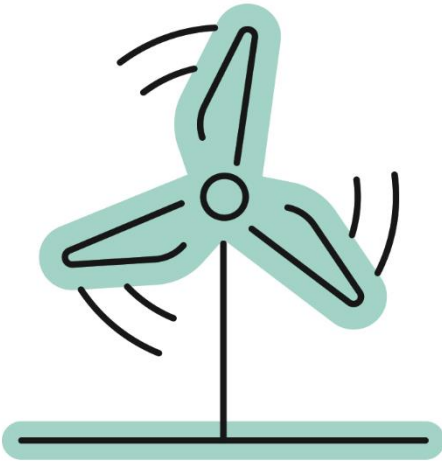




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Technical Assistance for the Evaluation of 2014, 2015 and 2016 **Turkey** Annual Programmes

THEME REPORT



Energy

Agriculture



EU-Turkey Dialogue



Civil Society



Fundamental Rights



Border Surveillance



Removal Centers



Judiciary System



Penitentiary System



Disclaimer

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TABLE OF CONTENTS

- ABBREVIATIONS..... VI**
- EXECUTIVE SUMMARY VII**
- 1 INTRODUCTION1**
 - 1.1 Objectives and scope of the evaluation 1
 - 1.2 Structure of the report 3
 - 1.3 Evaluation questions approaches, and methods..... 3
 - 1.4 Description of the evaluation activities 4
- 2 PROBLEMS ENCOUNTERED SOLUTIONS AND LIMITATIONS5**
- 3 PRESENTATION OF THE THEMATIC EVALUATION CONTEXT6**
- 4 FINDINGS OF THE EVALUATION BY EVALUATION QUESTION8**
 - 4.1 Relevance 8
 - 4.2 Coherence 11
 - 4.3 Effectiveness..... 11
 - 4.4 Effectiveness - factors 14
 - 4.5 Implementation 18
 - 4.6 Monitoring..... 20
- 5 OVERALL ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS 29**
 - 5.1 Conclusions..... 29
 - 5.2 Lessons learned 31
 - 5.3 Recommendations..... 32

LISTS OF TABLES AND FIGURES

- Table 1 Basic data on the evaluated interventions (30/04/2022).....1*
- Table 2 Indicators set in the AD.....13*
- Table 3 Calculated costs and savings of the projects27*

- Figure 1 Ratio of RES in energy generation (%).....10*
- Figure 2 Net electricity consumption (GWh)10*

PROJECT SYNOPSIS

Project title	Technical Assistance for the Evaluation of 2014, 2015 and 2016 Turkey Annual Programmes EuropeAid/140793/IH/SER/TR
Beneficiary Country	Turkey
Location	Base of operation will be Ankara. The geographical area to be covered is the whole territory of Turkey since the evaluation activities will be organised to the cities where projects are implemented.
Contracting Authority	Central Finance and Contracts Unit (CFCU), Ankara, Turkey.
Responsible Body	The Central Finance and Contracts Unit (CFCU) is the contracting authority of the project. The beneficiary of the project is Directorate for EU Affairs (Department of Monitoring and Evaluation).
Target groups	<ul style="list-style-type: none">▪ NIPAC Office;▪ The EC/EUD;▪ OSs and LIs of the projects involved at central and local level;▪ Decision and policy-makers in the ministries involved;▪ Project beneficiaries, end beneficiaries, grant beneficiaries and their co-applicants;▪ The Final Beneficiaries of the activities implemented;▪ Members of the Evaluation Reference Groups (ERG) including CFCU members;▪ Other social partners and CSO representatives.
Commencement date	9 August 2021
Duration	14 months

ABBREVIATIONS

AD	Action Document
CFCU	The Central Finance and Contracts Unit of the Ministry of Treasury and Finance of Turkey
DEEE	Department of Energy Efficiency and Environment
DGEA	Directorate General for Energy Affairs
EC	European Commission
EE	Energy Efficiency
EMRA	Energy Market Regulatory Authority
ESCO	Energy Service Company
EBRD	European Bank for Reconstruction and Development
EU	European Union
EUD	European Union Delegation of Turkey
EQ	Evaluation Question
ERG	Evaluation Reference Group
IPA	Instrument for Pre-accession Assistance
JC	Judgement Criteria
LI	Lead Institution
MENR	Ministry of Energy and Natural Resources
NAO	National Authorising Officer
NEEAP	National Energy Efficiency Action Plan
NIPAC	National IPA Coordinator
R&D	Research and Development
RE	Renewable Energy
ROM	Results Oriented Monitoring
TA	Technical Assistance
ToR	Terms of Reference
TISKI	Trabzon Water and Wastewater Administration
UN	United Nations
WB	World Bank
YEVEDS	Technical Assistance for Renewable Energy and Energy Efficiency Support for the Municipalities and Universities

EXECUTIVE SUMMARY

This report provides evaluation of Instrument for Pre-accession Assistance (IPA) II actions for Renewable Energy and Energy Efficiency in Turkey. The evaluation is designed to improve the strategic link between the planning, programming, monitoring and evaluation activities of National IPA Coordinator (NIPAC) office. The evaluation of Theme 2 Energy consists of 3 activities and 10 interventions.

The methodological approach comprised initial desk review of available documentation to gather secondary data from the provided documents and other available sources. Further data collection methods were mainly: semi-structured interviews collecting primary data from the relevant stakeholders – representatives of the Lead Institution/Ministry of Energy and Natural Resources, Energy Market Regulation Authority, NIPAC, CFCU, and EUD; focus groups with the final beneficiaries and surveys to collect the necessary data about the gained benefits and effects of the interventions. Field visits were conducted to see the progress of interventions and supplement information on wider picture. Triangulation of sources or data was applied to ensure data validity and reliability.

The implemented activities were relevant and focused on the achievement of the specific objective set out in the programming documents. Although the planning process was long, the actual implementation of the components was well timed and remained relevant. The national energy policy priorities secured strong support for the IPA interventions. The supported interventions have been compliant with the EU initiatives and followed the accession negotiations. Recent developments concerning climate change has reinforced the importance of measures promoting utilisation of renewable energy resources and energy efficiency. The EU assistance was fully compliant with the interventions of other actors and/or it was co-financing interventions in this area from other sources. In terms of the intervention logic, design of the interventions is sound but contains some shortcomings in relation to the indicators.

The expected results and/or specific objectives of the evaluated interventions have been largely achieved. However, the uneven quality of the indicators found in the programming documents makes an objective assessment of effectiveness less than straightforward. The effectiveness of all energy IPA interventions within this evaluation was strongly supported by the local policy priorities. Renewable energy and energy efficiency have been the subject of intense interest and strong support of the Turkish government. The full achievement of outcomes cannot be reported due to the absence of financial sources for the implementation of the projects developed within one of the technical assistance contracts (YEVDDES).

The procurement system worked in compliance with the IPA rules ensured the costs proportionate to the achieved benefits. The costs did not exceed the allocated budget, on the contrary, savings were significant due to the pandemic. The quality of day-to-day management did not experience any notable difficulties, but administrative approvals took long time. The coordination mechanism within the IPA management structure has worked without any substantial problems, nevertheless, all the projects encountered some implementation difficulties. Ultimately these problems have not negatively influenced the delivery of the planned activities and outputs although some outputs were delivered later than planned. Most of the resources were well utilised and delivered the expected results. Some possibilities to improve efficiency of the large-scale training have been identified.

The monitoring arrangements for the assistance covered by this evaluation could not fully assist a proper assessment of IPA performance. The monitoring system worked well, but some of the monitoring tools could be improved. The IPA activities are very likely to contribute to the improved capacity in energy efficiency and renewable energy in the future.

For the time being, only part of the IPA II interventions' benefits is sustainable. The technical and human capacities are being utilised and have the potential to apply the gained know-how and further benefit from the projects. The alignment of the IPA II interventions with the national energy policies minimises the risk for losing the benefits delivered by the projects. The absence of the missing financial mechanism for the 160 prepared renewable energy and energy efficiency projects for the municipalities and universities is hampering the scope of the possible impact achievement.

To resolve the sustainability issues and avoid difficulties in the future IPA administration there are a few measures recommended;

- to identify all possible funding options for the implementation of the prepared renewable energy and energy efficiency projects for municipalities and universities,
- to provide more tailor-made future trainings to better reflect trainees' needs and level of knowledge,
- to train all relevant staff within the energy sector dealing with the IPA programming, implementation, monitoring and evaluation in the Project Management Cycle (including intervention logic, indicators, etc.),
- to revise the template of the monitoring report and prepare clear guidelines clearly assigning the roles and responsibilities of relevant monitoring bodies and ensure monitoring covers all relevant actions/contracts, and
- to ensure access to the project data and documents for the relevant stakeholders.


1 INTRODUCTION

1.1 Objectives and scope of the evaluation

This Final Report covering Theme 2 Energy provides evaluation of Instrument for Pre-Accession Assistance (IPA) II actions for Renewable Energy and Energy Efficiency in Turkey. It is submitted in accordance with the Terms of Reference (ToR) as one of the main outputs of the Technical Assistance for the Evaluation of 2014, 2015 and 2016 Turkey Annual Programmes.

The evaluation is designed to “improve the strategic link between the planning, programming, monitoring and evaluation activities of National IPA Coordinator (NIPAC) office”. This purpose is approached as a key contribution to the overall objective “improved overall management of IPA assistance in Turkey”. The evaluation of Theme 2 Energy consists of the 3 activities and 10 interventions as follows:

Table 1 Basic data on the evaluated interventions¹ (30/04/2022)

Code	No. of contracts	Sector/Theme/Intervention	Start date	End date	Allocated (EUR)	Contracted (EUR)	Disbursed (EUR)
Sector	4	ENERGY					
	Theme 2 EVALUATION OF IPA II ACTIONS FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY SUPPORT IN TURKEY						
A2.1	2	2015 Activity 1: Renewable energy and energy efficiency support for the municipalities and universities			14,842,941	13,766,911	11,672,056
Contract A2.1.1	1	Supply of Equipment for Renewable Energy and Energy Efficiency Support for the Municipalities Lot 1 – 7 Lot 1 - 5 Solar Power Plants: Denizli; Hatay; Kahramanmaraş; Malatya; Şanlıurfa; Lot 6: Hydroelectric Power Plant; Trabzon, Lot 7: Water Pumps for the 6 municipalities	multiple dates, 2019	multiple dates	10,342,941	9,294,391	9,294,391
Contract A2.1.2	1	Technical Assistance for Renewable Energy and Energy Efficiency Support for the Municipalities and Universities	16/04/2019	16/04/2022	4,500,000	4,472,520	2,377,665
A2.2	1	2015 Activity 2: Enhancement of institutional capacity in energy efficiency	19/03/2019	18/08/2021	3,500,000	3,470,000	3,470,000
A2.3	1	2015 Activity 3: Improvement of performance-based tariff regulation of EMRA for Turkish energy markets through introducing an enhanced monitoring system	24/04/2019	23/11/2020	2,000,000	1,670,397	1,670,397

¹ The cut-off date of the data used in this evaluation report as agreed in the inception phase is 31/12/2022. When more up-to-date was collected, to indicate recent progress, the corresponding date is mentioned.

