sustainable energy' (EE and RE) as a smart business decision. The **expected intermediate outcomes** are:

- **Intermediate Outcome 1:** To catalyse the development of a pipeline of bankable proposals and mobilisation of private capital (commercial banks) and switch the mindset of commercial banks regarding EE (i.e., willingness of commercial banks to prioritise EE (and RE) as a bankable mechanism, inclusion of EE savings as part of their cashflow appraisal, and increased offer of financial services to SMEs for EE projects).

- **Intermediate Outcome 2:** The paradigm shift in the demand side is reflected in raising MSMEs' awareness of the life-cycle economic benefits of EE (and RE) and voluntarily prioritising EE investments alongside other needs, such as increasing production. In addition, by providing project developers with a stimulus, they will experience first-hand the evolution of the EE market in SMEs and bridge the gap between both ends of such a market.

1.2 Focus of the Evaluation and Learning Exercise

In accordance with its Terms of Reference, this ELE seeks to address the following **general Evaluation and Learning Questions (ELEQs):**

- Has the project been achieving its results?
- Has the project started to trigger transformational change?
- What has been learnt from the project so far?

The General ELEQs presented above were broken down and operationalised into Specific ELEQs answered in this report. **Error! Reference source not found.** maps the General and Specific ELEQs against the Organisation for Economic Co-operation and Development's Development Assistance Committee's (OECD DAC) evaluation criteria[12], widely used as international standards for evaluating development interventions. Reference to the relevant report section where each ELEQ / evaluation criterion is treated is also given. Finally, the specific ELEQs were broken down further into sub-questions, which are included in the official ELE Matrix, approved by the Mitigation Action Facility Technical Support Unit (TSU), and reported in Annex B.

Table 2. General and specific ELE questions and their link to the ELE Report sections

General ELE Question	Specific ELE Question	Evaluation criteria (relevant ELE Report section)
Is the project achieving its planned results?	1. To what extent does the Project address identified needs and align with stakeholder priorities?	Relevance (Section 3.1)
	2. To what extent has the Project been achieving intended intermediate outcomes (and unintended ones)?	Effectiveness (Section 3.2)

[12] Relevance, Effectiveness, Efficiency, Impact, Sustainability. The ELE Team added a 6th criterion, namely Learning.

General ELE Question	Specific ELE Question	Evaluation criteria (relevant ELE Report section)
	3. To what extent is the relationship between inputs and outputs timely and to expected quality standards?	Efficiency (Section 3.3)
Is the project starting to trigger transformational change?	4. What evidence is there that the project is likely to contribute to the intended impact in the ToC (incl. transformational change)?	Impact (Section 3.4)
	5. What is the likelihood that the outcomes will be sustained after the end of the project funding period?	Sustainability (Section 3.5)
What has been learnt from the project so far?	6. What key lessons can be learnt to the benefit of this Project or other projects or Projects in achieving their results?	Learning (Section 5.1)

1.2.1 The Mitigation Action Facility Transformational Change Framework

The concept of **transformational change** is included in the General and Specific ELEQs. The enabling of transformational change is one of the key aims of the Mitigation Action Facility and, therefore, of its projects. The Mitigation Action Facility defines Transformational Change as "*Catalytic change in systems and behaviours resulting from disruptive climate actions that enable actors to shift to carbon-neutral pathways"*[13].

The Mitigation Action Facility's Theory of Change explains how transformational change is expected through its outputs and outcomes. The Theory of Change is broad, and transformational change can be achieved through national projects in different ways.

Figure 2 illustrates three dimensions that interact and reinforce each other to produce project-induced transformational change. Each national project will work on different elements of the three dimensions to define its pathway to or "recipe" for transformational change. A more detailed explanation of the ELEs' Transformational Change Measurement Framework (TCMF), summarised in

Figure 2, is presented in Annex A.

The ELE used the TCMF to assess the project's progress towards its impact in Section 3.4. In particular, in the evidence gathered through the ELE, the evaluators have looked for "signals" of the materialisation of the three dimensions and classified them as **early, interim, and advanced signals** according to the definitions. The figure also gives the minimum level of signals of each of the three transformational change dimensions that projects are expected to have achieved by their mid-line and end-line.

13 https://mitigation-action.org/wp-content/uploads/Mitigation-Action-Facility_TC-factsheet.pdfhttps://www.nama-facility.org/concept-and-approach/transformational-change

Figure 2. Transformational Change Measurement Framework

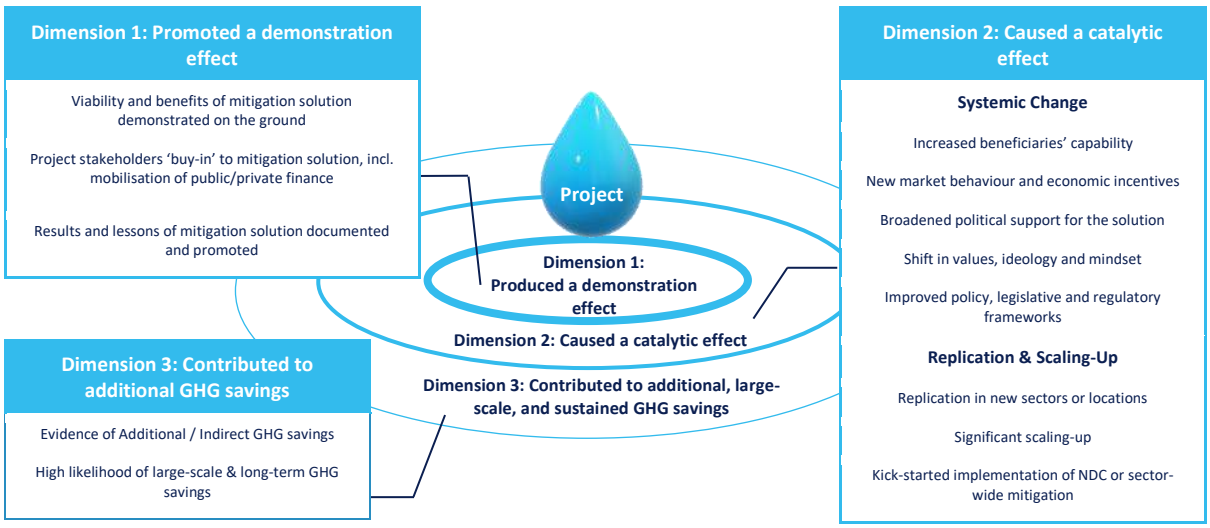


Table 3. Transformational Change "Signals" assessment by ELEs

Signal level	Definitions
No evidence	Evidence suggests little to no progress is being made in line with the ToC causal pathways to Transformational Change.
Early signals	There is emerging evidence of the transformation related to the dimension, or the foundations for the transformation have been laid by the project but no signals of the change are present.
Interim signals	Evidence shows some signals that the transformation related to the dimension is underway and it is likely to continue.
Advanced signals	Evidence shows strong signals that the transformation related to the dimension is underway and there is little doubt that it will continue.

Table 4. Minimum expected signals of project-induced transformational change

Dimension	Mid-point	End-point
1: Promoted a demonstration effect	Interim signals	Advanced signals
2: Caused catalytic effect	Early signals (of one or more of the types of possible changes)	Interim signals
3: Contributed to additional GHG savings	None	Early signals

2 Methodological approach

The ELE entailed activities under 4 main phases: inception, fieldwork, analysis, and reporting and presentation.

During the **Inception Phase, the ELE team conducted a first review of key project documentation,** including the project proposal, annual and semi-annual reports, the project M&E framework, the project Logical Framework (Logframe), and key deliverables to show evidence of what was reported (see the full list of documents reviewed in Annex C). Following that, the team used the information from the document review to develop a retrospective Theory of Change (ToC) diagram.

The data from the document review and the ToC served as reference points to develop **a tailored matrix, including the ELEQs** (see the ELE Matrix in Annex B), which the ELE team then integrated with the initial hypotheses to be tested by the fieldwork. At the same time, the ELE team worked on organising the fieldwork interviews. For that, they randomly sampled the key informants according to their level of involvement with the Mexico SME-EE project. In this way, the ELE team grouped them into three general categories: (i) project team, i.e., members of the implementation organisation (GIZ); (ii) project stakeholders, i.e. individuals who were actively involved in one or more project activities; and (iii) third parties, i.e. individuals who received one or more project activities (e.g. were part of the audience of an event or training), or who were not involved with the project, but are working on similar or relevant issues. This helped the ELE team to test and triangulate the evidence and assess the strength of the evidence. Table 5 summarises the number of interviews and people interviewed (some calls had multiple interviewees) by each sampling category. For a detailed list of the institutions and organisations interviewed, refer to Annex C.

Table 5. Overview of the number of interviews and interviewees by sampling category

	Project Team	Project Stakeholders	Third Parties	TOTAL
No. interviews	3	15	4	**22**
No. interviewees	11	17	4	**32**

The **Fieldwork Phase** began with an **ELE Kick-Off Workshop** on 1 July 2023. The workshop was conducted in a virtual setting and was attended by participants from the project team and ELE teams. The workshop's purpose was to review, clarify and validate: (i) the purpose, scope and expectations of the ELE and (ii) the Mexico SME-EE project's ToC. During the workshop, the project team presented the key project results and its understanding of the key elements of the project ToC, while the ELE team presented its point of view on the project ToC. Presentations were accompanied by Q&A and discussions (all in Spanish) about the project team's expectations from the ELE. One key outcome of the Kick-Off Workshop was finalising a project ToC diagram (submitted to the TSU, but not publicly available).

As a continuation, a presential **project team meeting** was held (13 June 2023) at the beginning of the ELE mission to Mexico (13-23 June 2023) to further discuss project achievements up to date, purpose and the project team's expectations and organisation of the mission. This was followed by about eight

days of primary data collection using **Key Informant Interviews (KIIs) with project stakeholders and third parties.** These were carried out using an interview questionnaire (that followed the structure of the ELEQs in the ELE Matrix) as a basis for the interview. Still, the contents and wording of the questions were tailored to capture key knowledge from specific informants, cover knowledge gaps, or simply test hypotheses or triangulate specific information. All interviews were in Spanish.

The preliminary findings of the ELE mission were presented at the **ELE Validation Workshop** on 23 June 2023 with the project team and a representative from NAFIN. The main objectives of the Validation Workshop were to review, discuss and validate the preliminary ELE findings and identify ways to adapt the project based on the lessons identified. The fruitful discussion on preliminary ELE findings allowed the ELE team to validate them and identify valuable actions.

The final part of the fieldwork moved the ELE team into the **Analysis and Report Drafting Phases**. The phase consists of cross-checking notes from the interviews[14], data mining from project reports (annual and semi-annual progress reports; presentations), project technical products (e.g., manuals and guides), as well as background information (from websites and publicly available reports or articles). Section 3 of this report uses the evidence from the interviews and document analysis to present the ELE team's findings in terms of the performance of the Mexico SME-EE project against the OECD DAC criteria (relevance, effectiveness, efficiency, impact, and sustainability) and its performance against the ToC outcomes.

2.1 Limitations

The main **limitations of the mid-term ELE** include the following:

- The mission in June 2023 to Mexico by the ELE team allowed having face-to-face discussions with the project team, implementing partner, beneficiaries (EE companies and MSMEs) and other stakeholders. While this often led to fruitful discussions with the stakeholders, it has to be borne in mind that a two-week mission can only give a snapshot of people's opinions and attitudes.

- The number of interviewees is a small subset of the landscape of SME owners, energy experts and other stakeholders (see Table 5). The choice of SME interviewees was limited to those involved in the project. For logistical reasons, it was impossible to interview SMEs that have not been beneficiaries (yet). Most of the interviewees were located in the Yucatán region (the state where the most recent energy audits were organised with project support), focusing on micro and small enterprises. This gave a good impression of the MSME interaction with the project and perceived benefits. However, care has to be taken to generalise findings from these interviews to apply to larger enterprises in the sector, to other geographical areas, or the SME segment as a whole.

[14] That was compiled in an internal spreadsheet organised per ELEQ sub-questions/themes and reporting results per type of informant sources (project team, project stakeholder, third party). The file is available to the TSU only.

3 Key findings

In this section, the ELE team presents the main findings of the ELE. These are structured according to the ELE Questions in Table 2. At the beginning of each section, a RAG rating of the strength of the project's contribution story to the ToC and the OECD DAC criteria is included, following the scale: Good / Very good = Green; Problems = Amber; Serious deficiencies = Red; Not enough info to rate = Grey.

3.1 Relevance of the project

Relevance	To what extent does the project address identified needs and align with stakeholder priorities?

Government policy

Mexico has substantial and diverse renewable energy generation resources available, including wind, solar, hydro and geothermal. Legislation adopted since 2013 has allowed the energy sector to progressively address the transition from fossil fuels to other, cleaner sources of energy, helped by the rapidly declining costs of some RE technologies (e.g., solar photovoltaic (PV)) at the international level. The 2015 **Mexican 'Energy Transition Law' (LTE,** *Ley de Transición Energética*) enshrined targets of 30% RE generation by 2021 and 35% by 2024 (however, Mexico is currently not on track to meet these[15]). The LTE mandates setting up energy policy lines and programmes. The overall approach was established in the '**Transition Strategy to Promote the Use of Cleaner Technologies and Fuels'**, as mandated by the LTE. The Transition Strategy was a basis for two special programmes with concrete actions and targets that became obligatory policies: 'The Special Programme for Energy Transition' (**PETE,** *Programa Especial de la Transición Energética*) and the 'National Programme for the Sustainable Use of Energy' (**Pronase,** *Programa Nacional para el Aprovechamiento Sustentable de Energía*), 2014-2018, updated for the period 2020-2024. The overall energy sector goals are set in the 'Energy Sector Programme' (**Prosener,** *Programa Sectorial de Energía*) 2020-2024. With the LTE framework, the 'Energy Efficiency Roadmap' (*Hoja de Ruta en Materia de Eficiencia Energética*) was drafted in 2017, establishing the responsible actors, timeframes and resources to achieve its objectives.

Despite these positive premises, recent events have cast significant doubt over the role of both private and government investment in the Mexican energy market and renewable generation in the energy mix. In response to the COVID-19 pandemic, in particular, the new Mexican government, which took office in December 2018, issued a range of measures which clamp down on private investment in the (sustainable) energy sector with the idea of protecting the state-owned oil and utility companies in light of the economic downturn. **While overall sustainable energy policy goals may not have changed, faltering support for effective measures has formed a barrier to sustainable energy uptake** in recent years**.** This is discussed further as part of 'external factors' (see Section 3.2.3).

[15] https://yearbook.enerdata.net/ and https://www.eia.gov/international/analysis/country/mex (accessed July 2023). Share of RE in electricity production was 13% in 2021. The installed RE capacity was 30 GW (30% of a total capacity of 95 GW).

