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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 11-Apr-2024 | Report No: PIDA0246

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BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Region	Operation ID	Operation Name
Moldova, Turkiye	EUROPE AND CENTRAL ASIA	P500777	Türkiye Second Energy Efficiency in Public Buildings
Financing Instrument	**Estimated Appraisal Date**	**Estimated Approval Date**	**Practice Area (Lead)**
Investment Project Financing (IPF)	11-Apr-2024	06-Jun-2024	Energy & Extractives
Borrower(s)	**Implementing Agency**		
Republic of Turkiye	Ministry of Environment, Urbanization and Climate Change		

Proposed Development Objective(s)

The Project Development Objectives are to enhance energy efficiency in existing central government buildings and strengthen the energy efficiency requirements for new and renovated public buildings

Components

Energy efficiency investments in central government buildings
Technical assistance and Project implementation support

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**300.00**
Total Financing	**300.00**
of which IBRD/IDA	**300.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	300.00

Environmental And Social Risk Classification

Moderate

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Türkiye's development achievements over the past two decades have been remarkable, but at the expense of elevated macro-financial vulnerabilities**. Real gross domestic product (GDP) growth averaged 5.4 percent between 2002 and 2022 resulting in income per capita (in real terms) more than doubling over the same period. Moreover, growth was accompanied by rapid poverty reduction with the poverty rate ($6.85 2017 PPP poverty line) halving from above 20 percent in 2007 to around 10 percent in 2020. As in other countries, the COVID-19 pandemic had a negative impact on growth in 2020, but the country was one of the few that did not register a GDP contraction that year, instead growing 1.9 percent. This performance was due to a large extent to the government's economic policy response to the pandemic focusing on loosening monetary policy and rapid credit expansion. Moreover, supported by domestic and external demand, Türkiye achieved double-digit GDP growth in 2021 (11.4 percent) and maintained significant momentum in 2022 (5.5 percent). However, the policy framework that ensured a strong economic performance during and in the aftermath of the pandemic compounded by the effects of Russia's invasion of Ukraine also heightened macroeconomic risks, including rising inflation (with annual inflation reaching 65.8 percent in March 2024 after having peaked at 85.5 percent in October 2022), currency depreciation (77 percent against the US$ between January 2020 and January 2024), corporate and banking sector vulnerabilities, and a decline in reserve buffers. Following the May 2023 elections there have been positive steps aimed at the normalization of Türkiye's macroeconomic situation.

2. **The February 2023 earthquakes have resulted in the largest such disaster to hit the country in over 80 years and have inflicted the heaviest damage in 11 provinces in southern Türkiye.** These regions have some of the highest poverty rates in Türkiye and also host more than 1.7 million Syrian refugees, which is almost 50 percent of the total Syrian refugee population in Türkiye. The earthquakes caused an estimated $34.2 billion in direct physical damages, the equivalent of 4 percent of the country's 2021 GDP. Direct damages to residential buildings account for 53 percent (US$18 billion) of the

total damage, with 28 percent of damage (US$9.7 billion) in non-residential buildings (e.g., health facilities, schools, government buildings, and private sector buildings), and 19 percent of damage (US$6.4 billion) related to infrastructure (e.g., roads, power, water supply).

3. **Türkiye is highly vulnerable to climate change and committed to addressing the climate emergency, as shown by Türkiye's ratification of the Paris Agreement in October 2021 and its pledge to achieve net zero emissions by 2053.** Türkiye has a "high vulnerability" in 9 out of 10 climate vulnerability dimensions, compared with a median of 2 out of 10 in other OECD countries.[1] Climate-related disasters have been striking with greater frequency and intensity over the last two decades. In 2019 alone, 935 extreme events occurred, caused mainly by heavy rains and floods, windstorms, snow, and hail. Climate models predict this trend to continue with increasing abnormalities in precipitation patterns with more frequent extreme rain and floodings, as well as protracted drought and wildfires, and sea-level rise. These impacts will likely be felt through higher food prices and reduced agricultural productivity that will disproportionately impact poor and vulnerable groups. Increased incidence of wildfires and decreased rainfall for hydropower may further contribute to greenhouse gas (GHG) emissions in the future. Recognizing the importance of addressing the climate emergency, Türkiye ratified the Paris Agreement in October 2021 and submitted the first iteration of its Nationally Determined Contribution[2] (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in April 2023. Türkiye is also in the process of developing its Long-term strategy (LTS) to set out goals to achieve net-zero emissions by 2053.