For further reference in this report the individual contract titles are shortened as follows:

Full Title of Intervention/Contract	Short Title used in Report
<i>A2.1.1 Supply of Equipment for Renewable Energy and Energy Efficiency Support for the Municipalities Lot 1 – 7</i>	Equipment for Municipalities
<i>A2.1.2 Technical Assistance for Renewable Energy and Energy Efficiency Support for the Municipalities and Universities</i>	YEVDES
<i>A2.2 Enhancement of institutional capacity in energy efficiency</i>	Enhancement of DEEE
<i>A2.3 Improvement of performance-based tariff regulation of EMRA for Turkish energy markets through introducing an enhanced monitoring system</i>	Tariff regulation of EMRA

The projects under evaluation within Theme 2 were planned with the overall objective to contribute towards an increase of renewable energy sources and energy savings. The provided support should thus contribute to its ultimate aim assisting the EU accession process of Turkey. The intention of the *Equipment for Municipalities* was to increase Energy Efficiency (EE) and Renewable Energy (RE) utilisation in municipalities, and complementary technical assistance project *YEVDES* was expected to support capacity of the municipalities and universities in relation to RE and EE applications, and to enhance R&D applications for renewable energy and energy efficiency in universities. The *Enhancement of DEEE* focused on the increase of the capacity of the Department of Energy Efficiency and Environment (DEEE) in implementation of energy efficiency strategies and accuracy of future projections in line with EE Directive (2012/27/EU). The expected outcome of the *Tariff regulation of EMRA* was improved capacity of EMRA by the development of new performance-based tariff calculation mechanisms, including a social tariff.

The main stakeholders of the interventions were represented by:

- Target groups (i.e., direct beneficiaries of the assistance): Ministry of Energy and Natural Resources, Directorate General for Energy Affairs (DGEA) responsible for Renewable Energy (RE) and Department of Energy Efficiency and Environment (DEEE) responsible for Energy Efficiency (EE), and Energy Market Regulatory Authority (EMRA) in the role of beneficiaries,
- Universities and Municipalities as final beneficiaries.

Besides the staff of the above-mentioned central administration bodies, staff from other Turkish ministries, Turkish Petroleum and Gas Transmission Pipeline Company BOTAS and Turkish Electricity Transmission Company TEIAS took part at the project activities. A large proportion of the final beneficiaries are the staff members of the municipalities and universities. The participating municipalities were selected under the guidance and supervision of the Union of Municipalities of Turkey, and universities comprise institutes, research centres, vocational schools of higher education and technical high schools as well as technological development zone administrations/Research and Development (R&D) departments of state-owned enterprises. The focal point for Universities, Institutes and Research Centres is Council of Higher Education while the Ministry of National Education represents the same body in relation to vocational schools of higher education and high technical schools. Other stakeholders comprised operating structures, contractors, and coordination bodies of IPA assistance in Turkey – IPA unit at the MENR, NIPAC – Directorate for EU Affairs at the Ministry of Foreign Affairs, Central Finance and Contracting Unit (CFCU) at the Ministry of Treasury and Finance and EU Delegation (EUD).

The cut-off date of the report is 31 March 2022, and the evaluation report does not reflect any activities after the cut-off date. The financial data are mostly reported as of 31 December 2021. All interventions in Theme 2 – Energy, which were selected for the evaluation, were funded from IPA II 2015 financial envelope. The individual projects started at the beginning of 2019, resp. end of 2019 in case of the supplies for municipalities. In terms of geographical coverage, the project activities have taken place all over the country.

The support comprises three activities; all of them are capacity building/Technical Assistance (TA) interventions addressing target groups at the central level – MENR, EMRA and at the level of municipalities and universities. This last TA is complemented with the supply of equipment for pilot projects in municipalities. The interventions deal with renewable energy (RE) and energy efficiency (EE) applications; strategies and future projections; and performance-based tariff mechanisms. At the time of the evaluation (from November 2021 to March 2022) the technical assistance activities for the DEEE and EMRA were completed while the remaining part of technical assistance for municipalities and universities was still ongoing but approaching its end. The supplies of technological equipment for EE and RE pilot projects and their installations had already been completed.

The Steering Committees of the TA projects were created by the representatives of the beneficiary, MENR Directorate General of Foreign Relations, NIPAC, CFCU, EUD and TA team.

1.2 Structure of the report

Besides the introductory description of the objectives and scope of interventions under the evaluation in Chapter 2, a short summary of methodology and description of tool and instruments applied during the evaluation is given in Chapter 3. Chapter 4 includes main findings structured along the originally proposed evaluation questions. The final Chapter 5 summarises conclusions and respective recommendations resulting from overall findings. All details concerning intervention logic, methodology, implementation of individual interventions – activities and outputs, data collected from surveys and other sources, etc. Are presented in the Annexes to the report.

1.3 Evaluation questions approaches, and methods

The list of evaluation questions was originally determined in the Terms of Reference (ToR) and specific judgment criteria for each question were adopted according to the needs and type of the interventions. Therefore, the initial evaluability assessment took place during the inception phase of the assignment. Its purpose was to ensure that the methodology is suitable for the listed interventions. The suggested methods and tools were based on the reconstructed intervention logic. The purpose of this exercise was to reduce the original scope of the IPA II support and its intervention logic to the activities selected for the evaluation.

The intervention logic at the level of theme, comprising all the interventions included in the evaluation, was primarily analysed based on the information from the programming documents. Provision of additional information and data enabled the preparation of the reconstructed intervention logic, and this was subsequently discussed with the members of the Evaluation Reference Group (ERG) for further adjustment. The model includes inputs, activities, outputs, outcomes, and impacts, together with the contextual factors, and assumptions (see Annex 1).

The evaluability assessment followed the originally determined evaluation questions (all descriptive) and was complemented by the more specific judgement criteria (JC) to reflect the theme specific issues. The appropriate indicators, tools and/or methods were selected depending on their feasibility, available resources and data and assumptions concerning the accessibility of relevant stakeholders. Triangulation of sources or methods was considered to ensure data validity. The proposed evaluation approach in the matrix considered the risks and limitations identified from the documents, which were provided at the inception stage. The evaluation matrix provides summary of proposed tools based on the available data, information, and details, and identifies relevant stakeholders for the application of selected tools (see Annex 2). Within the main findings of this report (chapter 5), references to the relevant JCs are made throughout the analysis. This allows the reader to see how the matrix has been used to construct the evaluation and also ensures that no evidence gaps emerge.

1.4 Description of the evaluation activities

As for the methodology, the initial desk review of available documentation gathered secondary data from the provided documents and other available sources. Further data collection methods dealt mainly with the primary data, which were gathered through semi-structured interviews. The interviews were conducted with all relevant stakeholders starting with the Lead Institution MENR, beneficiaries, contractors, NIPAC staff responsible for the theme, CFCU, and EUD. Some of the end beneficiaries were interviewed during the field visits and focus groups were conducted.

The surveys were utilised to collect the necessary data about the gained benefits and effects of the interventions. Five surveys were conducted. A telephone survey was carried out with all the municipalities supported with the supplies for the solar/hydro power plants and pumps. The main aim was to collect basic information as no other documents were available. The other surveys concerned training activities. The main purpose of surveys was to confirm the project benefits and their sustainability. It was intentionally kept short and simple and used preferably a few closed questions to ensure reasonable response rate. At the same time, the collected information was rather general and did not have to concentrate on details as the aim was to assess the effects. The full list of the training participants was available for YEVEDS project and census could be used for the survey. For other training only some lists of the training participants were available. These were provided as scanned lists with the handwritten email addresses and signatures. Part of the information was not legible therefore the survey link could be sent only to the addresses, which were readable. The survey samples could not be compiled as statistically representative samples. All the questionnaires were prepared in Monkey survey and sent to available email addresses of the participants. The responses were received within one or two weeks. The data collected through surveys were analysed and incorporated into the report.

The analytical methods were based on the theory of change and included analyses of stakeholders as well as inputs, outputs, identified indicators, internal/external factors, and compared planned vs achieved milestones, targets, and deadlines. The original theory of change was adapted, and its revised version was agreed with the Evaluation Reference Group (ERG) to better correspond with the interventions selected for the evaluation. The availability of the data at the national level enabled to identify some trends for outcome indicators. Both, qualitative and quantitative data were thus utilised. All conducted surveys are attached in Annex 5.

2 PROBLEMS ENCOUNTERED SOLUTIONS AND LIMITATIONS

The main limitations for the use of methods concerned availability and accuracy of data, its relevance and accessibility. The initial provision of the data during the inception phase was very limited and its gathering took much longer than expected. The basic financial information at the level of individual contracts was missing, as well as a substantial proportion of interim and quarterly reports regularly provided by the contractors.

During the field research phase, the interviews with the contractors were helpful as they were able to share all produced reports, training reports, materials and links to relevant web pages containing further project details, for most of the contracts.

The supply contracts concerning the equipment for five solar power plants, pumps and hydropower did not have any reports; besides the tender documents published at the web page of the CFCU, other details were not available. The beneficiaries at the MENR were very committed and willing to provide additional requested data or information. As mentioned above, only some lists of training participants were available and part of it was provided in the handwritten form, which was difficult to read. Therefore, the sample for the surveys could include only some proportion of the participants.

The financial data provided from different sources differed and required additional verifications. The contacts details provided during the Inception phase were not always valid due to the personnel changes. Provision of the trainees' contact data required some clarification in relation to the General Data Protection Regulation (GDPR).

3 PRESENTATION OF THE THEMATIC EVALUATION CONTEXT

The last two decades of rapid economic and population growth in Turkey led to a strong growth in energy demand, resulting in increased energy import. The prospects of EU integration and membership have initiated Turkey's energy cooperation with European countries. This became an influential external driver for Turkish energy reform. The Turkish government launched energy market reforms in 2001. The ultimate target was to establish a competitive market environment capable of attracting private investment and promoting efficiency through competition. The introduced measures included new legislation (on electricity, gas, renewable energy, and energy efficiency); the establishment of an energy sector regulatory authority; energy price reform; and the creation of a functional electricity market. In addition, state-owned energy enterprises were restructured, and privatisation took place. As a result of the reform, the energy sector achieved energy security – energy systems were restructured, and effort was made to rationalise energy demand growth. The eventual effects have materialised in decreased energy prices for consumers and import growth slowed down.

Energy efficiency is critical to Turkey's ability to both maintain its economic growth and meet its commitments on climate change and environmental sustainability. In 2015, the country submitted its intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change, committing to reduce its greenhouse gas emissions by up to 21% from the business-as-usual level by 2030 by focusing on energy-efficiency improvements. To improve energy efficiency measures, the ways how to slow the rate of consumption growth were sought. In order to create the legal and institutional framework to make this possible, in 2018 Turkey adopted a National Energy Efficiency Action Plan (NEEAP) for the period 2017-2023. The necessary investments should be approximately \$11 billion in the 2019-2023 period. The NEEAP was prepared with an aim to reduce Turkey's primary energy consumption by 14% from business-as-usual levels across several sectors. Recently as part of the energy efficiency promotion in buildings, a new Presidential Decree (dated 16 August 2019) was introduced with mandatory efficiency targets for public buildings. To use public resources efficiently and to reduce the burden of energy costs on the public sector, public buildings with energy managers assigned according to the Energy Efficiency Law are expected to procure energy savings of 15%.

In 2005, the government initiated a proactive approach in this area by introducing new legal measures and successfully engaging the private sector. The Renewable Energy Law introduced that year stimulated increased private investment and impressive growth in renewable energy. Turkish companies predominately showed interest, which exceeded all expectations. The initial investments went to hydro, then wind, and most recently solar energy. Renewable electricity generation has nearly tripled in the last decade, and in 2021 the share of renewables in installed power reached to 54% (Turkey 2021 Energy Policy Review, IEA). This meant that Turkey has already exceeded its target of 38.8% of power generation from renewables set out under the Eleventh Development Plan (2019 – 2023).

In accordance with the National Energy and Mining Policy adopted in 2017, the increased the use of domestic and renewable energy resources is among the main sectoral priorities. Turkey's renewable energy capacity is predicted to grow by over 50% through 2026, according to the International Energy Agency (IEA). Turkey is expected to increase the share of renewable sources in energy production starting from 2022. Solar energy production is predicted to witness the largest capacity increase in

2022, with around 1,000 MW². The Energy and Natural Resources Ministry's strategic plan for 2023³ intends to boost the ratio of electricity installed power based on domestic and RE sources to total installed power from 59 to 65%. In October 2021, Turkey invited bids for a 1.5 GW solar tender for the fifth auction round of its Yenilenebilir Enerji Kaynak Alanları (YEKA). The Turkish government aimed to select 76 large-scale solar projects with capacities ranging from 10 MW to 30 MW across 23 regions.