Box 1. Entities involved in sustainable energy and climate change

Government and public sector:

- The **Ministry of Energy (SENER)** is responsible for Mexico's energy strategy and policy, including EE in all productive sectors.
- The **National Energy Efficiency Commission (CONUEE)** is a decentralised body of SENER, responsible for promoting EE, enacting and supervising the enforcement of EE standards and providing technical expertise regarding sustainable energy use.
- The **Ministry of Economy (SE, *Secretaría de Economía*)** establishes the methodology for measuring local content in contracts for exploration and extraction of hydrocarbons. The SE also formulates and develops general policies in industry and foreign trade, which have implications for the energy sector.
- The **Ministry of Environment and Natural Resources (SEMARNAT**) is in charge of managing, regulating and promoting the sustainable use of the nation's natural resources, except hydrocarbons and radioactive minerals. It is responsible for regulatory and planning instruments related to the energy sector, in particular in the area of climate change policy. Climate change mitigation and adaptation strategies are formulated by the **National Institute of Ecology and Climate Change** (**INECC)**.
- The **Ministry of Finance (SHCP)** allocates the federal budget and provisions to the public sector to carry out the priorities set in the Energy Transition Strategy and other planning instruments.
- The **Federal Electricity Commission (CFE**) was the monopolist in charge of the generation, transmission and distribution of electricity in the entire country, including power dispatch. The 2013-2014 reforms saw a legal unbundling of CFE into six generating companies, one transmission company, one distribution company, one basic energy-service supplier, and four affiliated companies. CFE has remained responsible for transmission and distribution with 16 geographical centres in charge of distribution. Distribution network tariffs are regulated by the **Energy Regulatory Commission (CRE)** under the purview of SHCP.
- Set up by CFE, the **Trust Fund for Energy Savings (FIDE)**, a private, not-for-profit institution, is made up of a mix of private and government members. It promotes and funds projects for efficient end-use, particularly technology development and innovation in industry, commerce and services sectors, as well as in the agricultural sector.
- **Nacional Financiera (NAFIN)** is a national development bank with the objectives to promote the overall development and modernisation of the economy with a regional approach and oriented towards SMEs. With sources coming from international development and commercial banks and securities, it channels its funds mainly through commercial banks and non-banking financial intermediaries.

Business public and private organisations:

- **Confederation of Industrial Chambers of Mexico (CONCAMIN)** serves as an organisation of consultation and collaboration of the states and integrates 46 national chambers, 14 regional chambers, 3 generic chambers and 46 associations of the different productive sectors.
- **Employers Confederation of the Mexican Republic (COPARMEX)** is a voluntary membership business organisation, consisting of a network of 65 business centres, 14 federations, and delegations around the country.
- **Confederation of the National Chambers of Commerce, Services and Tourism (CONCANACO**) is a public institution that coordinates and represents the local chambers of commerce before the Federal Government.
- The **Mexican-German Chamber of Commerce and Industry (CAMEXA)** promotes commercial ties between Germany and Mexico.
- The **Mexican Association of Energy Service Companies (AMENEER)** (formerly known as Mexican Association of Energy Service Companies (AMESCO)) includes companies that provide energy services, and systems for energy monitoring and control in commercial, residential, industrial and governmental buildings. Also, AMENEER promotes, disseminates and negotiates EE projects as part of its activities.
- Another relevant association is the **Mexican Association of Energy Management Companies (AMEXGEN).**

The General **Law on Climate Change,** promulgated in 2012, aims to align activities on mitigation and adaptation between the different government entities. The 2013 National Climate Change Strategy (ENCC) set 10, 20 and 40-year milestones to guide climate change policy within the three levels of government (federal, state and municipal). The **Nationally Determined Contributions (NDC)** was first submitted in 2016, and the version updated in 2022 sets an unconditional 2030 target of 35% GHG emissions reduction below a BAU scenario and a conditional target of 40%, subject to the availability of financial resources and technology[16].

The intervention of the project will contribute to lower emissions in the MSME sector by decoupling growth in that sector from increased energy consumption. Thus, the project is in line with the national energy and climate change mitigation goal. For example, in the NDC reference is made to the Mexico SME-EE project[17].

Barriers to sustainable energy in MSMEs[18]

An array of barriers limits the realisation of energy savings and renewable energy potential in MSMEs and the relevance of the project is in addressing such barriers.

- Demand-side barriers
  - MSMEs often have a tight cashflow for investments
  - MSMEs may mistrust banks and/or are reluctant to borrow from banks due to high interest rates and collateral requirements
  - MSMEs may see energy efficiency only as a short-term cost, instead than a long-term benefit due to its investment requirements
  - Resource constraints lead MSMEs to seek effectiveness and this means that they may prefer specific interventions rather than more strategic energy audits
  - Lack of confidence in new technology and their costs and benefits'
  - Conflicting requirements and regulations create confusion.
- Supply-side barriers
  - For traditional banks, loans to MSMEs are riskier than those for larger companies, whose larger cashflows and assets provide better repayment guarantees
  - Energy consultants do not know the MSME market segment well and focus on larger companies and/or on one specific technology
  - Regarding technology vendors, EE is not their core business
  - Lack of standardisation of EE projects, creating confusion on their quality and content
  - Lack of policies mandating EE; low engagement, in general, of institutions in marketing EE to MSMEs, a lack of institutional coordination

16 The NDC (UNFCCC, 2016) mentions a commitment to reduce GHG emissions by 22% by 2030, compared to the BAU scenario, and regarding the conditional commitments, the reduction of GHG emissions can be increased up to 35%.

17 "Our country promotes actions in micro, small and medium-sized industries, in particular through the MSME NAMA, seeking to support this sector, which is of great importance for the national economy and employment generation, with cost-effective measures, mainly energy efficiency" (NDC, page 13, translated from Spanish).

18 Based on evaluators' observations and the list of barriers mentioned in the project proposal.

Government regulations regarding energy efficiency in MSMEs

The National Energy Efficiency Commission (CONUEE) has been promoting the sustainable use of energy by SMEs through the dissemination of information on technologies and best practices, the promotion of similar support programmes from other institutions, and by supporting companies to implement Energy Management Systems (EMS). However, because of the large sector diversity, MSMEs are rarely specifically targeted by (federal) environmental policies and regulations. Only large energy consumers must report their annual energy information and EE measures implemented. Thus, EE measures by smaller consumers have been relatively limited, focusing on energy audits and providing recommendations in private and public industrial facilities (IEA, 2017).

Technical service providers

In Mexico, energy service companies (ESCOs) typically offer services for the large private sector, industry and commercial hotels[19]. In Mexico, the ESCO business contracts are typically from less than 1 year to up to 5 years. In 2011, the Mexican Association of Energy Service Companies (AMESCO) was established. It was later transformed into the Mexican Association of Energy Efficiency Companies (AMENEER), including individuals and companies with a wider energy consulting and services scope. **In general, the ESCO market in Mexico is not well developed.**

Regarding MSMEs, the diversity of companies makes it difficult for an energy consultancy to conduct comprehensive energy audits covering a wide range of technologies and processes. In contrast, the cost of the audit and the certainty of its recommendations will be a barrier to the smaller MSMEs. There are no standardised procedures that facilitate energy audits in MSMEs by energy consultants or ESCOs. The lack of homogeneity of audit schemes makes it difficult for the management of an MSME to validate their results and to understand the investment risks. Even if attractive for MSMEs, there would not be enough energy efficiency consultants to cover the potentially huge market of MSMEs.

Financial services for MSMEs in the area of sustainable energy

The Mexico SME-EE project builds on the **Business Eco-Credit** *(Eco Crédito Empresarial)* programme implemented by **FIDE**, which started with financing MXN 165 million in December 2013 and is continuing[20]. The programme aims to encourage SMEs to implement EE measures. The initiative offers

[19] Energy Service Companies (ESCOs) are companies that provide a broad range of energy solutions including design and implementation of energy savings projects, retrofitting, energy conservation, and power generation. ESCOs differ from the traditional energy consultants or equipment suppliers in the fact that they can also finance or arrange financing for the operation and their remuneration is directly tied to the energy savings achieved.

[20] Throughout the design and different implementation phases of the Business Eco-Credit programme, FIDE worked with NAFIN. KfW supported the programme with three loans. The first contract was signed in 2011 and EUR 19.5 million were allocated; the second, in 2015, allocating EUR 50 million; and the last one, still active, in 2018, for an amount of EUR 45.4 million. By 2021, the programme had benefited around 30,700 MSMEs with a corresponding reduction of 108,139.00 tCO_2e; and almost 50,000 electrical equipment had been replaced. Source: NAFIN, GCF (2021).

finance of up to MXN 200,000[21] to small businesses (CFE clients in the commercial tariffs) to substitute inefficient commercial refrigeration, air conditioning, equipment, electric motors, upgrade lighting systems, install solar water heaters, or install electric capacitors and substations. These can be provided by suppliers, certified by and registered with FIDE, and the clients pay back through the monthly CFE electricity bill. A related programme, the Fund for Energy Transition and Sustainable Energy Use (**FOTEASE**), created incentives for distributed generation (solar PV and micro-cogeneration), approving resources to grant users an economic incentive equivalent to 10% of the total cost of each system, with the remaining 90% being financed[22].

Relevance of the Mexico SME EE project

According to the analysis above, it is clear that the **Mexico SME EE project is relevant to the needs of its key stakeholders: government entities, MSMEs, financial institutions and providers of energy consultancy and services**.

The project correctly links to national targets and priorities for climate change and energy efficiency, such as those described in the NDC. The project will help lower emissions by fostering MSMEs to opt for implementing EE and RE projects, allowing for an increase in competitiveness while reducing their energy intensity and their GHG emissions.

The project addresses the main awareness, human capacity, and financial-economic barriers in its two components, FC and TC. The Mexico SME-EE project meets the needs of project developers and consultants as it addresses the SMEs' barriers which prevent demand for EE (and RE) services offered by project developers and consultants. Unlike the Business Eco-Credit initiative, the Mexico SME-EE project attempts to actively engage the (commercial) banking sector in providing finance to MSMEs for sustainable energy. Also, it has a wider scope, in comparison with Business Eco-Credit, in terms of incorporating and improving the efficiency of thermal energy applications.

Therefore, the **evaluators assigned a green rating to the Relevance evaluation criterion.** The ELE team observes, however, that **the project was not designed to address policy-regulatory issues** specifically, which have to be regarded as an external factor in the project design.

3.2 Effectiveness of the project

Effectiveness	**2. To what extent has the Project been achieving intended intermediate outcomes (and unintended ones)?**
	Intermediate Outcome 1: The supply and demand for services and products related to financing EE projects in the SME segment is strengthened
	Intermediate Outcome 2: The supply and demand for technical services linked to developing EE projects in the SME segment is strengthened

[21] Effectively, the client pays an interest rate of up to 18.75% annually and with a period of up to 4 years (5 years for PV systems). Source: https://www.nafin.com/portalnf/content/financiamiento/eco-credito-empresarial.html (accessed in July 2023).

[22] https://ecoenerblog.wordpress.com/2018/01/31/financiamiento-fide/ (accessed in July 2023).

The project structure draws upon lessons learned during the scheme initiated in 2015 as part of the Business Eco-Credit programme, which can be considered a pre-project phase (2017-18) in the design of the Mexico SME-EE project[23].

3.2.1 Intermediate Outcome 1: The supply and demand for services and products related to financing EE projects in the SME segment is strengthened.

Intermediate Outcome 1 of the project's ToC specifically refers to the FC Component. A summary of the outcome and output indicators related to Intermediate Outcome 1 is given in **Error! Reference source not found.**. The table presents the baseline and target values as mentioned in the Mexico SME project proposal and compares them with the values achieved at the time of the mid-term ELE.

An important goal of the FC Component is improving the current credit conditions in terms of interest rates, loan tenure and collateral requirements to facilitate SMEs' access to credit by setting up a guarantee fund. This should attract the participation of commercial banks by covering their risk perception when working with the SME segment and making SMEs take on loans (for sustainable energy interventions) at more favourable conditions than normal.

Table 6. Summary of outputs and indicators under Intermediate Outcome 1 (FC Component) and related impact indicators

Ref.	Indicator	Baseline	Target (End of Project)	Achieved (mid-2023)
Outcome indicators				
FC OC	Number of projects financed by participating banks in the second implementation phase of the SME NAMA (Business Eco-Credit* + Mexico SME-EE project)	20	9,045	20
M4	Volume of public finance mobilised for low carbon investment and development	€ 500,000	€ 8,500,000	€ 568,162**
M5	Volume of private finance mobilised for low carbon investment and development	0	€ 240,000,000	0
Output indicators				
FC OP1	Number of financial private institutions financing EE in SMEs under the project	1	3	1
FC OP2	Number of energy audits performed under the project	0	4,365	36 ***
FC OP3	Percentage of projects developed under the project framework that follow the operative protocols [%]	0	80%	100%****

Notes:

* Activities in the Business Eco-Credit programme (see Section 3.1) are considered in the Mexico SME-EE project proposal as a 'pre-project phase', i.e., carried out during the project design.

** No EE projects have been financed by the Mexico SME-EE project yet. Baseline figures refer to the pre-project phase (20 EE projects financed and public funding raised of EUR 500,000).

[23] Some results of the pre-project phase are reflected as baseline values of the project's indicators (see, for example, in **Error! Reference source not found.**, FC-OC Number of projects financed: 20; indicator M4 Public investment mobilised: EUR 500,000).

*** With AMENEER 20 audits and with IYEM 16 audits. In Guanajuato, an additional 10 audits are being carried out but their reports are not finalised yet (see Box 2).

**** Energy audits and EE proposals in participating MSMEs developed according to the audit, validation and other protocols and guidelines, discussed in Section 3.2.2.

FC: Financial Cooperation Component. Indicator reference: M: Mandatory Core Indicator, OC; outcome; OP: output. The mandatory core indicators are grouped as part of the FC, following the presentation of indicators in the project proposals, while indicators M3 to M5 are presented in Table 8 (as part of the overall outcome)

Source: Draft Semi-Annual Report 2023

The FC Component's progress towards its Intermediate Outcome has been limited so far. The change in partner ministry from SENER to SHCP (described in Section 3.3) implied that the **SENER co-financing support expected (EUR 8 million) to beef up the project's guarantee fund was cancelled**. To counter this setback, the project team adapted its strategy for mobilising public finance by seeking partnerships with subnational governments in addition to the funds provided as part of the FC Component under the existing national partnership with NAFIN .

The project has made initial progress by carrying out **energy audits in several pilot (M)SMEs**: from May 2021 to February 2022 with **AMENEER** (20 MSMEs), during 2022-23 with **IYEM in Yucatán** State (16 MSMEs) and recently in **Guanajuato** State (since March 2023, 10 audits so far). Some details of the results obtained by mid-2023 (investment, payback period, type of technology) are provided in Box 2. In Yucatán, 47% of the companies decided to implement one or more of the recommended measures. The public funds mobilised reported in **Error! Reference source not found.** (EUR 68,162) correspond to the first few loans granted by IYEM to finance these measures.

One interesting aspect that can be seen in Box 2 is the substantial share of PV systems in the measured identified in the audits. These form, strictly speaking, an energy substitution technology rather than saving energy, although both contribute to GHG emission reduction. Respondents interviewed as part of the mid-term ELE, mentioned that investing in small-scale PV projects is relatively straightforward because it does not affect the production process. The acquisition of new, more efficient appliances, in contrast, may imply changes in the business or production process and possibly loss of production during the time of installation[24]. Although the use of PV implies lower GHG emissions and electricity bills, energy consumption may remain the same or increase. For example, respondent MSMEs interviewed in Yucatán mentioned the increased use of air conditioning after solar panel installation to provide more comfort to their workers in the region's hot tropical climate.

Limited progress has been made at the national level. NAFIN and GIZ signed the grant agreement for the guarantee fund only in October 2022. At the time of the mid-term ELE fieldwork (in June 2023), it had not been officially launched and published yet and NAFIN was in discussion with three commercial banks, Banorte, BanRegio and BBVA. After the ELE fieldwork, information regarding the tender conditions for the elaboration of energy audits and technical validation of projects has been

[24] Another reason, mentioned in a NAFIN-submitted document (GCF, 2021), is that project developers and consultant may recommend installing a solar PV system. Since the investment amounts involved in PVs are often higher (see, e.g., the Yucatán audit figures in Box 2) than EE options, they tend to focus on PV first and they expect to receive a higher commission proportional to the investment amount.

put on NAFIN's website[25] but the tender has yet to be officially launched by the time of finalising the ELE report.

A benchmarking of the audits' costs was performed in the first half of 2023 through a survey of project developers and checked with the economic proposals received in bidding organised for the project activities.