Sectoral and Institutional Context

4. **The building sector is one of the largest energy-consuming and greenhouse gas-emitting sectors in Türkiye and reducing its energy use is critical to meet energy efficiency and climate goals.** The building sector, including residential, commercial, and public services, consumed 1.55 million TJ in 2020, about one-third of the country's total final energy consumption. In addition, the building sector is a direct consumer of coal and natural gas to meet its heat demand. Almost 41 percent of Türkiye's final coal consumption (32 percent for commercial and public services and 9 percent for residential) and 61 percent of final gas consumption (13 percent for commercial and public services and 48 percent for residential) were used in buildings in 2020. As a result, this sector emitted about 62 Mt of CO_2 in 2020, about one-quarter of the direct GHG emissions from the final consumption sector (i.e., without accounting emissions associated with electricity) of the country[3]. Given Türkiye's building floor area is projected to almost double from 3.6 billion m^2 in 2020 to 7.2 billion m^2 by 2050[4], with increasing demands for cooling, the building sector will continue to drive the country's energy consumption. Türkiye's policy documents, including its NDC, highlight the building sector as an indispensable component to meet the country's energy efficiency (EE) and climate mitigation goals.

5. **Improving energy efficiency in the public building stock not only leads to significant energy savings for Türkiye but also allows the Government to set a leading example and develop the market.** Global experience has shown that EE improvements in the public buildings sector can help stimulate market development and lead by example. For example, in the EU or the United States, more stringent requirements or new requirements typically apply to public buildings before they are extended to the entire building stock. Following this approach, the Ministry of Energy and Natural Resources (MENR), with the support of the World Bank, is preparing a national program plan for EE renovations of all public buildings in the country. According to the latest estimates for the national program plan, there are over 530,000 public buildings[5]

[1] World Bank (2022) Country Climate and Development Report - Türkiye
[2] https://unfccc.int/sites/default/files/NDC/2023-04/T%C3%9CRK%C4%B0YE_UPDATED%201st%20NDC_EN.pdf
[3] IEA World Energy Balances 2022, Türkiye, https://www.iea.org/countries/turkiye
[4] According to the World Bank's Türkiye Country Climate and Development Report (2022), Turkey's building floor area is projected to grow from 3.6 billion m^2 in 2020 to 7.2 billion m^2 in 2050 (an annual average growth rate of 2.3%) and the number of buildings is projected to grow from 9.9 million buildings in 2020 to 17 million by 2050 (an annual average growth rate of about 1.8%).
[5] MoEUCC's KAYES database includes about 530.000 registered public buildings (excluding security and military facilities), corresponding to a gross floor area of 410.5 million m^2. Examples of public buildings in Türkiye include places of worship, government offices, schools, hospitals, universities,

consuming more than 51.9 TWh of final energy per year (or 187,000 TJ, 12 percent of the energy use for the entire building sector, or 4 percent of the country's final energy consumption). EE renovations of this building stock could result in energy savings of about 36 percent or 18.5 TWh per year and would require investments of more than US$8.8 billion (excluding the investment needed for any structural reinforcements).[6] Consistent with the national program plan, the World Bank is supporting investments in public facilities through three projects that are implemented by the Ministry of Environment, Urbanization and Climate Change (MoEUCC) and Ilbank, the (i) Energy Efficiency in Public Buildings Project (EEPB, P162762), which supports EE and distributed RE measures in public buildings that are seismically safe, the (ii) Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPB, P175894), which supports EE and distributed renewable energy (RE) measures in central government buildings that require structural measures for seismic safety, and the (iii) Public and Municipal Renewable Energy Project (PUMREP, P179867), which supports distributed RE in central government buildings that are already sufficiently energy-efficient and seismically safe as well as in municipalities. These projects are helping to address several barriers that prevent more commercial financing for EE and distributed RE investments in public buildings despite the attractive payback periods. Through the establishment of appropriate mechanisms, potential for commercial financing remains despite the heightened financial sector risks in Türkiye.[7]

6. **The proposed Project is a follow-up operation responding to the Government's request for sustaining the EE investments supported under the ongoing EEPB.** The ongoing EEPB - financed by a EUR 135.9 million IBRD loan, US$46.2 million Clean Technology Fund (CTF) loan, and US$3.8 million CTF grant - was approved in November 2019 and has been progressing well. Most of the EEPB's funds are committed or under advanced procurement, and the renovations of a total of 340 buildings are expected to be completed by the end of 2024 – well ahead of the closing date of December 31, 2025. The proposed Project would provide financing for further EE renovations of central government buildings, raise the requirements for EE for new and renovated public buildings in the country, and include innovative approaches and incorporate lessons from the ongoing EEPB.

7. **The Project is included in the Phase 1 of the Multiphase Programmatic Approach (MPA) of the Scaling-up Energy Efficiency in Europe and Central Asia (E3) Program.** The regional MPA E3 Program aims to support participating countries to scale-up EE by providing a longer-term framework for governments to develop policies and regulations, build institutions and markets, and develop mechanisms to attract the scale of capital needed for the EE investments help demonstrate, scale-up, and mainstream EE in key sectors along with critical TA and policy/regulatory reforms to enable scale and sustainability. This Project is proposed as the Phase 1 operation of the E3 MPA.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

The Project Development Objectives are to enhance energy efficiency in existing central government buildings and strengthen the energy efficiency requirements for new and renovated public buildings

