
Mid-term Evaluation and Learning Exercise of the Tunisia Clean Energy in Buildings Project

Project Evaluation and Learning Exercises

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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/NAMA Facility and/or of the Project under evaluation.

Preface

The NAMA Facility was a joint initiative of the German Federal Ministry for Economic Affairs and Climate Action (BMWK), 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 NAMA Facility was active from 2012 to early 2023. The NAMA Facility's vision was to 'accelerate carbon-neutral development to keep temperature increases to well below 1.5 degrees Celsius by supporting NAMA Support Projects (NSPs) that effect sector-wide shifts toward sustainable, irreversible, carbon-neutral pathways in developing countries and emerging economies. Since April 2023, the programme continues as [Mitigation Action Facility](#).

All projects with an overall duration of more than three years are subject to a mid-term and to 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 NSPs' 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 'Scaling-up Renewable Energy and Energy Efficiency in the Tunisia Building Sector (Building NAMA 2018-2024)' (referred to in this document as Tunisia Clean Energy in Buildings or simply Building NAMA or NAMA Bâtiment)**. The report has been reviewed by Luca Petrarulo (Technical Lead, NSP ELE Team). For further information, please contact daponte@ambero.de.

Executive summary

This report presents the findings of the **mid-term Evaluation and Learning Exercise (ELE) of the NAMA Support Project (NSP) ‘Scaling-up Renewable Energy and Energy Efficiency in the Tunisia Building Sector’**. The overall objective of the project is to support the installation of 60 MWp of solar photovoltaic (PV) capacity that would benefit approximately 65,000 households, in addition to creating socio-economic co-benefits such as reduced household energy expenditure, the creation of skilled jobs and companies in the energy technology area, and reduced fossil fuel subsidies.

The NSP supports the Government of Tunisia (GoT) in strengthening its policy and regulatory framework towards the upscaling of a national solar energy support programme (PROSOL ELEC Economique) to equip about 65,000 middle-income households with solar photovoltaic (PV) systems to connect to the grid. The energy produced by the solar PV installations helps to power middle-income households, further reducing emissions as per the updated Tunisian Nationally Determined Contributions (NDC) pledging to reduce its carbon intensity by 45% by 2030. This project can easily be replicated in Tunisia to target low-income households and other countries.

The NSP delivers a Financial Cooperation (FC) Component to support and leverage the financing of these systems. At the same time, the NSP’s Technical Cooperation (TC) Component complements the FC Component by supporting national programmes promoting, in addition to PV systems, other low-carbon technologies in the building sector: solar water heating (PROSOL SWH) and thermal insulation (PROMO-ISOL).

The expected impact of the project is to enhance energy sustainability in the housing sector in Tunisia and, at the same time, bring significant environmental (e.g. reduction of greenhouse gas (GHG) emissions and pollutants), economic (e.g. improvement of energy security, electricity cost savings and creation of jobs) and social impacts (e.g. reduced health impacts). One key aspect of the NSP consists in supporting a nationally-funded financial mechanism with national authorities (National Agency for Energy Conservation (ANME), Ministry of Industry, Mines, and Energy (MIME), and Tunisian Company for Electricity and Gas (STEG)). This financial mechanism aims to accelerate the installation of building integrated PV systems to benefit middle-income households. Hence, with the FC Component, the project also contributes to establishing the regulatory framework to consolidate the financial sustainability of the incentives for scaling up solar systems towards these targeted households.

The NSP is at a critical stage in terms of implementation, especially concerning the FC Component. The progress made under the regulatory framework should enable a change from the previous months, characterised by poor project ownership by key implementing partners such as ANME (at the strategic level).

This ELE was undertaken during the period from October to December 2022. All mid-term ELEs seek to address the following questions:

- Is the NSP achieving its planned results?
- Is the NSP starting to trigger transformational change?

- What can be learnt from the NSP so far?

Specific additional elements to be considered in this ELE were the following:

- What are the reasons for the delay (non-pandemic related reasons)?
- How could the institutional/partner set-up be enhanced to reduce delays and facilitate the NSP implementation?
- What is the process flow for changes in national programmes (i.e., PROSOL ELEC), and who does need to be involved?
- If the initially designed financial mechanism is no longer feasible, how could it be rearranged so that it works?

More information about the focus of this ELE and the methodology followed can be found in Section 1.2 and Section 2, respectively. The executive summary highlights the ELE's findings and key lessons. Please refer to Sections 3 and 4 for the detailed findings and conclusions and Section 5 for the full lessons and recommendations.

Below are some of the **key findings** of the ELE. Please see the report's sections for the full findings.

- **Two major external factors impacted the NSP's effectiveness.** There have been delays due to (i) the COVID-19 outbreak and (ii) the financial crisis Tunisia faces, amplified by the war in Ukraine. This led to increased macroeconomic imbalances in Tunisia (with a debt worth nearly 90% of its Gross Domestic Product) and runaway inflation. Both factors, but especially the changes in the financial conjuncture, resulted in the need for the NSP to restructure its FC Component. This showed a good sense of adaptability by the NSP but resulted in heavy delays.
- In the immediate future, it is important **to start the rollout of the FC and TC Components to further demonstrate the impacts of reducing electricity cost, job creation (e.g. PV installers), reducing GHG emissions and low-carbon development** the Tunisian building sector.
- While there have been implementation delays under the FC Component, it is too early to consider the termination of the FC Component, especially as progress was made in the recent past regarding the regulatory framework. These delays can be explained by the need to restructure the FC Component to respond to the changed conditions in the financial market, which was overall a positive development. Hence, **the question of the termination of the FC Component, or amendments to it, should be considered at the end of the third quarter of 2023** if the financial agreements between all the key institutions are still not signed.
- **On purpose, it was decided to start the activities under the TC Component slowly.** Delays at the commencement of implementation of its activities are justified, as far as no progress was made under the FC Component.
- **Based on the evidence viewed and considered to date as part of the evaluation, the NSP has had limited impact.** For the reasons outlined above and further explained in the report, the NSP has not yet been able to deliver transformational change and, for the time being, has not captured changes at the intermediate outcome. Yet, the project has supported some foundational key outputs, such as the regulatory framework.

- **The NSP's implementation delays, and the limited scale of its impact to date, means it is difficult to predict the likelihood of whether the project's outcomes are sustainable in the long term.** For instance, it is difficult to ascertain if the capacities built through the training programmes or the digitalisation process will be sustained over time as capacity-building efforts have not been launched during the mid-term evaluation. However, the cooperation with the Delegation of the European Union on digitalisation activities could potentially lead to significant upgrading of the Customer Relationship Management of STEG, integrated with the new financial mechanism proposed by the regulatory framework.

Key learnings from this ELE include:

- **The key factors that have been delaying the implementation of the project are the process of restructuring the FC Component** to respond to the changed conditions in the financial market, **the negotiations regarding the content of the financing agreements** between the NSP implementing agencies and finding a consensus on the execution version of these agreements. **Political momentum** is needed for the establishment of the regulatory framework.
- **The private sector can be a key driver of sectoral transformation when engaged.** The commitment and leadership of Tunisian private PV installers and the private financial sector (Attijari Bank) with the objectives associated with this NSP are evident. They can be central to the project's success. The same is true for the households, increasingly impatient to see the PROSOL ELEC *Economique* implemented to benefit from it.
- **Knowledge exchange with other NSPs exists (e.g., Mexico, Egypt, Cape Vert, Colombia).** This could also be extended to **other countries and projects from other donors to foster experience sharing on key solutions and enhance replication.** For instance, Iraq has shown interest in the NSP as part of a NAMA Planning supported by UNDP with USAID financing.

Recommendations have also been provided (in Section 5.2 of the report). The key ones are summarised hereafter:

- **Finalising the signature of the financing agreements in the short term is recommended.** Several options are possible in amending the draft agreements in order to find a consensus among signing Parties, including a management fee when the resources mobilised are transiting via entities such as ANME. This should be conditioned with unlocking the domestic resources made available through the *Fonds de Transition Energétique* (FTE).
- **It is recommended to put in place a Steering Committee as initially planned to facilitate future alignment and coordination efforts.** The ELE evaluation confirms that the coordination between stakeholders is adequate, in line with the context which existed in the previous national PV solar project (PROSOL ELEC *Classique*). However, the coordination should be reinforced to avoid miscommunication and misunderstanding.
- While it was a good decision to put the TC Component in a pending mode, **it is now recommended to move forward with implementing some of the activities under the TC Component independently from the FC Component.**

- **Extensive work on raising awareness and disseminating project information and benefits should be extended.** Some dissemination gaps were identified. For example, it will be important for the FC Component to ensure that the targeted beneficiaries are not limited to big cities and diversify the dissemination channels to target the beneficiaries who are not confident with digital communications or lack internet access.
- **It is recommended to reassess and hence recalculate the possible financial benefits of the NSP** in terms of additional installed capacity for the country (translated into cost savings for STEG) and in terms of substitution of energy (translated into cost savings for the households in their electricity bills), especially given the shock on the global energy market due to the international tensions, which led to skyrocketing energy prices during the past year.
- In addition to the design and development of the MRV as part of the NSP, it is recommended to **consider the economic value of GHG emissions reductions and study any link with the rules developed under Article 6 of the Paris Agreement.**

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List of abbreviations

AFOLU	Agriculture, Forestry, and Other Land Use
ANME	National Agency for Energy Conservation (Agence Nationale pour la Maitrise de l'Energie)
Attijari	Attijari bank
BIPV	Building Integrated Photovoltaics
COVID-19	Corona Virus Disease 2019
CSPV	Chambre Syndicale du Photovoltaïque de Tunisie
DFI	Development Finance Institutions
ELE	Evaluation and Learning Exercise
ELEQ	Evaluation and Learning Exercise Question
EQ	Evaluation Question
EUR	Euro
FC Component	Financial Cooperation Component
FTE	<i>Fonds de Transition Energétique</i>
FW	Framework
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIZ	Gesellschaft für Internationale Zusammenarbeit
GoT	Government of Tunisia
IMF	International Monetary Fund
KfW	KfW Development Bank (KfW – Kreditanstalt für Wiederaufbau)
KII	Key Informant Interview
LFI	Local Finance Institutions
Logframe	Logical Framework
M&E	Monitoring and Evaluation
MIME	Ministry of Industry, Mines, and Energy

MRV	Measuring, Reporting, and Verification
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contributions
NSP	NAMA Support Project
NS	NSP Stakeholder
NSO	NAMA Support Organisation
NT	NSP Team
OECD DAC	Organisation for Economic Co-operation and Development's Development Assistance Committee
OPM	Oxford Policy Management
OTE	<i>Objectif Transition Énergétique</i>
PROMO-ISOL	<i>Programme d'isolation thermique des toitures</i>
PROSOL	<i>Promotion du Solaire</i>
PV	Photovoltaic
QA	Quality Assurance
QC	Quality Control
RAG	Red Amber Green
SMEs	Small and Medium Enterprises
SNBC	Stratégie Nationale Bas Carbone
SOEs	State-Owned Enterprises
STEG	Tunisian Company for Electricity and Gas (Société Tunisienne de l'Electricité et du Gaz)
STP	Solar Tunisian Plan
SWH	Solar Water Heating
TC Component	Technical Cooperation Component
TCMF	Transformational Change Measurement Framework
TND	Tunisian Dinar
ToC	Theory of Change

TP	Third Party
TS	Types of Sources
TSU	Technical Support Unit, NAMA Facility

1 Introduction

This document presents the findings of the **mid-term Evaluation and Learning Exercise (ELE) of the ‘Scaling-up Renewable Energy and Energy Efficiency in the Tunisia Building Sector’ NAMA Support Project (NSP)**, hereinafter referred to as **Building NAMA** following the English translation of the NSP’s name used by many national stakeholders, i.e. NAMA *Bâtiment*. The ELE was undertaken during the period from October to December 2022.

1.1 Overview of the NSP

The Tunisian electricity sector is organised as a vertically integrated monopoly managed by STEG (Tunisian Company for Electricity and Gas), under the purview of the Ministry of Industry, Mines and Energy (MIME). STEG controls all transmission and distribution assets and nearly all generation assets. STEG serves customers on three-tiered voltages: the low voltage grid-primarily consists of households and small and medium enterprises (SMEs) and functions like a traditional distribution network. Due to heavily subsidised (non-marginal cost reflective) electricity tariffs, STEG has had a negative net profit since 2010 (amounting, for example, a total of TND 1.8 billion, or EUR 735 million, in 2017, which corresponded to 42% of total revenues). **This makes STEG the largest loss maker** among Tunisia’s biggest State-Owned Enterprises (SOEs). As a result, STEG requires significant subsidies from the federal government to maintain financial solvency. **The ANME (National Agency for Energy Conservation) also sits under the MIME and is responsible for executing energy efficiency and clean energy policies.** In addition, an Energy Transition Fund (FTE) was formed in 2017 to **support the growth of renewable energy investments**. The FTE provides grant funding for renewable energy projects but is also legally allowed to provide debt and equity financing to private developers.

Tunisia is a net energy importer, with most energy imports coming from Algeria. In 2020, Tunisia’s total energy import dependency was 60%, compared to 8% in 2010. 57% of natural gas is imported from abroad; total natural gas imports have increased by over 400% since 2000. Given the elevated import dependency, there is a strong interest domestically in increasing renewables’ penetration in Tunisia’s electricity grid. Currently, 93.4% of electricity comes from natural gas and 6.6% from renewable energy sources, including 240 MW of wind, 77 MW of solar photovoltaic (PV) and 62 MW of hydropower¹. Tunisia’s energy transition is based on the implementation of an energy management strategy to increase energy efficiency (rational use of energy to reduce overall primary energy consumption by 30% in 2030) and the development of renewable energy (increase the share of renewable energy in the electricity production mix to reach 35% in 2030)².

The Building NAMA intends to contribute to this strategy. The project’s main goal is to enable rooftop solar PV to become economically viable for middle-income households with an innovative financial mechanism. This consists in a significant decrease in the interest rate to be paid by households when investing in small rooftop solar PV systems. The project will also enable the wide dissemination of common best practices for today’s and future house owners in Tunisia by improving the regulatory framework for scaling up the existing PV support programme PROSOL ELEC *Classique*.

¹ <https://www.trade.gov/country-commercial-guides/tunisia-electrical-power-systems-and-renewable-energy>

² <http://www.pm.gov.tn/pm/upload/fck/File/Programme2022fr.pdf> (page 65)

The NSP supports three major technology components for this transformational change:

- Solar PV (PROSOL ELEC *Economique*), directly through its Financial Cooperation (FC) Component;
- Solar water heating (PROSOL SWH or PROSOL *Résidentiel* in French), supported under the NSP's TC Component, to be implemented by national stakeholders;
- Thermal insulation (PROMO-ISOL), supported under the TC Component to be implemented by national stakeholders.

The project also aims to identify further options to increase its scope to other technologies (e.g. green cooling, energy-efficient lighting etc.). The mainstreaming of those 'green' technologies from high- to low-income households (meaning to address the totality of the residential sector) in Tunisia under economically attractive conditions is key for significant greenhouse gas (GHG) reductions and socio-economic benefits.

In summary, the Building NAMA seeks to demonstrate that climate finance can effectively support transformational change in the housing sector, reduce GHG emissions and enhance low-carbon development in the Tunisian building sector as the overarching project outcome.

The Building NAMA started in November 2019 and is due to end in October 2024. An FC Component and a TC Component formally make up the project. The FC Component aims to support implementing the PROSOL ELEC *Economique* programme by introducing a financial mechanism incentivising the installation of Solar PV systems in middle-income households through low-interest loans and state subsidies. It builds on the successful implementation and complements the PROSOL ELEC *Classique* (now in its 3rd edition), which has been running for many years and targets high-income households only. The TC Component aims to improve Tunisia's policy and regulatory environment by addressing respective barriers and raising awareness among the target population of PROSOL ELEC *Economique*, PROSOL SWH and PROMO-ISOL.

The implementing partner of the NSP is the National Agency for Energy Conservation (ANME). Other key NSP stakeholders include STEG, MIME, a local commercial bank, Attijari Bank (a subsidiary of Attijariwafa Bank) and solar PV installers. Further, NSP stakeholders include the Ministry of Finance, the Ministry of Environment, and the civil society. **ANME steers the NSP on behalf of the Government of Tunisia** (GoT) and conducts sensitisation and capacity-building activities in close cooperation with the NAMA Support Organisation (NSO). GIZ acts as the NSO for the NSP. As for PROSOL ELEC *Economique*, MIME³ STEG⁴ and ANME⁵ are the responsible institutions for the incentive scheme.

In terms of governance of the NSP, there is a **Steering Committee** and a Technical Committee. The former is supposed to gather the responsible institutions (including a suggestion to invite the Ministry of Finance) along with the involved local financial institution Attijari Bank and the NSO. It is intended to facilitate the partners' cooperation, follow-up, monitoring, and alignment of the proceedings with the climate objectives, decision-making and the work of the Technical Committee. The first FC Steering

³ <https://www.energiemines.gov.tn/fr/accueil/>

⁴ <https://www.steg.com.tn/fr/index.html>

⁵ <https://www.anme.tn/>

Committee is still to be organised. **The Technical Committee** comprises ANME, STEG, the Tunisian Association of Photovoltaic Installers and the NSO.

At the time of this mid-term ELE, the NSP was finalising the preparation of the operationalisation phase of the financial mechanism for the PROSOL ELEC *Economique* programme with the establishment of an adequate regulatory framework. However, the NSP was waiting for the finalisation and the signature of the two financing agreements between GIZ and ANME and between ANME and STEG, the final decision regarding the practical organisational set-up, the development of a communication plan and the launch of media and promotional campaigns, the sensitisation and/or training of target groups, the development of tailor-made data management and Monitoring, Reporting and Verification (MRV) systems, as well as the implementation of technical assistance activities related to PROSOL SWH and PROMO-ISOL. It has to be pointed out that since the NSP had a spending cap, the project could only engage in minor TC Component's activities until FTE co-funding (i.e. the financing agreements) was confirmed. This broadly explains the long list of pending activities mentioned above.

The comprehensive description and illustration of how and why the project contributes to Tunisia's energy transition are described in its Theory of Change (Annex A).