Box 2. Results of energy audits (2021-present)

Pilot project with AMENEER (Febr 2021-2022)

- 20 energy audits in MSMEs validated
  - 30% industry, 65% commerce and 5% services
  - Seven states: CDMX (7 SMEs: commercial, manuf., food, and paint industry), Jalisco (3 SMEs: commercial, plastics), Nuevo León (6 SMEs: commercial), Puebla (1 SME: textile), Querétaro (1 SME: commercial), S.L. Potosí (1 SME: health services), Yucatán (1 SME: plastics)
- 37 energy efficiency (and renewable energy) measures identified
- Total investment identified of MXN 32 million
- Potential mitigation: 1,433 tCO_2

Technology (number)	Air conditioner (6/20)	Compressed air (1/20)	Thermal isolation (5/20)	Lighting (11/20)	Refrigeration (4/20)	PV systems (9/20)	Thermal solar (1/20)
Average invest-ment [MXN]	190,000	140,000	500,000	70,000	160,000	3,000,000	1,350,000
Payback [yrs]	3.5	2,5	4	2.5	2.5	7.5	3

Yucatán (IYEM, SEFOET; May 2022-June 2023)

- 16 of which 15 audits reported (8 in micro; 7 in small enterprises)
- 20 energy measures identified
- Total investment identified of MXN 3.5 million
- Potential mitigation: 124 tCO_2

Technology (number)	Air conditioner (6/20)	Air curtain (1/20)	Capacitor banks (1/15	Boiler (11/20)	Refrigeration (4/20)	PV systems (9/20)	Thermal solar (1/20)
Uses	Climatization	Climatization	Reduce power factor	Hot water and vapour	Food conservation and cooling	Electricity generation	Hot water heating
Investment, MXN - average - range (MXN)	19,250 (14.5-24)	8,600	18,639	270,000	426,000	325,602 (88-1,174)	69,297 (30-115)

[25] https://www.nafin.com/portalnf/content/emisiones-y-relaciones-internacionales/mitigacion-cambio-climatico.html was accessed by the ELE team on 6 September 2023, which was still indicating "*próximo lanzamiento*" (launch coming soon). The terms of the tender can be accessed at '*Condiciones de Licitación para la elaboración de Diagnósticos Energéticos*' (energy audit tender terms and conditions) and '*Condiciones de Licitación para la elaboración de Validaciones Técnicas*' (technical validation tender terms and conditions). The website also provides links to download the corresponding methodology guides for the "energy diagnostics and analysis of energy-saving measures" and "technical validation and verification of projects"

Payback [yrs] **- average** **- range**	3.5 (2-5)	1.1	1.6	4.0	3.6	4.1 (2.6-7.3)	4 (2-6.8)

Guanajuato (SMAOT, SDES, Fondo Guanajuato; March-Dec 2023, ongoing)

- 10 energy audits (so far, industry, services, commerce) carried out and the results being drafted
  - 1 micro, 4 small, 4 medium, 2 large.

Source: based on slide presentations, prepared by the project team

The benchmarking of the costs of energy audits was carried out with two associations of project developers (AMEXGEN and AMENEER) to verify the costs per energy audit, considering different variables such as SME size, energy intensity and demand, and technologies used, among others[26].For many (small) enterprises, the initial audit cost may be a hurdle, especially if not sure about the profitability of the audit in terms of net monetary savings. The project now subsidises these costs. For sustainability, a strategy would need to be designed by the project to lower the subsidy element and convince SMEs to pay for it or have third (private or government) parties subsidise it[27].

Despite the progress at the output level (energy audits), **as the core of the FC Component with its guarantee fund still has to materialise, the ELE team considers not having enough evidence to assign a RAG rating to the effectiveness in contributing to Intermediate Outcome 1, thus assigning a grey rate to it.**

3.2.2 Intermediate Outcome 2: The supply and demand of technical services linked to the development of EE projects in the SME segment is strengthened

Intermediate Outcome 2 of the project's ToC specifically refers to the TC Component. A summary of the outcome and output indicators as part of Intermediate Outcome 2 is given in **Error! Reference source not found.**. The table presents the baseline and target values as mentioned in the Mexico SME project proposal and compares with the value, achieved at the time of the mid-term ELE, based on the latest Semi-Annual progress report.

Table 7. Summary of outputs and indicators under Intermediate Outcome 2 (TC Component)

Ref.	Indicator	Baseline	Target (End of Project)	Achieved (mid-2023)
Outcome indicators				

[26] The obtained results show a cost ranging from about EUR 1,500 for companies using between 25-100 kW of electricity, EUR 3,500 for companies between 101-300 kW, EUR 8,200 for companies between 301-600 kW, and EUR 11,000 for companies between 601-800 kW. Source: Data provided by project team; Semi-Annual report 2022.

[27] For example, the project can publish cases that show clear net savings (even with full net audit costs included) of EE investments per group (size, type, subsector) of companies. Another option is to discuss with consulting companies if they can absorb (part of) the audit cost and get reimbursed from part of the net savings, as in an ESCO mode (see also observations on the market for ESCOs in Section 4). Subnational governments may also consider (partly) supporting audit costs. The project team should look into such options and devise an 'audit cost exit strategy'.

TC OC	Number of projects developed following the project framework	20	9,045	56
Output indicators				
TC OP1	Number of EE consultants and distributors' sales representatives offering EE services focused on SMEs within the project, which are certified according to the procedures agreed in the project framework	0	90	15
TC OP2	Number of requests of information to project developers, banks, operative manager and implementing partner about the project	0	22,600	2,204
TC OP3	Number of differentiated strategical implementation approaches and operative protocols put into practice	0	5	2*

Source: draft Semi-Annual Report 2023

TC: Technical Cooperation Component. Indicator reference: OC; outcome; OP: output

* a) Subnational government, SME chambers and associations; b) non-banking financial institutions (NBFIs) and FinTechs.

At the output level, one output concerns the **strengthening of the capacity and skills of project developers and consultants offering services to SMEs**. The following was delivered:

- The capacities of 11 project developers were validated in the pilots with AMENEER and IYEM and are registered with the project.
- A learning network with AMEXGEN was established, focussing on EE project developers and their alliances with other stakeholders.
- A virtual course on technical capacity has been designed and will be online, as part of the learning network. Such online tools will supplement presential training events and help expand knowledge and technical information dissemination on EE/RE in SMEs.

As part of the effort to build the capacity of energy project consultants, developers and financial staff, in 2021, the project supported AMENEER to adapt its **International Energy Efficiency Financing Protocol (IEEFP) for the Mexican context**. The Mexican IEEFP consists of the protocol itself, the training course materials, and a pilot with financial institutions to raise banks' awareness and their understanding of EE financing based on energy audits.[28] Individuals trained receive certification upon successful completion of the courses.

A preliminary awareness campaign was implemented in the first half of 2022. The objectives were to start a conversation in social media around the general subjects of EE and its climate change and other co-benefits. Specific objectives included: sharing practical examples of how EE leads to measurable savings; fostering smart and responsible energy consumption in businesses; creating a database of people interested in the topic that would later serve as the basis for lead conversion; as well as positioning key concepts such as energy diagnosis, sustainable use of energy, mitigation of climate change and other co-benefits. The 2022 Annual Report mentions that, by the end of 2022,

[28] See the Efficiency Valuation Organisation's (EVO) website: www.evo-world.org, where the core materials can be downloaded regarding the International Performance Measurement and Verification Protocol (IPMVP), and the IEEFP, including a Mexico-adapted version.

2,204 information requests had been received (of which 1,263 in 2022, 941 in 2022 and 57 before 2022).

The ELE team notes that **a larger-scale communication will only start when the guarantee scheme with NAFIN is launched** in 2023. According to project information, the communication strategy will engage chambers of commerce and industry, subnational governments, and business institutes, using digital channels (web, online events, e-mail) and other channels (call centre, presential events, meetings, workshops and training).

Operative protocols (i.e., technical validation of EE projects, standardisation of methodologies to perform energy audits), elaborated during 2017-18 within the context of the Business Eco-Credit programme, **were further developed (**and tested in the 36 audits performed in the AMENEER and IYEM pilots, see Box 2) **and are currently in draft form**[29]. Some ELE respondents expressed concern about the complexity and applicability of the energy audit protocols and manuals that they feel are too detailed for the audits of micro and small-sized companies. This raises concerns about the longer-term viability of such audits in micro and small companies, particularly when MSMEs have to pay for (a substantial part of) the audit costs. **These considerations should be taken into account by the project team in the finalisation of the protocols and guidelines**.

In 2022, the project developed a business model proposal for applying economic incentives corresponding to the management, disposal and potential use of old, inefficient equipment that will integrate the old equipment protocol. This business model is based mainly on a circular economy approach to promote the use of recyclable materials. However, **the scrapping/disabling protocol and manuals have not been tested,** mainly because these protocols have not been applied to the projects implemented so far.

In 2022, the project concluded **studies on the potential for digital transformation in SMEs**. The studies focused on digital solutions which would allow SMEs to monitor their energy consumption, thus optimising processes based on accurate information, and implementing innovative financing options through non-banking financial institutions (NBFIs), including digital financial services (FinTech). The activity was carried out in coordination with NAFIN, which also has been looking for possibilities to involve NBFIs in its credit guarantee network. So far, this has not been possible, mainly due to interest rate expectations of the NBFIs concerned being higher than NAFIN can consider.

As mentioned in the previous section, an important strategic reorientation by the project has been the **participation of subnational organisations in identifying technical support and financing SMEs for implementing EE projects**. The following aspects were identified for prioritising states in implementing the strategy: (i) states with commitments in their State Development Plan for energy transition, energy efficiency, clean energy and/or sustainability (e.g., Guanajuato), (ii) states with local institutions with a mandate to support the development of SMEs (e.g., IYEM in Yucatán), (iii) existing "green" financial products provided by local institutions.

The strategy of involving state-level entities and organisations seems to bear fruit and offers scope for further replication in other states. As discussed in the previous section, the collaboration with

[29] See List of documents in Annex C.

IYEM and its financing programme for SMEs (Micro Yuc Verde) proved successful. The TC Component of the project provided energy audits to 16 SMEs, which resulted in recommending energy efficiency measures that were then financed with funding from IYEM in seven companies[30]. Also, in Guanajuato, 10 energy audits have been carried out[31] with financing made available from local sources. Based on these first successes, BanBajío bank has expressed interest in working with the state government to finance energy investments in MSMEs in the state. Additional collaborations with subnational governments are in the early stages (e.g., discussions with the states of Jalisco, Guanajuato, and Aguascalientes are underway).

As explained in Section 3.2.2, **the project has met significant delays in its start-up phase**. Progress can be reported in the capacity strengthening of project developers and consultants in the TC Component. With the guarantee fund just being launched, a more massive awareness campaign will follow. At this point in time, the ELE team cannot tell if these measures will be able to effectively convince SMEs to undertake energy audits and consider financial support to invest in sustainable energy measures eventually. Therefore, bearing in mind the substantial delays encountered in starting up the project and uncertainty about the effectiveness of the campaigning in substantially raising interest, the ELE team **assigns a RAG rating of amber to the effectiveness of the project in contributing to Intermediate Outcome 2.**

3.2.3 How external factors impacted the project's effectiveness

Main external factors

Two major external factors have **negatively influenced** the implementation of the Mexico SME-EE project, changes in the political landscape and COVID-19.

The **political landscape changed** starting in December 2018 when a new government under a new president took office, stressing that achieving energy security and self-sufficiency would be paramount. On the one hand, this implied the increased use of renewable energy; on the other hand, this has also meant favour fossil fuel generation and protecting state-owned utilities to keep energy prices low in response to the COVID-19 pandemic and its global economic consequences[32]. In his context, the original project partner **SENER did not reaffirm its willingness to act as the project's counterpart**. This produced delays and the change of political counterparts to SEMARNAT and SHCP was not formalised until the beginning of 2021 (see Section 3.3). New presidential elections will take place in 2024, and no substantial policy changes are expected in the pre-election period.

The **COVID-19 pandemic** hit Mexico very strongly during the years 2020-2021. In practice, this implied restrictions on movements and presential meetings, which hindered the interaction with the partner ministries and operative project partners (NAFIN, AMENEER) until 2021. The economic situation in Mexico was adverse during 2020 due to the measures implemented to contain the spread of COVID-

30 Data based on slide presentation provided to the ELE team (see Annex C). Joint initiative of IYEM and Sub-Secretariat for Energy of SEFOET.

31 Joint initiative of SMAOT, SDES, Fondos Guanajuato, supported by the business sector (CANACINTRA, CICUR and COPARMEX).

32 https://cms.law/en/int/expert-guides/cms-expert-guide-to-renewable-energy/mexico; Climate Transparency (2019)

19, with negative impacts on the development of the economy. The war in Ukraine has further slowed down the world economy which was just starting to recover from the pandemic.

These events also had deep **economic and social impacts**. Although Mexico's macroeconomic framework looks solid, Mexico may have modest growth in the medium term[33]. The pandemic and economic situation also affected many MSMEs (reduction of income, drop in demand, shortage of inputs, cutbacks in personnel, reduction of salaries and benefits). **Inflation has increased** in recent years, partly influenced by the state of the world economy after the start of the conflict in Ukraine (2022-present), and the Bank of Mexico's interest rate has increased accordingly.[34] This will make MSMEs cautious in the coming years about acquiring bank loans as long as interest rates remain relatively high. It is still to be seen how this will impact the FC Component of the project.

On the positive side, some **state-level authorities have proactively promoted 'green' development**. For example, the State of Guanajuato introduced 'environmental taxes' in 2023. These include a carbon tax of MXN 250 per tCO_2 (and an incentive of 20% reduced tax if greenhouse gas emissions are reduced)[35]. Soil contamination is taxed with MXN 25 per 100 $m^{2,}$ and water contamination is taxed with MXN 100 per m^3 of water pollution. State-level carbon taxes are also (proposed to be) implemented in Baja California Yucatán, Zacatecas, Querétaro, State of México with rates varying between MXN 40-500 per tCO_2.

In Yucatán, IYEM launched the **Micro Yuc Verde programme**, which will finance PV systems, and renovation of refrigeration equipment, lights and equipment for more efficient production for micro and small businesses to reduce electricity payments and contribute to improving the environment. Due to its climate conditions (temperatures that are high year-round and can soar in the summer period), electricity demand for cooling and refrigeration is high. Micro Yuc Verde has been set up with a revolving fund of MXN 6 million. It will grant initial loans of MXN 50,000 to 250,000 pesos with an interest rate of 5% per annum (i.e., below the current inflation rate)[36] and a repayment period of 24 months.

Impact of external factors on the project's Theory of change (ToC)

The results of the initial project activities appear to indicate that the original set of **barriers and assumptions identified in the ToC is still valid, particularly those underpinning the TC Component** (e.g., need for qualified EE services, awareness campaigns, subsidies for energy diagnostics and scrapping of old material).

33 https://www.oecd.org/economy/mexico-economic-snapshot/.

34 The inflation rate went up from 4% by mid-2021 to about 11% by the end of 2022. The central bank rate went up from 4% in 2021 to about 8% by 2021 and 6% by beginning 2023. Source: tradingeconomics.com. The interest rate of banks to SMEs can be double the central bank's rate. The average interest rates varied according to the amounts of the loan and the size of the borrowing company. For example, in 2018, for large companies, the average interest rate was approximately 11.8%; for SMEs, the average rate was 17.7%. https://www.oecd-ilibrary.org/sites/c2314a63-en/index.html?itemId=/content/component/c2314a63-en.

35 https://www.mexico2.com.mx/noticia-ma-contenido.php?id=791; https://coelabogados.mx/noticias/nuevos-impuestos-ecologicos-en-el-estado-de-guanajuato-a-partir-del-ano-2023.