The recently released Turkey Electricity Review 2022 prepared by the London-based environmental watchdog Ember states that wind and solar power accounted for 13.6% of Turkey's total power generation in 2021, comparing to 11.7% in 2020. Turkey used less hydropower, decreasing from 26 percent of the total energy share in 2020 to 17 percent due to the droughts. This was compensated by more gas power, which increased from 23 to 33% of the total energy share in the same time frame. The future of wind and solar power in Turkey looks promising, but the country is still relying heavily on coal both domestic and imported. However, wind and solar energy are now cheaper than coal generation.

Support for renewables and energy efficiency has dominated R&D funding since 2016. Government support for the renewable energy and energy efficiency was significant and these two largest areas were provided 72% of the total research and development (R&D) budget in 2018. Out of this, 41% of the total energy-related R&D budget was allocated to renewable energy, most of which was dedicated to hydropower, which received 35% of the total budget small shares of funding went to solar, wind energy and biofuels. Turkey is currently ranked 5th in Europe and 12th in the world in terms of installed capacity in renewable energy in 2021⁴.

Under the Electricity Market Law (2001), market regulation activities and supervision authority were largely transferred from the government to an independent regulator and electricity market regulator was established as the Energy Market Regulatory Authority (EMRA). The EMRA functions were extended to also include the natural gas, liquefied petroleum gas, and petroleum markets. Secondary legislation prepared by EMRA covers licensing, tariffs, transmission and distribution, market opening, market rules and procedures, balancing and settlement.

² <https://reglobal.co/turkey-plans-to-increase-its-solar-capacity-by-2022>

³ MENR's Strategy Plan 2019-2023, <https://sp.enerji.gov.tr/>

⁴ <https://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa>

4 FINDINGS OF THE EVALUATION BY EVALUATION QUESTION

4.1 Relevance

Q1. To what extent are the components/activities implemented relevant for achieving the specific objectives of the Activity/Theme?

The implemented activities were relevant and focused on the achievement of the specific objective set out in the programming documents. Although the planning process was long, the actual implementation of the components was well timed and remained relevant. The programming process is primarily based on the needs analysis and numerous discussions within the relevant ministries. It also considers the data and information from the process of monitoring. The planning serves the purpose to set out relevant priorities in the sector for next seven years and to draft the framework of Instrument for Pre-Accession (IPA) assistance. The framework is provided in the initial draft of the Action Documents (AD), which includes an overview of the proposed actions reflecting the determined priorities.

The planning process for the energy sector IPA interventions started in 2013 - 2014. There was the need to fill the gaps complementing the ongoing national initiatives and newly introduced national legal framework in the renewable energy (RE) and energy efficiency (EE) areas. The process considered recommendations from the Commission's annual reports on Turkey as well as objectives and targets set out in the national strategies and action plans such as Energy Efficiency Strategy Paper 2012 - 2023, and subsequent National Energy Efficiency Action Plan 2017 – 2023 (NEEAP), as well as policy initiatives of EU (such as Energy Union Strategy, 2019 third legislation package). Beneficiary-defined needs were subsequently prioritised by the MENR, and proposals were consulted with the Commission Services, which provided feedback to improve the relevance of the proposed actions. Although it took some time, the provided feedback helped to streamline and focus the interventions on the efficient transfer of knowledge from the EU side to Turkey. Following the agreement, the final proposal of the AD was submitted by NIPAC.

The Turkey Energy AD was prepared in 2015 and described the needs and proposed IPA measures. The capacity building and/or learning from the best practices of EU countries was identified as the most appropriate issue to be targeted using IPA support. Technical specifications were prepared for the supply projects, which were to be implemented as the pilot projects. These were planned with the aim to raise awareness and demonstrate how such measures can be practically used by the municipalities and universities. These efforts were further supported by the Presidential circular (dated 6 August 2019) requiring public buildings to save at least 15% of their energy bill compared to the building's calculated average consumption over the last 3 years. All supported interventions thus have remained relevant since the start of the programming process. (JC 1.1).

The capacity building interventions took place at two administrative levels. The enhancement of capacities addressed the regional/local level and involved the preparation of RE/EE projects for the municipalities and universities. The other part of the assistance strengthened human capacities at the central level i.e., at the Ministry of Energy and Natural Resources (MENR) in Turkey as well as at the Energy Market Regulatory Authority (EMRA). The massive training designed for 800 staff members of the municipalities and universities was rather demanding, assuming seven full days training.

Conducted training needs analysis was able to identify preferred main topics, however, as established during the focus groups discussions held as part of the evaluation, it could not satisfy the needs of such a big and diverse group. The strengthening of the staff was helpful for the municipalities, which were provided investment support. The capacities of the MENR staff were also underestimated in relation to the feedback required for the Energy audits and/or Feasibility studies of 160 prepared projects. The situation at the time of planning assumed the RE and EE utilisation and application in municipal services and universities. The final beneficiaries of *YEVDES*, namely municipalities and universities' staff were keen to co-operate and fortunately, majority of the participating municipal staff remained in their positions despite municipal elections. The main limitations in terms of technical capacities were the data collection issues necessary for the preparation of the projects for the municipalities and universities. There were either no data existing or the participants had no access or tools to collect it. Currently, also due to the changed economic situation, the main obstacle relates to the lacking capacities to fund and implement the prepared RE and EE projects.

The *Enhancement of DEEE* was launched at the time of the Directorate General for Energy Affairs' (DGEA) restructuring. The newly established DEEE within the ministry was identified as the only relevant department to receive this assistance. The ToR of this project was originally developed for the DGRE counting some 600 staff members, but the eventual implementation took place at the DEEE with some 90 employees. To compensate the lack of resources and initial delay needed for the setup of the Department's operation, the project involved more people appointed from other departments and other ministries. The cooperation was also formalised through Memorandum of Understanding with Turkish Statistics Institute (TÜİK). The planning and coordination staff of the IPA unit oversaw the coordination and organised participation of other staff members from relevant units and departments of the MENR. Despite that, it was not clear to what extent were the projects, running in parallel and dealing with practically identical issues, coordinated and if there were some trainees/participants involved in both projects.

The EMRA staff dealing with *Tariff regulation of EMRA* had no previous experience in managing the IPA project and has not fully understood its role in the project. The cooperation with the contractor was slowly progressing due to the initial change of the experts, but once the project outputs were delivered and found useful, the project ownership became more obvious. The actual needs of the beneficiary were fully reflected and delivered activities – trainings, workshops, study visits were found useful (JC 1.2).

The design of the interventions is sound (in terms of their intervention logics) but contains some shortcomings in relation to the indicators. The intervention logic of the IPA II assistance for energy sector (in AD) was planned with two overall objectives set out as (i) *to promote energy efficiency in line with the EU's resource efficiency and climate action targets* and (ii) *to improve the functioning of electricity and gas market in line with EU requirements*. These objectives were fully coherent and their achievement supported by the individual interventions. The projects were focused on the capacity building activities: enhancing the capacity of the municipalities and universities in relation to renewable energy and energy efficiency; capacities of DGEA and DEEE in the implementation of energy efficiency strategies and accuracy of future projections; and capacities of EMRA in the development of new performance-based tariff calculation mechanisms, including social tariffs.

The individual components of the projects comprised numerous activities producing well defined outputs set out in the ToR and confirmed in the approved Inception reports of the Technical Assistance (TA) projects. The most substantial shortcoming of the YEVEDS design is missing final activity leading to one of the outcomes – utilisation of RE and EE in municipalities and universities (for 160 prepared projects), which was only demonstrated in six municipalities by the supply component *Equipment for Municipalities*. The outcomes of the interventions were identified but the indicators to measure the achievement of outcomes specified in the AD were confusing (for Activity 1 Renewable energy and energy efficiency support for the municipalities and universities referring only to supply component *Equipment for Municipalities*), missing or not measurable; moreover, they were not fully corresponding to the objectives. The mentioned impact indicator related to the progress in meeting accession criteria was not compliant with the overall objective referring to the promotion of the EE and supported activities (see also Table 2, Q3). The Energy chapter is one of the eight chapters pending for approval at the Council of the European Union since 2016.

As most of the project activities have been recently completed and/or were about to be completed, the ex-post evaluation perspective cannot be fully reflected. The IPA II assistance represents rather small proportion of sources in comparison with numerous other interventions, which have been implemented from the national or other funds. The overall effect of these interventions is visible in the development trend of the energy sector. The increasing proportion of the RE sources in the energy production exceeded the milestones determined in the 11th Development Plan and MENR’s Strategic Plan. Since the energy policy became the priority, the use of RE in Turkey is progressing better than EU countries on average (see Fig. 1). The interest in using RE sources was also enhanced by the special financial incentives. The EE also demonstrates some progress; rapidly growing energy consumption has been stabilised and does not show significant increase in the last years (see Fig. 2). The quality of the interventions’ design was good in terms of the logic chain however, the outcomes were not well determined, and outcome indicators cannot be used for the justification of the achievement of specific objectives (JC 1.3).

Figure 2 Ratio of RES in energy generation (%)

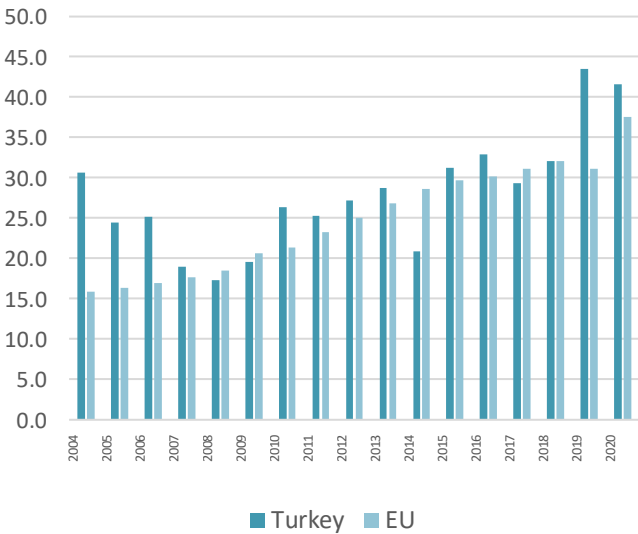
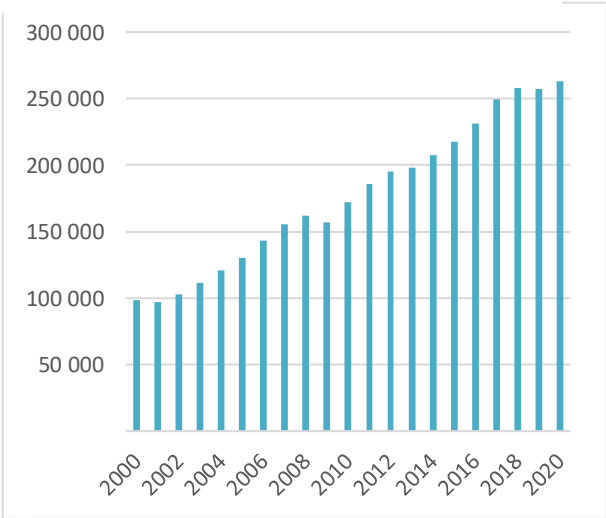


Figure 1 Net electricity consumption (GWh)



Source: author based on data from TUIK and Eurostat

4.2 Coherence

Q2. To what extent is the EU assistance coherent with interventions by other international actors and with other EU interventions in related fields?