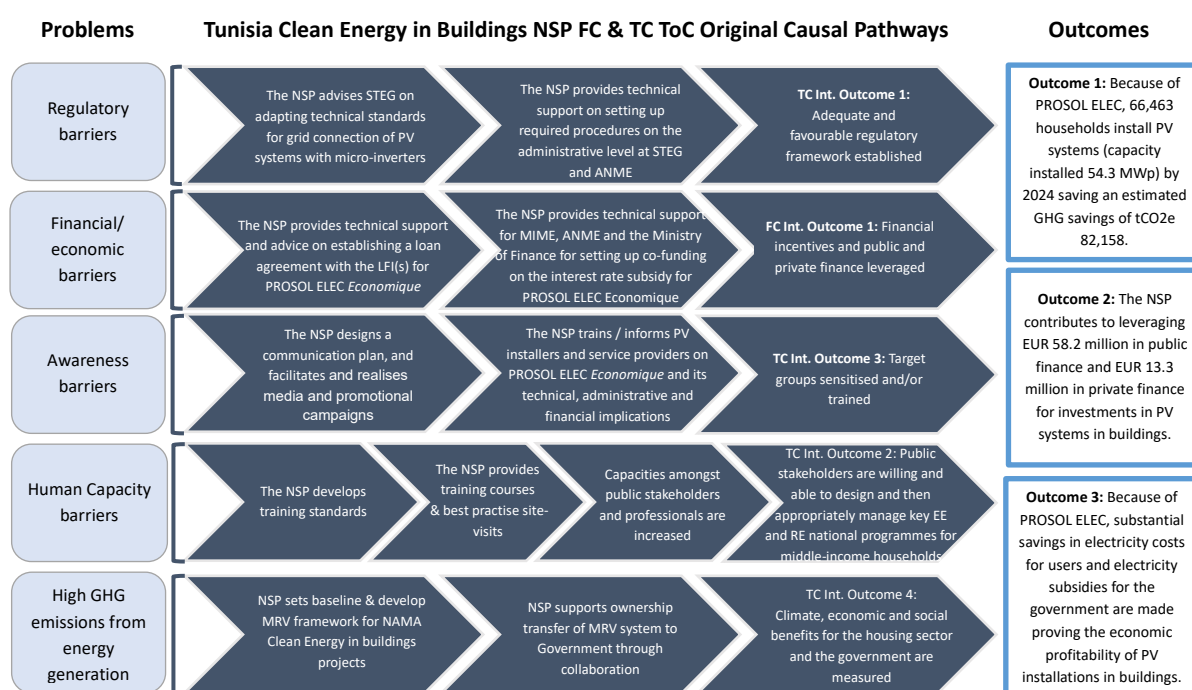
The problem

Households and solar PV installers face significant challenges that policymakers and development institutions must address to scale the market. From a financial perspective, householders are significantly bound by credit constraints and often face challenges in meeting collateral requirements from financial institutions. Rooftop solar PV systems also have significant soft costs associated with customising installation and design. Lastly, many households have i) very small rooftops, which means that any installed system may be too small to justify installation costs unless they benefit from better credit rates and/or power consumption under 1,800 kWh per year. Consequently, householders would benefit from a blended financing scheme or the ability to lease panels. To reduce default risk, there are also significant benefits in aggregating households' solar PV systems under a STEG-Attijari Bank agreement and paying directly the installers.

Although minor compared to the above, from a technical point of view, there are other problems with the uptake of solar rooftop technologies in Tunisia. For example, households are often concentrated in a single location, so they pose power distribution congestion potential and greater curtailment risk.

The original causal pathways

In order to progress from the initial problem and barriers identified to the achievement of the outcomes presented, the NSP ToC foresees nine (9) causal pathways, illustrated in Figure 1.

Figure 1. Causal Pathways of the Theory of Change of the Tunisia Clean Energy in Buildings NSP

The ELE has identified the following causal pathways sustaining each of the nine Intermediate Outcomes of the NSP:

- Causal pathway supporting FC Intermediate Outcome 1:** If the NSP provides technical support and advice on establishing a loan agreement with the Local Finance Institutions (LFIs) for PROSOL ELEC *Economique* and provides technical support for the MIME, ANME and the Ministry of Finance for setting up co-funding on the interest rate subsidy for PROSOL ELEC *Economique*, then financial incentives and public and private finance will be leveraged (FC Component Intermediate Outcome 1) and 66,463 households will install PV systems (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC *Economique* saving estimated GHG emissions of 82,158 tCO₂e (Outcome 1).
- Causal pathway supporting TC Intermediate Outcome 1:** If the NSP advises STEG on adapting technical standards for grid connection of PV systems with micro-inverters and provides technical support to STEG and ANME on setting up required procedures on the administrative level, then adequate and favourable regulatory framework will be established (TC Component Intermediate Outcome 1) and 66,463 households will install PV systems (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC *Economique* saving an estimated GHG emissions of 82,158 tCO₂e (Outcome 1).
- Causal pathway supporting TC Intermediate Outcome 2:** If the NSP develops training standards, provides training courses and site-visits on best practices, and increases capacities amongst public stakeholders and professionals, then public stakeholders will be willing and able to design and then appropriately manage key energy efficiency and renewable energy national programmes for middle-income households (TC Component Intermediate Outcome 2), which will contribute to the installation of PV systems in 66,463 households (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC *Economique* saving an estimated GHG

emissions of 82,158 tCO₂e (Outcome 1), leveraging EUR 58.2 million in public finance and EUR 13.3 million in private finance for investments in PV systems in residential buildings (Outcome 2), and substantial savings in electricity costs for users (middle-income households) as well as electricity subsidies for the government will be made thanks to PROSOL ELEC *Economique* proving the economic profitability of PV installations in residential buildings for middle-income households (Outcome 3).

- **Causal pathway supporting TC Intermediate Outcome 3:** If the NSP designs a communication plan, facilitates and realises media and promotional campaigns, and informs as well as trains PV installers and service providers on PROSOL ELEC *Economique* and its technical, administrative and financial implications, then target groups will be sensitised and trained (TC Component Intermediate Outcome 4), which will contribute to leveraging EUR 58.2 million in public finance and EUR 13.3 million in private finance for investments in PV systems in residential buildings (Outcome 2).
- **Causal pathway supporting TC Intermediate Outcome 4:** If the NSP sets a baseline, develops an MRV framework for the Building NAMA projects, and supports ownership transfer of the MRV system to the GoT through collaboration, then climate, economic and social benefits for the housing sector and the government will be measured (TC Component Intermediate Outcome 4), and substantial savings in electricity costs for users (middle-income households) and electricity subsidies for the government will be made thanks to PROSOL ELEC *Economique*, proving the economic profitability of PV installations in residential buildings for middle-income households (Outcome 3).

1.2 Focus of the Evaluation and Learning Exercise

Following the Terms of Reference⁶, this ELE's General ELE Questions (ELEQs) are:

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

In addition, the ELE also sought to address some NSP-specific questions:

- What are the reasons for the NSP's delays (non-pandemic related reasons)?
- How could the institutional/partner set-up be enhanced to reduce delays and facilitate the NSP implementation?
- What is the process flow for changes in national programmes (i.e. PROSOL ELEC), and who does need to be involved?
- If the initially designed financial mechanism is no longer feasible, how could it be rearranged so that it works?

The General ELEQs presented above were broken down and operationalised into Specific ELEQs answered in this report. Table 1 maps the General and Specific ELEQs against the Organisation for Economic Co-operation and Development's Development Assistance Committee's (OECD DAC)

⁶ The ELE Terms of Reference is provided in **Error! Reference source not found.**

evaluation criteria⁷, 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 NAMA Facility Technical Support Unit (TSU), and reported in Annex C.

Table 1. 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 NSP achieving its planned results?	To what extent does the NSP address an identified need (by the national government, project developers and middle-income households)?	Relevance (Section 3.1)
	To what extent has the implementation of the NSP been achieving intended intermediate outcomes (and unintended ones)?	Effectiveness (Section 3.2)
	To what extent was the delivery of outputs timely and to expected quality standards?	Efficiency (Section 3.3)
Is the NSP starting to trigger transformational change?	What evidence is there that the NSP has contributed to the intended impact in the ToC (incl. transformational change)?	Impact (Section 3.4)
	How likely will the outcomes be sustained after the end of the NSP funding period?	Sustainability (Section 3.5)
What has been learnt from the NSP so far?	What key lessons can be learnt to the benefit of this NSP or other projects or NSPs in achieving their results?	Learning (Section 5.1)

1.2.1 The ELEs' Transformational Change Measurement Framework

Some words are needed to address the concept of Transformational Change, which is included in the General and Specific ELEQs. The enabling of Transformational Change is one of the key aims of the NAMA Facility and, therefore, of NSPs. The NAMA 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”*⁸. The NAMA Facility Theory of Change explains how Transformational Change is expected to be achieved through its outputs and outcome. The Theory of Change is broad, and there are different ways in which Transformational Change can be achieved through the NSPs. Figure 2 illustrates three dimensions that interact and reinforce each other to produce NSP-induced Transformational Change. Each NSP will work on different elements of the three dimensions to define its pathway to or “recipe” for Transformational Change. A more detailed

⁷ Relevance, Effectiveness, Efficiency, Impact, Sustainability. The ELE Team added a 6th criteria, namely Learning.

⁸ <https://www.nama-facility.org/concept-and-approach/transformational-change>

explanation of the ELEs' Transformational Change Measurement Framework (TCMF), summarised in Figure 2, is presented in Annex B.

The ELE used the TCMF to assess the NSP'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 in Table 2. The orange-coloured elements in Figure 2 show the minimum level of signals of each of the three transformational change dimensions that NSPs are expected to have achieved by their mid-line and end-line.

Figure 2. ELEs' Transformational Change Measurement Framework

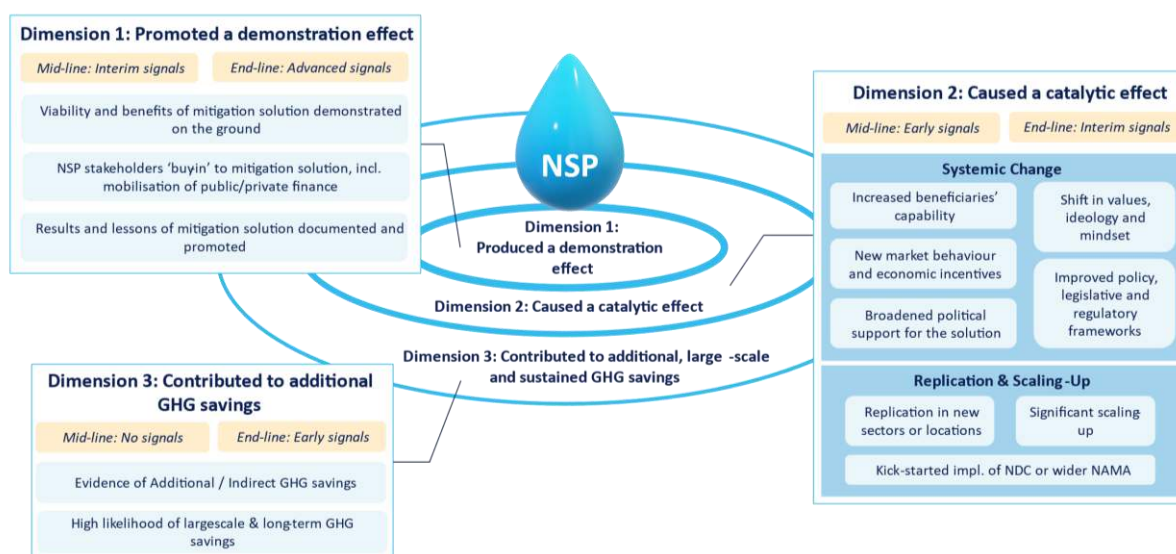


Table 2. Transformational Change “Signals” assessment by ELEs

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 NSP, 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.

2 Methodological approach

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

During the Inception Phase, the ELE Team reviewed key NSP documentation, including the NSP Proposal, Annual and Semi-Annual Reports, and the NSP Monitoring and Evaluation (M&E) Framework (see the complete list of documents reviewed in Annex G). The ELE Team then used the information from the document review to develop an adjusted ToC diagram and an initial Causal Pathway Map. The adjusted ToC was the same ToC included in the NSP proposal. Still, a few adjustments sought to correct some issues with outputs presented as intermediate outcomes and outcomes or vice-versa. The Causal Pathway Map was grounded on that adjusted ToC and was used to assess the solidity of the causal assumptions underpinning the NSP strategy. It is important to highlight that the Causal Pathway Map is focused on understanding how the proposed activities of the NSP contribute to its final purpose and goal.

The data from the document review and the ToC served as a reference point to **develop a tailored matrix including the ELEQs** (ELE Matrix – see Annex C), which the ELE Team **integrated with the initial hypotheses** to be tested by the fieldwork. At the same time, the ELE Team worked on organising the fieldwork interviews, **applying a purposive sampling approach of the key informants according to their involvement with the NSP**. In this way, the ELE Team grouped them into **3 general categories: (i) NSP Team**, i.e. members of the core team running the NSP, the performance of whom is directly assessed by the ELE; **(ii) NSP Stakeholders**, i.e. people who have been either key beneficiaries (e.g. government authorities or SMEs which the NSP supports) or people who have supported the NSP (e.g. consultants who the NSP has contracted for specific tasks). In short, people who know about the NSP (or at least part of it) quite well but are not part of the NSP Team; and **(iii) Third Parties**, i.e. people and/or organisations that are not part of the previous two groups, but that are still relevant in the sector for gathering other lessons, for example, other development partners, donors, NGOs, and consultancies in Tunisia working on sustainable energy. The above helped the ELE Team test, triangulate the evidence, and assess its strength. Table 3 summarises the number of interviews and people interviewed (some meetings had multiple interviewees) by each sampling category. For a detailed list of the institutions and organisations interviewed, refer to Annex G.

Table 3. Overview of the number of interviews and interviewees by sampling category

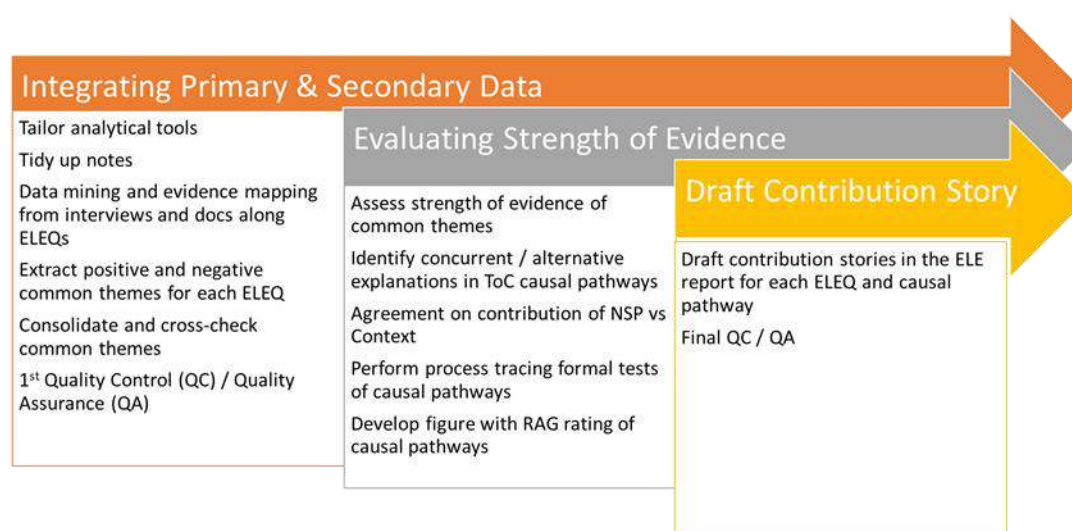
	NSP Team	NSP Stakeholders	Third Parties	TOTAL
No. interviews	3	7	4	14
No. interviewees	6	11	6	23

The Fieldwork Phase began with an ELE Kick-Off Workshop on 30th November 2022. The workshop was conducted in person and was attended by nine (9) participants from the NSP Team (6) and ELE Team (3). The workshop's purpose was to review, clarify and validate: (i) the purpose, scope, and expectations of the ELE; and (ii) the NSP's ToC. The Kick-Off Workshop achieved two key outcomes: the validation of the adjusted NSP ToC diagram and the definition of initial insights into the priorities for the fieldwork.

The initial workshop was followed by **seven (7) days of primary data collection using in-depth interviews with the NSP Team and Key Informant Interviews (KIIs) with NSP Stakeholders and Third Parties. The general ELE Interview Guides prepared during the inception phase were reviewed and tailored to the specific interviews daily.** The Guides followed the ELEQs, and the general structure remained consistent among interviewees from the same sampling category. Still, the content and wording of the questions were tailored to capture essential knowledge from specific informants, cover knowledge gaps, test hypotheses or triangulate certain information. Where necessary, the interview was conducted in French or Arabic. **Following the intense period of interviews, the ELE Team put together some preliminary findings and lessons, which were discussed with the NSP Team during the ELE Validation Workshop on 8th December 2022, also held in person, with the NSP Team.** In addition to **reviewing, discussing, and validating the preliminary ELE findings, the Validation Workshop was used to discuss additional adjustments to the ToC and Causal Pathway Map and identify ways to adapt the NSP based on the lessons identified.** The fruitful discussion on the preliminary ELE findings allowed the ELE Team to validate them in collaboration with the NSP Team and identify and discuss recommendations as laid out in Section 5.

The final part of the fieldwork moved the ELE Team into the **Analysis Phase**. Figure 3 illustrates the different steps taken to analyse the data.

Figure 3. Summary of the ELE Analysis Methodology



Evaluating the NSP performance: Section 3 of this report uses the evidence and emerging themes discussed above to present the ELE Team’s findings in terms of the performance of the NSP against the OECD DAC criteria (relevance, effectiveness, efficiency, impact, and sustainability) and (under the effectiveness criteria) its performance against the ToC intermediate outcomes. Performance is summarised for each DAC criterion and/ or ToC intermediate outcome in a **Red-Amber- Green (RAG) rating:** Green – good/ very good performance; Amber - some progress but problems also identified; Red - serious deficiencies in the performance.

Evaluating the strength of the evidence: To assess the strength of the evidence behind the emerging themes extracted from the interview notes or documents, the ELE Team cross-referenced each emerging topic with its sources (see Annex D). Consequently, the Team went through all the emerging topics again and rated the strength of the evidence behind each of them according to the scorecard

in Table 4. The rating exercise highlighted when emerging topics are based on personal opinions, several people from a specific type of sources, or came across multiple types of sources.

A key methodological limitation is that under the Building NAMA in Tunisia, many TC Component-related activities are pending. These activities will be launched once the FC Component-related actions are cleared, with the beginning of the EUR 10 million disbursement. Hence, any threshold to define what constitutes weak or strong/very strong evidence is subjective, especially in the case of this NSP. Therefore, the strength of evidence labels (weak, medium, etc.) should only be viewed in relative terms to the evidence of the other themes rather than in absolute terms. However, the ELE Team was able to collect detailed information about the advancement of the project. This can be found in the “Evidence and Answers to the ELE Matrix” in Annex D, which also provides the sources of information (reports, stakeholders’ consultations, etc.).

Table 4. Score card for assessing the strength of evidence

		Variety (number of types of sources (TS) reporting the evidence)		
		1 TS only	2 TSs	3 TSs
Quantity (number of sources reporting the evidence)	1 interview only	Single source		
	2 interviews	Weak evidence	Medium evidence	
	3+ interviews	Medium evidence	Strong evidence	Very strong evidence

The final ELE phase is the Reporting Phase. During this phase, the ELE Team compiled this report which has undergone internal quality assurance and one round of comments from the NSP Team, the NAMA Facility TSU and its Donors.

There are no specific challenges or limitations related to the ELE, apart from delays in the NSP implementation. This made assessing some achievements at the intermediate outcome level (TC Component Component-related, mainly) difficult.

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 1. At the beginning of each section, a RAG rating of the strength of the NSP'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 NSP

Relevance

1. To what extent does the NSP address an identified need?

The NAMA Facility is at the forefront of international efforts to implement mitigation actions in developing countries. The Building NAMA is instrumental in up-scaling access to solar PV systems to households in Tunisia, demonstrating the relevance of such systems in Tunisia and promoting sustainable development and action on climate.

The current international energy crisis that followed the geopolitical tensions in Eastern Europe increases the relevance of the NSP for Tunisia. The installation of Building Integrated Photovoltaics (BIPVs), which the NSP supports, contributes to onsite renewable electricity and efficient energy use. Data show that households tend to lower their electricity consumption after installing BIPVs. Lowering electricity consumption from the residential sector is important for Tunisia, even more so considering the context of exacerbated international tensions since February 2022, which created shock waves in global energy markets. In Tunisia, like in many other countries, higher energy prices, price volatility, supply shortages, and security issues are spurring a faster energy transition.