36 Supported by the Sub-Secretariat for Energy of SEFOET (*Secretaría de Fomento Económico y Trabajo*), Yucatán State. https://www.yucatan.com.mx/merida/2022/2/11/nuevo-programa-fomenta-el-uso-de-energias-limpias-296182.html.

According to BBVA, about 68% of small enterprises apply for financing, of which 75% is provided by technology providers and vendors and 26% in the form of credit provided by commercial banks (one option does not exclude the other). The resurgence of inflation with higher bank rates will not favour SME lending[37], as investment loans will become more expensive and/or tenors become longer. **As the FC Component has not started yet, it is difficult for the ELE team to assess whether the underlying ToC needs adjustment regarding financial needs and options.** However, one can argue that the situation of higher bank rates provides even more an opportunity for energy-relevant soft loans provided through project intervention (FC Component).

It is positive to see that the project team is testing new approaches in mobilising funding to be flexible. The first is the mobilisation of public funding (e.g., in Yucatán and Guanajuato, as discussed in the previous section). Secondly, they are trying the route of 'non-bank financing institutions' (NBFIs); in particular, Fintech companies have a growing market share compared to the traditional banking sector, and some are interested in "green lending". The project team is also exploring the potential of circular economy actions and, in this context, possible collaboration with companies that specialise in recycling.

A first observation by the ELE team is that the potential of **financing through technology vendors/suppliers** should be considered (given the current share in MSME lending), as well as larger companies that can provide facilities for their MSME subcontractors/suppliers for turning 'greener'.

In the project's ToC, there could be an increased unilateral focus towards incentives, rather than on a more balanced 'carrot and stick' approach**.** The 'carrot' is represented in the ToC by the technical support and financial mechanisms (incentives) provided by the project. Yet, the 'stick' (in the form of government regulations, policy instruments and energy pricing to address policy-institutional barriers) is missing. The ELE team acknowledges that the project was designed this way: in the ToC, **the regulatory-institutional environment acts as an 'external factor'**. The high costs of energy (as in Yucatán) or green taxation (as in Guanajuato) show such factors can help to work as a 'push' for MSMEs to undertake more rational use of energy, alongside the 'pull' formed by better awareness and information, subsidised audits and financing with favourable conditions.

The full start of the implementation of the project has not been possible yet due to the ongoing changes in the political environment, which have had effects, particularly on the Mexican energy sector. **Therefore, it has not been possible to appraise whether the underlying Theory of Change needs adjustment; however, the ToC's assumptions need to be monitored on validity while implementation of the FC Component proceeds during 2023-2025.**

3.2.4 Overall effectiveness of the project

Table 8 presents a summary of the overall outcome indicators. The indicator IND OC comprises the value of the investment projects (financed either by public funds from IYEM or through equity), the cost of energy audits (FC Component), and their technical validation (performed through the TC Component). The GHG emission figure (Indicator M1) reflects these projects' estimated emissions reduction. The indicator M2 consists of SME owners, project developers, and others who participated

[37] https://www.bbvaresearch.com/en/publicaciones/mexico-credit-to-smes-in-the-face-of-the-covid-19-pandemic.

in the project's capacity-building activities in 2021-23. As most company-level activities (energy audits, project validation, project financing) are just starting, the overall indicators show low achievement levels.

Table 8. Summary of overall outcome indicators

Ref.	Indicator	Baseline	Target (End of Project)	Achieved (mid-2023)
IND OC	The total business volume of the EE market in SMEs (private investments, private finance and public contribution) (pre-project Eco-Credit and project) [in EUR]	1,317,872	323,833,600	1,609,166
M1	GHG emissions reduced in the framework of the project (tCO_2 per year)	0	747,229	174
M2	Number of people directly benefitting from the project	0	36,180	453

FC: Financial Cooperation Component. Indicator reference: M: mandatory, OC; outcome. The mandatory indicators M4 and M5 are given in Table 6, as these relate to the FC component's outcome. The mandatory indicator M3 is discussed in section 3.4 as part of the catalysing impact.

Source: Semi-annual Report 2023 (draft)

Looking at the indicator values at mid-term (as reported in Error! Reference source not found. **to Table** 8**), the project is lagging substantially behind.** The achievement of the project results up to now has been influenced by four factors, namely a) degree of relevance (see Section 3.1), b) issues in the implementation arrangements and governance (see Section 3.3), c) characteristics of project design (ToC, see Section 3.2.3), and d) influence of (negative) external factors (see Section 3.2.3). The project remains very relevant (see Section 3.1). Still, the role of negative external factors (COVID-19 and changing political environment, discussed in Section 3.2.3) and project internal governance issues (discussed in Section 3.3) have **caused the effective implementation of the project to be delayed for two years.**

The project team and the Mitigation Action Facility recognised the delays and their causes, so **an extension until March 2025 was requested and granted**. During 2022-23, the first project activities with MSMEs have been implemented with the support of AMENEER and with subnational entities (in Yucatán and Guanajuato). These have given insight into how to reach SMEs and mobilise public funds in addition to the main financial mechanism of the project, the guarantee fund. **However, since this fund (the main element of the FC Component) will only be launched in mid-2023, the ELE team concludes that seeds have been planted, but it is too early to tell how they will grow in the remaining two years of the project. Therefore, a grey rating is given by the ELE team to the Effectiveness evaluation criterion.**

3.3 Efficiency of the project

Efficiency	**3. To what extent is the relationship between inputs and outputs timely and to expected quality standards?**

Governance and implementation setup

The project has seen a delay in the startup due to several factors, discussed in Section 3.2, which have affected the project governance and administration structure. First, **the main political partner, SENER, withdrew from the project**. **Consequently, the decision that the Ministry of Finance (SHCP) would become the political counterpart** to replace SENER was made in May 2020 in a meeting between the SHCP, SEMARNAT, the Mexican Agency of International Cooperation for Development (AMEXCID[38]), the German Embassy, and GIZ. The Steering Committee has since been composed of SHCP, SEMARNAT, NAFIN, and GIZ.

Initially, the project foresaw the quality control and verification in the **TC Component** to be done by the semi-public entity FIDE. However, due to the changes mentioned above in project governance, **it was decided in 2020 to assign the role of Operative Manager[39] to the Mexican Association of Energy Efficiency Companies (AMENEER) to coordinate energy diagnostics and its validations as well as the scrapping of old material.** To test the suitability of AMENEER, a pilot was carried out during 2021-22 with the aim of testing and improving the operative protocols (comprising the technical validation of projects, registry of EE consultants, and standardisation of methodologies to perform energy audits; see Section 3.2.2) developed in the context of the Business Eco-Credit during the 2017-2018 by conducting 20 energy audits in relevant MSMEs. The protocols were tested, and the project team reported that these proved functional when implemented. The energy audits have provided experience and information on benchmarking the cost incurred in audits and validation. However, **the conclusion was that AMENEER could not fully assume the role of Operative Manager on its own**; the Annual Report 2022 cites "doubts about possible conflicts of interests between conducting energy audits and at the same time validating these", which AMENEER could not sufficiently mitigate. The organisation is small size in terms of financial resources. NAFIN therefore suggested taking over certain functions of the Operative Manager for the time being. NAFIN has experience in similar activities and has large financial resources and will have support at the government level (such as the programme "Credit for inefficient equipment replacement".[40] However, NAFIN has no technical expertise for running tenders to conduct energy audits or technical validation and, so far, GIZ has been assisting NAFIN with these activities (until a more permanent solution can be found.

Relations with stakeholders

In the interview with stakeholders, **the implementing partners (NAFIN and the state-level entities) mentioned satisfactory interaction and coordination with the project team. The beneficiaries interviewed expressed satisfaction. However, bureaucratic delays were mentioned as an obstacle** (e.g., delays in publishing results of energy audits, while some interviewees expressed concern about the detailed nature of audit and validation protocols; and delays in launching the guarantee scheme).

38 An autonomous entity under the Ministry of Foreign Affairs

39 See the Semi-Annual and Annual Report 2021

40 The 2022 Annual Report mentions, on page 6, that "NAFIN therefore suggested to take over certain functions of the Operative Manager for the time being, i.e., adopting a leading role of the Operative Management" and "temporarily coordinating the foreseen validations and scrapping activities in addition to the coordination of energy diagnostics, which was anyways foreseen to be implemented by NAFIN. For the time being of the Financial Component the Operative Manager will therefore no longer be assumed by one single institution; the general coordination will instead be assumed by NAFIN".

The ELE team observes that **delays and organisational changes** in the TC and FC Components may have the negative effect of **some stakeholders losing interest or a sense of direction** in which the project is going and their (future) role as partners or beneficiaries.

Measuring, reporting and verification

During 2022, the operationalisation of the measuring, reporting and verification **(MRV) System** was initiated, identifying key actors, critical processes, sources of information and qualitative criteria of the system. A protocol (tool) is being developed to calculate emissions mitigation per project. This will be followed by training activities with key actors for the adoption and implementation of the MRV tool and the protocol.

Definitions from the Ministry of Environment (SEMARNAT) and/or the National Institute for Ecology and Climate Change (INECC) about the alignment with the National MRV System are still pending.

Gender equality considerations

Measures to incorporate a gender perspective include: integrating gender equality considerations into training activities, mainly with waste management centres and energy efficiency project developers; developing communication products where the role of women is made visible; and carrying out a mentoring programme for women project developers, among others. In addition, a **gender awareness-raising tool** has been developed for key actors. The objective is that, through this instrument, the actors learn basic concepts on gender equality issues related to the programme and identify areas of opportunity to incorporate the issues in their project activities. It is planned to start using this tool in the framework of the learning network with EE project developers (see Section 3.2.2).

Overall assessment of the Efficiency criterion

In conclusion, the ELE team assigned an **overall amber rating to the project's efficiency at mid-term. Substantial delays** have occurred, although these have mostly originated from external events beyond the direct control of the project team (political direction, COVID-19) and at the partner ministry level. The delay in implementing the grant agreement GIZ-NAFIN (for the guarantee scheme) and changes in the operational management in the TC Component have caused uncertainty. On the positive side, the implementation setup now seems to be in place with NAFIN, a proactive partner, in the project and good coordination with subnational partners and several national-level stakeholders. **The project team has demonstrated good flexibility concerning the influence of external factors and seeking alternative routes** for implementation at the sub-national level. It appears to have built trust among stakeholders. **Should the ELE team have to assess the efficiency of only the period from 2022 to date, the efficiency rating would have been green and this gives good perspectives for the future.**

However, some open concerns remain about the coordination with federal entities (Ministries, such as SEMARNAT), and how the response in the FC Component would be if, for some reason, results with the guarantee scheme will not be as forthcoming in the coming two years as expected**.**

3.4 Impact of the project

Impact	4. What evidence is there that the project will likely contribute to the intended impact in the ToC (incl. transformational change)?

In this section, the three dimensions conceptually established in the Transformational Change Measurement Framework (TCFM) (
Figure 2) will be addressed to determine the progress achieved by the project towards transformational change.

3.4.1 Dimension 1: Promoted a demonstration effect

The ELE team identified interim signals of progress towards promoting a demonstration effect (Dimension 1):

Mitigation solution demonstrated

During the first phase of the project implemented with AMENEER, **energy diagnostics (audits) were performed and identified potential energy (and therefore GHG) savings**. Although no subsequent actions were implemented (yet), this stage demonstrated in the field that there is potential for energy savings for the subsequent development of projects. **Subsequently, energy audits were conducted in two states (Yucatán state, Guanajuato)**, linked with local government entities. **The findings show progress in the implementation of projects with positive results**:

- In Yucatán, 16 audits were carried out, and 7 projects were implemented. The 7 projects demonstrate the following benefits obtained in the field: energy savings, economic savings, technical feasibility, financing allocation, contractual schemes accessible to the SME, and feasibility of paying financing through savings in electricity bills. Co-benefits such as more comfortable conditions and competitiveness upgrade for the adopting MSMEs were also identified. The projects in Yucatán also demonstrate the viability of actions in some types of MSMEs (see Box 2), although covering mostly commerce and services, smaller companies and focusing on electricity (solar PV) and electrical appliances.
- Results in Guanajuato are only partly available (10 audits up to now) and future audits are likely to supplement the experience in Yucatán, covering different subsectors (manufacturing) and companies of larger size than in Yucatán.
- The number of 47% of audited MSMEs in Yucatán willing to implement is encouraging, but this may not be the case in other states or in other MSME subsectors (not covered in the Yucatán audits) and may depend on financing availability and requirements. As, at this point in time, the exact financial requirements of the guarantee fund are not known, these cannot be compared with the IYEM financing offered yet. We also do not know how attractive audits are for MSMEs if these are only partly subsidised or not at all.

While EE is a widely used mitigation solution from a technical standpoint, the project still needs to demonstrate that audit recommendations also result in substantial post-audit implementation and the viability of the proposed EE financing scheme which is linked to the FC Component.

Project stakeholders' buy-in

In terms of financing, the case of Yucatán shows that it is possible to mobilise financial products for the development of EE/RE projects in SMEs, with low rates and with payment based on the savings achieved in the electricity bills. The financial products showed efficacy and acceptance.

Regarding **capacity building**, a group of consultants have received training and participated in different stages of the project (first phase of energy audits, audits in the two states, and project validation). They can be seen as having **augmented the technical skills basis**. However, to achieve a larger impact and foster greater adoption of sustainable practices, the capacity-building process needs to be sustained over time by incorporating the 'training of trainers' concept.

From a political standpoint, federal government institutions have adopted the project, with NAFIN, supervised by the Ministry of Finance (SHCP), housing the FC Component and functioning as the TC Component's operational partner. The Ministry of the Environment (SEMARNAT) has also granted its support, particularly in light of its climate change mitigation agenda and international commitments (NDC). However, the fact that the Ministry of Energy (SENER) and related agencies (such as CONUEE and CFE) are not involved is to be seen as a negative factor and this situation is likely to continue at least until after the general and presidential elections of 2024.

At the subnational level, several state governments, prominently Yucatán and Guanajuato, have expressed their endorsement through active cooperation in energy audits. Furthermore, GIZ's agreement with state governments to back environmental initiatives, inclusive of the Mexico SME-EE project, paves the way for project expansion into other states and the fostering of partnerships with local institutions. Lastly, **the project has also secured support from the private sector**, notably business institutions (COPARMEX and CONCAMIN), developer companies, expert consultants and, crucially, SME companies – the backbone of project implementation.

Documentation of results and lessons

Finally, the project team has been keeping a **project operating manual** based on the learning generated by the implementation. **Technical reference documents** have also been developed for preparing energy diagnostics and EE project proposals, as well as sequences for validation that will facilitate the execution of a scaling-up phase.

3.4.2 Dimension 2: Caused a catalytic effect

The ELE highlighted early signs of the project triggering a catalytic effect towards transformational change (Dimension 2):

Capabilities

The capacities of the companies that participated in the projects were increased (employees, decision-makers, MSME owners). Interviewees mentioned they now know how to assess EE/RE projects, verify profitability, understand the payment models by savings in energy billing, and use tools

to monitor their equipment's performance and the savings generated in real-time.[41] To have a larger impact, such knowledge and skills enhancement need to be expanded to a larger number of MSMEs.

Support and policy-regulatory frameworks

There is broad political-institutional support for the project at the subnational level, specifically in alliances with state governments or entities, complementing the alliance with NAFIN at the federal level. The **internal governance structure** for the implementation of the project (with SEMARNAT and SHCP in the Steering Committee and NAFIN responsible for operational management in both FC and TC Components) is now in place, suggesting greater effectiveness and efficiency for the start of the implementation at a larger scale.