The EU assistance was either fully compliant with the interventions of other actors or it was co-financing interventions, which have been supporting RE or EE from other sources. Turkey made commitment to utilise all the opportunities to increase the share of domestic and renewable energy resources in energy supply, to enhance energy efficiency in energy generation and consumption process, and to provide a transition into clean production technologies by improving research and development (R&D). This national effort is fully aligned with the EU or international - the United Nations Sustainable Development Goals. EU's energy policy declares commitment to reducing greenhouse gas emissions, increasing the share of renewables in energy consumption, and improving energy efficiency. Cooperation with Turkey in these areas is enhancing climate and environmental performance on both sides. The same applies for the Sustainable Development Goals where Turkey's actions are focused also on energy efficiency mainly in transport, buildings, and industries. At the level of interventions within the evaluation, most of them complemented each other in their objectives and had a strong focus on RE and EE, while *Tariff regulation in EMRA* dealt with the electricity and gas markets functioning, which is more related to another dimension of the EU strategy designed to bring greater energy security, sustainability, and competitiveness through a fully integrated European energy market (JC 2.1).

Large proportion of the assistance provided by the international financing institutions concerned the implementation of RE and/or EE measures. The supporting financial sources have been provided by different investors such as the World Bank (WB), United Nations, European Bank for Reconstruction and Development (EBRD) and/or by bilateral Development Aid agencies. Details of the interventions are summarised in Annex 4. The support has been fully complementary with the EU interventions. Mostly loans have been available for the RE and EE measures in the areas like enterprises, industry, or buildings. There has been a couple of other interventions co-funded by the EU with the same focus. The support was provided to private sector financing mid-size investment in RE and EE or similar assistance has been available for residential consumers investing in EE. The overall coordination in the energy sector is the responsibility of the MENR, Directorate General of Foreign Relations, which coordinates all interventions within the Ministry's competencies and ensures their alignment with the national needs and priorities. As the IPA sources are limited for large investment schemes, future support within IPA III will rely more on the cooperation with the financing institutions and use of financial instruments. IPA grants from the EU and loans of international financial institutions will be used together in investment components of energy interventions (JC 2.2).

4.3 Effectiveness

Q3. To what extent are the specific objectives and expected results of the Activity/Theme achieved?

The expected results and/or specific objectives of the evaluated interventions have been largely achieved but it is difficult to assess the extent to which they have achieved their objectives due to the uneven quality of the indicators in the programming documents. The implementation of the energy interventions largely followed the original ToRs. There were a few activities, which had to be

adjusted to reflect the changed conditions. All other outputs were delivered as planned although in most cases it was done with some delays due to COVID pandemic-related measures.

The supplies for municipalities comprised equipment for 5 solar and 1 hydroelectrical power plant and 256 water pumps. The delivered equipment was installed, and six solar power plants use RE source to produce energy; at the same time EE was improved thanks to the installed water pumping by supplying new pumps in Denizli 58, Kahramanmaraş 17, Hatay 3, Şanlıurfa 14, Malatya 53, and Manisa 55. The hydropower plant was built in Trabzon and this investment is expected to return in just two years of its operation. Overall, 56 pumps were installed to improve pumping of drinking water for the city and reduce the energy consumption. The energy savings as a direct result of this investments do not represent big proportion of the overall energy consumption of the municipalities (in some cases, the produced energy represents some 2% of the whole energy consumption), but these are the first attempts, which encouraged development of new projects. The produced outputs thus enhanced capacities of municipalities in RE and EE applications.

The *YEVDES* project delivered all of the planned outputs. The training of 19 trainers was completed; these trainers trained 799 participants from municipalities and universities (both online and face-to-face); and part of the trainees took part at four study visits to see best practices in RE and EE in Denmark and Germany; 160 bankable projects were prepared (half from municipalities and the other half from universities, supported with 80 Energy Audits reports and 80 RE Feasibility studies); additional 19 projects were provided engineering support (mostly on energy management ISO 50001 certification, a heating system and geothermal energy); 12 selected R&D projects were provided technical and expertise support and six study visits for university teams working on R&D projects were organised. Overall, these outputs thus contributed to the increase of the capacities managing energy issues at the municipalities and universities and should result in the utilisation of the RE and EE.

The TA for ***Enhancement of DEEE*** intervention provided the DEEE with a number of valuable outputs. These included: revised strategic documents and templates in line with EU standards (such as The National EE Action Plan); strengthened human capacity for the DEEE (via a comprehensive training programme for its staff); a new IT was developed (computer modelling software for analysing inter alia the evolution of Turkey's energy system) and a new online standalone NEEAP monitoring tool was created and operationalised. In combination, all these tools have enhanced the DEEE's capability to implement EE strategies to European standards, which will ultimately improve its institutional effectiveness (a key thematic outcome).

The ***Tariff regulation of EMRA*** p dealt with specific aspects of tariff setting. This produced all of its planned outputs. The first output providing general overview of tariff setting process became the subject of deep interest. This report was reviewed several times, continuously supplemented, and completed at the end of the project. The report on data requirements, harmonisation and standardisation procedures was prepared followed by two study trips to see the EU best practices for performance-based tariff structures. Workshops on performance-based tariff structure were organised for 56 people. An analyses of existing data management systems was provided. Training for 44 participants on Improvement of energy market monitoring systems was organised. Drafts of deliverables were discussed with the beneficiaries during the preparation to ensure that the outputs are in line with the beneficiaries' expectations. The online trainings were delivered and there is no evidence showing that they were less effective in comparison with face-to-face trainings. Two study

visits were organised, the ones which had to be cancelled due to covid restrictions were replaced by additional training activities. The delivery of originally intended outputs thus did not encounter any difficulties and the delivered outputs improved capacity of EMRA and provided know-how for the development of a new performance-based tariff calculation mechanism (JC 3.1).

The uneven quality of the indicators found in the programming documents makes an objective assessment of effectiveness less than straightforward. There are numerous examples of this to be found in all the interventions evaluated. For example, as reported by the MENR, the supplied equipment for the municipalities was expected to materialise in two result indicators set out in the AD: use of renewable energy in the supported municipalities and universities (5% increase), and energy savings in supported municipalities and universities (10% increase). The Annual Programme for the Energy sector (October 2021) presented at the Sectoral Monitoring Committee, reported these indicators for EE projects as 30.3 mil kWh and/or 17.7 mil. Liras savings. For the RE projects, the increase was calculated using the actual generation and consumption data collected from municipalities and reported value was 322%. As the calculation methodology is not explained, these indicators (and the data supporting them) give little idea of whether planned targets were actually achieved or not. What is clear is that the installed equipment, once operational, means savings for electricity bill in each assisted municipality. These indicators represent one part of the activity (*Equipment for Municipalities*) complemented with the *YEVEDS* project. The specific objective of this project referring to the capacity development has no relevant indicator. Nevertheless, the survey and focus groups conducted by the evaluation confirmed that the capacities at both municipalities and universities were developed and the gained knowledge is being utilised and applied in the daily job of the trainees. Some of the municipal services have created new jobs and employed people specifically responsible for the energy management.

Table 2 Indicators set in the AD

Output Indicator	Target	Outcome Indicator	Target
Equipment for Municipalities, YEVEDS			
Number of people trained – broken down by type of institution and by gender	300 people trained in EE (100 female, 200 male)	Use of renewable energy in the supported municipalities and universities	5% increase
Number of audit, preparatory feasibility studies and action plans in relation to EE prepared, by type of institutions	20-Municipalities 10-Universities		
Number of audit, preparatory feasibility studies and action plans in relation to RE prepared, by type of institutions	20-Municipalities 10-Universities	Energy savings in supported municipalities and universities	10% increase
Number of pilot projects related to EE supported, by type of institutions	3-Municipalities		
Number of pilot projects related to RE supported, by type of institutions	5-Municipalities		
Number of R&D project supported	3		
Enhancement of DEEE			
Energy efficiency roadmap for Turkey available	yes	N/A	
Calculation methodology and model of energy efficiency available	developed	N/A	

Tariff regulation of EMRA			
New performance-based tariff calculation mechanisms, including a social tariff developed	developed	Performance based tariff mechanism applied by EMRA	New mechanism applied
Impact Indicator			
Progress made towards meeting accession criteria (Extended and strengthened operational performance and data flow of the Turkish Gas transmission system)			

The **Enhancement of DEEE**'s increase of capacities in the implementation of EE strategies was achieved but there is no indicator available to judge the extent of the achievement. What is clear from field assessments is that DEEE staff can now calculate energy saving potential and develop EE projections. The system for collection, validation and processing of data is further developed and projections are now published. A unique statement is published as part of NEEAP progress report for the public and provides an impact analysis of energy consumption and real savings.

The indicator stated as *performance-based tariff mechanism applied by Energy Markets Regulator Authority* is clearly referring to the **Tariff regulation of EMRA** project but also lacks the features of a good indicator. Tariffs existed in Turkey before the project. There were some strategies in place and a few changes have been already implemented as a result of the project. In the natural gas sector, the contractor conducted a productivity analysis, research was conducted with different public institutions regarding vulnerable users; under electricity, performance-based tariffs are being used. Nevertheless, the social tariff system is unlikely to be completely implemented. The knowledge accumulated during the project was used to improve the system and small consumers are supposed to pay less. The EMRA staff knows what else can be done and plans the introduction of changes in the next tariff setting period 2022 - 2027. Some adjustment of legal framework will have to accompany these changes. Nevertheless, there are no indicators to confirm the achievement of the project objective.

Some indication of achievements can be followed for example through the implemented measures, which were recommended by TA teams in their reports. Part of the measures is already implemented, some of the outcomes have not materialised yet, but are likely to be implemented gradually. In summary, the specific objective of all three TA projects referring to the capacity building can be considered achieved as a result of all produced outputs (JC 3.2).

The improved capacities at several beneficiary institutions are difficult to justify as it is not clear what change was expected in practice. As regards wider effectiveness, it is likely to see any effects related to the changes in the organisation structures and other measures recommended by the contractors, but this will take time. If individual interventions' outcomes contribute to the achievement of the specific objectives to the extent, which was originally envisaged, cannot be specified. Nevertheless, the conducted surveys confirm improvement of human capacities and investments (implemented solar and hydro power plants) obviously enhanced the technical capacities of the municipalities (JC 3.3).

4.4 Effectiveness - factors

Q4. To what extent did different factors influence the achievement of the Activity/Theme specific objectives and results?

The national energy policy priorities secured strong support for the IPA interventions. In last two decades Turkey paid special attention to the energy policies. The country has implemented energy reform with an aim to secure energy supply for the growing population and economic development. In recent years there was a strong focus on increased production of RE and reduced energy consumption through increased energy efficiency. The energy policies thus belong to priorities of the Turkish government and have been given a lot of attention. This can be considered the main positive external factor influencing effectiveness of the IPA interventions. Moreover, the internal policy priority supported by the worldwide and EU efforts focused on the climate change and green measures, supported the commitment of the beneficiaries. The internal supporting factor is the project ownership on the side of the beneficiaries. The assistance was needed and with more outputs provided, which proved useful, attracting more beneficiaries' interest and engagement (JC 4.1).

There was an issue mentioned as a good practise example by the EE beneficiary. The experience shows that especially for the TA projects even the distance between the contractor's and beneficiary's offices plays a role. For example, the contractor's office directly in DEEE premises proved to work very well and there were no communication delays. As the ministry did not have enough space to accommodate the whole TA team, which comprised some 50 experts, the local office of the contractor was also helpful but the core team discussing ongoing tasks was available at the premises of DEEE (JC 4.3).

A substantial proportion of the assistance provided by the YEVEDS was dealing with the preparation of 160 RE and EE projects to increase RE and EE utilisation in municipalities and universities. These outputs, however, cannot be transformed into the planned outcome (utilisation of RE and EE in municipalities and universities) under the current circumstances. It is possible only under the condition that the projects are able to find some funding source to support the implementation. The extent of this external risk is difficult to judge, but it is evident that some funding source will be needed, otherwise the projects are likely to lose their relevance due to the cost increases or due to the proposed technologies becoming outdated. The municipalities have a financial institution that can provide loans for the Special Provincial Administrations and Municipalities (İller Bank – Bank of Provinces). However, the state-owned universities' budgets are determined by the state, and thus this poses limitations. The universities do not have such access to capital except the budget provided by the Presidency of Strategy and Budget therefore other sources of investments have to be identified. From this perspective, the chance of the implementation for the municipality projects seems to be higher (JC 4.2).