The project activities are also contributing to the national climate and sustainability commitments: (i) the **Solar Tunisian Plan (STP)** aims to achieve 35% of renewable energy in the electricity mix by 2030; (ii) the latest **NDC** committed the country to reduce the national carbon intensity⁹ by 45% by 2030, compared to its 2010 level; and (iii) Tunisia is committed to achieving carbon neutrality by 2050 as enunciated in the *Stratégie de Développement Neutre en Carbone et Résilient aux Changements Climatiques à l'horizon 2050*¹⁰.

The NSP also aims to advance **bilateral cooperation and investment** in pursuit of the goals of the Paris Agreement and the NDC. Indeed, the financial incentive supported by the NSP and the *Fonds de*

⁹ Carbon intensity is the ratio of net emissions to GDP (at constant 2010 prices). The net emissions result from the aggregation of net GHG emissions from 4 sectors (energy, industrial processes, Agriculture, Forestry, and Other Land Use (AFOLU), and waste).

¹⁰

<https://unfccc.int/sites/default/files/resource/Strat%C3%A9gie%20de%20d%C3%A9veloppement%20neutre%20en%20carbone%20et%20r%C3%A9silient%20-%20Tunisie.pdf>

Transition Energétique (FTE)¹¹ with subsidised loans, and the use of such technologies, are maintaining a flourishing market (with more than **300 solar PV installers in Tunisia**).

Furthermore, the NSP aims to **increase public awareness**, including by the households and the business community, of opportunities associated with the development of clean, sustainable and renewable energy. This is relevant to beneficiaries, as sensitisation campaigns about the real cost of electricity or the energy cost-saving potential help cope with the recent increases in electricity costs.

In conclusion, the project's relevance is satisfactory for several reasons. First of all, the project design process was participatory and inclusive, involving large consultations of stakeholders, including representatives of the beneficiaries. Second, the need to support the financing of the energy transition in Tunisia is increasingly relevant, given both the international and financial crises in the country. Hence, the ELE Team considers the performance of the NSP in terms of relevance (needs of target groups, alignment with policy level, appropriateness of financial instruments) as **fully appropriate** and consequently marked this evaluation criterion as "green".

3.2 Effectiveness of the NSP

Effectiveness	2. To what extent has the NSP been achieving intended intermediate outcomes (and unintended ones)?
	FC Intermediate Outcome 1: Financial incentives and public and private finance leveraged
	TC Intermediate Outcome 1: Adequate and favourable regulatory framework established
	TC Intermediate Outcome 2: Public stakeholders are willing and able to design and then appropriately manage key EE and RE national programmes for middle-income households
	TC Intermediate Outcome 3: Target groups sensitised and/or trained
	TC Intermediate Outcome 4: Climate, economic and social benefits for the housing sector and the government are measured

3.2.1 FC Intermediate Outcome 1: Financial incentives and public and private finance leveraged

This Intermediate Outcome (IO) aims at developing a regulatory framework, considering a strong finance leverage mechanism, the FTE. This provides subsidies and low-rate loans to the benefit of middle-income households. It is planned that the FTE will comprise: i) 97.5 million TND (eq. 29.15 million EUR) of public finance to be leveraged by ANME to be used as a subsidy on upfront investment cost; ii) 15 million TND (eq. 4.5 million EUR) of public finance to be leveraged by ANME to be used as an interest rate subsidy; iii) 33 million TND (eq. 9.8 million EUR) of public finance to be leveraged by the NSP FC Component to be used as an interest rate subsidy; and iv) 152 million TND (eq. 45.4 million EUR) to be leveraged by Attijari Bank through public-private financial partnerships to be used as commercial loans.

¹¹ <https://www.energiemines.gov.tn/fr/themes/energie/efficacite-energetique/fonds-de-transition-energetique-fte/> ; <https://www.anme.tn/?q=fr/content/fonds-de-transition-energetique-realizations-defis-et-opportunites>

While the regulatory framework is getting established (see section 3.2.2), and financing agreements are in place (e.g. between STEG and Attijari Bank since July 2021), **the overall process of financing rooftop solar PVs for middle-income households has not started yet to channel financial resources effectively**. In particular, two remaining financing agreements, the first between STEG and ANME, and the second between GIZ and ANME, need to be signed. As not all the financing agreements are yet signed, the 9,8 million EUR budget allocated in the FC Component has not started to be mobilised to subsidise the loans. However, every day, STEG receives requests from eligible households to install solar PV systems in their homes. The delay is estimated to be about 20 months. It is not clear why delays are signing the two remaining agreements. The ELE Team considers general inertia within the administration impacting all projects. In addition, as ANME is not familiar with such financing agreements, time is needed to understand and review the documents.

To accelerate the signing of the financing agreements (GIZ-ANME and ANME-STEG), the intervention of the NAMA Facility could be helpful, as well as amplifying media campaigns, agreeing with the professional organisation of PV installers (CSPV) to enable their intervention in the implementation of the *PROSOL ELEC Economique* programme, and finally, speeding up the acquisition of the necessary electricity meters and the commissioning process by STEG for *PROSOL ELEC Economique*.

The ELE confirms that the initial model regarding the FC Component was no more viable, and the decision to restructure it in 2020 was effective.

In conclusion, **progress towards the FC Component's Intermediate Outcome 1 is moderate**. The delay in the progress made can be explained by the time needed to negotiate the financing agreement but also the earlier need to restructure the FC Component to respond to the changed conditions in the financial market, which was overall a positive development (the changed conditions consisted in switching towards domestic currency-based lending). This led the ELE Team to assign a RAG rating of amber. It is expected that once all the documents are signed, STEG will be able to deliver rapidly, in coordination with the installers and Attijari Bank, given the high and continuous demand from households to benefit from the financial incentive.

3.2.2 TC Intermediate Outcome 1: Adequate and favourable regulatory framework established

The NSP's TC Component supports establishing the regulatory framework in **incentivising the entire value chain to enable investments in rooftop solar PV systems at the household level**.

The ELE established that thanks to the contribution of the NSP, the regulatory framework has recently evolved. MIME signed a decree updating the incentives granted by the FTE at the end of November 2022 and then sent it to the Presidency of the Government for enactment. In parallel, a Ministerial Order (an *Arrêté*) for implementing the national pilot project for the equipment of middle-income families connected to the low-voltage network by solar PV systems was signed and promulgated by MIME on 30 December 2022¹². The contribution of the NSP to this policy framework is significant. For instance, the *Arrêté* recognises the importance of the NSP by reminding the decisions of the NAMA Facility Board in its introduction (Articles 1 and 2), giving the details of the implementation modalities of the *PROSOL ELEC Economique*, and in Article 3, the financial resources

¹² http://www.iort.gov.tn/WD120AWP/WD120Awp.exe/CTX_9980-10-NnreqQrSNU/RechercheJORT/SYNC_-975917762

mobilised¹³. Therefore, ELE Team assigned a **RAG rating of green to effectiveness towards the TC Component's Intermediate Outcome 1.**

3.2.3 TC Intermediate Outcome 2: Public stakeholders are willing and able to design and then appropriately manage key EE and RE national programmes for middle-income households

This Intermediate Outcome is linked to i) the capacity development of public stakeholders in managing national energy programmes such as the PROSOL ELEC *Economique* incentivising the use of solar PV systems by middle-income households; ii) the definition of programmes for further solar-based technologies and/or market segments; and the other schemes; and iii) the sharing of best practices and knowledge from the implementation of PROSOL ELEC *Economique* and the other NSP-backed national programmes with the public and private sector in Tunisia and the MENA Region so that a catalytic effect is generated.

Capacity development of public stakeholders

The success of PROSOL ELEC *Classique*¹⁴ – and many other programmes – proves the capacity of Tunisian's public stakeholders to coordinate and implement energy programmes. The project's financial and technical aspects are considered an innovating public-private partnership (i.e. the agreement between a State Owned Enterprise, STEG, and a private bank, Attjari Bank).

STEG has proven experience in energy efficiency programmes and renewable energy development projects. In 2010, a subsidiary specialising in developing renewable energies (STEG Energies Renouvelables) was created. Since 2010, this company has developed 40 solar energy projects, with 10 MW of total installed capacity.

At the end of 2013, Tunisia set up a national debate to develop an energy transition strategy up to 2030. In this context, **ANME**, which is a non-administrative public establishment placed under the administrative supervision of MIME, is committed to achieving the following three energy transition objectives: (i) increase the share of renewable energies in the electricity mix to 30% by 2030; (ii)

¹³ « Vu les décisions du Conseil d'Administration du Fonds Nama FACILITY n°27 en date du 14 mars 2019 relative à l'attribution de 15,1 millions d'EUR à la Tunisie pour la mise en œuvre du projet de mise à l'échelle des énergies renouvelables et de l'efficacité énergétique dans le secteur du bâtiment [...] Article 1. Le présent arrêté fixe le mode d'intervention du projet pilote national Prosol Elec Economique [...], Article 2. Le projet national consiste à l'installation de 56 mégawatts de systèmes solaires photovoltaïques auprès de 65 mille ménages à faibles revenus. Article 3. Le coût de réalisation du projet national est estimé à 297,5 millions de dinars est réparti : crédits – 152 millions de dinars ; bonification des taux d'intérêt : 48 millions de dinars ; subvention d'investissement : 97,5 millions de dinars »
Translation as "Having regard to the decisions of the Board of Directors of the Nama FACILITY Fund No. 27 dated March 14, 2019 relating to the allocation of EUR 15.1 million to Tunisia for the implementation of the project to scales of renewable energies and energy efficiency in the building sector [...] Article 1. This decree sets the mode of intervention of the national pilot project Prosol Elec Economique [...], Article 2. The national project consists of installation of 56 megawatts of photovoltaic solar systems in 65,000 low-income households. Article 3. The cost of carrying out the national project is estimated at 297.5 million dinars and is distributed: credits – 152 million dinars; interest rate subsidy: 48 million dinars; investment subsidy: 97.5 million dinars"

¹⁴ The predecessor program to the PROSOL ELEC *Economique* was named PROSOL ELEC *Classique*. The latter mainly targeted high-income households, while PROSOL ELEC *Economique* tries to democratise the access to PV technology.

Reduce primary energy demand by 35% in 2035 compared to 2010 levels; (iii) and reduce carbon intensity by 41% in 2030 compared to 2010 level¹⁵.

ANME is experienced in international cooperation and management related to sustainable energy projects. It also has a robust track record in implementing national Energy Efficiency and Renewable Energy programmes in the building sector. This is the case of the *Partnership for Market Readiness Project* (World Bank, 31 million EUR); the *Energy Sector Reforms TUNEREP* (World Bank/OPEC Fund for International Development, 3.83 million EUR); the *Industrial Energy Efficiency and Cogeneration* (GEF, 2.5 million EUR), etc. The original due diligence process - established in the framework of the NSP - confirmed the capacity of ANME to manage/participate in large national energy programmes. Still, some progresses need to be made by ANME. For instance, private sector developers have faced difficulties understanding the procedures to obtain project authorisation¹⁶. In addition, in February 2022, solar PV installers complained about the delays of ANME paying them¹⁷.

MIME has the required technical and human capacity to develop, coordinate and manage energy programmes, specifically energy efficiency in the building sector. Also, the mandate of MIME is well-defined as an administrative supervisor of ANME.

Definition of programmes for further solar-based technologies and/or market segments

NSP's technical assistance activities intend to support the deployment of new technologies and new market segments, especially through technical assistance to prepare for the implementation by the national authorities of the PROSOL SWH (i.e. Solar Water Heaters of less than 200 litres, also known as PROSOL *Résidentiel*¹⁸) and the PROMO ISOL (consisting in developing market mechanisms for residential roof insulation). These two other programmes have great transformational change potential, e.g. by supporting the market expansion of solar water heaters. **Yet, the TC Component's relevant activities have not started as planned toward the end of the project since they depend on implementing the FC Component of the NSP.**

Sharing of best practices from the implementation of solar-based national programmes

Related activities have not yet been identified, planned and launched. These tasks depend on the implementation of the FC Component of the NSP. Establishing and enacting the regulatory framework and the signature of the financial agreements will accelerate this work package once the 10 million EUR (under the FC Component) starts enabling the installation of the BIPVs systems to the benefit of the households.

In conclusion, since **most of the NSP's outputs related to training and capacity building have not started yet**, it appears that the high level of capacity of the relevant national stakeholders to coordinate and implement sustainable energy programmes is not due to the NSP. However, there is not enough evidence at this stage to say whether the NSP's support could improve the national

¹⁵ <http://www.pm.gov.tn/pm/upload/fck/File/Programme2022fr.pdf> (page 65)

¹⁶ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jun/IRENA_RRA_Tunisia-2021.pdf

¹⁷ For instance, representatives of companies working in the renewable energy sector among the affiliates of the Confederation of Tunisian Citizens (CONNECT) organized, on Tuesday February 15, 2022, a protest movement in front of the headquarters of the ANME to claim reimbursement of their dues.

¹⁸ <https://www.anme.tn/?q=fr/projets/thermique-residentiel/prosol-residentiel>

capacity even further. In addition, without the definition and implementation of the solar-based national programmes, it is also currently not possible to assess the effectiveness of sharing best practices about these with the national and regional stakeholders. Therefore, the ELE Team assigned a **RAG rating of grey to TC Component Intermediate Outcome 2.**

3.2.4 TC Intermediate Outcome 3: Target groups sensitised and/or trained

Training has been carried out for the ANME team, particularly on MRV methods, focusing on economic and social co-benefits. On the other hand, tenders for awareness campaigns are in progress; hence, most activities have not yet been launched. In addition, PV installers have not yet been sensitised/trained. Consequently, **the ELE Team assigned a RAG rating of grey to TC Component Intermediate Outcome 4.**

3.2.5 TC Intermediate Outcome 4: Climate, economic and social benefits for the housing sector and the government are measured

This intermediate Outcome is linked to i) the development and operationalisation of tailor-made data management and MRV systems to measure the GHG-saving benefits of the NSP-backed schemes and ii) the assessment of their other socio-economic co-benefits.

Development and operationalisation of tailor-made data management and MRV systems

The MRV system has not yet been developed. There is a specific reason: it was in progress, yet the process had to start again due to the bankruptcy of the service provider selected by the project. Related activities have not yet been started, but a Request for Proposal was published for hiring consultants to develop the MRV system, and proposals have been received: the selection process is ongoing. Regarding the data management system to manage customers and beneficiaries of PROSOL ELEC, it will be implemented through the *Objectif Transition Énergétique* (OTE) project (supported by the European Union¹⁹²⁰), while it was initially planned as part of the NSP.

Assessing socio-economic co-benefits

The STEG estimated initial energy, environmental, economic, and social benefits/impacts for middle-income households and for the GoT. Given the 2022 energy crisis, the positive socio-economic impacts of the project might be two to three times higher than initially estimated. Nevertheless, **demonstrating the economic and social benefits for the housing sector and the GoT still needs to be measured quantitatively.** In particular, with the new global and national economic circumstances of high inflation (also affecting PV modules) and energy prices, the increase of the NSP's benefits are still global estimations and should be confirmed by additional calculations.

In conclusion, due to the current lack of evidence explained above, **the ELE Team assigned a RAG rating of grey to TC Component's Intermediate Outcome 4.**

¹⁹ https://ue-tunisie.org/projet-192-2-179_contrat-de-performance-de-reforme-sectorielle-objectif-trans.html#.

²⁰ [https://www.anme.tn/?q=fr/projets/cooperation-multilaterale/programme-objectif-de-transition-energetique-en-tunisie-ote#:~:text=Objectif%203A%20Ce%20programme%20consiste%20C3%A0,des%20C3%A9nergies%20renouvelables\)%20en%20Tunisie.](https://www.anme.tn/?q=fr/projets/cooperation-multilaterale/programme-objectif-de-transition-energetique-en-tunisie-ote#:~:text=Objectif%203A%20Ce%20programme%20consiste%20C3%A0,des%20C3%A9nergies%20renouvelables)%20en%20Tunisie.)

3.2.6 How external factors impacted the NSP's effectiveness

The ELE team found five external factors that may have impacted the NSP effectiveness: the COVID-19 pandemic, the financial crisis²¹, adaptations needed to switch from foreign to domestic currency-based lending, partner bankruptcy, and issues with ANME coordination. These factors caused delays in the execution of the NSP, e.g. in organising meetings and other activities because of COVID-19, which in turn delayed the capacity-building activities of the NSP.

COVID-19's impacts are more generally expected to cause delays in the execution of the NSP, such as the postponement of the technical training sessions that need to be delivered or the need to wait for the lockdown to be lifted to go back to promoting the substitution scheme. However, they may also have a more profound impact if internal disruptions and absence of staffs in some key Tunisian administrations magnify the COVID-19 supply chain disruptions.

As for the financial crisis, Tunisia expects to reduce its fiscal deficit to 5.5% in 2023 from a forecast of 7.7% in 2022. This is due to be driven by austerity measures that could pave the way for a final deal with the International Monetary Fund (IMF) on a rescue package. This could make it harder for the GoT to decide about subsidising the installation of solar PV systems.

The decision to adapt and restructure the FC Component to respond to the changed conditions in the financial market was overall a positive development (the changed conditions consisted of switching away from foreign to domestic currency-based lending and selecting another financial institution) but also caused delays. Other delays in the TC Component came from the bankruptcy of one of the companies selected for the digitalisation activity, which implied going for another option to implement it.

3.3 The efficiency of the NSP

Efficiency

3. To what extent was the delivery of outputs timely and to expected quality standards?

The implementation of the NSP has not been fully efficient so far.

The regulatory framework for scaling up PROSOL ELEC *Classique* towards middle-income households (PROSOL ELEC *Economique*) has recently been put in place, **but it is behind schedule**. Indeed, the regulatory framework, consisting of two pieces of legislation (see also section 3.2.2), has taken too long to develop. These two pieces of legislation have just been promulgated (during the preparation of this report). They are the Ministerial Order (*Arrêté*) of 26 December 2022 laying down the provisions for the implementation of the national pilot project for equipping middle-income households connected to the low-voltage grid with solar PV systems (i.e. the PROSOL ELEC *Economique*

²¹ On January 4, 2023, Marouane El Abassi, the chief of the Central Bank of Tunisia indicated that Tunisia faces a year of low economic growth and runaway inflation, and urgently needs a bailout deal with the International Monetary Fund (IMF). Tunisia is awaiting the final approval of a loan from the IMF that will allow the disbursement of a fund of EUR 1.9 billion over a period of four years.

programme) and the Decree No. 2023-86 of 2 February 2023 amending Government Decree No. 2017-983 of 26 July 2017 laying down the rules for the organisation, operation and conditions of intervention of the FTE. This new decree updated the public incentives granted by the FTE. It increased the incentives for technologies covered by the NSP, i.e. thermal insulation of roofs in residential buildings and small-capacity solar water heaters (< 300 litres). The PROSOL ELEC *Economique* programme cannot be launched without adopting this regulatory framework.

The public stakeholders have allocated the financial incentives **with some delay**. However, management documents related to the FC Component, which are necessary for implementing PROSOL ELEC *Economique*, **still have not been established and signed**, i.e. the financing agreements between ANME and GIZ and ANME and STEG.

Additional public and private finance has still not been leveraged (i.e., ready to be used). Delays in this were caused by multiple factors, including finding an alternative in the lending process (see section 3.2.6), the lack of signatures for the above-mentioned financing agreements, and the non-promulgation of the new decree updating the incentives granted by the FTE. **However, as of the day of writing, public and private finance has been allocated (i.e. earmarked) to the key implementing activities of the NSP**. Public finance has already been allocated for the PROSOL ELEC *Economique* programme by ANME through the FTE as a subsidy on upfront investment costs (34.78 million EUR) and interest rate subsidy (4,56 million EUR). Private finance has also been allocated by Attijari Bank (53.19 million EUR). These allocated public and private finance was indicated in the aforementioned ministerial order of 26 December 2022.