Market behaviour and mindset shift

Information on the FC Component was recently made publicly available on NAFIN's website[42], although the official launch of the tender (and, with it, the launch of a marketing campaign) was still pending at the time of finalising this mid-term ELE report. During implementation, it will be necessary to **monitor the reception by all the relevant segments of the MSME ecosystem**, in particular the beneficiaries, to have greater evidence of the systemic change in the MSMEs' attitude to the identification and development of EE/RE initiatives. On the **enterprise's side,** the positive results obtained from some SMEs that participate in the Mexico SME-EE project motivate interest in replicating the actions in other economic units of their own[43]. These "intentions" indicate possible additional GHG mitigation, which has to be followed up in the 2023 and 2024 Annual Reports and in the final ELE report.

Replication and scaling-up

Much of the replication and scaling-up will depend on the results of launching the Guarantee Fund, which aims to have 1,200 projects financed with a total investment of about EUR 100 million (see **Error! Reference source not found.** for a breakdown). This is below the original targets of the project

Box 3. Expectations of the grant agreement NAFIN-GIZ

Establishment of the Guarantee Fund

- Signed in 2022 and to be launched in Q3 2023
- Amount: USD 7 million, guaranteeing an amount of EUR 70 million (80% of bank loans, EUR 87 million), leading to expected private investment of EUR 109 million
- 1,200 projects financed
- 945 projects validated (including removal of obsolete equipment)
- 585 energy audits.

Source: Data provided by the project team

41 Mentioned by the Romy pastry store. IKI, Molitermo interiewees.

42 https://www.nafin.com/portalnf/content/emisiones-y-relaciones-internacionales/mitigacion-cambio-climatico.html, accessed by the ELE team on 6 September 2023

43 Other clothing stores in and around Mérida of Molitermo. Also, university campuses and 7/11 convenience stores were mentioned in the stakeholder interviews for in-house replication.

but more realistic, given the delays encountered in project implementation described in Section 3.2.3[44].

3.4.3 Dimension 3: Contributed to additional GHG savings

Regarding the project's contribution to additional GHG savings **(Dimension 3)**, as expected in the conceptual development of the TCMF, there is no evidence yet **to support additional contributions to those established in the initial project target.**

3.4.4 Overall impact of the project

In conclusion, at the mid-term of project implementation, the Mexico SME-EE project shows interim signals of transformation in Dimension 1, early signals in Dimension 2 and no evidence in Dimension 3. Such progress is in line with the expected level of project-induced transformational change in the TCMF (see Table 4). According to the same methodology (see details in Annex A), the ELE provides a comparison between the project team's self-assessment of its Core Mandatory Indicator M3[45] and the evidence identified by the ELE.

The project team has given itself a score of 2 ('Some early evidence suggests transformation likely') for the M3 indicator in the draft Semi-Annual Report 2023. The ELE team agrees with this score[46]. More generally, there is some early evidence that shows the potential viability of a business model that mobilises financial resources for developing EE/RE projects in SMEs in payment schemes based on energy savings that have the environmental benefit of reducing GHG emissions. The project shows the first results of several energy diagnostic activities. The NAFIN-managed guarantee scheme will be launched soon, the project governance framework is in place, and an implementation strategy is widened to interact with subnational actors, all forming a basis for the implementation on a larger scale. However, there is no evidence yet of MSMEs incorporating EE on any systematic larger scale, though the first pilots seem promising (2 points), or that there is a larger shift in thinking on EE and competitiveness.

As the project has achieved the expectation of the TCMF at mid-term (2 points in M3 indicator, table 12 Annex A)**, the ELE team assigns a green rating to the Impact evaluation criterion.**

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44 See **Error! Reference source not found.**, End-of-Project indicator values: FC/OC (project financed, 9,045); M4 (public finance raised EUR 8.5 million); M5: private finance raised: EUR 240 million. Regarding Indicator M4, the SENER contribution of EUR 8 million was cancelled at the beginning of the project but may be partly replaced with public finance at subnational level.

45 The Core Mandatory Indicator M3 reads: "Degree to which the supported activities are likely to catalyse impacts beyond the projects (potential for scaling-up, replication and transformation)". The project team is asked to self-assess it using the following 0 to 4 scale: 0 = Transformation judged unlikely; 1 = No evidence yet available; 2 = Some early evidence suggests transformation likely; 3 = Tentative evidence of change – transformation judged likely; 4 = Clear evidence of change – transformation judged very likely.

46 On scaling-up, the FC Component has not really started functioning with commercial banks, although first experiences with financial support by IYEM in Yucatán look promising (1 points). There is progress in strengthening the capacities of project developers and involving local governments that promote green finance products to SMEs (3 points). Average: 2 points. The score is the same as reported by the project team in its draft Semi-Annual Report 2023.

3.5 Sustainability of the project

Sustainability	5. What is the likelihood that the outcomes will be sustained after the end of the project funding period?

Although there is still a lot to be done and the large-scale stage is still pending the launch of the guarantee scheme, the project shows some signals that point to sustainability.

Political aspects

One of the main triggers for the expansion of the project and its permanence after the end of Mitigation Action Facility support is the **adoption of the project by NAFIN,** a federal entity that can continue with activities on sustainable energy in MSMEs, provided that the project shows good results (and assuming a supportive role of the federal administration after the 2024 general elections). NAFIN is a trusted large organisation that can build on its experience with MSMEs through energy and non-energy projects.

The agreement established between GIZ and state governments provides **alliances at the subnational level** that will be able to continue similar activities on their own. In the framework of the international **NDC commitments** (by 2030), the federal government (SEMARNAT) should continue monitoring the results and potentially promote the continuation of actions. On the other hand, competent authorities in the energy field, such as **SENER, CFE and CONUEE, have not been participating**, reducing the field of action as the project's results will not be promoted through their national programmes. Hopefully, these federal government entities can participate in sustainable energy in MSMEs interventions under the next administration.

Certain states have policies that promote sustainable energy investments, such as carbon taxes (Guanajuato) and green projects (Yucatán and Guanajuato). More state governments are expected to implement similar policies.

The **2024 federal elections** pose a certain risk to the permanence of the project; however, the most likely scenarios point to presidential candidates having a greater affinity with sustainable development than the current administration.

Technical/technological aspects

The training of consultants, suppliers, SMEs and financial entities, and the definition of measurement formats and operational manuals establish a **uniform technical framework to promote EE and facilitate the articulation of actions, which will continue beyond the project.** The technical base of consultants and developed companies established with project support will remain after the project's end. It will be necessary, however, to develop capacities at the local level at a larger scale, to meet the potential demands of assessing and developing sustainable energy investment projects in MSMEs with local experts. Such a larger scale cannot be achieved only by direct training of beneficiaries but by means of the 'training of trainers' who, in turn, can pass over their skills and knowledge.

The **potential for energy savings remains very large**. Some applications with high potential are thermal applications or processes, processes with intensive use of electric motors, cooling requirements, accommodation and buildings. The lifespan of the equipment is between 10 and 20

years, with which the impacts of the results when carrying out substitution or renewable self-supply projects will continue beyond the end of the project.

The **beneficiaries of the projects interviewed show knowledge and interest** in EE/RE types of projects, which is positive for dissemination and potential replication. As contemplated in the project's operating manual, the sensitisation and training of MSME personnel will increase the technical skill base to sustain the implemented measures. However, MSMEs still have a limited understanding of environmental issues and do not prioritise mitigation as much as energy and bill savings.

Financial aspects

Having NAFIN operating the Mexico SME-EE project provides certainty about its execution, continuity and channelling of resources. NAFIN's experience in the operation of projects at the national level as a second-tier bank, as well as the scope of its nationwide infrastructure, provides certainty to the continuing availability of financing. In addition, the **schemes developed by local governments** tend to have low-interest rates and collateral requirements and are very attractive to SMEs. Despite that, the continuing availability of state programmes depends on the availability of budgetary resources and the political agenda.

At the **international level**, there is a positive environment for the financing of EE and RE projects as donor governments aim to reach the Paris Agreement goals. At the **national level,** the recently published "Sustainable Taxonomy of Mexico" (SHCP, 2023) provides certainty for investments in the sector too[47].

At the time of the mid-term ELE, the requirements, rulebook and conditions of the project's financial scheme have not been published by NAFIN yet. For instance, the interest rate offered and collateral requirements are not known yet, **pending the official launch of the guarantee scheme**. Also**, the involvement of commercial banks is still developing;** talks have been held with three commercial banks (NAFIN's usual financial intermediaries) on their involvement in the guarantee scheme. The scheme's attractiveness will depend on the loans and payment conditions and how the scheme is marketed to the target group of MSMEs. If the scheme's financial products are attractive and practical energy and monetary savings can be shown and documented, demand for sustainable energy investment financing could continue in the near future.

Economic aspects

Sustainable energy investments generate monetary savings through self-generation with RE or the reduction of energy consumption thanks to EE measures. A better cash flow (provided that annual monetary savings exceed the annualised investment cost) implies that companies improve their competitiveness and can allocate part of the savings (once the repayment is settled) to improve or

[47] As an example of recent commitments to green financing, Mexico's Ministry of Finance (SHCP) launched the country's Sustainable Taxonomy (SHCP, 2023) with the initial aim of addressing three major sustainability challenges: i) climate change, ii) gender equality and iii) access to basic services in municipalities. Its purpose is to facilitate financial flows and mobilise capital for sustainable activities, generate reliable information, provide transparency, create the foundation for sustainable finance policies in Mexico, and address social gaps and vulnerabilities.

expand processes/services. **The economic benefits of sustainable energy can be positive for the project's sustainability, but it is important to consistently communicate this message to MSMEs.**

Social aspects

The project positively addresses a business segment with high social impacts due to electricity rates, difficulty in accessing financing, and lack of technical capabilities for environmental issues. The project's social contribution can help engage financial operators with high environmental and social responsibility, thus promoting sustainable economic development.

The products and services of the beneficiary SMEs reduce their carbon footprint, issues that are increasingly relevant in society.

Conclusion

There is evidence of progress towards the sustainability of the project, particularly in the areas of institutional arrangements, NDC commitments up to 2030, technical capabilities developed, and positive outcomes observed during the pilot phase. **However, it is uncertain how the project will perform during the scaling-up phase after the launch of the guarantee scheme**, particularly concerning its ability to penetrate and replicate in the face of political changes in 2024. As a result, the Sustainability evaluation criterion was marked as "amber."

4 Conclusions

Based on the evidence collected, analysed and presented in Section 3, this section goes back to the project's ToC to test to what extent the original causal pathways and assumptions behind them (see Section 1.1) have held.

Figure 3. Overview of project Causal Pathways Assessment at Mid-Term

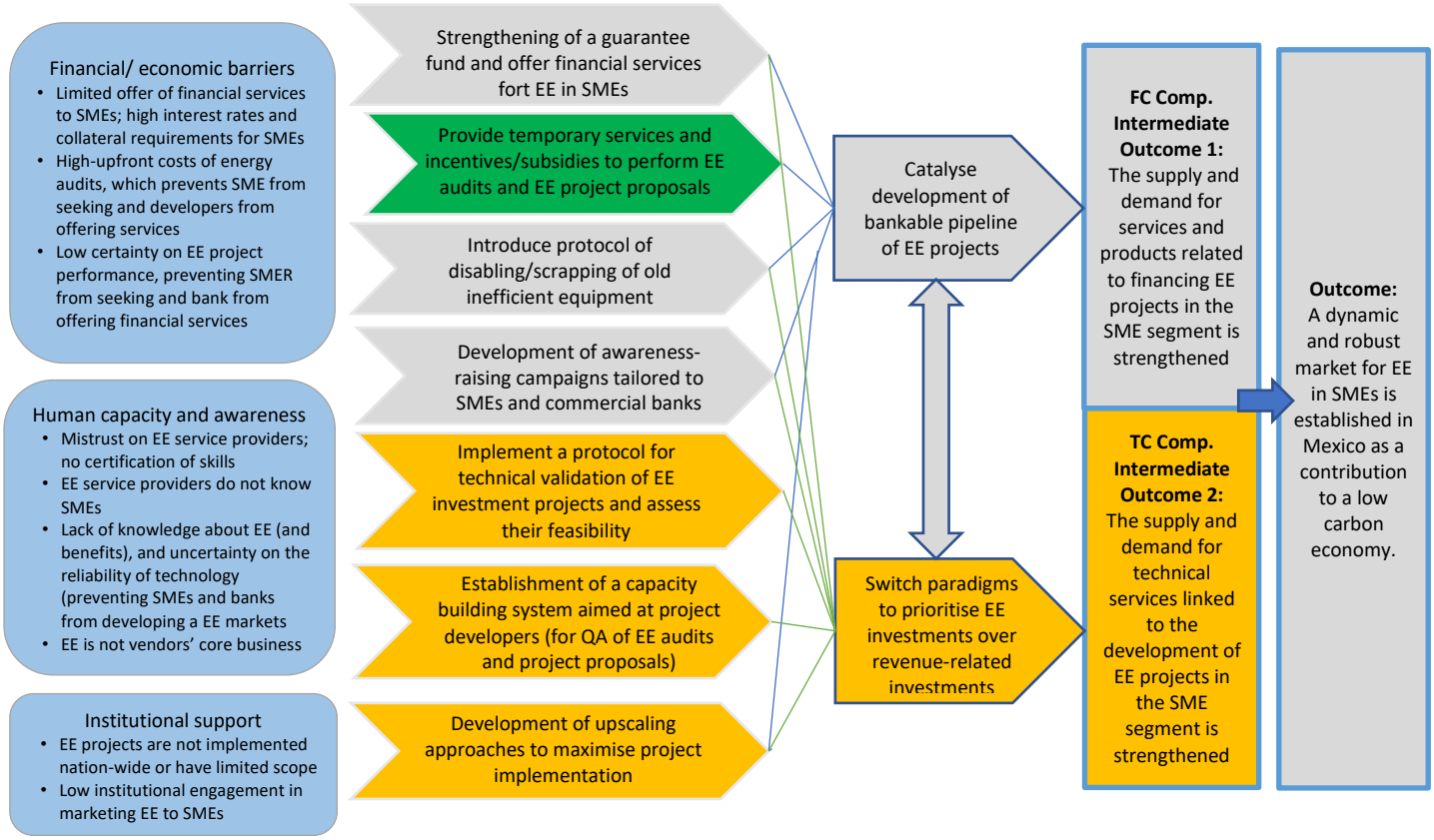


Figure 3 presents an overview of the project's progress along its ToC causal pathways towards its intended outcomes. The RAG rating uses the same scale as the previous section (i.e. Good / Very Good = Green; Problems = Amber; Serious deficiencies = Red; Not enough info to rate = Grey), and the colours of the Intermediate Outcomes' shapes are the same colours used in Section 3.13.2 to rate the project's achievements for each Intermediate Outcome. This will be read as an assessment of the project's situation, i.e., at mid-term.

The figure shows two main pathways. **Causal pathway 1** focuses on developing a bankable pipeline of EE (and RE) projects in SMEs, boosted by financial support to energy audits and proposal validation, including support for disabling/scrapping old equipment. However, a main element of the FC Component, the EUR 7 million guarantee fund, had not been launched by the mid-term ELE.

Causal pathway 2 prioritises EE investments in SMEs with increasing supply and demand for associated technical services to be provided by qualified energy consultants and project developers. This has started with elaborating protocols and guidelines for the registry of project developers,

energy audits, validation of project proposals and SMEs registration. Some awareness has taken place, and a learning network has been initiated. However, the massification of the awareness campaign is still pending the launch of the guarantee scheme of the FC Component.