Q5. To what extent are the costs of the Activity/Theme proportionate to the benefits achieved/estimated?

The quality of day-to-day management did not experience any notable difficulties, but administrative approvals took long time. The IPA funding was procured using a competitive process supervised by the CFCU. No budget increases were noted so there have not been any cost deviations from those planned. The most substantial proportion of sources allocated for energy interventions were investments (50%) for the construction of solar power plants and hydropower plant in municipalities. The budgets were adequate to deliver the actual results, the procurement systems ensured cost-efficiency.

The procurement system worked without any substantial difficulties and was in line with the IPA rules. The costs did not exceed the allocated budget, but savings were significant. The CFCU managed the tendering process and followed the IPA rules. The period from the contract notice to the signature took some eight to ten months. The tenders followed the EC recommendations and applied both technical quality criteria (80%) and financial criteria (20%). Cost savings were noted in a number of the interventions, both related to supply and technical assistance contracts. These can be attributed primarily to the procurement procedures, as well as adjustments made in implementation due to COVID. This caused that part of the planned activities was cancelled and replaced by different types of activities, and/or some of the training activities were delivered online. Although this hampered efficient delivery of implementation, it did lead to reduced costs. In combination, this represents good cost-effectiveness. In specific terms, YEVEDS disbursed only 30% of the allocation by the end of 2021 (1,5 mil. out of 4,5 mil. Eur contracted); *Equipment for Municipalities* saved some 30% of the allocation (about 3 mil. Eur) thanks to competitive tendering, while *Tariff regulation of EMRA* reduced even the originally contracted budget, which saved nearly 20% of the original allocation due to COVID related changes in implementation. In total, these savings in contracts amounted to approximately 3,4 mil. EUR of the initially planned/allocated budget, while the disbursement is not finalised, yet but the final savings will be more substantial.

The savings from the TA contracts mostly occurred due to covid-19 restrictions. The contracted amount of the fee based YEVEDS project has been reduced as part of the training activities was carried out in the online form. Any change of the budget for this type of the contract was time consuming. The minor things concerning the trainings could not be adjusted and required revisions through the administrative orders. The project has asked for the approvals of 26 administrative orders during its implementation, which required a lot of time and resources. An adaptive management, which would help, could not be applied due to the strict rules. More flexibility regarding some aspects, such as trainings, could have been beneficial. Reduced amount of the *Tariff regulation of EMRA* lump sum contract was also related to the covid-29 protection measures and change of some activities. Part of the activities was cancelled (study trips abroad) and replaced by additional trainings.

Despite the agreement of all main stakeholders, the administrative process concerning approval of the administrative orders in YEVEDS project took longer due to a number of factors such as COVID measures, the high turnover of the CFCU staff and the associated loss of the institutional memory. In combination these factors caused some delays, but these were addressed by the approval of the contract extension (JC 5.1).

All contracts were tendered within budget, and several were subject to cost savings. As noted in EQ3, the interventions have delivered the majority of their planned outputs. It is therefore reasonable to state that the costs of the interventions were justified by the benefits which they have thus far generated. The only question mark relates to the effectiveness of the 160 RE and EE projects, whose outcomes are currently not assured (see EQ4) (JC 5.2).

The relevant documents were collected from different stakeholders. The IPA unit was able to provide basic information (Progress and Monitoring reports, minutes from the meetings, ToR). Most of the documents/reports concerning individual produced outputs were eventually provided by the contractors. It is understood that all documentation regarding the contract is stored and is available for the authorised CFCU staff. All the reports and information on individual contracts are

stored/archived in one place (at CFCU), however it is a burden for the CFCU staff to provide the access to these data any time when the data are needed for various purposes by numerous stakeholders. The access cannot be shared with any other relevant stakeholders (NIPAC, IPA unit) as documents are stored manually, not in electronic form, and none of this information is publicly available. The publicly accessible documents at the web page of CFCU concern only public tenders (JC 5.3).

Q6. Are there different modalities of using resources that have produced more results or have decreased the resources needed for the same level of achievements?

Some alternative approaches to the delivery of activities could have been considered to delivery better results. As regards capacity development interventions, an alternative modality might have been considered for the training programme of the municipalities and universities staff delivered under the YEVEDS intervention. Although the evaluation survey of participants shows very positive response in terms of outcomes, there has been some feedback relating to the unbalanced knowledge of the trainees and training time spent on various subjects/topics. A more focused and better-balanced training approach could have been planned to achieve better outcomes. The YEVEDS project prepared the needs analysis and based on that the training delivered the identified topics and followed the organisation requirements outlined in the ToR. However, the training for the group of 800 participants cannot expect the same level of knowledge on the subject from each participant and their interest would also vary. The participants were divided into smaller groups, but these groups comprised people with various knowledge of energy topics (from very limited knowledge to professional). All participants got the same generic training whilst what was needed was a more diversified approach.

The full achievement of the objectives would also require a different implementation approach for the preparatory activity of 160 RE and EE projects. The more feasible option, as confirmed by the expert panel, would have been to identify the potential sources of financial support and involve the financial institutions in the project preparatory stage. Also, a more appropriate approach would have included a training dealing with the project preparation, that could be more detailed than the one provided as part of the training activities, selection of a few best projects and provision of the funding from the project sources (e.g., soft loans). The delivered outcomes – 160 projects were rather costly and required a lot of resources for the preparation, but if and how many of these projects will be implemented is unpredictable. Provided that funding could be found to implement the projects as planned the effectiveness following the set out specific objective - utilisation of the RE and EE in municipalities and universities as well as efficiency of the sources - could be achieved.

Some modalities concerning the projects' scope were proposed for other TA projects by the interviewed beneficiaries. As the alternative project strategies are concerned, the interviewees suggested several adjustments. The distribution of activities in the ***Enhancement of DEEE*** was not the most optimal. The greatest emphasis should have been given to the EE strategies and to the methodologies for the calculation of energy saving potentials and modelling, while the issue of portal could be a separate project. The trainings could be more streamlined, e.g., communication training did not fit well with the other topics (JC 6.1).

Q7. How timely and efficient is the Activity/Theme's process of programming, contracting, implementation reporting and monitoring?

The management of the projects experienced some difficulties, some outputs were delivered later than planned and outcomes cannot be considered fully achieved. The process of planning, programming, and contracting of the interventions was protracted, taking in some cases up to 6 years from the project's genesis to actual implementation. Evidence suggests that despite this time-lag, effectiveness was not fundamentally compromised. Implementation was characterised by prolonged inception phases for the TA, as these were adjusted to meet actual needs on the ground and to build relationships between stakeholders. Monitoring and reporting, whilst formally functional has some weaknesses, primarily in the tools and data used.

The planning and programming process for all the interventions, in general, was the longer-term exercise. Some of the first ideas for the support were created in 2013. The outline of the IPA assistance was briefly described in 2015 and the preparatory work on ToRs and technical specifications started shortly thereafter. These documents were completed in 2018, and all TA contracts were signed in March/April 2019, the supply contracts at the end of 2019. Despite the huge time gap from the first ideas to the implementation, the projects did not show any substantial difficulties, but this can explain why the long inception periods were needed. By accident, the *Enhancement of DEEE* was starting at the time when the DEEE was just established. The *Tariff regulation of EMRA* could have started some two years earlier to better respond to the organisation's needs and to implement performance-based incentives earlier.

4.5 Implementation

From the management point of view, the starting period seems to be crucial for all the projects. The initial stage in all TA projects was a *trust building* period and required the extension of the inception phase. The partners had to balance their expectations and understand/clarify each other needs to find the most optimal modus operandi as well as to update some of the activities to correspond with the changed conditions. Eventually, the provided EU expertise matched expectations of the beneficiaries and this eased the projects implementation. Every personnel change meant an interruption of the implementation and information flows. Luckily, the personnel changes in the projects (TA) took place in the initial phases and affected the inception phases of the projects, which were longer than planned but did not disturb the implementation process later. Both sides, contractors and beneficiaries experienced some exchanges but eventually managed well and without any substantial difficulties. Once the initial changes were sorted, the implementation progressed smoothly.

Fluctuations and turnover in the project teams caused some disruptions in the implementation. For example, in YEVEDS the first team leader and another key expert left the team in its start-up phase. The absence of two important experts affected the coordination and extended the inception phase to six months.

The DEEE, as a 'new' institution dealing with IPA assistance for the first time experienced some teething difficulties. As the beneficiary of the *Enhancement of DEEE* it needed some time to settle and to establish contacts with other ministries and institutions to implement the project activities. At the time of project start-up, the DEEE was very busy, there were some personnel changes, and it was not easy to set aside enough time to operationalise the project in the first few months. Since the Department was not fully established, it was also more difficult for its staff to collaborate with other ministries and institutions. Nevertheless, its ownership of IPA support was high from the beginning. After a few

months, these initial difficulties were diminished and although the staff was overloaded with the projects' activities and their daily obligations, the project progressed without any substantial problems. Despite the slow start the assistance was just well timed and useful. The implementation of *Tariff regulation of EMRA* project copied similar pattern. The initial problems were sorted, and staff of EMRA gradually gained experience with the IPA management. Seeing useful outputs, EMRA' staff became more engaged, interested and more eager to discuss and provide feedback. In particular, after the study visits, which were found extremely helpful, the project activities attracted more attention and the staff understood that their participation at the project was beneficial. Once the ownership was established the project continued without problems.

Although, most of the activities were implemented as planned, the timely delivery of some project outputs was influenced by the COVID-19 pandemic. The supply projects were extended by several months (from 3 months to 8). Aside from COVID delays, extensions were needed due to customs issues and/or special design, which meant longer production time. Overall, extensions were granted as follows: the *YEVDDES* project was extended twice by six months, *Enhancement of DEEE* had five months extension and *Tariff regulation of EMRA* only a one-month extension (JC 7.1).

All the projects encountered some implementation difficulties, but ultimately these have not negatively influenced the delivery of the planned activities and outputs. The implementation problems had a few reasons. Most significant reason for delays, especially in some projects, was COVID-19 pandemic influencing mainly training activities and study trips, which had to be postponed, changed and/or cancelled and replaced by other activities. The common problem of the energy projects was lack of data, which were either not available or difficult to access.

Initial stages of *YEVDDES* were also suffering from the quality of deliverables, which was gradually sorted. The missing data from the municipalities, universities as well as from the vendors complicated the preparation of projects' proposals. The large-scale intensive training was eventually delivered in a short time and although it was in general appreciated, the interviews revealed more preferred options. The implementation of *Enhancement of DEEE* experienced similar problems. The originally planned activities had to be replaced due to the lack of data for the computer modelling and use alternative approach for modelling. The assumption that the energy portal, will be developed by UNDP project did not work. Following the time-consuming administrative procedure, a new portal based on more advanced IT infrastructure was developed. The beneficiaries provided all the necessary support for the projects and assisted with the data collection and communication with other involved institutions. The daily communication among experts and beneficiaries due to the contractor's office at the ministry was perceived as very beneficial; coordination and interaction between experts and ministerial staff was much easier. *Tariff regulation of EMRA* had to cancel two study trips and replace them by trainings while other activities could be implemented without any changes.

Overall, none of these issues proved to cause serious difficulties and eventually the delays were compensated through extensions approved due to the pandemic. Rescheduling of the activities generated some of the outputs later than planned but all the expected ones were delivered. The main weakness of the interventions concerning the effectiveness is unambiguous indicator-based justification of the outcomes as well as absent outcome of the numerous prepared RE and EE projects. The full achievement of the outcomes thus limits the possible future impact (JC 7.2).