Some progress has been made in strengthening national capacities, particularly for ANME and other stakeholders and staff involved in the NSP, **but with some delay**. In addition, the enabling of the NSP stakeholders to successfully kick start the wider Tunisia Clean Energy in Buildings NSP implementation with a larger scope, including further technologies and/or market segments (e.g., thermal insulation of roofs in residential buildings, SWH systems, etc.) is **in progress, but with some delay**. Indeed, selecting a service provider for developing digital applications for managing and monitoring the Tunisia Clean Energy in Buildings NAMA, originally planned to be funded under the NSP, is in progress through the OTE project funded by the EU. Furthermore, with the exception of PROSOL ELEC *Economique*, no other initiatives have been launched in new market and technology segments, such as thermal insulation of roofs in residential buildings.

The sensitisation of middle-income households about the **PROSOL ELEC *Economique* has not commenced yet**, and NSP's communication campaigns and promotional activities **have not started yet**. In addition, awareness raising and training of PV installers and PV service providers through PROSOL ELEC *Economique* to enable an ambitious market adoption **have yet to begin, which is behind schedule**.

The FC Component's implementation delays have had a knock-on effect on the NSP's knowledge-sharing activities. Thus the dialogue on the experiences from implementing the Tunisia Clean Energy in Buildings NAMA has not started yet, **which is behind schedule**.

Stakeholders are not yet able to measure social and economic co-benefits of the Tunisia Clean Energy in Buildings NAMA and to valorise this knowledge to increase effort in the sector because the training of stakeholders on measuring and reporting sustainable co-benefits of the NAMA has not yet started.

The MRV system has not yet been implemented, and **these activities and related results are also behind schedule.**

Linking the commencement of the TC Component to one of the FC Components (i.e. the launch of the PROSOL ELEC *Economique* programme) has caused the NSP to delay starting the implementation of the TC Component. The NSP intended to move forward with implementing the NSP TC Component without necessarily waiting for the launch of the PROSOL ELEC *Economique* programme. However, ANME has been slowing the advancement of various activities without an apparent explanation over the last two years. Also, as mentioned in section 1.1, the NSP had a spending cap that limited the activities to be funded without the FTE co-funding.

Initiatives that involve multiple stakeholders, like this NSP (MIME, ANME, STEG, *Chambre Syndicale du Photovoltaïque de Tunisie* (CSPV)²², Attijari bank, etc.), usually find it challenging to coordinate actions. Getting and maintaining higher-level political support to coordinate the various NSP activities through the operationalisation of a Steering Committee²³ is crucial for the NSP. Indeed, NSP stakeholders can meet periodically and follow up on the implementation of the NSP activities and find solutions to potential issues. **Without a functioning Steering Committee, the NSP lacks implementation capacities, particularly strategic and coordination capabilities, which was clearly noted during the interviews conducted during the fieldwork.**

In addition, having **a designated team within all the core NSP implementing partners**, i.e., GIZ, ANME, STEG, and Attijari Bank, **is crucial for the good management of NSP activities.** This is in place, even though some minor adjustments can be made (e.g. in terms of meetings coordination and better communication between institutions). The interviews conducted during the fieldwork phase enabled us to address these minor challenges and propose **adaptive management options.**

The ELE Team would like to emphasise that the NSP Team has demonstrated flexibility in adapting to this slow operating context by being allocated to other projects while awaiting administrative and legislative progress, thus saving human and financial resources from this project.

In conclusion, the ELE Team assigned an amber rating to the NSP's efficiency at mid-term. Indeed, substantial delays have occurred in implementing the NSP activities for both FC and TC Components, and a few issues in the coordination between GIZ and ANME have been identified. This situation can be explained, *inter alia*, by the limited motivation of ANME to move forward in light of lacking the financial means to support the national funding due to the financial crisis Tunisia is undergoing (see section 3.2.6). However, progress has already been made (e.g. time dedicated to explaining the content of the draft financing agreements to be signed by the different institutions). There is a general consensus on the importance of moving forward and implementing the recently signed and published a national regulatory framework to respond to the growing demand of households to benefit from the PROSOL ELEC *Economique*.

²² <http://cspv.tn/>

²³ The NSP's Steering Committee has yet to meet.

3.4 Impact of the NSP

Impact

4. What evidence is there that the NSP has contributed to the intended impact in the ToC (incl. transformational change)?

For assessing the NSP's progress towards its impact, the ELE used the Transformational Change Measurement Framework explained in Section 1.2.1 and Annex B.

Dimension 1: Promoted a demonstration effect

At the time of the NSP's inception, the demonstration effect of the NSP-backed PROSOL *Economique*'s business model was already underway. In fact, since 2005, PROSOL's innovative business model, which is based on a public-private partnership between ANME, STEG, FTE, and private sector banking (Attijari bank) (powerful complementary cooperation), has allowed a number of PROSOL-branded programmes, i.e., PROSOL *Thermique* (Solar Water Heaters (SWHs)) and PROSOL ELEC *Classique* (I, II, and III) to be considered as a success story by all stakeholders in Tunisia. **This successful business model, on which PROSOL ELEC *Economique* is also based, confirms the viability of the mechanism as a mitigation solution. In addition, the current high demand from middle-income households to install solar PV systems in their homes, confirmed by the interviewees from STEG, has already confirmed on the ground the financial benefits (savings on the energy bill) of the PROSOL ELEC *Economique* mechanism.**

As a mitigation solution, the NSP stakeholders' buy-in to PROSOL ELEC *Economique* is already there. Indeed, MIME and ANME have already established the regulatory framework for PROSOL ELEC *Economique* (see sections 3.2.2 and 3.3). In addition, public finance has already been allocated for the PROSOL ELEC *Economique* programme by ANME through the FTE as a subsidy on upfront investment costs and interest rate subsidies. Attijari Bank has also allocated private finance. These allocated public and private finance was indicated in the aforementioned ministerial order of 26 December 2022.

No results and lessons from the PROSOL ELEC *Economique* programme have been documented and promoted, given that the program has not been launched yet.

In terms of the promotion of learning, no signs have been detected so far. Indeed, the FC Component of the NSP is still in the initial phase, and the TC Component's activities have not begun yet.

Based on the evidence above, **the ELE team can say that interim signals of producing a demonstrational effect can be confirmed. However, these have focused mostly on the PROSOL ELEC *Economique* programme as a mitigation solution under the NSP's FC Component.** Challenges remain ahead for the NSP regarding other mitigation solutions to be identified under the TC Component of the NSP.

Dimension 2: Caused a catalytic effect

Systemic change

The NSP has already allowed some increase in beneficiaries' capability through training activities and the NSP team's daily presence in national institutions. Hence, this allows us to strengthen national capacities, particularly for ANME and other stakeholders and staff involved in the NSP. However, informing and/or training PV installers and PV service providers on PROSOL ELEC

Economique and its technical, administrative and financial implications have not yet commenced. In addition, stakeholders cannot yet measure the social and economic co-benefits of the Tunisia Clean Energy in Buildings NAMA and valorise this knowledge to increase efforts in the sector.

The NSP has designed new economic incentives in the Energy Sector in Tunisia, targeting middle-income households through the new PROSOL ELEC *Economique* programme. The financial mechanism of this program is based on a subsidy on the upfront investment cost of the Solar PV system by the FTE, a loan from a Tunisian commercial bank (Attijari Bank) with an interest rate subsidy by the FTE, and an equity contribution to upfront investment cost by the beneficiary.

Solar PV installers are eagerly awaiting the launch of the PROSOL ELEC *Economique* programme and have already informed many eligible (middle-income) households about it. A strong demand from middle-income households to install Solar PV systems in their homes has already been recorded by STEG, confirmed during the ELE interviews.

The NSP has already contributed to a certain shift in values, ideology and mindset in the energy sector in Tunisia. Indeed, middle-income households, informed by different channels (STEG, PV installers and the media²⁴), are now strongly convinced to shift to a new energy supply model that offers them economic benefits. Hence, they are looking forward to the launch of PROSOL ELEC *Economique*. This has been confirmed by STEG, which is receiving many calls from its interested customers.

The NSP has already contributed to improving the policy, legislative and regulatory frameworks in the energy sector in Tunisia. A new mechanism has been designed to encourage middle-income households to install Solar PV systems in their homes, i.e. PROSOL ELEC *Economique*. This mechanism is expected to be launched shortly. The necessary regulatory framework for implementing the PROSOL ELEC *Economique* programme has been established (a ministry order was promulgated on 26 December 2022, and a Decree (relating to FTE) was promulgated on 2 February 2023).

Replication and scaling up:

The NSP has not yet contributed to replicating its mitigation solutions in new sectors and locations, as it is too premature.

The NSP has not yet contributed to the implementation of Tunisia's NDC because its FC Component has not yet been implemented. **It has also not contributed to the wider implementation of the NSP** through new technologies and/or market segments (e.g., thermal insulation of roofs in residential buildings, SWH systems, etc.) because the TC Component activities of the NSP have not yet commenced.

In conclusion, the ELE Team finds that early signals of systemic change can already be observed, but they need to be confirmed by implementing the FC and TC Components of the NSP. Also, the full potential of the systemic change of the NSP will be effective only if appropriate measures are undertaken to ensure the implementation of all its activities.

²⁴ <https://www.entreprises-magazine.com/lanme-et-la-steg-equiperont-65-000-logements-en-unites-photovoltaiques-en-tunisie/>

Dimension 3: Contributed to additional, large scale and sustained GHG savings

The NSP has not yet commenced reporting on GHG savings because its FC Component is not implemented. According to the Transformational Change Management Framework (Figure 2), **seeing signals of additional, large scale and sustained GHG savings in the mid-term is unnecessary.** However, the evaluators see some potential issues that could undermine the achievement of such reductions by the NSP. The likelihood that the interest-rate subsidy will be withdrawn after the FTE and NAMA Facility funds have been exhausted may pose a high risk to sustaining market demand for Solar PV systems by middle-income households unless the cost of these systems has fallen by then. Also, the likelihood that the NSP will not contribute to wider implementation through new technologies and/or market segments (e.g., thermal insulation of roofs in residential buildings, SWH systems, etc.) because its TC Component activities have not yet been commenced is a potential obstacle to achieving transformational change.

The above analysis can help evaluate the likelihood of transformational change and the NSP's impact. As explained in the ELE's Transformational Change Measurement Framework (see Annex B), **several elements of transformational change potential were self-assessed by the NSP through the monitoring of its Core Mandatory Indicator M3**, i.e. "Degree to which the supported activities are likely to catalyse impacts beyond the NAMA Support Projects (potential for scaling-up, replication and transformation)". NSP teams are asked to score themselves from 0 to 4 on an annual basis using the 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.

In the last Annual Report from 2021, the NSP forecasted to achieve a score of 2 by the end of 2022. The ELE team believes that a score of 2 is consistent with the current transformational change potential of the NSP, given that the TC Component activities have yet to begin. **Furthermore, an amber RAG rating to the Impact evaluation criterion appears appropriate for the Mid-term ELE.** In fact, while the NSP has met the expectations at mid-term for Dimension 2 and those for Dimension 1, significant challenges have been identified that could affect Dimension 3. In particular, the uncertainties surrounding the sustainability of the market demand for Solar PV systems by middle-income households after the use of FTE and NAMA Facility funds for an interest-rate subsidy and the effective implementation of the TC Component of the NSP are considered significant and require special attention by the NSP Team during the remainder of the project implementation.

3.5 Sustainability of the NSP

Sustainability

5. How likely will the outcomes be sustained after the end of the NSP funding period?

The continued rise in the price of fossil fuels on the international market, coupled with the commitment of the Tunisian Government to eliminate energy subsidies, as recently confirmed in ongoing discussions with the IMF, has already been **increasing the demand from middle-income households to install Solar PV systems to reduce their energy bills**. This will support the sustainability of PROSOL ELEC *Economique*, the success of which is linked to the NSP's success. This will also encourage the GoT to design and implement new programmes targeting other technologies (e.g. thermal insulation, etc.) and/or market segments (e.g. low-income households, etc.), which can benefit from the NSP's technical assistance.

The NSP benefits from a consolidated and robust institutional framework that makes it likely to be sustained over time. The long track record of collaboration between the multiple stakeholders across existing and newly-designed PROSOL programmes (e.g., PROSOL *Thermique* (SWHs), PROSOL ELEC *Classique*, PROSOL ELEC *Economique*, and PROSOL ELEC *Social*) will ensure the sustainability of the NSP's outcomes. Interviewees considered that the existing PROSOL programmes (PROSOL *Thermique* and PROSOL ELEC *Classique*) are success stories, so it is reasonable to assume that PROSOL ELEC *Economique* will be as well.

The contribution of the FTE, as a national financial instrument, with the NAMA Facility through the Tunisia Clean Energy in Buildings NSP will make the PROSOL ELEC *Economique* likely to be sustained after the end of the NSP funding period, as it will help the market for 600-1200 Wp Solar PV systems to mature. However, particular attention will need to be paid to adapting the business model of PROSOL ELEC *Economique* to the withdrawal of the interest-rate subsidy provided by the NAMA Facility after the end of the NSP.

The regulatory framework established as part of the implementation of the TC and FC Components of the NSP (i.e., the Ministerial Order (Arrêté) of 26 December 2022 and the new Decree N° 2023-86 of 2 February 2023 updating the incentives granted by the FTE) will contribute to the sustainability of the outcomes of the NSP after the end of the project funding period. Indeed, it will provide the PROSOL ELEC *Economique* programme as well as the targeted technologies and/or market segments (i.e., thermal insulation of roofs in residential buildings and SWH systems) for the wider implementation of the NSP with the basic legal framework for their implementation during the NSP and after its completion.

A large number of PV installers eligible by ANME (+ 500 PV installers), thanks to PROSOL ELEC *Classique* I, II, and III, will make the PROSOL ELEC *Economique* programme likely to be sustained in the long term. Indeed, the PV installers are the main implementers of the programme on the ground. They will play an important role in sensitising middle-income households about the PROSOL ELEC *Economique* and encourage them to install Solar PV systems to reduce their energy bills. As the market matures, they will continue to promote and install Solar PV systems for middle-income households after the end of the NSP.

The increase (almost doubling) of the public incentives for small-scale SWH systems, according to the new Decree (No. 2023-86 of 2 February 2023), will stimulate the development of the market segment for this category of SWH systems for low and middle-income households, as foreseen by the TC Component of the NSP. This new market segment for renewable energy in buildings is likely to be sustained after the end of the NSP funding period. It will continue to be supported by public incentives until it matures.

Also, the increase (almost tripling) of the public incentives for thermal insulation of roofs in residential buildings, according to the new Decree (No. 2023-86 of 2 February 2023), will stimulate the development of the market segment for this energy efficiency technology in buildings, foreseen by the TC Component of the NSP for middle-income households. This new market segment for energy efficiency in buildings is likely to be sustained after the end of the NSP funding period. It will continue to be supported by public incentives until it matures.

In conclusion, the above factors show that the NSP's outcomes are very likely to be sustained after the end of the NSP if the project actually manages to implement its activities and achieve its outcomes during the remaining implementation period. In addition, PROSOL ELEC *Economique* shows solid evidence that it will continue to operate after the project period, once implemented, as its business model is based on previous business models of successful PROSOL programmes (i.e. involving ANME, STEG, Attijari Bank and PV installers). However, the sustainability of the NSP's achievements will depend on the capacity of the main implementing partners (i.e. GIZ and ANME) to make considerable efforts to overcome all existing communication and operational barriers within the project. It will also depend on the solutions to the economic crisis facing Tunisia. The country could witness very difficult years if a formal agreement with the IMF is not reached quickly. Therefore, the sustainability of the NSP has been assessed as “amber”.

4 Conclusions

Now that the evidence collected and analysed by the ELE has been explored, this section goes back to the NSP Theory of Change to test to what extent the original causal pathways and assumptions behind them (see Section 1.1) have held.

Figure 4. Overview of NSP Causal Pathways Assessment at Mid-Term

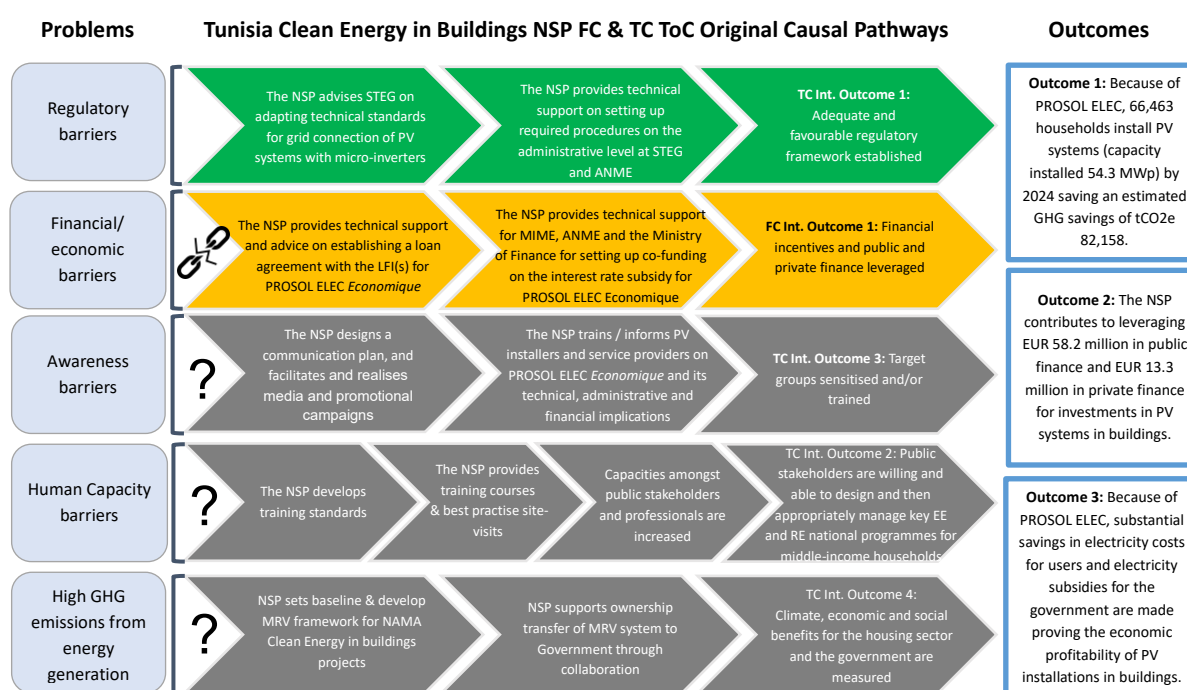


Figure 4 presents an overview of the progress of the NSP along its ToC causal pathways towards its intended outcomes. The RAG rating uses the same scale as the previous section (i.e. Good / Very Good = Green; Problems = Amber; Serious deficiencies = Red; Not enough info to rate = Grey), and the colours of the Intermediate Outcomes' shapes are the same colours used in Section 3.2 to rate the NSP's achievements for each Intermediate Outcome. This is to be read as an assessment of the NSP's situation at this point in time, i.e. at mid-term.

What transpires from Figure 4 is that the NSP is waiting for the FC Component to take off in order for the other TC Component activities to be launched.