The ELE team supports statements in the project proposal that **the supply and demand for technical services go hand in hand with the supply and demand for financial services.** An SME is reluctant to invest time and money in an energy audit if unsure about the validity of the outcome of the energy audit. A system of ESCOs working with SMEs to absorb energy audit costs (the ESCO gets paid part of the revenues of the realised intervention) does not exist, so **subsidised energy audits may be a welcome tool to incentivise SMEs to undertake serious audits.** However, the prospect of having no financial resources available for EE/RE interventions may cause MSMEs to opt for not participating in an audit, preferring to spend their scarce resources on increasing production or other revenue-raising activities. The guarantee fund is designed to allow banks to offer loans at more favourable conditions to MSMEs to entice them to take loans for EE (and RE) investments. However, if a non-certified project developer were to carry out the EE project proposal, the project revenues from energy savings or substitution might be in doubt. SMEs might discontinue the EE project and/or discourage banks from providing credit.

The above implies that, **in the realisation of the project outcome, the TC and FC Components are considered to be partly dependent on each other.** For example, the TC Component may help project developers build their capacity and raise awareness amongst SMEs. But whether services are provided will not only depend on their quality thereof but also on the possibilities of SMEs to implement the recommendations of the advisory services provided, which is influenced by the availability of financial resources.

The project has started by delivering some outputs linked to the TC Component (e.g., protocol, guideline development) and supported audits. The first experience in cooperation with IYEM (Yucatán) indicates a willingness to implement measures; some 47% of enterprises participating in a round of audits indicate their willingness to do so, also enticed by the favourable credit offered in the IYEM scheme. However, one has to be cautious about extrapolating such first results (one state, micro and small companies[48], mostly services-oriented) of Yucatán to other states and the whole subsector of production-oriented SMEs. In total, audits have been carried out in only 36 companies so far, which forms only 0.04% of the original target of about 9,000 SMEs.

To be able to say anything about the validity of assumptions regarding barriers and proposed project interventions (hypotheses), these need to be scaled up to have sufficient strength as evidence. In other words, **to achieve the intended outcomes (and contribute to transformational change), the success of the FC Component's guarantee scheme will be crucial. As the guarantee fund will only be launched after this mid-term, it is too early for the ELE team to tell to what extent causal pathways hold or not in the FC Component**. In addition, there is some evidence to confirm the expected role of

[48] Although the Mexico SME-EE project's main focus is on 'SMEs' in Yucatán also a few micro-enterprises participated in audits in Yucatán (8 in micro; 7 in small enterprises). In Guanajuato, so far, audits focused on larger enterprises (1 micro, 8 SME and 2 large). See Box 2 for details,

strengthening the capacity of project developers, but it is too early to tell what the influence of awareness campaigning will be.

Most small enterprises get their financing from banks and equipment and technology suppliers[49]. At the same time, FIDE-NAFIN's Business Eco-Credit employs another financial mechanism, namely the 'payment-on-the-electricity-bill' scheme with CFE. However, the Business Eco-Credit scheme is limited to electricity improvements. The project's guarantee scheme supplements existing financial mechanisms (such as finance through technology vendors and the Business Eco-Credit scheme) and it is the first such mechanism aimed at sustainable energy in SMEs that will engage commercial banks. Up to now, three banks have expressed interest in collaborating in the NAFIN guarantee scheme. The true test of the success of the scheme will be determined by how much interest SMEs show in energy-related financing and their willingness to pursue it. As the saying goes, the proof is in the pudding, or in this case, the results will speak for themselves.

[49] See BBVA (2022). Of the 68% of companies reporting to have financing, 26% used commercial banks and 57% provider credit.

5 Lessons and recommendations

5.1 Key lessons

The evidence gathered during the ELE, along with the key findings presented in Section **Error! Reference source not found.** and the conclusions in Section 4, have been used by the ELE team to draw the lessons below.

5.1.1 Lessons for the project team to achieve the goal of the Mexico SME-EE project

1. **Partnerships facilitating the reaching out and engagement of SMEs with sectoral transformation efforts are crucial.** Over 5.3 million MSMEs provide about three-quarters of all jobs in Mexico (see Table 1). MSMEs are found across all economic sectors and regions in Mexico, making the MSME ecosystem very diverse. Despite that ubiquity, connecting with and engaging MSMEs is quite challenging, with many smaller ones being resource-constrained regarding human resources (staff numbers and skills) and financial resources (cash or credit available to pursue non-revenue-generating activities). Connecting with the smaller ones is difficult as it usually requires visiting their place of work or providing non-conventional schedules that suit their lifestyles, and the sheer size of the MSME ecosystem is daunting. Partnering with stakeholders that can connect one or more interest groups and have earned the trust of micro and small enterprises, in particular, can significantly reduce the effort and time required to engage with them and increase the likelihood of success. State governments, (local) trade associations or even trusted federal government agencies are among those potential partners.

2. **Flexibility is key to ensure that the project can adapt to a changing environment and the diverse needs of a broad beneficiary base.** To respond to the changes in governance and institutional environment, the Implementing Organisation (GIZ) and partner (NAFIN) had to continually review and adjust their expectations actions and demands for the partner ministries and local executing organisations and may need to continue to adapt to get SMEs to adopt EE measures. Most interviewees agreed that the arrival of a new federal government administration in 2018 came with an important change in energy policies, in which renewables or energy efficiency stopped receiving federal government support. For the Mexico SME-EE initiative, this meant, among others, that the Ministry of Energy withdrew from its Steering Committee and that the project would not get the expected EUR 8 million contributions from the federal government. In contrast with a mitigation project proposal in Mexico funded by Denmark (that was cancelled after having been affected by similar conditions), the Mexico SME-EE continued changing strategies by aligning better with the new government's policies and starting to partner with state governments to develop and implement EE pilots and projects. The challenge now lies in "packaging" and marketing EE in such a way that the diverse SME ecosystem will find it relevant and beneficial enough to pursue it.

3. **Achieving the sectoral transformations desired will require support from multiple stakeholders. To achieve that, communication with all stakeholders, but more importantly,**

with key implementation partners, is important. During the fieldwork, it became clear to the ELE team that many of the organisations that had been involved in the execution of the TC Component, such as AMENEER, EE consultants and training organisations, were keen to participate in the next steps of the project, but did not know what was coming and when it was supposed to take place. Considering that many of these partners can contribute to the design and adoption of EE solutions across Mexico and across the sectors, managing their expectations and keeping open communication channels can make the difference between a project in which all the burden and effort falls upon the implementation organisation, or in which the private sector (and beneficiaries themselves) assumes a leading role in marketing and implementing EE actions. The project has gotten support from key EE and financial stakeholders such as AMENEER, EE consultants, training or skill development institutions, state governments, embassies, and even diplomatic representations of other donor governments in Mexico (such as the United Kingdom, one of the donors of Mitigation Action Facility). In one way or another, they all see the project as an opportunity for business and/or to achieve environmental goals. Without an adequate communications strategy, many of these stakeholders may develop inadequate or unreal expectations (e.g., regarding number of projects developed or mitigation impact achieved), which may lead them to become frustrated by the project or even create tensions between them.

4. **For a wider acceptance of energy audit and project validation protocols, it is important that the costs of carrying out audits and validation are given due consideration.** Some ELE respondents expressed concern about the complexity and applicability of the energy audit protocols and manuals that they feel are too detailed for the audits of micro and small-sized companies. This raises concerns about the longer-term viability of such audits in micro and small companies, particularly when MSMEs have to pay for (a substantial part of) the audit costs. Towards the end of the project, a survey should be done by the project team on the influence of cost of audits on taking energy-related investment decisions.

5. In the current project governance structure NAFIN is the FC Component implementation organisation partner, while GIZ implements the TC Component. The guarantee scheme of the FC Component takes advantage of NAFIN's experience with other SME projects, its ability to contribute and mobilise funds, and its nation-wide coverage. As 'complementary financial mechanisms' (FC Component outputs 2 and 3), the project provides a subsidy for audits and scrapping old equipment. However, this implies that NAFIN ends up with the responsibility of tendering for audits and technical validations, which are functions that a bank normally does not perform. **With the advantage of hindsight, one lesson is that technical activities (audits, scrapping old equipment, validation) should better be part of the TC rather than the FC Component.**

5.1.2 Lessons for improving other or future projects' design and implementation

1. The Mitigation Action Facility funds a Detailed Preparation Phase (DPP) for its projects. The DPP phase can take 10-15 months. In the case of the Mexico EE-project, its DPP (2017-18) gave the opportunity to the project partners to come together and finetune the project proposal based on primary evidence (e.g., analysis of Business Eco-Credit supported EE projects) and the changing context conditions.

In the case of Mexico, the DPP phase took place right before the 2018 presidential elections, which brought changes in operational priorities regarding energy (see section 3.2.2) and in the commitment by government institutions. In hindsight, it would have been better, to have the DPP phase right after expected significant changes at the national government level (such as the presidential elections), so that these could have been timely reflected in the DPP design. The project proponent should decide if and when to submit a proposal outline (and DPP) to the Mitigation Action Facility by **finding a balance in the timing of their submission between the country's political and government decision-making cycle and the Facility's cycle of submissions of proposals** (that follow a logic of competitive call for proposals).

2. **Sectoral transformation efforts may originate from national governments, but the support and engagement of local governments often play a similarly pivotal role in transformational change.** Projects created to drive the transformation of many independent individuals or groups of individuals need to carefully consider how they will be able to engage with them and convince them to make the change. When the agents that need changing are few, it may be possible to work with them directly. However, when there are many stakeholders, particularly those from vulnerable groups such as micro and small enterprises, getting their trust and achieving transformation can be challenging due to the diversity and scale of the target audience. In those cases, it is important to consider from early on which partners from local governments, chambers of commerce or private sector associations can shorten the times and reduce the resources needed to start and consolidate the transformation.

3. **Long project cycles make projects more likely to be affected by external events, particularly changing policies and government support. Projects should consider these changes when planning the projects.** The Mexican federal administration that took office in 2018 had different policies on renewables and EE than those of the previous administration, leaving the Mexico SME-EE project with reduced support and funding. The long time over which sector transformation efforts take place usually means that they will cross administrations, and it has been seen in many other Mitigation Action Facility-supported projects that support and commitment vary when administrations change. Because of that, projects should plan and prepare better for these government changes, although it should be acknowledged that being able to plan and mitigate for possible policy option changes arising from administration turnovers is quite challenging.

4. **Effective and sustainable sectoral transformation efforts require strong foundations that take time to build. It should not be concerning to have a delivery plan with low output achievement during a moderately long inception phase once such phase builds strong foundations for swift implementation upscaling.** In the case of transformations like the one pursued by the Mexico SME-EE project, effective and sustainable large-scale adoption of EE measures by MSMEs involves taking the appropriate time and preparing the measures necessary for large-scale deployment to take place. These measures have to be in accordance with the typical S-curve of the development of technology-market segment clusters: slow progress at the start (technology research and demonstration (1st phase), picking up pace during the next phase technology deployment (2nd phase) with faster progress during the phase of large-scale diffusion (3rd phase) and slowing progress at the end as market saturation

is reached (and the number of adopters begins to plateau: 4th phase), possibly even followed by a last phase of declining businesses (if alternative products gain market share).

Thus, in projects in the early deployment stage of market development, like the Mexico SME-EE project, the implementation of many high-efficiency or PV technologies is in the first phase of the S-curve. Correspondingly, the number of SMEs adopting EE or RE develops at a much lower rate than in a fully developed market. This should not cause alarm among the involved stakeholders and donors; rather project goals (indicators) goals should be designed considering the phase of the market development.

Rushing to execute and deliver results may cause the project managers to reduce time and effort in preparing the foundations, compromising the project's ability to deliver the longer-term transformational change sought. When formulating a project, it is essential to conduct a realistic assessment of the proposed technology's position in the market transformation process. This includes determining whether it is in the development and research, demonstration (first), deployment (second), growing business (third) or mature business phase. Each phase may need its own set of measures and market development instruments with awareness creation and knowledge dissemination important in the first phases, with (soft) finance becoming important in the second and third phases, while in the latter phases benchmarking and norms and standards become important. In the case of Mexico SME-EE project, there is a range of technologies and various market segments (micro to medium-sized), implying that different technology-market segment clusters have different S-curves and that develop differently over time. For example, the S-curve of a PV technology for small shops and service companies, maybe different from production companies and different from efficient boilers for large textile companies. The design of targets (indicators) and appropriate measures should align with the market development phase of different technology-market clusters.

5.2 Recommendations

5.2.1 Recommendations to the project team to achieve the goal of the project

1. **Continue and deepen the process of partnering with state governments.** GIZ and NAFIN should leverage their experience with the State of Yucatán and the interest of the Government of Guanajuato to demonstrate the benefits of sustainable energy in MSMEs and increase the involvement of local governments and entities in other states to mainstream EE and RE within their policies and actions.

2. **Explore the possibility of partnering with larger companies to encourage their SME suppliers to adopt EE.** So far, the efforts of the project team to partner with private sector companies have focused on EE consultants and solution providers or with training and skills-improvement organisations. Considering that many MSMEs are more concerned with the financial benefits of EE than its environmental sustainability contributions, but that many of those MSMEs supply larger companies that are increasingly concerned with sustainability compliance, the project could partner with larger (anchor) companies to create supplier development programmes to adopt EE. This could mean a win-win-win scenario for the project to progress

towards its goals, for the MSMEs that adopted the EE measures, and for the anchor companies to showcase better sustainability compliance in their reports.

3. **Consider using pilot or other project beneficiaries regularly as "peer ambassadors" to showcase the opportunities and benefits of EE to other SMEs.** As discussed in the lessons section, stakeholders who are expected to do the transformation but belong to vulnerable groups, such as micro or small enterprises, trust peers' experiences more than marketing efforts. Getting some of the pilot project beneficiaries to share their experiences and views with other SME owners can help promote the adoption of EE (and RE) measures.

4. **Consider reviewing the capacity building strategy to include a substantial component of 'training of trainers', which will improve the efficiency and sustainability of the training activities.** To meet the potential demands of assessing and developing sustainable energy investment projects in SMEs with local experts, it will be necessary to develop capacities at the local level at a larger scale. Expanding technical capacity in a large country like Mexico cannot be achieved only by direct training of beneficiaries but by means of the 'training of trainers'. This refers not only to project developers or consultants but also to the SME staff/owners spreading knowledge and experience to their peers.

5. **Consider different solutions and approaches to engage and commit SMEs to EE.** Due to the multiple sectors and places in which they exist and operate, the scale and diversity of MSMEs in Mexico make it very unlikely that a one-size-fits-all marketing effort will effectively encourage EE measures. Targeting the message tailored to different sectors, MSME subsectors, and climatic and economic conditions of geographical zones can help make it easier for business owners, particularly micro and small enterprises, to see the benefits and decide to commit.

6. **Review and strengthen the communications strategy.** Many interviewees who supported the Project with protocol or guideline preparation, training, or even pilot project execution mentioned they were interested in continuing their participation or support for the project but had not heard any news on the next steps for a long time. Considering that many of them are among those partners that will be key to engaging and committing MSMEs to sustainable energy, the project team should maintain constant communication with them during and in between project activities.

7. **Reinvigorate the project's Steering Committee, particularly its coordination role.** The ELE team learned that due to the changes in project structure following the energy policy changes after the current administration came into office, the Steering Committee, in which Mexico's Ministry of Finance (SHCP) and Ministry of Environment (SEMARNAT) participate, became more of a follow-up and monitoring committee as it lacked the technical expertise that was required in most of the work carried up to mid-2023. However, the Steering Committee can be an important asset for the strategy to connect with the federal government set to take office in 2024 (and also to ensure that there are appropriate conditions for the sustainability and continuity of the adoption of EE by MSMEs). This could mean that the Steering Committee's membership is reviewed, adding representatives from state governments or private sector organisations, as long as expanded membership does not compromise its decision-making ability.

8. **New national (federal) and state elections will occur before the project ends. Plans should be formulated and prepared to respond to the inevitable influence the elections' results will have on the project implementation.** Most interviewees coincided in that any new federal government may provide more support to the project than the current one. Still, it would be important to consider scenarios and prepare plans that could allow the project to mitigate any problems and seize any opportunities that arise for the effort's continuity, expansion and sustainability.