4.6 Monitoring

The monitoring system worked well, but some of the tools could be improved. IPA unit was established at the Directorate General of Foreign Relations of the MENR and is responsible for the monitoring of IPA interventions at the project level. Besides monitoring it is involved in planning, takes part at the implementation of individual contracts following the progress practically on daily basis and provides regular reporting. IPA units reports to its Director General about the progress of all projects on a weekly basis. This reporting includes all IPA projects contracted by CFCU or any other projects funded from other sources (e.g., World Bank). The official reporting is provided internally to the MENR as well as to the IPA structures.

The main monitoring instrument is the Progress and Monitoring report. These reports are prepared by the beneficiaries (in case of the *Equipment for Municipalities*, it was Project Support Department of the MENR) and submitted quarterly to the Ministry of Treasury and Finance in prescribed format. They consist of very brief information, and obviously have some compliance control function for the NAO, though not the monitoring role. The reports provide some basic contract data and state percentage of completed tasks. The calculation of progress is supervised by IPA unit and is determined in cooperation with the beneficiaries at the beginning of the project. Individual outputs are given certain percentage and the sum is calculated according to the individual delivered outputs. Monitoring in general, pays attention to the process of delivery of outputs – their quality and timely submission. The risk assessment is also the responsibility of the IPA unit and is carried out internally on a weekly basis. However, none of the monitoring tools includes/requires any information on indicators, neither financial nor physical. The output indicators set out in the AD are not monitored in the Progress and Monitoring report. This obviously limits its utility for assessing performance towards planned financial or project/programme targets and therefore the IPA unit developed its own way/tool to follow the progress. The monitoring function was reduced to the control where the main emphasis is given to the outputs determined as deliverables in the ToR for individual projects and are checked by the CFCU.

Although the indicators do not appear in the Progress and Monitoring Report, the IPA unit provides twice a year to NIPAC information on all output and outcome indicators stated in the AD. These are presented to the Sectoral Monitoring Committee and IPA Annual report for the Commission Services includes official reporting of the indicators. Results Oriented Monitoring (ROM) is assisting the monitoring role of NIPAC, which deals with the monitoring at the level of sector.

The main instruments for the monitoring are regular Steering Committee meetings, usually taking place quarterly in the presence of the Lead Institution - MENR, main beneficiaries, NIPAC, CFCU and EUD. When considered appropriate, the monthly or bi-weekly monitoring meetings are taking place mainly in the presence of the beneficiary and the contractor, if necessary, it is assisted by the Lead Institution. The *Enhancement of DEEE* organised monthly management meetings for closer monitoring of the project's progress. The supply projects did not have any formal meetings and or reporting obligations. The Steering Committee meetings fulfilled its monitoring role and worked as a forum to discuss the main problems and seek for solutions. On some occasions it proved to be too big to deal with very technical details but working meetings with higher frequency and less participants enabled informal technical discussions to resolve the issues. This was also found useful and saved time for the commenting of reports.

The reporting obligations of the TA contractors, excluding the output reports, comprised either quarterly interim reports or final report. The internal communication was based on monthly meetings and/or bi-weekly meetings mainly in the last year of the projects. The provision of information on individual contracts was time consuming and electronic data, such as emails of trainees, have been available only from the contractor who was still implementing the projects. In case of completed projects, some of the handwritten trainees lists with the email addresses existed. The monitoring system of the IPA unit does not keep all necessary relevant contract documents including all technical reports, interim reports, training reports, promotion material, links to the relevant web pages and financial information. Although this information is stored at the CFCU in electronic form, the library is not accessible for the IPA unit. The access to the central library collecting all relevant project documents could be helpful for the overall regular reporting and could increase accountability and transparency of IPA funding.

Q8. How efficient and effective are the institutional arrangements/mechanisms, which ensure coordination among the various components and stakeholders of the Activity/Theme?

The coordination mechanism within the IPA management structure has worked without any substantial problems. The overall coordination of IPA assistance is carried out by the Directorate for EU Affairs at the Ministry of Foreign Affairs. This National IPA Coordinator (NIPAC) is the main body responsible for the overall coordination of the programming process, monitoring, evaluation and reporting of the implementation. It oversees the programming and ensures coherence of planning and programming financial assistance by organising coordination with beneficiary's administrations. The National Authorising Officer (NAO) is part of the Treasury and has the responsibility for the financial management of IPA funds in Turkey. The Central Finance and Contracts Unit (CFCU), which is administratively linked to the Treasury assumes the responsibility for the tendering, contracting and payments.

The IPA unit at the MENR holds the coordination role of EU funded interventions within the ministry's portfolio. The IPA unit is part of the General Directorate of Foreign Relations at the MENR. It is deeply involved in the planning, implementation, and monitoring activities. It coordinates all EU funded activities across the ministry including the IPA interventions (currently only the interventions, which are evaluated are running) as well as assistance provided from other sources, mostly international and/or bi-(multi)lateral institutions. The General Directorate for Energy Affairs of the MENR is the end beneficiary for *YEVEDS* project, as the renewable energy is in its portfolio. DEEE was established specifically to deal with the EE while EMRA as an independent authority was the end beneficiary for the tariffs project. The communication between contractors and the beneficiaries has been well-structured and in the progress of the project became less formal over time resulting in many ad-hoc meetings. All decisions agreed during these meetings required additional effort for coordination, which needs to be considered in the capacity building interventions of the highly technical project in the future. The IPA unit performed very well and was closely following all the interventions and assisting with the implementation, mainly in initial stages until the beneficiaries got more familiar with their management tasks. Well-developed internal reporting system regularly monitored all external interventions within the MENR and ensured that these were mutually complementary and contributed to the overall national policy objectives.

The frequent turnover of the CFCU contract managers meant that some projects witnessed 3 or 4 personnel changes during their implementation. This caused some interruptions mostly due to the loss of the institutional memory. Besides small delays concerning the operational and administrative issues no other management issues were noted. EU Delegation has a key role in the planning process and follows the progress together with other stakeholders. The Steering Committee meetings are the main coordination tool and provide the update of the projects' progress. The TA projects *Enhancement of DEEE* and *Tariff regulation of EMRA*, which were of very technical nature, organised monthly meetings. Continuous discussions between experts and beneficiary staff proved to be very helpful and helped to shorten commenting process. On many occasions informal meetings of some stakeholders have been organised and/or in case of need other relevant stakeholders were invited to participate at the regular meetings. No difficulties in terms of communication were observed. As reported by the stakeholders the day-to-day management and cooperation was good for all projects (JC 8.1).

Q9. Which long-term changes have the Activity/Theme contributed to regarding the sector in question?

The IPA activities are very likely to contribute to the improved capacity in those institutions dealing with EE and RE. This improvement would be even greater if the projects for municipalities and universities would be implemented. It is expected that in the long-term the interventions within this evaluation will contribute to the improved capacity in energy efficiency and renewable energy in line with the EU's resource efficiency and climate action targets and there will be also a contribution to the improved Turkey's interconnectivity and integration with European electricity and gas markets. The enhanced capacities at the municipalities and universities needs to be fully applied/utilised directly in the assisted facilities to ensure that the gained know-how can bring the long-term effect. So far, this likelihood is very limited unless the bulk of 160 projects is successfully implemented. The higher contribution is expected from DEEE, which is currently capable to carry out EE projections and implement EE strategies aligned with the EU Energy Directive. Equally, the capacities of EMRA to improve the tariff calculation mechanism are being used, which will most likely further improve already integrated EU and Turkish energy markets. Although there is no assumption mentioned in the AD, the adopted strategies concerning energy sector suggest, that the further development in this area is heavily depending on the access to the funds, which will depend on the economic development in the country.

Turkey is already the fifth country highest level of new renewable capacity additions in Europe and the 15th highest in the world. The average rate of increase in renewables was 11% in the past ten years and the country plans to add 1 GW of both wind and solar every year in the next decade. According to the MENR, the country has prepared ambitious energy efficiency programme including sector of energy, industry, agriculture, transportation, and buildings and intends to invest almost USD 11 billion in the segment. This should decrease primary energy consumption by 14% and cut annual carbon dioxide emissions by 66 million tons. There is no doubt that the IPA interventions have contributed to these achievements to some extent. However, the contribution in terms of RE or EE measures cannot be estimated and quantified as there are numerous measures funded from various sources contributing to these achievements. Other contributions at the strategic level and towards market integration are likely to be visible in a few months and/or years as the recommended measures will be gradually introduced.

In 2015 when the IPA II assistance was planned, the EU annual progress report for 2015 report mentioned “good progress in the field of renewable energy” and referred to the new National Renewable Energy Action Plan. At the same time, it mentioned “no progress on energy efficiency” and the need to strengthen the capacity of the Directorate General for Renewable Energy. In addition, it stated that “the energy efficiency law and related legislation were not aligned with the Energy Efficiency Directive”. The report also mentioned “some progress in the natural gas sector”. It stated reduced threshold for eligible consumers to choose their supplier, continued “gas distribution and extension of the network to 70 of Turkey’s 81 provinces”, but no revision of the natural gas market law and no development on a new gas strategy.

The latest Commission working document Turkey 2021 Report, assessing the progress towards accession criteria reiterates good progress in “maximising the use of domestic and renewable energy sources”. In 2021 the share of the country’s “RE in the electricity generation reached 44%, mostly from hydropower; and the ratio of RE installations in the total installed power generation capacity increased to 51%. The RE capacity was driven mainly by private investments benefitting from a preferential USD-based feed-in-tariff”. However, according to the EC’s 2021 Country Report the “new financial support scheme applies the local content requirement practices, which contradicts WTO and EU-Turkey Customs Union rules and affects competitiveness on the Turkish energy market”⁵. On the EE, the implementation of adopted legislation on energy efficiency and the NEEAP has also progressed, but concerns were raised on sustainability of the plan. “The national EE financing mechanism, which was recommended in the previous reports, was not in place”. Furthermore, there have been no officially announced benchmarks for the energy chapter. The EU report also recommends deepening of the natural gas market reform by setting up a legally binding plan and a timetable for the unbundling of activities and establishing transparent, cost-reflective, and non-discriminatory pricing in the gas sector.

In relation to the recommended EE financial mechanism the MENR reported that a Working Group on Developing Proposal of National EE Financing Mechanism has been established by the NEEAP Monitoring and Steering Board. Under this group the studies are ongoing to develop a road map for establishing new national EE financing mechanism in 2021. As announced by the MENR, there should be a new regulation on energy efficiency financing mechanisms that will be passed this year (JC 9.1).

The IPA II interventions contributed to the increased capacities and promotion efforts of the Turkish government in RE and EE. The YEVEDS prepared 160 RE and EE projects, it also provided engineering support for 20 additional RE and EE projects and assisted 12 R&D projects in this area. Overall, the TAs support delivered training on various energy subjects to more than 1.600 participants and organised 15 study trips abroad with the participation of 107 Turkish staff members of the MENR, EMRA, other ministries and agencies, municipalities, and universities. The IPA assistance has also improved implementation of EE strategies and energy markets predictability and transparency in pricing. The IPA contribution in the energy sector is highly appreciated and the promotion element of the assistance was highlighted in several survey’s responses. The scope of the assistance was distributed across the country and many of the produced materials can be currently used as the promotion material.

⁵ https://www.ab.gov.tr/46224_en.html

Provided that some of the produced outputs are made publicly available on the web pages of the beneficiary institutions, their promotion potential could be increased (JC 9.2).

The first efforts to integrate the Turkish Electricity Market into the EU's Internal Electricity Market had been supported within the IPA I interventions. Further assistance provided important incentives and elements to the energy market integration. Turkey has already made significant progress on liberalising energy markets in the last decade, successfully improving predictability and transparency in pricing. The Turkish electricity market is now a part of the internal electricity market of the EU. The commercial exchange between European Network of Transmission System Operators for Electricity and Turkey is currently ongoing. Nevertheless, reforms to make gas and electricity markets more competitive will have to continue and should help to mobilise the investments needed by these sectors, including clean energy technologies (JC 9.3).