Finally, process tracing was applied as an additional test to check the validity of the NSP ToC and assess the strength of the evidence collected by the ELE. The results of the process tracing tests did not contradict the findings presented in the body of the report (see Annex E). In summary, process tracing confirmed that, at this point in time, the project is waiting for the FC Component to be implemented. The key milestones are the signature of the financing agreements with ANME and GIZ on one side and ANME and STEG on the other side to start the implementation of the FC Component.

5 Lessons and recommendations

The evidence gathered during the ELE, along with the key findings presented in Section 3 and the conclusions in Section 4, have been used by the ELE Team to draw the lessons and recommendations below.

5.1. Lessons

5.1.1 Lessons for the NSP Team to achieve the goal of the NSP

Lesson 1. Maintaining flexibility in the project focus is important to respond to context changes. It is important to keep the NSP objectives central. The NSP could benefit from the enactment of the regulatory framework to accelerate the next stages of the Tunisian Clean Energy in Building NSP.

In the current context of rising energy prices and lifting energy subsidies supported by the IMF, MIME considers that the launch of PROSOL ELEC *Economique* is an absolute priority for the GoT. Currently, middle-income households pay 0.06 TND per kWh while the STEG's kWh production cost is 0.3 TND: in a critical financial situation, it might not be possible to continue subsidising middle-income households.

It is also important to align the FC Component with existing/planned financial mechanisms, not only the financial incentives provided by the new FTE decree but also the implementation of the new renewable energy incentives (subsidies for solar PV systems, roof insulation of residential buildings, and SWH systems).

Lesson 2. Technical assistance for the digitalisation process is requested. The NSP could use the success stage of the PROSOL ELEC *Classique* programme to improve the ANME-STEG-MIME's request to implement a digitalisation process for the technical and financial management of the PROSOL schemes. Pursuing the coordination efforts between the NSP and ANME teams on the digitalisation process is recommended. Indeed, strong coordination is needed between ANME, GIZ and STEG (STEG's technical contribution is very important to understanding and eventually upgrading their information system). In that respect, a support mission for implementing the digital platform has been launched. The process has started and will take time until a full appropriation is completed.

Lesson 3. Information sharing and regular communication are essential to avoid misunderstandings. The NSP is based on the successful experience of the PROSOL ELEC *Classique*. Although all partners consider the PROSOL ELEC *Classique* project a success story, its replicability is not straightforward. To improve the implementation of the NSP's activities related to the PROSOL ELEC *Economique*, information sharing and regular communication to adapt the PROSOL ELEC to target middle-income households remains essential.

The NSP could strengthen team exchanges (GIZ, MIME, STEG, ANME, Attijari Bank). In order to substantially improve this cooperation, teambuilding activities could be carried out. So far, this did not receive the necessary buy-in from all national stakeholders, but it could be proposed again. In this way, employees from ANME and GIZ would have the opportunity to work closely together by being

involved in the same teams. By cooperating and pursuing a common goal, the teams would overcome collaboration bottlenecks, stimulated by a new sense of interacting and acting together.

Lesson 4. Coordination with other available alternative financial instruments is not as easy as expected. It is important to map current financial initiatives (e.g., the contribution of the Tunisian Energy Fund, EU financial mechanisms, private banks, international cooperation agencies, etc.) and get information also on their budget planning.

The NSP Team could also use the decree to accelerate the whole process (e.g., Financial Agreements signature, administrative procedures, financial mechanism, etc.). In this context, it is important to use the existent high motivation of MIME and STEG for the PROSOL ELEC *Economique* to improve priority actions for the NSP: communication strategies, installers network's improvement, team coordination, etc.

5.1.2 Lessons for the political implementing partners and other key NSP stakeholders for supporting the success of the NSP

Lesson 1. There is a strong demand from households to benefit from the PROSOL ELEC *Economique* (with numerous daily phone calls from households received by decentralised STEG district offices as well as by solar PV installers). If scaled up, the NSP could significantly enhance the objectives of reducing energy consumption and GHG emissions in Tunisia. Tunisia has taken a leading role in the region to combat climate change, and it is the first African country committed to becoming carbon neutral by 2050. Given this overall objective, the implementing partners could increase the country's ambitions in terms of developing clean energy in the building sector and further expand the PROSOL ELEC *Economique* to benefit a higher number of middle-income households. From 66,000 households in the NSP, this number could be reassessed to a higher objective. Carbon markets could also play an important role in financing the scheme. With little incentives and little marketing, it appears that consumer awareness efforts are already leading to this demand to see the programme implemented. Pursuing a joint commercial and logistic strategy for regional/local Solar PV market schemes will be particularly useful for smaller towns or rural areas, as it can help create economies of scale that reduce sales costs of new solar PV systems as well as the collecting, transporting and exploitation costs.

5.1.3 Lessons for the NAMA Facility for the review, approval, and management of future interventions

Lesson 1. Knowledge exchange with other NSPs does already take place (e.g. with Mexico, Egypt, Cape Vert, Colombia) and is appreciated by countries. This could also be extended to **other countries and projects from other donors, to foster experience sharing on key solutions and enhance replication**. For instance, Iraq has shown interest in the NSP as part of a NAMA Planning supported by UNDP with USAID financing.

5.1.4 Lessons for improving other or future NSPs' design and implementation

Lesson 1. When properly engaged, the private sector can be a key driver of sectoral transformation. The commitment and leadership of Tunisian private PV installers and the private financial sector (Attijari Bank) with the objectives associated with this NSP are evident and can be central to the project's success. The same is true for the households, increasingly impatient to see the PROSOL ELEC *Economique* implemented to benefit from it.

5.2 Recommendations

The recommendations formulated hereafter are the results of the key findings and the lessons learnt. They were discussed with the different stakeholders to ensure their soundness and relevance and enable rapid progress in the next months, starting with mobilising the available financial resources under the FC Component to benefit the households.

5.2.1 Recommendations to the NSP Team to achieve the goal of the NSP

Recommendation 1. Finalising the signature of the financing agreements in the short term is recommended. Several options are possible in amending the draft agreements in order to find a consensus among signing Parties, including a management fee when the resources mobilised are transiting via entities such as ANME. The management fee might be a way for ANME to feel more committed if there is an incentive to become a financial intermediary. This should be conditioned with unlocking the domestic resources made available through the Fonds de Transition Énergétique (FTE). **At the same time, clarifying the financial tasks and adapting the financial strategy to recent government incentives (provided by the Tunisian Energy Reform) is recommended.** As highlighted above, a key to the FC Component's success will be the involvement of, coordination, and alignment with the Tunisian Government (including the MIME, the Ministry of Finance, ANME, STEG and possibly regional/local authorities).

Recommendation 2. Operationalising a Steering Committee as initially planned is recommended to facilitate future alignment and coordination efforts. The ELE evaluation confirms that the coordination between stakeholders is adequate, in line with the context which existed in the previous national PV solar project (PROSOL ELEC *Classique*). However, the coordination should be reinforced to avoid miscommunication and misunderstanding. A Steering Committee for the NSP should be formed and include the key stakeholders (NSP, ANME, STEG, Ministries in charge of Energy and Finance, Attijari Bank, professional organisations etc.).

Recommendation 3. While it was a good decision to put the TC Component in a pending mode. However, **it is recommended to move forward with implementing some of the activities under the TC Component independently from the FC Component.** This does not apply to all activities as this could be counterproductive for some of them. For instance, going ahead with the communication campaign while the *PROSOL ELEC Economique* programme is not ready may cause frustration and public backlash. Hence a review of the activities under the TC Component that could already be implemented needs to be done beforehand.

Recommendation 4. The extensive work on awareness raising and dissemination of the project's information and benefits should be extended. Some dissemination gaps were identified. During the previous PROSOL ELEC *Classique*, solar PV systems were mainly distributed in two large cities (Tunis and Sfax). It will be important for the FC Component to widen the targeted beneficiaries and diversify the dissemination channels. The communication strategy with some stakeholders could be strengthened to reach a broader spectrum and amplify the geographies of targeted stakeholders (PV installers, households, administrative structures, etc.). With the sensitisation campaign, training workshops for trainers, communication and reinforcement on the technical and administrative

aspects will be organised in 5 regions. It is recommended to continue mobilising the media to inform middle-income households about the launch of the PROSOL ELEC *Economique*. This timing is important. It could be done when the financing agreements are signed, recommendations from the Due Diligence are implemented, and the PROSOL ELEC *Economique* is operational. A mediatisation of the campaign is already planned (TV, Radio, social media), and a communication company has already contracted.

Recommendation 5. The communication channels should be diversified to target the beneficiaries who are not confident with digital communications or lack internet access. Diversifying the type of media used for dissemination and using existing databases from other public programmes will improve the project's benefits. In this regard, it will also be important to align the existing communication activities, specifically to enlarge the geographical distribution of the PV systems.

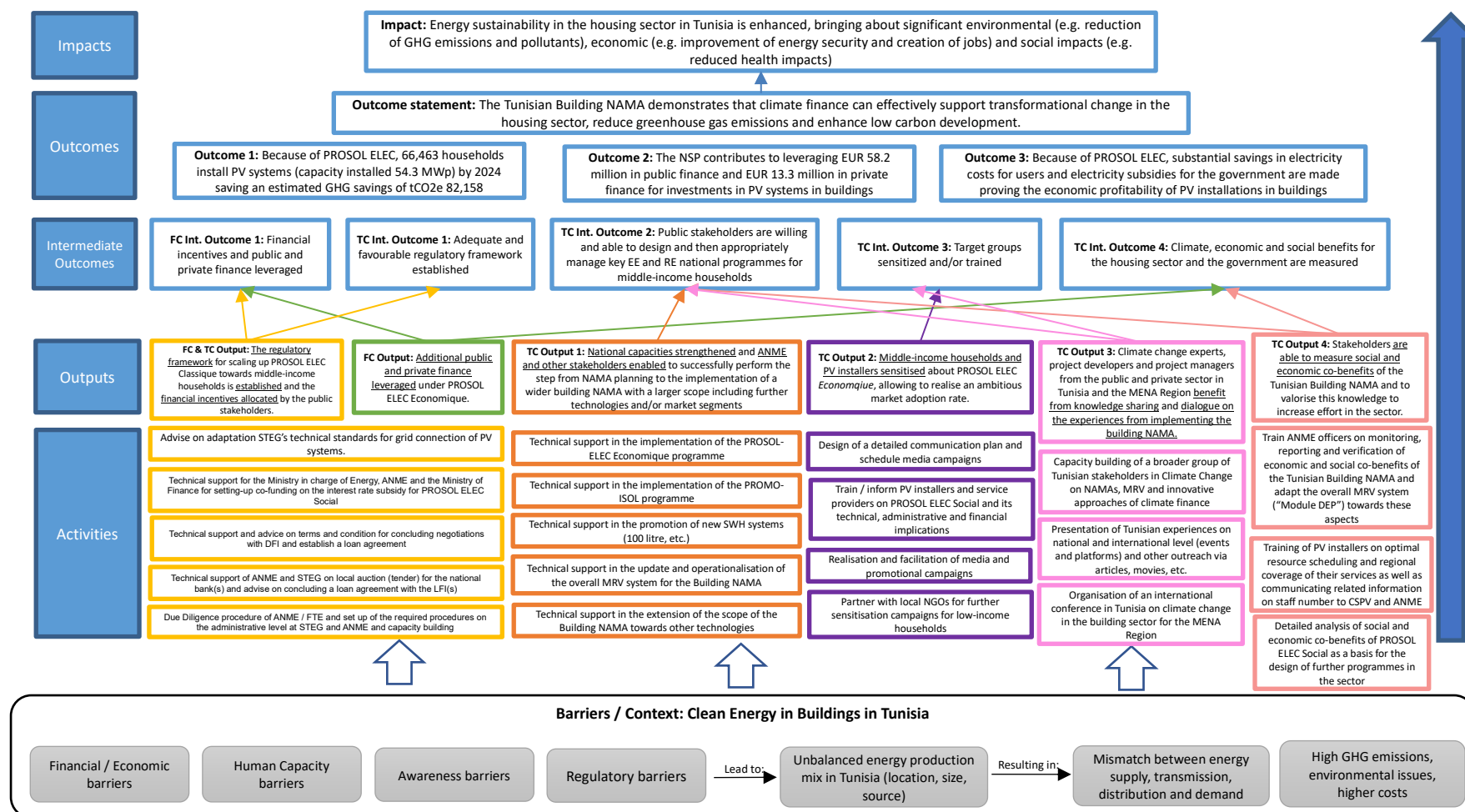
Recommendation 6. It is recommended to reassess and hence recalculate the possible financial benefits of the NSP in terms of additional installed capacity for the country (translated into cost savings for STEG) and in terms of substitution of energy (translated into cost savings for the households in their electricity bills), especially given the shock on the global energy market due to the international tensions, which led to skyrocketing energy prices during the past year.

Recommendation 7. In addition to the design and development of the MRV as part of the NSP, it is recommended to **consider the economic value of GHG emissions reductions and study any link with the rules developed under Article 6 of the Paris Agreement**. Under Article 6, Tunisia will be able to transfer carbon credits earned from reducing GHG emissions to help one or more countries meet climate targets. As a reminder, Article 6, Article 6.2 creates the basis for trading in GHG emission reductions (or “mitigation outcomes”) across countries. Article 6.4 is expected to be similar to the Clean Development Mechanism of the Kyoto Protocol. It establishes a mechanism for trading GHG emission reductions. Finally, Article 6.8 recognises non-market approaches to promote mitigation and adaptation. By building on this NAMA, Tunisia could tap into new opportunities presented under the emerging international carbon markets, particularly the cooperative approaches established under Article 6.

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

Recommendation 1. Should the general recommendation 1 not be followed, and Tunisian households not be able to benefit from the NSP rapidly, it is recommended to consider the termination of the FC Component. This decision should be taken by September 30, 2023.

Annex A Theory of Change of the Tunisia Clean Energy in Buildings NSP



Annex B Capturing NSP-induced Transformational Change

Introduction

This brief guidance developed by AMBERO/OPM outlines a framework to consistently evaluate the NAMA Support Projects' (NSPs) progress towards bringing about Transformational Change (TC Component).

Transformational change is embedded in the NAMA Facility's goals, and the Theory of Change (ToC) and NSPs are the main way through which the NAMA Facility will achieve this TC Component. Therefore, NSPs need to aim to achieve this level of change, and the Evaluation and Learning Exercises (ELEs) of NSPs should evaluate their progress.

In a way, key elements of TC Component are already monitored through the NSP Mandatory Core Indicators M1-M5, part of the NAMA Facility M&E Framework²⁵. However, they only cover partial elements of TC Component. Therefore, clearer guidance in identifying the signals or evidence of NSP-induced TC Component is needed.

This brief document clarifies how TC Component is expected in NSPs and provides guidance to both NSP and ELE teams on how to characterise the elements and evidence of NSP-induced TC Component.

Breaking down NSP-induced transformational change

The NAMA Facility defines TC Component as *"Catalytic change in systems and behaviours resulting from disruptive climate actions that enable actors to shift to carbon-neutral pathways"*²⁶. The NAMA Facility ToC explains how TC Component is expected to be achieved through its outputs and outcome.

The NAMA Facility ToC explains how TC Component is expected to be achieved through its outputs and outcome. The ToC is broad, and there are different ways in which TC Component can be achieved through the NSPs. These dimensions simplify the different possible pathways for TC Component outlined in the ToC.

Three dimensions interact and reinforce each other to produce NSP-induced TC Component (Figure 5). These are described below with an indication of what is expected to be achieved at the project's mid- and end-point (see Section 3 for more details on scoring criteria).

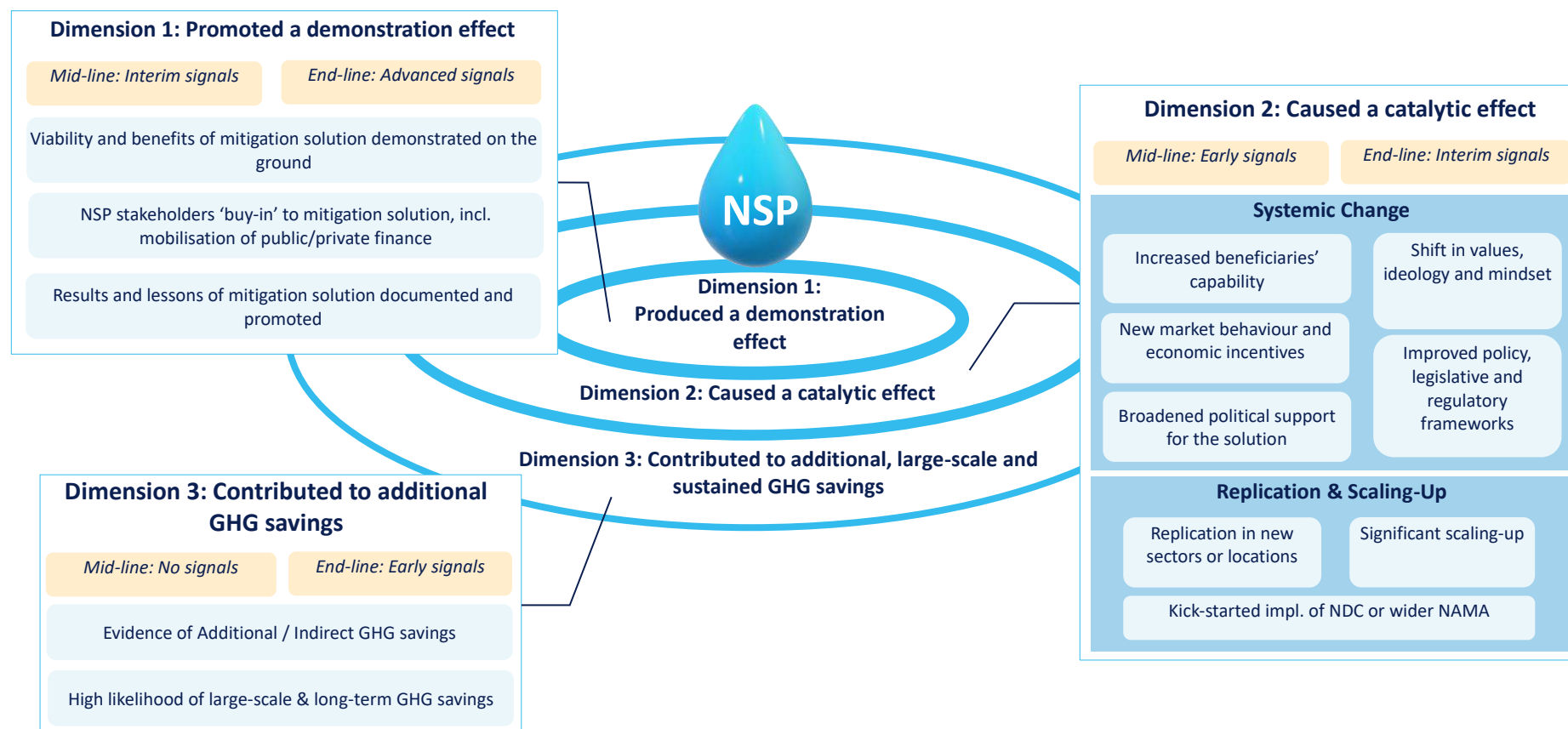
- **Dimension 1: Promoted a demonstration effect.** The most direct way in which an NSP can contribute to TC Component is to produce a demonstration effect which will imply that:
 - The NSP has **demonstrated** or proven the viability and benefits of a particular **mitigation 'solution' (e.g. models, practices or technologies)** through implementation on the ground (e.g. using pilot projects), thereby directly contributing to GHG emissions savings;

²⁵ <https://www.nama-facility.org/publications/monitoring-and-evaluation-framework/>

²⁶ <https://www.nama-facility.org/concept-and-approach/transformational-change>

Figure 5. Dimensions of NSP-induced transformational change

ELEs' Transformational Change Measurement Framework



- There is **evidence of buy-in by key NSP stakeholders**, e.g. by mobilising additional public/private finance along with the NSP Financial 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, NSPs 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 NSP 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 NSP's demonstrated solution in other sectors or locations or of the NSP itself. This could include kick-starting wider NAMA or the NDC; and/or
 - As a result of the NSP 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, NSPs 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 NSP will indirectly influence *additional, large-scale, sustained GHG savings*²⁷.