9. **Develop and adopt a partner engagement policy that seeks an appropriate balance between the project's objectives and the partner organisation's goals to facilitate and speed up implementation and minimise controversies between these stakeholders.** Projects that seek to change the behaviour of many individuals in vulnerable groups will require partnering with multiple public and private organisations to achieve the outcomes and set the appropriate foundations for scalability during the project's lifetime. Preparing a general policy that states the conditions or limitations for collaboration and publishing them more broadly could help the project become more transparent and prevent controversies or conflicts.

5.2.2 Recommendations to the Mitigation Action Facility for the review, approval, and management of future interventions

1. **Reinforce the knowledge-sharing resources (documents and spaces) between projects in similar sectors and with similar engagement challenges.** A request made by the project team to the ELE Team was to share lessons learned from other projects. Even if this was outside the ELE team's mandate, the ELE team members did share some lessons from previous evaluations they were involved in which the project team may benefit from. This proves that sharing knowledge between projects is crucial in both directions. By sharing and compiling knowledge and experiences in the Mitigation Action Facility knowledge hub or other knowledge-sharing spaces, projects can be formulated and implemented effectively. Similarly, sharing the experiences and lessons learned from a project (such as Mexico SME-EE) with new Mitigation Action Facility proponents can be helpful for them in formulating their proposals.

2. **Consider funding thematic evaluations of the Mitigation Action Facility portfolio**. ELE and knowledge-sharing efforts should not be limited by countries or sectors, but should also consider thematic evaluations. For example, the evaluation of a portfolio of MSME projects can provide common themes and issues (rather than being tied to a particular country setting), which can help avoid pitfalls in the formulation of new projects. Since other development partners also fund MSME and energy projects, some joint efforts in the evaluation of the MSME portfolio could be considered to more systematically compile lessons learnt in MSME-oriented technical and financial assistance programmes.

3. **Consider either extending the project beyond March 2025 or starting a successor project** (formulated according to the state of the SME-EE market development; see point 3 in 'lessons learnt' on S-curve). The period left of just 1.5 years is likely to be too short to have full results. It should be noted that the process of identifying eligible SMEs, carrying out audits, formulating EE and RE measures, validating the proposal, acquiring financing and actual installation or construction of EE/RE will be time-consuming. So even if in 2024 a large number

of SMEs may participate, the length of the above-described EE project cycle in many SMEs is likely to surpass the project's end date. Thus, results will only be partly monitored and evaluated. The project should be extended, such as allowing for SMEs that have successfully been selected after Call for Proposals to finish their EE project from concept to monitored implementation. In any case, whether the project can be extended or not, a follow-up project should be considered given the fact that, generally speaking, sustainable energy in SMEs in Mexico is still in the deployment phase of market development and support may be needed in a Mitigation Action Facility-supported successor activity to help to move towards a scaled-up diffusion.

Annex A Capturing Project-induced Transformational Change

Introduction

This is a brief guidance developed by AMBERO/OPM outlining a framework to consistently evaluate Mitigation Action Facility-funded projects' progress towards bringing about transformational change.

Transformational change is embedded in the Mitigation Action Facility's goals, and Theory of Change (ToC), and projects are the main way through which the Mitigation Action Facility will achieve this transformational change. Therefore, the projects need to be aiming to achieve this level of change, and the Evaluation and Learning Exercises (ELEs) of such projects should evaluate their progress.

In a way, key elements of transformational change are already monitored through the project's Mandatory Core Indicators M1-M5, part of the Mitigation Action Facility M&E Framework[50]. However, they only cover partial elements of transformational change. Therefore, clearer guidance in identifying the signals or evidence of project-induced transformational change is needed.

This brief document clarifies how transformational change is expected in projects and provides guidance to both project and ELE teams on how to characterise the elements and evidence of project-induced transformational change.

Breaking down project-induced transformational change

The Mitigation Action Facility defines transformational change as "*Catalytic change in systems and behaviours resulting from disruptive climate actions that enable actors to shift to carbon-neutral pathways*"[51].

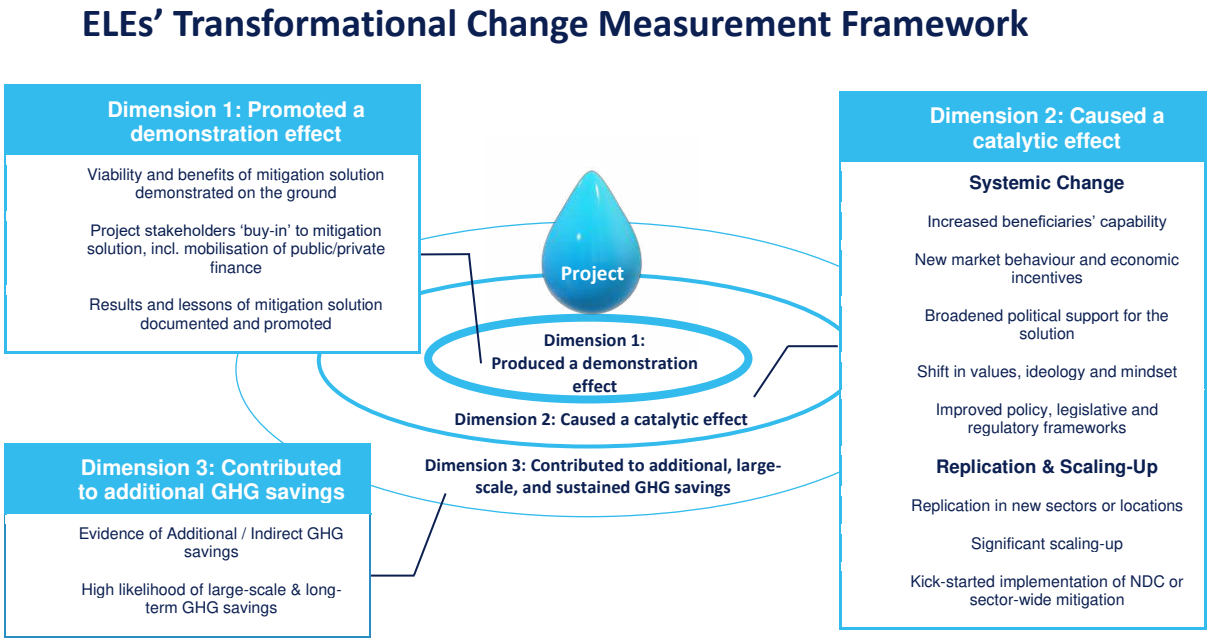
The Mitigation Action Facility's ToC explains how transformational change is expected to be achieved through its outputs and outcome. The ToC is broad, and there are different ways transformational change can be achieved through the projects, which are simplified into the three *dimensions* summarised in the figure below.

Three dimensions interact and reinforce each other to produce project-induced transformational change (Figure). These are described below with an indication of what is expected to be achieved at the project's mid- and end-point (see Table 10 and Table 11 for more details on scoring criteria).

50 https://mitigation-action.org/our-approach/monitoring-evaluation-learning/

51 https://mitigation-action.org/wp-content/uploads/Mitigation-Action-Facility_transformational change-factsheet.pdf.

Figure 4. Dimensions of project-induced transformational change



- **Dimension 1: Promoted a demonstration effect.** The most direct way in which a project can contribute to transformational change is to produce a demonstration effect which will imply that:
  - The project has **demonstrated** or proven the viability and benefits of a particular **mitigation 'solution' (e.g. models, practices or technologies)** through implementation on the ground (e.g. using pilot projects), thereby directly contributing to GHG emissions savings;
  - There is **evidence of buy-in by key project stakeholders**, e.g. by mobilising additional public/private finance along with the project Financial Cooperation Component;
  - The demonstrated **results and lessons of the mitigation solution have been documented** (e.g. in knowledge or communication products) **and promoted externally to a wider audience**.

  By mid-line, projects are expected to show interim signals of achieving this demonstration effect, which should have become clear evidence (i.e. advanced signals) by the end-line.

- **Dimension 2: Caused a catalytic effect.** To amplify the impact of the mitigation solution demonstrated (Dimension 1), the project needs to cause a virtuous catalytic effect in the operating country or region. This can take the form of one or more of the following catalytic changes:

  - **Replication and/or significant scaling-up** of the project's demonstrated solution in other sectors or locations, or of the project itself. This could include kick-starting sector-wide mitigation or the NDC; and/or

  - As a result of the project improving enablers and/or eliminating barriers to the uptake of the mitigation solution, it will result in wider **'systemic' change**, which could be supported by one or more of the following: a) Increased beneficiaries' capability; b) new market behaviour and economic incentives; c) improved policy, legislative and regulatory frameworks; d) broadened political support for the solution; e) shift in values, ideology and mindset.

By mid-line, projects are expected to have produced some early signals of one or more of these changes (or that they are likely in the near future), which by the end of the project should have been strengthened into interim signals.

- **Dimension 3: Contributed to additional GHG savings**. As a result of contributing to Dimension 1 and Dimension 2, the project will indirectly influence *additional, large-scale and sustained GHG savings*[52].

  During the project's lifetime, projects are not expected to have achieved this. Yet, by the end of the project, there should be early signals of additional (i.e. indirect) GHG savings and evidence that these will become large-scale and sustained GHG savings in the future.

Box 4. Connection between transformational change Measurement Framework and Knowledge Management and Learning Strategy

One of the key objectives of the Knowledge Management and Learning Strategy (KMLS) is to ensure that learning from both successes and failures is taken into account, changes are implemented accordingly, and innovative approaches are replicated. There is therefore an important connection between the ELEs and this strategy, and the learning documented through the ELEs is expected to be used by the Mitigation Action Facility in its function of 'Knowledge and Learning Hub' for the international climate finance community explained in the strategy. In particular, project-specific learning should be proactively shared and discussed with other projects (at least with those funded by the Mitigation Action Facility). The KLMS also expects to engage with and influence international debates on climate finance and transformational change. The Mitigation Action Facility will use and synthesise learning on supporting transformational change, documented through the ELEs, to inform this engagement.

Measuring project-induced transformational change

As shown, the transformational change dimensions come directly from the Mitigation Action Facility ToC. As the projects are expected to be aligned with the overall Mitigation Action Facility ToC, it should be possible to map the dimensions of transformational change in the project ToCs. All projects must monitor their progress using their Monitoring and Evaluation (M&E) Plans which include Mandatory Core Indicators and project-specific indicators.

The ELE teams will be evaluating and learning from the projects' progress in supporting transformational change, which will include reviewing progress against the indicators and milestones set out in their M&E Plans. In addition, this can be complemented (and verified) with more qualitative ELE questions and data sources. Table 9 below provides some guidance to ELE teams in terms of criteria and evidence for assessing the project-induced transformational change. This includes the three dimensions but also the scoring for the Core Mandatory Indicator M3, which can be seen as the summation of results for the three dimensions.

[52] Additional = the GHG savings achieved are in addition to those achieved by the direct implementation of the project. Large-scale = the additional GHG savings will have a significant impact on overall GHG savings in the geography/sector. Sustained = there is no chance of the GHG savings being reversed.

Table 9. Guidance for ELE teams for measuring project-induced transformational change

Transformational change dimension	Element within transformational change dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in project ToC and M&E plans	How to measure success	Expectations at mid-line and final ELE
1: Promoted a demonstration effect	**Viability and benefits of mitigation solution demonstrated on the ground**	Effectiveness	• Milestones set for outputs and/or Intermediate Outcomes (if used) should represent the scale of uptake needed to demonstrate the solution is viable (meaning it has been shown to work in practice at a large scale in diverse contexts, and provide the expected economic, social and climate benefits) • Also aligns with M1: Reduced Direct GHG emissions and M2: Number of people directly benefiting	*Quant*: Achievement of project milestones for the adoption of the mitigation solution by target users and resulting direct GHG emission savings Qual: Feedback from target users that viability and benefits have been demonstrated.	• Mid-line: Interim Signals • End-line: Advanced Signals
1: Promoted a demonstration effect	**Results of mitigation solution documented and promoted**	Effectiveness	• Milestones set for outputs on producing knowledge and learning documents and engaging with wider stakeholders to share this insight. • Seek alignment with the KMLS.	*Quant:* Achievement of project milestones for knowledge and communication products/activities *Qual*: Feedback from other stakeholders (e.g. other funders) on their awareness and understanding of the project and solution.	• Mid-line: Interim Signals • End-line: Advanced Signals
1: Promoted a demonstration effect	**project stakeholders 'buy-in' to mitigation solution**	Effectiveness	• Milestones set for outputs and/or Intermediate Outcomes for the volume of finance expected to be mobilised and/or other examples of 'buy-in' (e.g. policy statement). • Also aligns with M4-5: Public and Private finance mobilised	*Quant*: Achievement of project milestones for public and private finance mobilised Qual: Feedback from government and other stakeholders that they are convinced of the viability and benefits of the solution	• Mid-line: Interim Signals • End-line: Advanced Signals

Transformational change dimension	Element within transformational change dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in project ToC and M&E plans	How to measure success	Expectations at mid-line and final ELE
2: Caused a catalytic effect	**Systemic change underway to enable widespread adoption of mitigation solution:** • Improved policy, legislative and regulatory frameworks • New market behaviour and incentives • Increased institutional capacity and management practices • Shifts in values, ideology and mindset • Broadened political support for the solution	Effectiveness	• Milestones set for outcomes should indicate specifically what needs to change to enable widespread uptake of the mitigation solution.	*Qual*: Evidence of contribution to achieving expected systemic change and unexpected changes.	• Mid-line: Early Signals • End-line: Interim Signals
2: Caused a catalytic effect	**Replication and scaling-up of mitigation solution and/or project** • Replication in new sectors of the mitigation solution and/or project itself • Significant* scaling-up of the mitigation solution and/or project itself • Kick-starting and influencing sector-wide mitigation ** Significant compared to the size of the project and the overall target user group. For example, if the project promoted the installation of 2,000 Solar PV systems (representing approximately 2% of all target users), significant replication would imply that it has reached around 20% of target users. However, there is no quantitative target to meet, and a rationale can be provided to justify it meeting this criterion.*	Effectiveness Sustainability	• Milestones set for outcomes for replication/ scaling-up by others of project activities.	*Quant*: Volume of scaling-up (e.g. # of new geographies/ beneficiaries or $ of new funding) *Qual*: Feedback from other funders and programmes on the influence of the project in their decision to scale up activities and/or invest in the project's sector.	• Mid-line: Early Signals • End-line: Interim Signals

Transformational change dimension	Element within transformational change dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in project ToC and M&E plans	How to measure success	Expectations at mid-line and final ELE
3: Indirectly contributes to additional, large-scale and sustained GHG savings	**As a result of the changes from dimensions 1 and 2, there is evidence of additional and potentially large-scale and sustained GHG emissions savings**	Impact	• Milestones set for Impact should represent the scale of GHG emissions savings required for sector decarbonisation. • Also aligns with M1: Reduced Indirect GHG emissions and	*Quant:* Achievement of project milestones for indirect additional GHG emissions savings *Qual*: Given progress for dimensions 1 and 2, an assessment of the likelihood that this will result in additional GHG savings in the future. This is informed by feedback from wider stakeholders in the sector.	• Mid-line: No signals • End-line: Early Signals
Overall Transformational Change potential	**M3: Degree to which the supported activities are likely to catalyse impacts beyond the projects (potential for scaling-up, replication and transformation)**	Impact		*Mixed*: Based on whether the expected minimum level of signals for each transformational change dimension is found, the ELE gives: 1) a RAG rate to the 'Impact' evaluation criterion; and 2) a rate from 0 to 4 to the M3 indicator.	