Q10. How likely the effects are to last after the intervention ends?

For the time being, only the achieved part of the IPA II interventions' benefits of is sustainable. The technical and human capacities are utilised and have the potential to apply the gained know-how and further benefit from the projects. The sustainability of investment sources is undoubtedly ensured as the newly built infrastructure is fully operational in the municipalities and brings savings. However, the figures for indicators, which were monitored and reported do not provide meaningful data. The savings often represent only small proportion (2%) of the overall municipality energy consumption but in most cases, there are other projects waiting in the pipeline and seeking for the funds to reduce the energy consumption and increase the use of RE resources. The overall effect is likely to be more significant provided that not only six (five solar power plants and one hydropower plant), but all prepared projects (160) are implemented. The support provided by the TA projects strengthened the capacities at both, local and national level and these are likely to continue to apply the gained knowledge. The local level is most likely limited by the support of the interest and commitment of the municipal management and financial possibilities; the central level has been driven by the official policies and the current trend most probably persists to follow more ambitious objectives (JC 10.1).

The capacities built at the municipalities and universities via trainings are largely sustained. The survey conducted with the YEVEDS project trainees confirmed that 94% of them are still working in their previous positions; 70% of respondents confirmed that they use the gained knowledge and 35% of respondents believe they would be able to prepare the project application based on the knowledge gained during the training and/or 45% would be able to manage this task partly (see Annex 5). Some of the trainees used the opportunity and after the training continued with certified education courses. The training of trainers ensured sustainable effect, as well. The trained trainers comprised academic staff (36%), consultants (27%) and others (project staff, etc.). Nearly all of the trainers delivered the training for the municipalities and universities staff (95%) within the YEVEDS project. The same proportion of the trainers provided additional consultancy services, as well, and continued with the training activities after the project (82%). Over 77% of the trainers will be able continue with similar assignment and the rest will probably use the acquired knowledge, so the sustainability prospects are high. As confirmed by the survey, the same applies for the knowledge related to the RE/EE projects preparation including specification, budgeting, bankability, etc. The future use of such expertise may be also determined by the further development of Energy Service Companies (ESCOs), which could

serve the role of project development and revolving funds for the RE and EE, and currently are in the process of creation.

The capacities at the MENR/DEEE and other ministries are likely to be further developed and fully utilised. The survey of trainees within the *Enhancement of DEEE* confirmed that trained staff is working in their position (93%), more than 53% of them were able to utilise the knowledge gained from the training at work and as the most positive issue of the training several respondents mentioned the awareness raising on the EE. The energy planning, modelling, calculation of savings, reporting, etc. is already quicker and reduced from months to several weeks. The benchmarking is well developed, e.g., in the cement sector all sectoral members were part of the activities and are familiar with the global best practices. Starting from cement, the templates for 7 additional sectors are being developed and handbooks were prepared for 5 sectors. The current experience will be used for planning of IPA III. The EE has been less popular and interesting than RE because it is about savings and reduces the comfort of people. It has a huge potential to be financed but is not easy to sell. Under the auspices of the Deputy Minister at the MENR a working group was set up to address the lack of financial instruments for the EE measures. There is a core team, which should be further strengthened, especially in forecasting. The current staff of DEEE benefiting from the project will take over the role of trainers for the newcomers to sustain the project benefits.

The EMRA staff also benefited from the gained know-how, however, the survey quality suffered as very small sample was available – due to various technical issues, only 6 responses were obtained from participants of the *Tariff regulation of EMRA* training programmes. Therefore, the survey details can be found in the Annex 5, but the analysis is not incorporated to the findings as such a small number of responses cannot be meaningful. Turkey's energy market system is based on the UK model, which was the first to liberalise and this market is considered truly liberal. This model adapted in Turkey is doing quite well. The energy strategy document was introduced almost 20 years ago, and the last 10 years the capacity of energy sector increased with the private sector investments. The integration of the energy sector has been completed with the alignment of technical and operational standards. The gas sector is not that advanced, yet. EMRA has implemented seven incentives in 2021, which were influenced by the IPA-supported study trips. The tariffs are set for a five-year period thus the next changes might be expected in 2026. The legal framework does not enable the subsidisation of the social tariff; therefore, another mechanism was chosen in cooperation with the Ministry of Family. Vulnerable customers under the social security mechanisms were thus included. The energy market was ready for the changes because its transition was recently completed, and the new tariff period was starting. This process will further continue and the tariffs for the consumer are slowly being transformed and getting closer to the EU model (JC 10.2, 10.3).

Q11. What are the main risks to sustainability, identified at the Activity/Theme implementation stage/materialised beyond Activity/Theme implementation?

The alignment of the IPA II interventions with the national energy policies minimises the risk to lose the benefits delivered by the projects. There are no risks expected as regards the sustainability of the installed power plants. The minimal maintenance funded by the municipalities or municipal companies is amply compensated by savings they bring, together with the newly installed water pumps, are the benefits with a long duration. The strong support of the national energy policies encourages this type of RE and EE interventions and use of the existing potential. The country has significant renewable

energy resources, which are only partially utilised, which is another external factor supporting sustainability of the achieved outcomes and further application of similar projects. The country uses only an estimated 3% of its solar and 15% of its onshore wind potential (IEA, 2021). These resources are backed up with a large manufacturing and engineering base meaning that much of the installed renewable energy equipment can be locally produced. The national priorities are thus the main supporting factor to sustain the IPA II benefits related to the direct contribution of the RE and EE applications in the assisted municipalities. This is emphasised by the EU and worldwide policy priorities and the expected economic, environmental, and social benefits of these measures.

The policy factor equally supports the sustainability of other projects' benefits. The knowledge gained by staff from universities and municipalities through the training, study visits and consultancies have the potential to be fully utilised for any future projects. The interviews, field visits and focus groups indicated that these are either considered or being prepared. The introduced tools for the EE policy making, monitoring, and reporting at the MENR and new performance-based tariff calculation mechanism at EMRA are also the benefits supported by the policy priorities. The integration of EU and Turkish energy markets is not only a matter of common strategic or economic interest, but as an integral part of the energy transition and decarbonisation to combat climate change (JC 11.1).

The intervention logic mentioned as one of the assumptions continued commitment of Turkey to EU accession, however, this assumption could be influenced by the new development. So far, the commitment has remained however, the Energy chapter is pending for approval at the Council of the European Union for seven years. The current progress in this area and existing legal framework together with Turkey's international commitments (Paris agreement, Net zero, ...) indicate that the legal approximation has continued despite interrupted accession process, and it has not influenced sustainability of the achieved benefits. Nevertheless, there is some risk how the situation evolves but regardless of this development it is unlikely to threaten sustainability. The official policies declare that Turkey is determined to utilise all the opportunities to increase the share of domestic and renewable energy resources in energy supply, to enhance EE in energy generation and consumption process, and to provide a transition into clean production technologies by improving R&D.

As regards the factors that could potentially hamper the sustainability of IPA interventions, there are two basic issues, which are crucial to sustain the achieved benefits. The first factor is the ability of the institutions to keep the trained staff. For the time being, the turn-over of the staff at the supported institutions does not indicate to affect the sustainability, but the high turnover of the staff could threaten the sustainability due to the loss of the trained people. The MENR was well equipped for the energy forecasting and had sufficiently qualified staff at the ministry following the development of the international energy sector. However, if there are a few people who will retire soon, this might lead to a loss of expertise at the ministry. Therefore, the trained human capacities will be crucial to sustain the gained knowledge. The second factor, which could negatively influence the sustainability is the accessibility of data for the monitoring, modelling and/or calculation of tariffs, etc. Data accessibility is the matter of the cooperation with the ministries/agencies or other institutions, which are collecting these data and should be able to provide them, often on regular basis.

Provided that the prepared EE and RE projects (160) find the investment and are implemented, these are also very likely to operate without problems. However, how these projects are likely to be implemented without obvious funding is unclear. The prospect for the municipal projects is higher

because of the possibility to cooperate with Iller Bank. The university projects will have to seek for other sources and this area remains unclear. Sustainability for all these projects therefore has to be considered at risk. The RE projects have better prospects as there has been also national support scheme funding these projects. The EE measures have not had any supporting financial mechanism at the national level, so far. A working group dealing with the EE Fund is planned by MENR. The overall investment for all of the prepared projects, the potential savings as the payback period were calculated and show high effectiveness of the EE project (see Table 3) (JC 11.2).

Table 3 Calculated costs and savings of the projects

	RE projects	EE projects
Total investment (EUR)	86,541,086	16,952,850
Energy costs savings (EUR/year)	12,320,225	9,289,398
Payback period/average (year)	7.03	1.8

Source: YEVDES final report

Q12. What is the added value of the Activity/Theme, compared to what could be achieved without the EU support?

It can be expected that in the absence of EU sources the MENR would implement some activities, but the EU experience might be either missing or would be provided to a lesser extent, and the progress would be slower. For example, the training activities and preparation of RE and EE projects would not have been provided in such a large scale. The EU experts could have been hired but the added value - learning from EU experience, might not have been delivered to the same extent. The IPA provisions enabled comparison of the tools, systems, mechanisms, and processes in the energy sectors of several EU countries and the most suitable solutions for Turkey were selected and developed. To support the RE and EE, Turkey has introduced several initiatives. Some of the measures are supported from the national sources while others are implemented in cooperation with other international organisations. The investment sources have been provided by EBRD, World Bank and other financial institutions and this support is often in cooperation with and complemented by the IPA sources (JC 12.1).

The trust and visibility of the EU support is in case of IPA II assistance ensured mainly due to the large-scale training activities (overall some 1.600 trainees) but also wide scope of the of the beneficiaries and final beneficiaries all over the country. The participants of the activities were the representatives of the ministries, other state administration bodies (EMRA, Turkish Electricity Transmission Company - TEIAS, Petroleum Pipeline Company - BOTAS, etc.), municipalities, universities, institutes, research centres, vocational schools of higher education, technical high schools, as well as technological development zone administrations, research, and development departments of state-owned enterprises. The promotion of the interventions as part of IPA II support has been part of all activities and special introductory and final events were organised by each TA contract. EU sources have been providing assistance through IPA since the start of the energy sector’s reform and have helped with the legal and regulatory issues (JC 12.2).

The contribution of IPA II interventions to the management of Turkish energy sector is important, namely in relation to NEEAP and coordination of EE. As regards the integration of the energy sector it

is considered completed. IPA proved to be a very good tool for bringing expertise to Turkey. As the aim of the IPA assistance has been to integrate the EU and Turkish energy markets it would not work so well without EU support. The participants confirmed that their involvement in the projects broadened their knowledge and skills. Although the implementation of EU projects is time consuming and administratively demanding, they found it to be very beneficial due to the know how it delivers. This largely contributes to the better management of Turkish energy sector (JC 12.3).

Another dimension of the added value of EU funding is that it helped to maintain Turkey's convergence with EU market rules and sectoral development. It provided up-to-date knowledge on the latest regulations and technologies, valuable know-how, enabled to gain practical experience during the workshops and study visits, provided opportunities to see best practices in Turkey and abroad (nearly-zero buildings or green campuses), and brought acceleration to the sector. The multi-cultural environment and improved language skills are considered additional valuable benefits. The EU projects are perceived as a prestige issue for the beneficiaries (JC 12.4).