During the project's lifetime, NSPs 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.

Measuring NSP-induced transformational change

The TC Component dimensions come directly from the NAMA Facility ToC. As the NSPs are expected to be aligned to the overall NAMA Facility ToC, it should be possible to map the dimensions of transformational change in the NSP ToCs. All NSPs must monitor their progress using their Monitoring and Evaluation (M&E) Plans, including Mandatory Core Indicators and NSP-specific indicators.

²⁷ Additional = the GHG savings achieved are in addition to those achieved by the direct implementation of the NSP. 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 5. Guidance for ELE teams for measuring NSP-induced transformational change

TC Component Dimension	Element within TC Component Dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in NSP 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	<ul style="list-style-type: none"> Milestones set for outputs and/or Intermediate Outcomes should represent the scale of uptake needed to demonstrate the solution is viable Also aligns with M1: Reduced Direct GHG emissions and M2: Number of people directly benefiting 	<p><i>Quant:</i> Achievement of NSP milestones for the adoption of the mitigation solution by target users and resulting direct GHG emission savings</p> <p><i>Qual:</i> Feedback from target users that viability and benefits have been demonstrated.</p>	<ul style="list-style-type: none"> Mid-line: Interim Signals End-line: Advanced Signals
	Results of mitigation solution documented and promoted	Effectiveness	<ul style="list-style-type: none"> Milestones set for outputs on producing knowledge and learning documents and engaging with wider stakeholders to share this insight. Seek alignment with the KCS. 	<p><i>Quant:</i> Achievement of NSP milestones for knowledge and communication products/activities</p> <p><i>Qual:</i> Feedback from other stakeholders (e.g. other funders) on their awareness and understanding of the project and solution.</p>	
	NSP stakeholders 'buy-in' to mitigation solution	Effectiveness	<ul style="list-style-type: none"> 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 	<p><i>Quant:</i> Achievement of NSP milestones for public and private finance mobilised</p> <p><i>Qual:</i> Feedback from government and other stakeholders that they are convinced of the viability and benefits of the solution</p>	

TC Component Dimension	Element within TC Component Dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in NSP 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 solutions: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Milestones set for outcomes should indicate specifically what needs to change to enable widespread uptake of the low-carbon solution. 	<i>Qual:</i> Evidence of contribution to achieving expected systemic change and unexpected changes.	<ul style="list-style-type: none"> Mid-line: Early Signals End-line: Interim Signals
	Replication and scaling-up of mitigation solution and/or NSP project <ul style="list-style-type: none"> Replication in new sectors of the mitigation solution and/or NSP itself Significant* scaling-up of the mitigation solution and/or NSP itself Kick-starting and influencing wider NAMA <p><i>* Significant compared to the size of the NSP. For example, if the NSP promoted the installation of 2,000 Solar PV systems, significant replication would imply a ten-fold increase in that number.</i></p>	Effectiveness Sustainability	<ul style="list-style-type: none"> Milestones set for outcomes for replication/ scaling-up by others of NSP activities. 	<p><i>Quant:</i> Volume of scaling-up (e.g. # of new geographies/ beneficiaries or \$ of new funding)</p> <p><i>Qual:</i> Feedback from other funders and programmes on the influence of NSP in their decision to scale up activities and/or invest in the NSP's sector (e.g. in the wider NAMA or NDC actions).</p>	

TC Component Dimension	Element within TC Component Dimension	Alignment with OECD DAC Criteria / ELE report section	Where should it feature in NSP 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	<ul style="list-style-type: none"> Milestones set for Impact should represent the scale of GHG emissions savings required in the sector/ country to achieve net-zero emissions. Also aligns with M1: Reduced Indirect GHG emissions and 	<p><i>Quant:</i> Achievement of NSP milestones for indirect additional GHG emissions savings</p> <p><i>Qual:</i> 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.</p>	<ul style="list-style-type: none"> 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 NAMA Support Projects (potential for scaling-up, replication and transformation)	Impact		<i>Mixed:</i> Based on whether the expected minimum level of signals for each TC Component 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.	

The ELE teams will be evaluating and learning from the NSPs' progress in supporting TC Component, 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 5** above provides some guidance to ELE teams in terms of criteria and evidence for assessing the NSP-induced TC Component. 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.

Guidance for describing and scoring progress towards TC Component in ELE reports

Although TC Component is ultimately related to the NSP's Impact, **evaluating progress towards TC Component cuts across different parts of the ELE report related to Evaluation Questions on Effectiveness, Sustainability and Impact (see Table 5 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 NSPs' outputs, intermediate outcomes and outcomes). Therefore, the Impact section will provide an analytical synthesis of the three TC Component dimensions referring to the previously described evidence and assign an overall score to the NSP's TC Component 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 6. 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 NSP, 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 NSPs to have achieved at least the “signal levels” in **Table 7** by the project’s mid-point and end-point for each dimension.

Table 7. Minimum expected signals of NSP-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 5**).

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

- Is the NSP in line with the expected direct GHG savings per M1 and the number of beneficiaries reached per M2?
- Have the key NSP stakeholders (i.e. those closer to the NSP implementation) shown concrete evidence of buy-in/adoption of the NSP’s mitigation solution? Is this demonstrated by public and private sector actors investing resources into it, as per M4 and M5?

- Is the NSP 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 NSP 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 NSP's mitigation solution will be scaled-up and/or replicated in new sectors and/or locations?
- Is there evidence that the NSP has informed or kick-started the implementation of the NDC or wider NAMA?
- 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 NSP in line with the expected indirect GHG savings per M1?
- What is the evidence that the NSP's low-carbon 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 TC Component potential.

This aligns with M3: "Degree to which the supported activities are likely to catalyse impacts beyond the NAMA Support Projects (potential for scaling-up, replication and transformation)".

The NSP will likely have provided a self-score for M3 within their routine M&E reporting. Therefore, the ELE teams can discuss with the NSP 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 TC Component dimension (**Table 7**) was found by the ELE and, on that basis, rate from 0 to 4 the M3 indicator using the scale recommended in the NAMA 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 8**), while leaving some flexibility to account for the NSP-specific trajectories of progress.

Table 8. Indicative NSP's Impact RAG rating based on its M3 indicator score

M3 score	0	1	2	3	4
Mid-term ELE					
Final ELE					
<i>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.</i>					

Annex C Evaluation and Learning Exercise Matrix

This evaluation and learning exercise matrix is based on the Theoretical Framework provided (version April 2022). It is a working tool that allows the evaluators to focus on a feasible target and assemble information for each question that can be synthesised in the final report, hence creating an integrative overview of the **Tunisia Clean Energy in Buildings NAMA Support Project** at large.

ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	Who can answer this question	Source of information Data gaps
			1 RELEVANCE		
1	To what extent does the NSP address an identified need (by national government, project developers and middle-income households)?	<ul style="list-style-type: none"> The NSP design responds to the beneficiaries' needs and strategic priorities at the time of adoption; and still continues to respond to priorities given the evolving challenges and priorities in the Tunisian energy market context. NSP is aligned with the needs of energy authorities, project developers and middle-income households. 	<ul style="list-style-type: none"> The Financial Component (FC Component) of the NSP will address existing financial barriers, particularly upfront investment costs for PV systems for middle-income households. The Technical Component (TC Component) of the NSP will address existing PV and Solar Water Heating (SWH) systems and Roof Thermal Insulation for middle-income households' barriers, particularly in human capacities and awareness with its planned activities. The TC Component will advise the government so that technical and regulatory barriers to foster the development of PV and SWH systems and Roof Thermal Insulation for middle-income households can be addressed. 	<ul style="list-style-type: none"> Direct beneficiaries (government, Professional Associations, and project developers / funders) NSP Team TSU NAMA Facility Donors Independent verifiers (development partners, non-NSP consultants working on PV and SWH systems and Roof Thermal Insulation, academics) 	<ul style="list-style-type: none"> In-depth interviews Semi-structured key informant interviews (KIIs) NSP proposal Context analysis Document reviews (incl. NSP products) and progress reports National plans and strategies
1.1	How well does the NSP align with government priorities in regard to GHG emissions from the energy sector?	<ul style="list-style-type: none"> The project is in line with Government targets on environmental emissions (incl. NDC, sectorial plans, etc.). 	<ul style="list-style-type: none"> Tunisia Clean Energy in Buildings NSP will support Tunisia's overall climate and energy strategy. 	<ul style="list-style-type: none"> Direct beneficiaries NSP Team TSU NAMA Facility Donors Independent verifiers 	<ul style="list-style-type: none"> In-depth interviews KIIs NSP proposal Context analysis Document

					reviews (incl. NSP products) and progress reports ▪ National plans and strategies
1.2	Did changes in the NSP-operating context affect the relevance of the project?	<ul style="list-style-type: none"> ▪ The project's goals and specific objectives and needs are still valid. ▪ The assumptions and causal pathways outlined in the Theory of Change (ToC) remain valid, after adaptations and refinements. 	<ul style="list-style-type: none"> ▪ Tunisia Clean Energy in Buildings NSP's efforts are long-term national priorities that are not affected by short-term context changes (e.g., local political, social and economic context, changes in personnel, COVID-19). 	<ul style="list-style-type: none"> ▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ NAMA Facility Donors ▪ Independent verifiers 	<ul style="list-style-type: none"> ▪ In-depth interviews ▪ KIIs ▪ NSP proposal ▪ Context analysis ▪ Document reviews (incl. NSP products) and progress reports ▪ National plans and strategies
			2 EFFECTIVENESS		
2	To what extent has the implementation of the NSP been achieving intended outcomes in the short, medium, and long term?	<ul style="list-style-type: none"> ▪ The degree to which there is evidence of the expected results / Interim Outcomes in the ToC: <ul style="list-style-type: none"> ○ Adequate and favourable legal framework established ○ Financial incentives, national and international public and private finance leveraged ○ Sufficient capacities of public stakeholders for steering and management built ○ Programs for relevant technologies well defined ○ Innovative and tailor-made data management and MRV systems developed ○ Willingness to regularly increase the ambition level existed ○ Target groups sensitised ○ Sector of services and installation companies sensitised and trained on the potential for new markets 	<ul style="list-style-type: none"> ▪ Delivering the intended outputs (as per ToC) will strongly contribute to the achievement of the expected (interim) outcomes. ▪ There is a latent interest by middle-income households to invest in PV systems, but they lack financial resources to invest in them. ▪ FC Component will develop the market of PV installations for middle-income households in Tunisia. ▪ TC Component activities will increase demand as well as the supply of PV and SWH systems and thermal insulation of roofs for middle-income households in Tunisia. 	<ul style="list-style-type: none"> ▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ Independent verifiers 	<ul style="list-style-type: none"> ▪ NSP proposal ▪ Document reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Semi-structured KIIs ▪ Data from NSP monitoring system / logframe

		<ul style="list-style-type: none"> ○ Economic and social benefits for the housing sector and the government are significant and measured ○ Knowledge shared and best practices and experiences outreach ▪ The strength of the NSP contribution to the realisation of those outcomes (see link between outputs and outcomes) ▪ For each of the outcomes consider the major constraints and opportunities experienced (success and hindering factors) 			
2.1 (Proposed by ELE team)	Are results that are reported for the five mandatory core indicators by the NAMA Facility (M1-M5) in line with the NAMA Facility's M&E framework?	<ul style="list-style-type: none"> ▪ Level of achievement of M1-M5 targets by the NSP. ▪ Circumstances (positive and negative) that influenced the performance on the M1-M5 indicators. 	▪ The NSP will support the achievement of NAMA Facility's core indicators.	<ul style="list-style-type: none"> ▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ NAMA Facility Donors ▪ Independent verifiers 	<ul style="list-style-type: none"> ▪ Document reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Semi-structured KIIs ▪ Literature review
2.2	Were there additional outputs and/or outcomes obtained that were not planned in project design (unintended outcomes)?	<ul style="list-style-type: none"> ▪ There is evidence of the NSP's contribution to unintended or unexpected results. ▪ If there are positive unintended results, the NSP team has been able to capitalise on them to sustain the intended outcomes. ▪ If there are negative unintended results, the NSP team has been able to appropriately identify, address and learn from them. 	▪ The NSP management has been appropriately designed to identify, address / capitalise from, and learn from unintended outcomes.	<ul style="list-style-type: none"> ▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ NAMA Facility Donors ▪ Independent verifiers 	<ul style="list-style-type: none"> ▪ Document reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Semi-structured KIIs ▪ Literature review
2.3 (Proposed by ELE team)	Did changes in the NSP-operating context impact (positively and/or negatively) the effectiveness of the project? If so, to what extent (greatly, partially, negligibly)?	<ul style="list-style-type: none"> ▪ The level of NSP contribution to the achievement of the results compared to exogenous factors. ▪ Several assumptions and causal pathways outlined in the ToC remain valid, after adaptations and refinements. 	▪ The NSP is the main cause of the achievement of the intended and unintended outcomes.	<ul style="list-style-type: none"> ▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ NAMA Facility Donors ▪ Independent verifiers 	<ul style="list-style-type: none"> ▪ Document reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Semi-structured KIIs ▪ Literature review
2.4	Has the NSP M&E framework	▪ The proposed NSP M&E framework	▪ The M&E is set up and implemented based on	▪ Direct beneficiaries	▪ Document

(Proposed by ELE team)	been able to function adequately?	adequately reflects the challenges, outcomes and impacts of the program ▪ The logical framework is used as reference tool for monitoring (regularly updated)	KPI ▪ The logframe is regularly updated and used as a learning tool	▪ NSP Team ▪ TSU ▪ NAMA Facility Donors	reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Data from NSP monitoring system ▪ Semi-structured KIIs
2.5 (Proposed by ELE team)	How has learning been integrated within the NSP?	▪ The presence and effectiveness of institutionalised learning and adaptation mechanisms within the NSP	▪ The NSP team regularly identify learnings, reflects on them, and accordingly adapts the ToC and implementation of the project	▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ NAMA Facility Donors	▪ Document reviews (incl. NSP products) and progress reports ▪ In-depth interviews ▪ Data from NSP monitoring system ▪ Semi-structured KIIs
			3 EFFICIENCY		
3	To what extent was the delivery of outputs timely and to expected quality standards?	▪ Timeliness of the delivery of outputs and outcomes (incl. budget spending) ▪ If there are delays in the implementation, what have caused them (endogenous or exogenous factors) and how seriously have they impacted the NSP implementation? ▪ The effectiveness of the measures adopted to reduce the delays ▪ The level of satisfaction of the NSP direct beneficiaries	▪ Activities run efficiently, on time and on budget. ▪ Coordination with other projects of the Tunisian government focusing on financing clean energy in buildings and using synergies with further projects (by development cooperation and Tunisian government) within the real estate and construction sector will add to the efficiency in the implementation of activities, and hence in the delivery of outputs. The cooperation with real estate developers and financial institutions will support an efficient information dissemination and stakeholder identification.	▪ Direct beneficiaries ▪ NSP Team ▪ TSU ▪ Academics and researchers ▪ Building, environment and energy NGO	▪ NSP proposal ▪ Progress reports ▪ In-depth interviews ▪ Data from NSP monitoring system ▪ Semi-structured KIIs ▪ Official standards
3.1	Structure & steering: Has the NSP been managed, coordinated, and implemented	▪ The chosen implementation mechanism is conducive to achieving the expected outcomes.	▪ NSP team has the right governance structure to effectively coordinate with key stakeholders	▪ Direct beneficiaries ▪ NSP Team ▪ TSU	▪ Document reviews (incl. NSP products) and

	effectively?	<ul style="list-style-type: none"> The TC Component and FC Component are tailor-made for achieving the planned outputs Communication and visibility are implemented according to an integrated approach FC Component and TC Component interact synergistically Stakeholders are participating and collaborating actively in the intervention 	<ul style="list-style-type: none"> Key stakeholders fully own and commit to their role in the NSP TC Component and FC Component run in parallel, coordinating with and sustaining each other's work and results 	<ul style="list-style-type: none"> NAMA Facility Donors Independent verifiers 	<ul style="list-style-type: none"> progress reports In-depth interviews Semi-structured KIIs Literature review
			4 IMPACT		
4	What evidence is there that the NSP has been contributing to the intended impact in the ToC (incl. transformational change)?	<ul style="list-style-type: none"> The strength of the evidence that key outcomes are going to be achieved and the robustness of the causal links / pathways to the intended impact (namely increase in demand for efficient houses, supply eco-technologies and efficient envelope materials and GHG emissions reduction and co-benefits) The extent of how transformative the NSP is likely to be based on current evidence 	<ul style="list-style-type: none"> Direct: Because of PROSOL ELEC, activities are key to initiating a self-sustained market of clean energy in buildings in Tunisia that will bring additional large-scale and sustained GHG savings. This is especially true for the FC Component as it incentivises public and private finance for clean energy in buildings Indirect: FC Component initiatives will build mitigative capacity in Tunisia and the build-up of institutional capacities to undertake a larger number of efficient buildings in the future. 	<ul style="list-style-type: none"> Direct beneficiaries NSP Team TSU Independent verifiers Academics and researchers Building, environment and energy NGO 	<ul style="list-style-type: none"> NSP proposal Progress reports In-depth interviews Data from NSP monitoring system Semi-structured KIIs
			5 SUSTAINABILITY		
5	What is the likelihood that the outcomes will be sustained after the end of the NSP funding period?	<ul style="list-style-type: none"> The extent of the evidence supporting the NSP sustainability (e.g. evidence of self-sustaining institutional structures, official standards and political and financial commitment of key stakeholders) There is little or no risk of backsliding or reversing 	<ul style="list-style-type: none"> FC Component activities will help adapt the financial mechanism and feed-in-tariffs for BIPV and other similar clean energy in buildings in Tunisia and the capacities built will stay and serve other private or public related initiatives, beyond the scope and duration of this NSP project. 	<ul style="list-style-type: none"> Direct beneficiaries NSP Team TSU Independent verifiers Academics and researchers Building, environment and energy NGO 	<ul style="list-style-type: none"> NSP proposal Progress reports In-depth interviews Data from NSP monitoring system Semi-structured KIIs
			6 LEARNING		
6	What key lessons can be learnt to the benefit of the NSP implementation, other NSPs and	<ul style="list-style-type: none"> The NSP's generation of important lessons for: 1) itself; 2) other projects and/or NSPs; 3) the NAMA Facility as a whole 	<ul style="list-style-type: none"> The timing of the activities of both components were well aligned and contributed to the successful implementation 	<ul style="list-style-type: none"> Direct beneficiaries NSP Team TSU 	<ul style="list-style-type: none"> NSP proposal Progress reports In-depth

	the NAMA Facility as a whole?		<p>of the NSP</p> <ul style="list-style-type: none"> ▪ The NSP will generate important lessons to sustain its implementation, other projects and/or NSPs, and the NAMA Facility as a whole. 	<ul style="list-style-type: none"> ▪ Independent verifiers 	<p>interview</p> <ul style="list-style-type: none"> ▪ Data from NSP monitoring system ▪ Semi-structured KIIs
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Annex D Evidence and answers to the ELE matrix

The following table has been part of the ELE analysis effort to link the answers to the ELEQs with the evidence from the ELE sources that underpins them. The strength of the evidence is assessed following the methodology explained in Section 2 and Table 4. The codes found in the answers' text are the references to the specific sources (interviews, workshops, documents). Each code refers to a specific source and follows this legend: NT = NSP Team; NS = NSP Stakeholder; TP = Third Party; ARXX = Annual Report of the year 20XX; SARXX = Semi-Annual Report of the year 20XX.

ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	ELE evidence
			1 RELEVANCE	
1	To what extent does the NSP address an identified need (by national government, project developers and middle-income households)?	<ul style="list-style-type: none"> The NSP design responds to the beneficiaries' needs and strategic priorities at the time of adoption; and still continues to respond to priorities given the evolving challenges and priorities in the Tunisian energy market context. NSP is aligned with the needs of energy authorities, project developers and middle-income households. 	<ul style="list-style-type: none"> The Financial Component (FC Component) of the NSP will address existing financial barriers, particularly upfront investment costs for PV systems for middle-income households. The Technical Component (TC Component) of the NSP will address existing PV and Solar Water Heating (SWH) systems and Roof Thermal Insulation for middle-income households' barriers, particularly in human capacities and awareness with its planned activities. The TC Component will advise the government so that technical and regulatory barriers to foster the development of PV and SWH systems and Roof Thermal Insulation for 	<ul style="list-style-type: none"> Tunisia's energy conservation law, enacted in 2004 and amended in 2009, provides for the improvement of energy efficiency and the integration of renewable energy in existing and new buildings. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] Tunisia has put an energy transition policy since 2014 which aims to i) reduce the country's primary energy consumption by 30% by 2030, compared to 2010 level and ii) increase the share of renewable energy in the electricity mix to 35% by 2030, compared to 2010 level. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] Tunisia has set an ambitious target of an 80% share of renewable energy in the electricity mix by 2050 in its national low-carbon strategy. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] Tunisia has engaged with the World Bank (WB) and the International Monetary Fund (IMF) in lifting energy subsidies in the country. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19]

ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	ELE evidence
			middle-income households can be addressed.	
1.1	How well does the NSP align with government priorities in regard to GHG emissions from the energy sector?	<ul style="list-style-type: none"> The project is in line with Government targets on environmental emissions (incl. NDC, sectorial plans, etc.). 	<ul style="list-style-type: none"> Tunisia Clean Energy in Buildings NSP will support Tunisia's overall climate and energy strategy. 	<ul style="list-style-type: none"> Tunisia ratified the Paris Agreement in 2016. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] According to its updated 2021 NDC, Tunisia increased its carbon intensity reduction target from 41% (as per the original 2015 NDC) to 45% by 2030, compared to the 2010 level. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] The Energy sector is a major contributor in achieving the country's NDC goal. It will reduce its carbon intensity by 44% by 2030, and the building sector will be responsible for reducing almost a quarter of the energy sector's GHG emissions over the period "2021-2030". [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19]
1.2	Did changes in the NSP-operating context affect the relevance of the project?	<ul style="list-style-type: none"> The project's goals and specific objectives and needs are still valid. The assumptions and causal pathways outlined in the Theory of Change (ToC) remain valid, after adaptations and refinements. 	<ul style="list-style-type: none"> Tunisia Clean Energy in Buildings NSP's efforts are long-term national priorities that are not affected by short-term context changes (e.g., local political, social and economic context, changes in personnel, COVID-19). 	<ul style="list-style-type: none"> Although the current political crisis (political transition since 2011) in Tunisia as well as the economic crisis (due to the COVID-19 pandemic and the current war between Russia and Ukraine) have significantly affected the implementation of NSP activities, the relevance of the NSP has not been affected since its efforts are in line with long-term national priorities. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] NSP goals and specific objectives are still valid. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19, AR19, AR20, AR21]
2 EFFECTIVENESS				
2	To what extent has the implementation of the NSP been achieving intended outcomes in the short, medium, and long term?	<ul style="list-style-type: none"> The degree to which there is evidence of the expected results / Interim Outcomes in the ToC: <ul style="list-style-type: none"> Adequate and favourable legal framework established Financial incentives, national and international public and private finance leveraged Sufficient capacities 	<ul style="list-style-type: none"> Delivering the intended outputs (as per ToC) will strongly contribute to the achievement of the expected (interim) outcomes. There is a latent interest by middle-income households to invest in PV systems, but they lack financial resources to invest in them. FC Component will develop the market of PV installations for middle-income households in 	<ul style="list-style-type: none"> Only the Ministerial Order (Arrêté) relating to the implementation of the national pilot project (PROSOL ELEC <i>Economique</i> programme) for the equipment of dwellings for low-income families connected to low voltage network by solar PV systems was promulgated by the Minister in charge of Energy on, 26 December 2022. [Strong evidence – NS7, NS8, NS9] The decree updating the incentives granted by FTE was signed by the Minister in charge of Energy at the end of November 2022 and has been sent to the Presidency of the Government for enactment. [Strong evidence – NS7, NS8, NS9] 97.5 MTND (eq. 34.785 M€) of public finance have been allocated by ANME through FTE as a subsidy on upfront investment costs. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] 15 MTND (eq. 4.566 M€) of public finance have been allocated by ANME through FTE as an interest rate subsidy. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] 33 MTND (eq. 9.8 M€) of public finance have been allocated by the NAMA Facility as

		<p>of public stakeholders for steering and management built</p> <ul style="list-style-type: none"> ○ Programs for relevant technologies well defined ○ Innovative and tailor-made data management and MRV systems developed ○ Willingness to regularly increase the ambition level existed ○ Target groups sensitised ○ Sector of services and installation companies sensitised and trained on the potential for new markets ○ Economic and social benefits for the housing sector and the government are significant and measured ○ Knowledge shared and best practices and experiences outreached <p>▪ The strength of the NSP contribution to the realisation of those outcomes (see link between outputs and</p>	<p>Tunisia.</p> <ul style="list-style-type: none"> ▪ TC Component activities will increase demand as well as the supply of PV and SWH systems and thermal insulation of roofs for middle-income households in Tunisia. 	<p>interest rate subsidy. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21]</p> <ul style="list-style-type: none"> ▪ 152 MTND (eq. 45.4 M€) have been allocated by Attijari Bank through public-private financial partnership as commercial loans. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, AR21] ▪ Capacities, particularly of ANME and other NSP's stakeholders have been built. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS8, NS9, AR21] ▪ The service provider for the development of digital applications for managing and monitoring the Tunisia Clean Energy in Buildings NAMA has not yet been selected. This activity will be actually funded under the EU OTE project and not as originally planned under the NSP. [Very strong evidence - NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, TP18] ▪ With the exception of PROSOL ELEC <i>Economique</i>, no other initiatives have been yet launched in new market and technology segments such as thermal insulation of roofs in residential buildings. [Very strong evidence - NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS15, NS16, TP19, AR21] ▪ The NSP has not yet launched sensitisation campaigns and promotional activities for middle-income households about PROSOL ELEC <i>Economique</i> programme. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] ▪ The NSP has not yet commence information and/or training activities for PV installers and PV service providers on PROSOL ELEC <i>Economique</i> and its technical, administrative and financial implications. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] ▪ It is too early to launch knowledge sharing activities and dialogue on the experiences from NSP implementation, because the FC Component of the NSP has not yet been implemented. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] ▪ Stakeholders are not yet able to measure social and economic co-benefits of the Tunisia Clean Energy in Buildings NAMA and to valorise this knowledge to increase effort in the sector. Indeed, the NSP has not yet commence the training of stakeholders on measuring and reporting sustainable co-benefits of the NAMA and the MRV system has not yet been implemented. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] ▪ The NSP team has linked the commencement of the TC Component of the NSP to the reel commencement of the Financial Component (FC Component) of the NSP (i.e., the launch of the PROSOL ELEC <i>Economique</i> program) and then The NSP Technical Component (TC Component) activities (technical assistance activities) have not yet been identified, planned, and launched. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS15, NS16, AR21]
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ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	ELE evidence
		<p>outcomes)</p> <ul style="list-style-type: none"> For each of the outcomes consider the major constraints and opportunities experienced (success and hindering factors) 		
2.1 (Proposed by ELE team)	Are results that are reported for the five mandatory core indicators by the NAMA Facility (M1-M5) in line with the NAMA Facility's M&E framework?	<ul style="list-style-type: none"> Level of achievement of M1-M5 targets by the NSP. Circumstances (positive and negative) that influenced the performance on the M1-M5 indicators. 	<ul style="list-style-type: none"> The NSP will support the achievement of NAMA Facility's core indicators. 	<ul style="list-style-type: none"> So far, no GHG emission reductions have been reported by the NSP. Indeed, its FC Component has not yet been implemented due to numerous delays recorded, including in the establishment of the regulatory framework, financial agreements, etc. (M1) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, AR19, AR20, AR21] So far, no households have been equipped with rooftop PV systems via PROSOL ELEC <i>Economique</i> programme and, therefore, no tenants have yet benefited from these installations due to the non-implementation of the NSP's FC Component. (M2) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, AR19, AR20, AR21] Demand for PV installations in middle and/or low-income household sector is there and follow-on phase of PROSOL ELEC <i>Economique</i> will be planned by the Ministry in charge of Energy and ANME. (M3.1) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, AR19, AR20, AR21] So far, only aspects related to PROSOL ELEC <i>Economique</i> have been mainstreamed into the standardised curricula of accredited technical training centres (i.e., "PV installation and maintenance") and no other aspects related to at least one other programme under the Building NAMA (i.e., insulation or additional technologies addressed by TC Component) have been mainstreamed. (M3.2) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, AR19, AR20, AR21] Although 97.5 MTND (eq. 34.785 M€) of public finance have been allocated by ANME through FTE as a subsidy on upfront investment cost, none of this amount has been mobilised because the PROSOL ELEC <i>Economique</i> programme has not yet been launched. (M4.1) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] Although 15 MTND (eq. 4.566 M€) of public finance have been allocated by ANME through FTE as an interest rate subsidy, none of this amount has been mobilised because the PROSOL ELEC <i>Economique</i> programme has not yet been launched. (M4.2) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] The NSP is no longer relying on concessional loans from an international development bank due to the change of the financial mechanism to a fully national loan scheme

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				<p>implemented with a Tunisian private bank (Attijari Bank). Therefore, M4.3 indicator is no longer used. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21]</p> <ul style="list-style-type: none"> Although it is expected that the NSP mobilises 1.932 MTND (eq. 667,554 €) of private finance as low-income households' equity contribution to upfront investment costs for PV systems, none of this amount has been mobilised because the PROSOL ELEC <i>Economique</i> programme has not yet been launched. (M5.1) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] Although 152 MTND (eq. 52.523 M€) have been allocated by Attijari Bank through public-private financial partnership as commercial loans, none of this amount has been mobilised because the PROSOL ELEC <i>Economique</i> programme has not yet been launched. (M5.1) [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, AR21]
2.2	Were there additional outputs and/or outcomes obtained that were not planned in project design (unintended outcomes)?	<ul style="list-style-type: none"> There is evidence of the NSP's contribution to unintended or unexpected results. If there are positive unintended results, the NSP team has been able to capitalise on them to sustain the intended outcomes. If there are negative unintended results, the NSP team has been able to appropriately identify, address and learn from them. 	<ul style="list-style-type: none"> The NSP management has been appropriately designed to identify, address / capitalise from, and learn from unintended outcomes. 	<ul style="list-style-type: none"> The NSP is already well behind in the delivery of planned outputs and outcomes and there are no additional outputs and/or outcomes obtained. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS14, NS15, NS16, TP19, AR19, AR20, AR21]
2.3 (Proposed by ELE team)	Did changes in the NSP-operating context impacted (positively and/or negatively) on the effectiveness of the project? If so, to what	<ul style="list-style-type: none"> The level of NSP contribution to the achievement of the results compared to exogenous factors. Several assumptions and causal pathways outlined in the ToC remain valid, after 	<ul style="list-style-type: none"> The NSP is the main cause of the achievement of the intended and unintended outcomes. 	<ul style="list-style-type: none"> Tunisia, like most countries in the world, has been negatively impacted by the COVID-19 pandemic, which also adversely affected the implementation of the NSP's activities. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP19, SAR20, AR20, SAR21, AR21] The prolonged political crisis in Tunisia, that has escalated in recent years, has also significantly affected the implementation of the NSP's activities. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, TP18, TP19, SAR20, AR20, SAR21, AR21] The current economic crisis, which has led to a significant increase in the inflation rate, has profoundly affected the incomes of low- and middle-income households in Tunisia

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	extent (greatly, partially, negligibly)?	adaptations and refinements.		and, consequently, has positively contributed to the increase in the demand of these households for Solar PV installations. However, this has led to an increase in the price of Solar PV systems and may have a negative impact on the NSP's FC Component. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP18, TP19, SAR20, AR20, SAR21, AR21, SAR22]
2.4 (Proposed by ELE team)	Has the NSP M&E framework been able to function adequately?	<ul style="list-style-type: none"> The proposed NSP M&E framework adequately reflects the challenges, outcomes and impacts of the program The logical framework is used as reference tool for monitoring (regularly updated) 	<ul style="list-style-type: none"> The M&E is set up and implemented based on KPI The logframe is regularly updated and used as a learning tool 	<ul style="list-style-type: none"> The proposed NSP M&E framework adequately reflects the challenges, outcomes and impacts of the project's FC Component. However, it does not adequately reflect those of the project's TC Component. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, AR20, AR21] The NSP team has regularly measured and evaluated the achievement of the NSP on the basis of KPI. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, AR20, AR21] The NSP team has always used the logical framework as reference tool for monitoring the implementation of the project's activities, and it is being updated regularly. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, AR20, AR21]
2.5 (Proposed by ELE team)	How has learning been integrated within the NSP?	<ul style="list-style-type: none"> The presence and effectiveness of institutionalised learning and adaptation mechanisms within the NSP 	<ul style="list-style-type: none"> The NSP team regularly identify learnings, reflects on them, and accordingly adapts the ToC and implementation of the project 	<ul style="list-style-type: none"> The ELE team has not identified any institutionalised learning and adaptation mechanisms within the NSP. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR19, SAR20, AR20, SAR21, AR21, SAR22] The status of the implementation of the NSP's activities, which is overall behind schedule so far, has not allowed the NSP team to identify learnings, reflect on them, and accordingly adapt the ToC and implementation of the project. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, AR20, AR21]
3 EFFICIENCY				
3	To what extent was the delivery of outputs timely and to expected quality standards?	<ul style="list-style-type: none"> Timeliness of the delivery of outputs and outcomes (incl. budget spending) If there are delays in the implementation, what have caused them (endogenous or exogenous factors) and how seriously have they impacted the NSP implementation? The effectiveness of the measures adopted to reduce the delays The level of satisfaction 	<ul style="list-style-type: none"> Activities run efficiently, on time and on budget. Coordination with other projects of the Tunisian government focusing on financing clean energy in buildings and using synergies with further projects (by development cooperation and Tunisian government) within the real estate and construction sector will add to the efficiency in the implementation of activities, and hence in the 	<ul style="list-style-type: none"> The overall delivery of the NSP's outputs and outcomes has been considerably lagging. Indeed, the PROSOL ELEC <i>Economique</i> programme has not yet been launched due to several outstanding activities: i.e., the enactment of the associated legal framework, the establishment and signature of financial agreements between GIZ and ANME and between ANME and STEG, the launch of an awareness campaign about the programme, etc. In addition, the NSP team has tied the commencement of the implementation of the TC Component's activities of the NSP to the actual launch of the PROSOL ELEC <i>Economique</i> programme and, therefore, they have not yet implemented any of these activities. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR19, AR20, AR21] Until the end of 2021 (i.e., a 2 years and 2 months implementation period of the NSP), NSP's budget spending amounted to 863,763 €, which represents about ¼ of the total disbursements expected at end of 2021 (3,577,600 €) and about 6% of the project's total budget (15,102,545 €). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, AR21] Most of the observed delays were due, in general, to the COVID-19 pandemic as well as

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		of the NSP direct beneficiaries	delivery of outputs. The cooperation with real estate developers and financial institutions will support an efficient information dissemination and stakeholder identification.	the country's political context, and, in particular, to the inefficiency of the internal communication & coordination mechanism adopted by the NSP among its stakeholders. However, the measures that have been taken by the NSP team to reduce these delays have not been effective. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, AR21] <ul style="list-style-type: none"> Several NSP's beneficiaries (e.g., CSNER and CSNETE) have not yet been informed of relevant project activities, in particular those of the TC Component. [Strong evidence – NS14, NS15, NS16]
3.1	Structure & steering: Has the NSP been managed, coordinated, and implemented effectively?	<ul style="list-style-type: none"> The chosen implementation mechanism is conducive to achieving the expected outcomes. The TC Component and FC Component are tailor-made for achieving the planned outputs Communication and visibility are implemented according to an integrated approach FC Component and TC Component interact synergically Stakeholders are participating and collaborating actively in the intervention 	<ul style="list-style-type: none"> NSP team has the right governance structure to effectively coordinate with key stakeholders Key stakeholders fully own and commit to their role in the NSP TC Component and FC Component run in parallel, coordinating with and sustaining each other's work and results 	<ul style="list-style-type: none"> Serious issues of coordination, transparency, and communication with regard to the implementation of the NSP have been highlighted by the two main implementing partners of the NSP, i.e., GIZ and ANME. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS8, NS9] Some stakeholders are participating and collaborating in the intervention, in particular with respect to PROSOL ELC <i>Economique</i> (e.g., MIME, ANME, STEG, and Attijari Bank). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12] The NSP does not have a steering committee and, hence, NSP stakeholders have not met regularly to plan, monitor the implementation project activities, and discuss potential issues. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16] TC Component and FC Component activities are not being implemented in parallel. TC Component activities have not yet been identified and planned by the NSP and hence the achievement of the planned outputs would seem very difficult. There is obviously no synergistic interaction between the TC Component and FC Component. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16]
			4 IMPACT	
4	What evidence is there that the NSP has been contributing to the intended impact in the ToC (incl. transformational)	<ul style="list-style-type: none"> The strength of the evidence that key outcomes are going to be achieved and the robustness of the causal links / pathways to the intended impact (namely increase in demand for 	<ul style="list-style-type: none"> Direct: Because of PROSOL ELEC, activities are key to initiating a self-sustained market of clean energy in buildings in Tunisia that will bring additional large-scale and sustained GHG savings. This is especially true for 	<ul style="list-style-type: none"> PROSOL ELEC <i>Economique</i> is a viable mitigation solution as it is based on the successful PROSOL business model. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13] The current high demand from middle-income households to install Solar PV systems in their homes confirms on the ground the financial benefits of the PROSOL ELEC <i>Economique</i> mechanism for them (savings on the energy bill). [Very strong evidence – NS7, NS8, NS9, NS10, NS11, NS12, NS13] The necessary regulatory framework for PROSOL ELEC <i>Economique</i> program has