Guidance for describing and scoring progress towards transformational change in ELE reports

Although transformational change is ultimately related to the project's Impact, **evaluating progress towards it cuts across different parts of the ELE report related to Evaluation Questions on Effectiveness, Sustainability and Impact (see table above).** In particular, the Effectiveness and Sustainability sections of the ELE report will describe key aspects of dimensions 1 and 2 (which relate to the projects' outputs, intermediate outcomes and outcomes). Therefore, the Impact section will provide an analytical synthesis of the three transformational change dimensions referring to the previously described evidence and assign an overall score to the project's transformational change potential. ELE reports' authors should avoid duplications across the sections and cross-reference to other relevant parts of the report, if some of the evidence has already been discussed.

Each dimension should be described and assessed according to the following "signal levels":

Table 10. Transformational Change "Signals" assessment by ELEs

Signal level	Definitions
No evidence	Evidence suggests little to no progress is being made in line with the ToC causal pathways to Transformational Change.
Early signals	There is emerging evidence of the transformation related to the dimension, or the foundations for the transformation have been laid by the project, but no signals of the change are present.
Interim signals	Evidence shows some signals that the transformation related to the dimension is underway, and it is likely to continue.
Advanced signals	Evidence shows strong signals that the transformation related to the dimension is underway, and there is little doubt that it will continue.

ELEs would expect projects to have achieved at least the "signal levels" in Table 11**Error! Reference source not found.** by the project's mid-point and end-point for each dimension.

Table 11. Minimum expected signals of project-induced transformational change

Dimension	Mid-point	End-point
1: Promoted a demonstration effect	Interim signals	Advanced signals
2: Caused catalytic effect	Early signals (of one or more of the types of possible changes)	Interim signals
3: Contributed to additional GHG savings	None	Early signals

Within the relevant dimension's sub-sections, these signal levels should be presented and justified by referring to the evidence provided throughout the report (e.g. in the Effectiveness and

Sustainability sections). Below are some guiding questions to support this (aligned to measures presented in Table 9).

For presenting the evidence on **Dimension 1**, the report could provide a narrative answering the following questions:

- Is the project in line with the expected direct GHG savings per M1 and the number of beneficiaries reached per M2?
- Have the key project stakeholders (i.e., those closer to the project implementation) shown concrete evidence of buy-in/adoption of the project's mitigation solution? Is this demonstrated by public and private sector actors investing resources into it, as per M4 and M5?
- Is the project documenting the key results and lessons from the process of demonstrating the validity of the mitigation solution and sharing these with wider stakeholders?
- Do the answers to the above questions constitute interim/advanced signals of Dimension 1 for the mid-line and end-line ELEs, respectively?

Similarly, for **Dimension 2**, the narrative could present evidence around the following questions:

- Has the project contributed to improving/removing systemic enablers/barriers to the widespread uptake of its demonstrated mitigation solution? What wider effects might this produce?
- What is the evidence that the project's mitigation solution will be scaled-up and/or replicated in new sectors and/or locations?
- Is there evidence that the project has informed or kick-started the implementation of the NDC or sector-wide mitigation?
- Do the answers to the above questions constitute early/interim signals of Dimension 2 for the mid-line and end-line ELEs, respectively?

Concerning **Dimension 3**, as no signals are expected at mid-term, the following questions are suggested for the analysis in Final ELEs only:

- Is the project in line with the expected indirect GHG savings per M1?
- What is the evidence that the project's mitigation solution will generate additional and large-scale GHG savings in the long term?
- Do the answers to the above questions constitute early signals of Dimension 3?

Finally, the assessment would conclude by providing an overall rating of transformational change potential. This aligns with M3: "Degree to which the supported activities are likely to catalyse impacts beyond the projects (potential for scaling-up, replication and transformation)".

The project will likely have provided a self-score for M3 within their routine M&E reporting. Therefore, the ELE teams can discuss with the project teams their rationale for this score, and then provide their own independent judgement of it.

To do this, the ELE authors should look back on whether the expected minimum level of signals for each transformational change dimension (Table 11) was found by the ELE and, on that basis, rate from

0 to 4 the M3 indicator using the scale recommended in the Mitigation Action Facility M&E Framework:

- 0 = Transformation judged unlikely;
- 1 = No evidence yet available;
- 2 = Some early evidence suggests transformation likely;
- 3 = Tentative evidence of change – transformation judged likely;
- 4 = Clear evidence of change – transformation judged very likely.

Based on that score, a Red-Amber-Green (RAG) rating will be assigned to the Impact evaluation criterion. The RAG rating can follow the guidelines in the matrix below (Table 12), while leaving some flexibility to account for the project-specific trajectories of progress.

Table 12. Indicative project's Impact RAG rating based on its M3 indicator score

M3 score	0	1	2	3	4
Mid-term ELE					
Final ELE					

Legend: 0 = Transformation judged unlikely; 1 = No evidence yet available; 2 = Some early evidence suggests transformation likely; 3 = Tentative evidence of change – transformation judged likely; 4 = Clear evidence of change – transformation judged very likely.

Annex B Evaluation and Learning Exercise Matrix

This evaluation and learning exercise matrix is based on the Theoretical Framework annexed to the final Terms of Reference of the ELE assignment. It has been a working tool that has allowed the evaluators to focus on a feasible target and assemble information on each question for synthesis in the final report, hence creating an integrative overview of the project at large.

ELEQ No.	Evaluation question	Evaluation criteria	Original hypotheses	Who can answer this question	Source of information Data gaps
	RELEVANCE				
1	To what extent does the Project address identified needs and align with stakeholder priorities?	• Responsiveness of the Project's design to the beneficiaries' needs and strategic priorities at the time of adoption. • Appropriateness of Project actions to address beneficiaries' needs and increase investment in EE in SMEs • The project is in line with Government targets on energy transition and environmental emissions (incl. NDC, sectorial plans, etc.) and MRV schemes	• SMEs lack the technical and financial capabilities to improve their energy efficiency. • are interested in improving EE and bank and service providers interested in providing financial and technical services • The Project supports Mexico's NDC and sustainable energy strategy and is linked with national MRV systems.	• Project partners (government, and FC and TC Components implementing partners) • Beneficiaries (SMEs; financial and technical service providers) • Project Team • TSU • Other stakeholders	• Interview • Analysis of background information and documents (energy, SME, policy documents, etc.) • Project proposal and progress report • NAMA/Mitigation Action Facility documents and reports
	EFFECTIVENESS				
2	To what extent has the Project been achieving intended intermediate outcomes (and unintended ones)?	• Evidence of the realisation of outcomes and outputs and level of achievement of indicators • Strength of Project's contribution to their realisation • For each of the intermediate outcomes, consider the major constraints and opportunities experienced (success and hindering factors) • Evidence of unintended outcomes (if any, negative or positive).	• Demand-side and supply-side barriers are being removed through Project Actions. • The Project increases demand for EE in SMEs and facilitates an increased supply of financial and technical services.	• Project partners • Beneficiaries • Project Team • TSU • Other stakeholders (e.g., chambers of commerce, associations, experts, academics, and/or NGOs)	• Interviews • Project proposal; progress and technical reports; workshop proceeding • Data from Project monitoring system • Information in the public domain (e.g. press, government statements, etc.)

ELEQ No.	Evaluation question	Evaluation criteria	Original hypotheses	Who can answer this question	Source of information Data gaps
2.1	Did changes in the Project operating context (external factors) affect the effectiveness of the Project? Are changes necessary to the overall theory of change (ToC) to increase the effectiveness	• Several assumptions and risk assessments remain valid after COVID-19 and changes in the political-institutional changes and in the economic environment • If there are delays in the implementation, what are their causes (endogenous or external factors), and how seriously have they impacted the Project implementation? • Robustness of the causal links/pathways to the outcomes and impact; validity of assumptions and causal pathways outlined in the ToC and need for adaptations and refinements	• Negative (external) factors (COVID, macro-economic developments) have caused delays in implementation • External factors have not affected the Project's ability to achieve change in the long run • The FC and TC Components are well-aligned in the ToC and reinforce each other	• Project partners • Beneficiaries • Project Team • TSU • Other stakeholders (e.g., chambers of commerce, associations, experts, academics, and/or NGOs)	• Interviews • Project proposal; progress and technical reports; workshop proceeding • Data from Project monitoring system • Information in the public domain (e.g. press, government statements, etc.)
	EFFICIENCY				
3	To what extent is the relationship between inputs and outputs timely and to expected quality standards?	• Timeliness of the delivery of outputs and outcomes (incl. budget spending) • Conduciveness of the implementation mechanism and management to achieving the expected outcomes	• Project activities can be implemented according to the time schedule and within budget • Project structure has been implemented but with changes in delivery institutions of TC and FC Components; Coordination with national and local levels of government has been positive	• Project partners and key stakeholders • Project Team • TSU	• Project proposal and progress report • Key stakeholder reports and public info • Interviews
3.1	Structure & steering: Has the project been managed, coordinated, and implemented effectively?	• Participation of government entities and level of satisfaction of stakeholders • The chosen implementation mechanism is conducive to achieving the expected outcomes; FC and TC Components interact synergistically • Communication and visibility are implemented according to an integrated approach • Stakeholders are participating and collaborating actively in the intervention	• The Mexico EE SME team has the right governance structure to effectively coordinate with key stakeholders • Key stakeholders fully own and commit to their role in the Project • If there are unexpected delays, the Project team will identify the causing factors and eliminate / mitigate them • Direct beneficiaries are highly satisfied with the Project support	• Project partners and key stakeholders • Project Team • TSU •	• Project proposal and progress report • Key stakeholder reports and public info • Interviews

ELEQ No.	Evaluation question	Evaluation criteria	Original hypotheses	Who can answer this question	Source of information Data gaps
		• Changes made to the governance structure through the amendments to the Project have delivered the desired benefits.	• Appropriate project risk mitigation actions are in place.		
	IMPACT				
4	What evidence is there that the Project is likely to contribute to the intended impact in the ToC (incl. transformational change)?	• The strength of the evidence that key outcomes and impacts are going to be achieved. • The "level of signals" of Project-induced transformational change according to the Transformational Change Measurement Framework included in the ELE FW.	• The Project is showing interim signals of producing a demonstrational effect (Dimension 1). • The Project is showing early signals of causing a catalytic effect, in terms of systemic change, replication or scale-up and wider sectoral or NDC implementation, (Dimension2) • The Project has a reasonable plan to contribute to additional, large-scale, and sustained GHG emission savings (Dimension 3)	• Project partners • Beneficiaries • Project Team • TSU • Other stakeholders (as mentioned above)	• Project proposal and project report • Interviews
	SUSTAINABILITY				
5	What is the likelihood that the outcomes will be sustained after the end of the Project funding period?	• The extent of the evidence supporting the Project sustainability (e.g. evidence of self-sustaining institutional structures, and political and financial commitment of key stakeholders) • There is little or no risk of backsliding or reversing	• Project will be key to a self-sustained market for energy efficiency in SMEs in Mexico; the capacities built will stay and serve other private or public-related initiatives (beyond the scope,	• Project partners • Beneficiaries • Project Team • TSU • Other stakeholders (as mentioned above)	• Progress report • Interviews • Literature; info on energy, SMEs, Mexico macro-environment in public domain
	LEARNING				
6	What key lessons can be learnt to the benefit of this Project or other projects or Projects in achieving their results?	• The Project's generation of important lessons for 1) itself, and 2) other projects.	• The Project will generate important lessons for sustaining its legacy in Mexico, for other projects, and the Mitigation Action Facility as a whole.	• Project partners and key stakeholders • Project Team • TSU	• Progress report • Interviews • NAMA/Mitigation Action Facility documents and reports

Annex C List of ELE sources

C.1 Internal documents

1. Project Annual Report Mexico SME Energy Efficiency 2019, 2020, 2021, 2022
2. Project Semi-Annual Report Mexico SME Energy Efficiency 2019, 2020, 2021, 2022, draft 2023
3. Excel file “Costo Diagnóstico” (2023)
4. Presentation “PyMEs como contribución a una economía baja en carbono” (June 2023)
5. Presentation “PyMEs como contribución a una economía baja en carbono y resultados de pilotos implementados” (June 2023)
6. Presentation “Resultados: Piloto Proyectos de Eficiencia Energética en PyMEs” (June 2022)
7. NAMA Support Project Proposal, Energy Efficiency in Small and Medium Enterprises as a Contribution to a Low Carbon Economy in Mexico (2018), including 12 Annexes
8. Project Proposal Mexico SME Energy Efficiency, TSU Assessment (Oct 2018)
9. Draft documents (provided on a confidentiality basis) by GIZ, Mitigation Action Facility, NAFIN (2023)
    a. Guía Técnica para la realización de Diagnósticos Energéticos (DE) y el Análisis Energético de Medidas de Ahorro de Energía (MAE) en el Marco del Eco Crédito Empresarial Individualizado
    b. Guía de Metodología para la Validación Técnica de Proyectos en el marco del Eco Crédito Empresarial Individualizado
    c. Guía de registro de PyMES en el marco del Programa Eco Crédito Empresarial Individualizado
    d. Guía de registro de empresas desarrolladoras de proyectos de eficiencia energética (DDPP) al Programa Eco Crédito Empresarial Individualizado
    e. Eco Crédito Empresarial Individualizado Manual Operativo

C.2 Public documents

1. BBVA (2022). Crédito a pymes ante la pandemia por COVID-19.
2. CEPAL (2018), Informe Nacional de la Eficiencia Energética en México (2018), Comisión Económica para América Latina y el Caribe
3. Climate Transparency (2019). Energy Transition in Mexico: The Social Dimension of Energy and the Politics of Climate Change.
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11. IRENA (2015). Renewable Energy Prospects: Mexico. International Renewable Energy Agency
12. IRENA (2017). Scaling up Renewables Investments in Mexico in the Wake of COVID-19.
13. Martin Puc, M. (2021). 'The Impact of COVID-19 on Competitiveness in SMEs in Mexico', International Journal of Managerial Studies and Research, Vol. 9, Issue 8 (August 2021)
14. Reyes Andrés, G. (2017). Política de Eficiencia Energética para la Competitividad de la PYMES. Thesis. Universidad Panamericana
15. SHCP (2023). Taxonomía Sostenible de México.
16. UNFCCC (2016). Contribución Determinada a Nivel Nacional.. United Nations Framework Convention on Climate Change
17. UNFCCC (2022a). Contribución Determinada a Nivel Nacional, Actualización 2022.
18. UNFCCC (2022b). México: Tercer Informe Bienal de Actualización ante la Convención Marco de las Naciones Unidas sobre el Cambio Climático.

C.3 List of organisations interviewed

Institution	Position
Project Team	
NAFIN	Director of International Financial Organisations
GIZ México	NAMA Programme Director
GIZ México	Resident Director GIZ Mexico
Project Stakeholder	
SEMARNAT - International Affairs Coordination Unit (UCAI)	Deputy director
British Embassy in Mexico	International Climate Finance Strategy Lead
AMENEER	President
Instituto Yucateco de Emprendedores (IYEM)	General director
Secretaría de Medio Ambiente y Ordenamiento Territorial – Gov. of Guanajuato	Director-General of Climate Change and Energy Sustainability
Independent	Consultant

Independent	Consultant
Ingeniería Energética Sustentable (IES)	General Manager
Ergon Plus	General Manager - Operations
Independent	Consultant
Asociación de Normalización y Certificación, A. C. (ANCE)	Management Systems Manager
Iconn (7-eleven, Mas Bodegas)	Energy and Environment Manager
IIK HABANERO	Owner
Pasteleria Romy	Owner
Molitermo SA de CV	General manager
Third Party	
CAMEXA	Deputy General Director / General Director
Efficiency Valuation Organisation (EVO)	Director of Programs
Banco Interamericano de Desarollo (BID)	Head of Energy Efficiency at the IDB
COPARMEX	Coordinator of the Energy Commission and Ecological and Sustainable Development Commission