5 OVERALL ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

1. The content and focus of the IPA activities, which were included in this evaluation, corresponded with the problems and needs identified at the programming stage. Although there was a huge time lag between the period when the initial problems and needs were identified, and the actual implementation, the development in the meantime reconfirmed the justification of the interventions. The relevance of the interventions was emphasised by the accompanying legal and policy measures introduced in Turkey and support/incentives provided for these measures from the national sources. (EQ1)

2. The energy sector in Turkey has been given special attention in last 20 years, which is confirmed by newly created legal framework, numerous strategic documents and introduced support schemes. These efforts have been compliant with the EU initiatives and followed the accession negotiations. Recent developments concerning climate change has reinforced the importance of measures promoting utilisation of renewable energy resources and energy efficiency. Numerous initiatives of international financing institutions now support Turkey and provide funding for the implementation of these measures. (EQ2)

3. The planned outputs have been delivered as planned and based on the beneficiaries' feedback the outcomes were achieved. However, properly identified indicators are missing to confirm the extent of these achievements. The supply contracts assisted the construction of five solar power plants and hydro-power plant, which undoubtedly resulted in the energy savings and use of RE. The TA projects have also delivered expected outcomes, which were reflected in better performance of the assisted institutions. However, due to the lack of the unified approach/methodology how to measure these indicators (and in some cases, a lack of appropriate outcome indicators) the evaluation cannot provide a clear confirmation of the extent of how well the targets were met. This also complicates their regular monitoring and reporting (see below). Although the intervention logic, as regards the logic chain (objectives) of the projects under this evaluation, was well developed, the determined indicators lacked the basic features of "smart" indicators. The ongoing training provided from the TA should be addressing these topics, but there is still obvious need to gain deeper knowledge and develop the programme management skills further. (EQ3)

4. The effectiveness of all energy IPA interventions within this evaluation was strongly supported by the local policy priorities. RE and EE have been the subject of intense interest and strong support of the Turkish government. Moreover, all the measures have been fully aligned with the EU priorities and appreciated by the beneficiaries. Both have positively influenced the effectiveness of IPA support. The factor, which is likely to hamper the full eventual achievement of results is the absence of clearly identified financial sources to enable the implementation of the prepared RE and EE projects. (EQ4)

5. The competitive tendering managed by the CFCU in compliance with the IPA rules ensured the costs proportionate to the achieved benefits. Paradoxically, cost-efficiency was improved due to covid-19 restrictions, which changed many face-to-face to online events or led to cancellation/replacement of

the originally planned activities. None of this substantially reduced overall effectiveness of the IPA assistance. (EQ5)

6. Most of the resources were well utilised and delivered the expected results. In case of *YEVDES* intervention, better results could have been achieved with a different approach for the delivery of the trainings while results are missing for important part of the activities dealing with the preparatory work of the RE and EE projects. It remains unclear how many of the projects will be implemented and where they should seek for funding sources. (EQ1, EQ6)

7. The monitoring arrangements for the assistance covered by this evaluation could not fully assist a proper assessment of IPA performance. Although the main institutions are engaged in monitoring and reporting, the tools used by them for these purposes are in need of improvement, The reporting tools used by the relevant institutions The Progress and Monitoring Report lacks basic monitoring information such as performance data linked to financial, process and output indicators that would provide an objective overview of progress towards the objectives during the implementation as well as information about their quality and timely delivery. The assessment of progress rate towards planned outcomes in the Progress and Monitoring Report has been internally developed by the MENR staff, but the use of well determined indicators should be sufficient to monitor the progress. The monitoring forums deployed have proved to be useful in as much as they allow contract level discussions on contracting and implementation. However, these have not functioned as a forum to track performance at action/thematic level i.e., how the contracts in combination deliver their planned results. Equally, the monitoring system at the sector level has showed the ability of stakeholders to oversee performance and achievement of outputs and outcomes. (EQ7)

8. The provision of information and project documents for the evaluations has been cumbersome. The ownership of the documents is fragmented, and relevant data and information have been collected from numerous stakeholders. All of the documents are archived by the CFCU but access to is limited, which complicates monitoring and evaluation functions at both project and sector level. Besides that, not having all the reports and information in the electronic form it would be huge burden for the CFCU to provide requested documents for numerous stakeholders. Making access to this information through the e-library for relevant stakeholders to relevant documents would facilitate better implementation and supervision of IPA performance and ultimately improve EU visibility among wider stakeholders. (EQ7)

9. While the planning process in terms of relevance did not encounter any difficulties, the programming exercise could be improved. The intervention logic demonstrates causal link at the level of objectives but as noted in conclusion 3, the quality of indicators could be improved, especially their baseline and target values. (EQ7)

10. The protracted inception phases of all the TA interventions, whilst initially hampering efficiency, were ultimately necessary. They stemmed in some cases from the limited experience of some of the institutional beneficiaries and also the need to reconfirm the intervention designs as relevant to prevailing needed. Once these issues were addressed, efficiency improved, and implementation moved forward well. The presence of the contractors within the beneficiary institution, daily communication and very close contacts proved to be inevitable for success of the project. (EQ7, EQ8)

11. The IPA interventions under this evaluation are expected to contribute to the improvement of the RE and EE capacities in the long-term. The current development trend of the RE and EE in Turkey is very promising, and the results of IPA support should positively support this. The Turkish energy market is largely integrated with the European electricity and gas markets. It is mutually beneficial and therefore the achieved benefits of the IPA interventions are very likely to be sustained. (EQ9, EQ10)

12. Another strong factor supporting sustainability of the project benefits is the full compliance of the interventions with the national and EU/international policy priorities. Less positively, the sustainability of the capacity building results is not so certain due to the risk of staff turnover in the beneficiary institutions. To this end, some mechanism (such as training of trainers) is probably needed to counteract this negative phenomenon. Also, continuous data collection is critical for the sustainability of the analytical and modelling outputs. (EQ11)

13. The absence of the missing financial mechanism for the 160 prepared RE and EE projects for the municipalities and universities is hampering the scope of the possible impact achievement. The supporting schemes or mechanisms need to be identified to ensure the earliest possible implementation of the projects. The time gap till some funds for co-financing or loans are provided cannot be too long as the projects' technical solutions could be outdated and would not comply with the latest conditions for the support. (EQ11)

14. IPA II assistance has provided undoubted added value as the large-scale TA assistance is unlikely to be funded from other sources, especially if it provides very technical support focused on the practise of the EU countries. Moreover, the assistance has been aimed to integration of EU and Turkish energy markets and it helps the country to align its future strategies on decarbonisation with the EU. (EQ12)

5.2 Lessons learned

There were a few issues identified, which can be considered lessons learned. First of all, the compliance of the policy priorities at the national and EU level has had a strong synergetic effect and ensures the ownership of the projects and commitment of the participating stakeholders. This in turn makes the implementation process easier.

Two of the TA projects were not typical EU legal approximation projects but were more technical, dealing with rather specific details engaging highly specialised experts on both sides. The extended inception periods suggest that such projects may need more time to set up the team composition, get familiar with the country specific arrangements, clarify the expectations, divide roles, have a mutual understanding, and manage the cultural challenges. Once this is settled, the progress is smooth. The inception phase for this type of projects needs to be extended to ensure good base for the project implementation.

The more technical nature of the projects is most probably also the reason for another arrangement concerning the office location of the TA experts. The office of the TA team in the premises of the MENR proved to be enabling factor for the coordination and communication. The technical details required numerous discussions and practically daily communication, which worked the best with the same location of the offices.

As regards the training programmes, experience shows that large scale education of this type (800 trainees) cannot fully meet the expectations of individual trainees. If needed, general introductory training can be provided, and further follow-up modules should be more focused and correspond to the level of knowledge and interest of the trainees.

5.3 Recommendations

Based on the above conclusions following recommendations are suggested:

To make certain that the IPA objectives are fully met, the MENR should ensure a follow-up activity of the YEVDES project and actively to seek for and secure funding for the 160 prepared RE and EE projects for municipalities and universities. It should consider all possible options (soft loans with the banks, involvement of ESCOs, project funded by an international financial institution, national support scheme, etc.) and assist with the identification of the most appropriate option for each project to ensure that the projects are implemented. European Fund for Sustainable Development (EFSD)+ 2021 – 2027 guarantee tool is one of the sources, which might be considered. The provisioning of the EFSD+ and budgetary guarantees is included in the geographic envelopes of the Neighbourhood, Development and International Cooperation Instrument, which amount to 68,000 billion euros. Thematic windows of this tool cover also renewable energies.

Design of training programmes should be better tailored to the capacities of the participants, avoiding large events. To achieve better results of the training activities it would be more reasonable to provide short general introductory training and following the testing of participants (which was actually conducted) and checking their interest in particular topics, more balanced groups of participants could be created in terms of knowledge and interest. The repeated general training for several groups of participants is better to manage but short general introduction and specific modules based on the trainees' knowledge and needs/interests would have been more effective. Based on the feedback, the shorter duration of the training should be also considered. To keep the concentration during whole day long online training is difficult, in particular, for seven days. The shorter, a few hours online training (once a week) with better focus on the preferred topics (modules) should be more beneficial although this would require more demanding management.

As the inception periods of the TA contracts took much longer than originally expected but ultimately it served the purpose and the implementation continued smoothly. Therefore, where applicable, it should be considered to enable longer time for this period. More time in the initial phase should thus ensure more thorough preparation of the implementation period.

All staff members from the energy sector involved in the implementation of IPA funded activities should undergo project cycle management training. The training should pay special attention to the intervention logic/theory of change and proper definition of coherent objectives with the correctly determined outputs, outcomes and impacts and reasonable corresponding indicators. Due to the natural staff turnover, such a training could be planned regularly therefore the NIPAC office can consider building internal capacities for this purpose. For example, a couple of people trained as trainers who would be able to deliver such a training on regular basis for the newcomers.

It is also recommended to clarify the roles and responsibilities of main stakeholders involved in the process of monitoring and to prepare a simple guideline/procedure explaining all the tasks, reporting

obligations and communication flows. DG NEAR Guidelines on linking planning, programming, monitoring and evaluation can serve as the reference material. To make sure that the progress and monitoring report can be used as a functional monitoring tool within the functional monitoring system it is recommended to revise the template of the monitoring report, which serves as the basic information for the monitoring forum. The revised form should include all the necessary information concerning date of the contract signature, allocation, commitment, disbursement, information on the progress in activities, delivered outputs, indicators including baseline and target values and any other relevant information, which can be subject of discussion at the Steering Committee meeting. The monitoring system should be applied to all contracts (including supplies) so that the Steering Committee meetings are taking place at the level of activities and cover all relevant contracts.

The quality of monitoring system depends a lot on the quality of the data and information. Therefore, it is crucial for all relevant stakeholders, namely IPA unit performing the monitoring function at the project level, to have full access to the relevant documents, which are currently all in electronic form. As this is already existing with the CFCU, there is no need to store this information separately in two places. It is recommended to enable access to all data and information relevant for monitoring and evaluation for the staff assigned with these tasks and responsibilities. These data are necessary for the obligatory reporting to various bodies as well as evaluation function, which might be internal or external. This means to have full access to all monitoring information as well as every output produced by the contractor such as individual reports, promotion material, training material, lists of trainees with the contact (email, phone number) and any other relevant information.

No.	Recommendation	Addressee	Timeline for implementation	Relevant	
				EQ	conclusion
1	Identify all possible funding options for the implementation of the prepared RE and EE projects for municipalities and universities, including EFSD+	MENR	ongoing	4, 6	4, 6
2	Provide more tailor-made trainings to better reflect trainees' needs and level of knowledge	MENR	ongoing	1, 6	6
3	Ensure longer inception period for the TA contracts of the technical nature	MENR	ongoing	7, 8	10
4	Train all relevant staff within the energy sector dealing with the IPA programming, implementation, monitoring and evaluation in the Project Management Cycle (including intervention logic, indicators); these should build on any ongoing TA support currently being delivered	NIPAC	asap and ongoing	1, 3	3
5	Revise the template of the monitoring report, prepare clear guidelines assigning clearly the roles and responsibilities of relevant monitoring bodies and ensure monitoring covers all relevant actions/contracts	NIPAC	asap	7	7

6	Ensure the access to the project data and documents for the relevant stakeholders	CFCU, NIPAC	asap and ongoing	5, 7	8
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