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	change)?	<p>efficient houses, supply eco-technologies and efficient envelope materials and GHG emissions reduction and co-benefits)</p> <ul style="list-style-type: none"> The extent of how transformative the NSP is likely to be based on current evidence 	<p>the FC Component as it incentivises public and private finance for clean energy in buildings</p> <ul style="list-style-type: none"> Indirect: FC Component initiatives will build mitigative capacity in Tunisia and the build-up of institutional capacities to undertake a larger number of efficient buildings in the future. 	<p>already been established. A ministerial order (<i>arrêté</i>) has been promulgated on 26 December 2022 and a Decree (related to FTE) will be promulgated in the coming days. [Strong evidence – NS7, NS8, NS9]</p> <ul style="list-style-type: none"> Public finance has already been allocated for the PROSOL ELEC <i>Economique</i> program by ANME through the FTE as a subsidy on upfront investment costs (34,785,078 Euro) and interest rate subsidy (4,565,664 Euro). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, AR21] Private finance has also been allocated for PROSOL ELEC <i>Economique</i> program by Attijari Bank (53,190,591 Euro). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS13, AR21] Strengthening national capacities for NSP stakeholders is being made. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS8, NS9, AR21] A new market behaviour and economic incentives in the Energy Sector in Tunisia targeting low- and middle-income households, is being introduced via the new PROSOL ELEC <i>Economique</i> program. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13] Solar PV installers are eagerly awaiting the launch of the PROSOL ELEC <i>Economique</i> program and they have already informed many of the eligible households (low- and middle-income households) about it. [Very strong evidence – NS7, NS8, NS9, NS10, NS11, NS12, NS13] A broadened political support for the PROSOL ELEC <i>Economique</i> program (i.e., ministries in charge of Energy and Finance, ANME, and STEG) has already been mobilised thanks to the NSP. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13]
			5 SUSTAINABILITY	
5	What is the likelihood that the outcomes will be sustained after the end of the NSP funding period?	<ul style="list-style-type: none"> The extent of the evidence supporting the NSP sustainability (e.g. evidence of self-sustaining institutional structures, official standards and political and financial commitment of key stakeholders) There is little or no risk of backsliding or reversing 	<ul style="list-style-type: none"> FC Component activities will help adapt the financial mechanism and feed-in-tariffs for BIPV and others similar clean energy in buildings in Tunisia and the capacities built will stay and serve other private or public related initiatives, beyond the scope and duration of this NSP project. 	<ul style="list-style-type: none"> The continued rise in the price of fossil fuels on the international market is driving up energy prices in Tunisia, as the country is a net energy importer. As a consequence, the demand for Solar PV systems from low- and middle-income households is increasing, as these systems will help reduce their energy bills. [Very strong evidence – NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP19] The Tunisian Government has committed to removing energy subsidies, as agreed with the World Bank and the International Monetary Fund (IMF). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP19] A consolidated and robust institutional framework is there as demonstrated by the long experience of multi-stakeholder collaboration in several existing and newly designed PROSOL programs (e.g., PROSOL <i>Thermique</i> (SWHs), PROSOL ELEC <i>Classique</i>, PROSOL ELEC <i>Economique</i>, and PROSOL ELEC <i>Social</i>). [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP19]

ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	ELE evidence
				<ul style="list-style-type: none"> ▪ The new regulatory framework established as part of the implementation of the TC Component & FC Component of the NSP, is a strong legislative factor of sustainability. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, TP19] ▪ The updated incentive framework (almost doubling of incentives for SWHs, almost tripling of incentives for thermal insulation of roofs in residential buildings, etc.), through the FTE, is a strong financial factor of sustainability. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, TP19] ▪ The existence of a large number of PV installers eligible by ANME (+ 500 PV installers), thanks to PROSOL ELEC <i>Classique</i> I, II, and III, is a strong human capacity factor of sustainability. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, TP19]
			6 LEARNING	
6	What key lessons can be learnt to the benefit of the NSP implementation, other NSPs and the NAMA Facility as a whole?	<ul style="list-style-type: none"> ▪ The NSP's generation of important lessons for: 1) itself; 2) other projects and/or NSPs; 3) the NAMA Facility as a whole 	<ul style="list-style-type: none"> ▪ The timing of the activities of both components was well aligned and contributed to the successful implementation of the NSP ▪ The NSP will generate important lessons to sustain its implementation, other projects and/or NSPs, and the NAMA Facility as a whole. 	<ul style="list-style-type: none"> ▪ Coordination, communication, and transparency among NSPS's stakeholders, particularly between the NSO (GIZ) and the main NSP Implementing Partner (ANME), are lacking and it is strongly evident that a Steering Committee is key to ensuring effective project implementation. The steering committee would thus play a crucial role in decision-making. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16] ▪ A close cooperation and transparent communication between the NSO (GIZ) and the main NSP implementing partner (ANME) is essential. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS8, NS9] ▪ NSP governance demonstrated a lack of the flexibility to respond to the context changes in Tunisia while keeping NSP objectives at the centre. It is strongly evident that a governance flexibility supported by the NAMA Facility will be essential to overcoming potential barriers related to the changing political and economic context in Tunisia. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP18] ▪ Tying the launch of TC Component activities to the implementation of the FC Component is certainly not an appropriate approach. Obviously, several TC Component activities could be implemented in parallel with the implementation of FC Component activities. [Very strong evidence – NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP19] ▪ The NSP reporting process needs to be simplified and made more easily understandable for all NSP's stakeholders. Used KPIs are too focused on outputs, and this could be more appropriate for project management, but it makes difficult to trace impacts or contextual changes. The NAMA Facility should improve this process. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP18, TP19]

ELEQ No.	Evaluation Question	Evaluation criteria	Original hypotheses	ELE evidence
				<ul style="list-style-type: none"> ▪ Sharing of experiences with other NSPs would certainly improve the implementation of projects and enhance their effectiveness. NAMA Facility would play a crucial role in this regard. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP18, TP19] ▪ An important feature of this NSP is the leadership and commitment of the private sector (i.e., PV installers and Attijari Bank) to the objectives associated with this NSP. When properly engaged, the private sector can be a key driver of sector transformation. [Very strong evidence – NT1, NT2, NT3, NT4, NT5, NT6, NS7, NS8, NS9, NS10, NS11, NS12, NS13, NS14, NS15, NS16, TP18, TP19]

Annex E Validity of the causal pathways using process tracing tests

The table below shows the result of the application of formal process tracing tests on the causal pathways of the NSP ToC to assess the strength of the evidence collected by the ELE to either confirm or reject the hypotheses behind each causal chain.

Overview on the validity of the causal pathways using process tracing tests

Formal test	Test description	Causal pathways of the NSP	Process tracing test
Smoking gun (confirmatory)	If evidence is observed, the hypothesis is confirmed. If evidence is not observed, the hypothesis is not confirmed, but this is not enough to reject the hypothesis.	1. Causal pathway supporting TC Intermediate Outcome 1: If the NSP advises STEG on adapting technical standards for grid connection of PV systems with micro-inverters and provides technical support to STEG and ANME on setting-up required procedures on the administrative level, then adequate and favourable regulatory framework will be established (TC Component Intermediate Outcome 1) and 66,463 households will install PV systems (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC <i>Economique</i> saving an estimated GHG emissions of 82,158 tCO ₂ e (Outcome 1).	1. The evidence is observed because the NSP provided the advisory services to STEG and technical support to ANME. The hypothesis is confirmed the regulatory framework has been strengthened with the <i>arrêté</i> (promulgated on 26/12/2022) and the Decree for the FTE (to be promulgated soon). However, although the NSP's support has accelerated the regulatory framework's improvement, this would have likely happened anyway but with a longer timeframe.
Hoop test (disconfirmatory)	If the evidence is not observed, the hypothesis is rejected. If the evidence is observed, the hypothesis is not rejected, but this is not sufficient to confirm the hypothesis.	1. Causal pathway supporting TC Intermediate Outcome 3: If the NSP designs a communication plan, facilitates and realises media and promotional campaigns, and informs as well as trains PV installers and service providers on PROSOL ELEC <i>Economique</i> and its technical, administrative and financial implications, then target groups will be sensitised and trained (TC Component Intermediate Outcome 4) and EUR 58.2 million in public finance and EUR 13.3 million in private finance for investments in PV systems in residential buildings will be leveraged (Outcome 2).	1. The evidence is not observed because the NSP has not yet developed a communication plan, facilitated and realized media and promotional campaigns, and informed/trained PV installers and service providers on PROSOL ELEC <i>Economique</i> and its technical, administrative and financial implications. However, as they have already been involved in the implementation of the PROSOL ELEC <i>Classique</i> programme already in place since 2010, the PV installers and service providers appear to have an adequate level of sensitization and capacity to operate on the PROSOL ELEC <i>Economique</i> scheme. Therefore, these specific NSP activities do not seem to be sufficient to realise the hypothesis in the causal pathway.

Formal test	Test description	Causal pathways of the NSP	Process tracing test
Double decisive	If evidence is observed, the hypothesis is confirmed. If the evidence is not observed, the hypothesis is rejected.	<p>1. Causal pathway supporting FC Intermediate Outcome 1: If the NSP provides technical support and advice on concluding negotiations with Development Finance Institutions (DFI) and establishing a loan agreement with the Local Finance Institutions' (LFIs) for PROSOL ELEC <i>Economique</i> and provides technical support for the Ministry in charge of Energy, ANME and the Ministry of Finance for setting-up co-funding on the interest rate subsidy for PROSOL ELEC <i>Economique</i>, then financial incentives and public and private finance will be leveraged (FC Component Intermediate Outcome 1) and 66,463 households will install PV systems (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC <i>Economique</i> saving an estimated GHG emissions of 82,158 tCO₂e (Outcome 1).</p>	<p>1. The evidence shows the NSP provided technical support and advice on concluding negotiations with Development Finance Institutions (DFI) and establishing a loan agreement with the Local Finance Institutions' (LFIs) for PROSOL ELEC <i>Economique</i> and provided technical support for the Ministry in charge of Energy, ANME and the Ministry of Finance for setting-up co-funding on the interest rate subsidy for PROSOL ELEC <i>Economique</i>. The hypothesis is confirmed to the Intermediate Outcome level because the financial incentives have been set up and the public and private finance have been allocated, although they have not been leveraged yet. The evidence also confirm that without the NSP's support the Intermediate Outcome would not have occurred because the NAMA Facility funded a substantial share of the financial mechanism of PROSOL ELEC <i>Economique</i>.</p>
Straw in the wind	If the evidence is observed, this is not sufficient to confirm the hypothesis. If the evidence is not observed, this is not sufficient to reject the hypothesis.	<p>1. Causal pathway supporting TC Intermediate Outcome 2: If the NSP develops training standards, provides training courses and site-visits on best practices, and increases capacities amongst public stakeholders and professionals, then public stakeholders will be willing and able to design and then appropriately manage key energy efficiency and renewable energy national programmes for middle-income households (TC Component Intermediate Outcome 2), which will contribute to the installation of PV systems in 66,463 households (54.3 MWp installed capacity) by 2024 because of PROSOL ELEC <i>Economique</i> saving an</p>	<p>1. The NSP's training activities are too far behind implementation that it is not possible to strongly link them with the observed capacity level of the relevant public stakeholders and to predict the strength of their causal link with the promotion success of further technologies and/or market segments. In addition, at this point, no definition of further technologies and/or market segments has been observed.</p> <p>2. At this moment there is not enough evidence to assess the strength of the causal pathway. While the baseline was set in the proposal and regularly adjusted by the NSP team, the MRV framework</p>

Formal test	Test description	Causal pathways of the NSP	Process tracing test
		<p>estimated GHG emissions of 82,158 tCO₂e (Outcome 1), leveraging EUR 58.2 million in public finance and EUR 13.3 million in private finance for investments in PV systems in residential buildings (Outcome 2), and substantial savings in electricity costs for users (middle-income households) as well as electricity subsidies for the government will be made thanks to PROSOL ELEC <i>Economique</i> proving the economic profitability of PV installations in residential buildings for middle-income households (Outcome 3).</p> <p>2. Causal pathway supporting TC Intermediate Outcome 4: If the NSP sets baseline, develops an MRV framework for the Building NAMA projects, and supports ownership transfer of the MRV system to the GoT through collaboration, then climate, economic and social benefits for the housing sector and the government will be measured (TC Component Intermediate Outcome 4), and substantial savings in electricity costs for users (middle-income households) and electricity subsidies for the government will be made thanks to PROSOL ELEC <i>Economique</i>, proving the economic profitability of PV installations in residential buildings for middle-income households (Outcome 3).</p>	<p>has not been developed yet and, therefore, there is no evidence on whether and how it will measure the economic and social benefits of the NSP for the housing sector and the government.</p>

Annex F NSP achievements against logframe indicators

Below are reported the logframe indicators grouped under the relevant elements of the ToC. Target and achieved figures are reported with a Red-Green (i.e. target not met-met) assessment. Only indicators relevant to the TC Component are reported.

F.1 Mandatory core indicators

#	Indicator	Baseline	Target 2021	Achieved 2021
M.1	Reduced GHG emissions (tCO ₂ eq)	0	4,341	0
M.2	Number of people directly benefitting from the NSP	0	49,249	0
M.3.1	Demand to which the supported activities are likely to catalyse impacts beyond the NSP: Demand for PV installations in the middle-income household sector and follow-on phase of PROSOL ELEC <i>Economique</i> (NSP's self-assessed scale from 1 to 4)	1	1	1
M.3.2	Demand to which the supported activities are likely to catalyse impacts beyond the NSP: Aspects on at least 2 programmes under the Building NAMA (PROSOL ELEC <i>Economique</i> , insulation or additional technologies addressed by TC) are mainstreamed into the standardised curricula of accredited technical training centers (NSP's self-assessed scale from 1 to 4)	1	1	1
M4.1	Volume of public finance mobilized for low-carbon investment and development: Lump-sum subsidy by the Tunisian Energy Transition Fund (FTE) on upfront investment costs for PV systems [EUR]	0	4,729,705	0

M.4.2	Volume of public finance mobilised for low-carbon investment and development: Interest rate subsidy from FTE for low-income households [EUR]	0	1,204,935	0
M.4.3	Volume of public finance mobilised for low-carbon investment and development: Concessional loans from international development bank for PV systems provided to low-income households [EUR]	0	5,843,216	0
M.5.1	Volume of private finance mobilised for low-carbon investment and development: Low-income households' equity contribution to upfront investment costs for PV systems [EUR]	0	132,092	0
M.5.2	Volume of private finance mobilised for low-carbon investment and development: Private loans from Tunisian commercial banks for PV systems provided to low-income households [EUR]	0	2,504,235	0

Source: M&E plan 2021

F.2 Outcome indicators

Outcome: The Tunisian Building NAMA demonstrates that climate finance can effectively support transformational change in the housing sector, reduce greenhouse gas emissions and enhance low carbon development.

#	Indicator	Baseline	Target 2021	Achieved 2021
I.1	Electricity cost savings for users (EUR)	0	953,278	0
I.2	Avoided subsidies (EUR)	No subsidies for natural gas import and electricity tariff subsidisation avoided	181,851	0

I.3	PV capacity (MWp) installed	0	10	0
I.4	Profitability of PV systems ≤ 1 kWp	Small PV systems ≤ 1 kWp have in general no viable business case	Small PV systems ≤ 1 kWp have a viable business case	Small PV systems ≤ 1 kWp still does not have viable business case

Source: M&E plan 2021

F.3 Output indicators

#	Indicator	Baseline	Target 2021	Achieved 2021
I5.1	The eligibility of a financing scheme for PV installations ≤ 1 kWp is fully established and the programme is operational on the administrative, technical and financial level: Programme officially approved by the Ministry in charge of Energy	Not achieved	Achieved	Achieved
I5.2	The eligibility of a financing scheme for PV installations ≤ 1 kWp is fully established and the programme is operational on the administrative, technical and financial level: Electronic equipment for small PV systems is in line with technical standards of the national electricity utility (STEG)	Not achieved	Achieved	Achieved
I5.3	The eligibility of a financing scheme for PV installations ≤ 1 kWp is fully established and the programme is operational on the administrative, technical and financial level: FTE up-front investment subsidy is officially approved for payment	Not achieved	Achieved	Achieved
I5.4	The eligibility of a financing scheme for PV installations ≤ 1 kWp is fully established and the programme is operational on the administrative, technical and financial level: Negotiations with a DFI are concluded	Not achieved	Achieved	Achieved
I5.5	The eligibility of a financing scheme for PV installations ≤ 1 kWp is fully established and the programme is operational on the administrative, technical and financial	Not achieved	Achieved	Achieved

#	Indicator	Baseline	Target 2021	Achieved 2021
	level: Concessional credit line for PV systems under PROSOL ELEC Economique is tendered			
I6	Number of state officers trained and participating actively in management and steering processes related to the NAMA implementation	0	15	13
I7	Number of digital applications for managing and monitoring the Building NAMA in place	0	3	1
I8	Number of initiatives designed and/or pilot projects launched in new market and technology segments	0	1	1
I9	Number of citizens reached by target-oriented communication campaigns and promotional activities on PROSOL ELEC Economique	0	250,000	0
I10	Number of installers and PV service providers trained / informed on the new programme PROSOL ELEC Economique and its technical, administrative and financial implications	0	180	0
I11	Number of participants in national and international dissemination events	0	50	0
I12	Number of requests from institutions for detailed information on the Tunisian NSP approach	0	2	0
I13	Number of state officers trained on measuring and reporting on sustainable co-benefits of the Tunisian Building NAMA	0	0	0
I14	Number of reports, analysis and presentations of social and economic co-benefits of PROSOL ELEC Economique	0	0	0
I15	Communications from PV companies on positive employment effects in the PV installation and service sector to the PV	0	1	0

#	Indicator	Baseline	Target 2021	Achieved 2021
	Installers Union (CSPV) and ANME			

Source: M&E plan 2021

Annex G List of ELE sources

G.1 Internal documents

1. NAMA Facility. 2022. Semi-Annual Report 2022. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
2. NAMA Facility. 2022. Annual Report 2021. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
3. NAMA Facility. 2021. Semi-Annual Report 2021. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
4. NAMA Facility. 2021. Annual Report 2020. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
5. NAMA Facility. 2020. Semi-Annual Report 2020. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
6. NAMA Facility. 2020. Annual Report 2019. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.
7. NAMA Facility. 2018. NAMA Support Project Proposal. Scaling-up Renewable Energy and Energy Efficiency in the Tunisian Building Sector.

G.2 Public documents

1. NDC
2. SNBCRCC

G.3 List of organisations interviewed

Institution	Position
NSP Team	
GIZ	Energy and Climate Cluster Coordinator and NSP Chief
GIZ	Financial Advisor
GIZ	Communication, Monitoring and Evaluation Advisor
GIZ	Renewable Energy Advisor
GIZ	Renewable Energy Technical Advisor
GIZ	Renewable Energy Advisor

NSP Stakeholder	
Ministry of Industry, Mines, and Energy (MIME)	Chief of Energy Transition Department
National Agency for Energy Conservation (ANME)	Chief of Studies and Planification Department
National Agency for Energy Conservation (ANME)	Chief of International Cooperation Department
Tunisian Company of Electricity and Gas (STEG)	GIZ Focal Point
Tunisian Company of Electricity and Gas (STEG)	Chief of PROSOL Projects
Tunisian Company of Electricity and Gas (STEG)	Chief of Loan Management Department
Attijari Bank	Project Manager
National Syndical Chamber of Renewable Energies (CSNER)	President
National Syndical Chamber of Waterproofing Contractors (CSNETE)	President
National Syndical Chamber of Waterproofing Contractors (CSNETE)	Member
HLB	Managing Director – Business Consulting
Third Party	
Delegation of the European Union to Tunisia, European External Action Service (EEAS)	Program Manager – Environment, climate change and green energy
ALCOR	Managing Director
CFE	Chief Operating and Digital Transformation