Key Results

(i) Projected energy or fuel savings (MJ) [Corporate Result Indicator (CRI)]
(ii) Projected lifetime net GHG emissions from results achieved (Metric ton)

and dormitories, etc.
[6] MENR (2023) National Program Plan for Energy Efficiency in Public Buildings.
[7] IMF Country Report No. 23/304. Republic of Türkiye: Financial System Stability Assessment, January 18, 2023. https://www.imf.org/en/Publications/CR/Issues/2023/08/17/Republic-of-Trkiye-Financial-System-Stability-Assessment-538281

(iii) Secondary legislation is issued to set strengthened requirements for reduced energy and fossil fuel use for construction of new and renovation of existing public buildings (Yes/No)

D. Project Description

8. The Project would be implemented by MoEUCC and include two components: (i) EE investments in central government buildings and (ii) TA and Project implementation support. The Project components are described below.

Component 1. Energy efficiency investments in central government buildings (US$296 million IBRD loan).

9. Under this component, MoEUCC will finance the preparation and implementation of renovations of central government and central-government affiliated buildings (i.e., public buildings under central line ministries) to save energy and increase RE use. The Project aims to renovate about 400 buildings, each of which will receive a Turkish Energy Performance Certificate (EPC). Building renovations would result in minimum energy savings of 30 percent and seek to achieve a Turkish Class B EPC or higher[8]. Investment measures would include upgrades of the building envelope (insulation, windows, doors), space and water heating, cooling, ventilation, air conditioning, pumps/fans, lighting, and installation of on-site RE systems that primarily aim to offset the facility's energy consumption. A limited amount of funds could be allocated to ancillary measures (e.g., rewiring, minor structural repairs, painting, seismic safety, fire safety, improving access, etc.) provided that the simple payback period of the overall subproject does not exceed the agreed maximum payback period (see subproject eligibility criteria below). In order to ensure further decarbonization and deeper renovations, the Project will (i) maximize the replacement of fossil fuel-based boilers by electric heat pumps or RE-based heating to the extent that is technically and financially feasible[9]; (ii) introduce a standard taxonomy for building renovations that prescribes a set of mandatory EE and on-site RE measures; (iii) finance rooftop or ground-mounted (e.g., parking lot canopy) solar photovoltaic (PV) installations; and (iv) seek to reach NZEB standard for at least 20 percent of the buildings renovated under the Project.

10. **Beneficiary and subproject eligibility criteria.** Beneficiary eligibility criteria, which will be used at the screening stage, include: (i) the property is owned or legally assigned to the central government[10]; (ii) there are no plans for move, closure, demolition, or privatization of the facility; (iii) the property is not exposed to high flood risk[11]; (iv) facilities are not associated with military or security-related purposes (e.g., prisons, police stations); and (v) buildings must be structurally and seismically safe. The structural and seismic safety will be determined based on the following approach: For buildings that received a construction permit before January 2000, a building is considered structurally and seismically safe if it is officially assessed by a civil engineer (registered with the Turkish Chamber of Civil Engineers) as structurally and seismically safe according to the earthquake regulation enacted in 2019[12]. For buildings that received a construction permit between January 1, 2000 and December 31, 2018, structural and seismic safety will be determined based on MoEUCC's KAYES

[8] Current legislation only requires EPC Class C levels for new and (existing) renovated buildings. In case it is technically or financially not feasible to achieve EPC Class B due to the specific characteristics of an existing building, the MoEUCC PIU may be granted an exception to include the building in the Project on a case-by-case basis provided the renovation results in at least 30 percent energy savings and an EPC Class C.

[9] While full electrification of heating can be achieved through retrofits, experience with EE renovations in public buildings in Türkiye has shown that in some buildings, the technically and financially feasible approach is to replace a part of the existing gas boiler capacity in a building by heat pumps and keep some of the existing gas boiler capacity to support the heat pumps to meet peak demand during the coldest days. In some of these cases, the Project may also finance efficiency improvements of the remaining existing gas boilers.

[10] This includes public facilities owned by the Borrower's central government, including central government-affiliated facilities, such as education facilities, dormitories, and hospitals. It excludes private buildings with public agency tenants, and facilities used for, or are intended to be used for, law enforcement, security or defense related purposes, and specifically police, prison, and military facilities, including dormitories used by the personnel providing these functions.

[11] Flood risk will be determined based on an approach defined in the POM.

[12] Turkish Building Earthquake Code entered into force on January 1, 2019, published in the Official Gazette No. 30364, dated March 18, 2018.

database[13]. Buildings that received a construction permit on or after January 1, 2019 are considered structurally and seismically safe.

11. Subproject eligibility criteria, which will be confirmed after completion of the energy audit of each subproject, include (i) the energy audit confirms at least 30 percent energy savings, a maximum simple payback period of 20 years for the overall investment (see also Section II. F on Lessons Learned and Reflected in the Project Design), and the maximum payback period of individual EE and on-site RE measures must not exceed their expected life; (ii) any proposed RE investment to generate electricity qualifies for "unlicensed" electricity production pursuant to the "Unlicensed Electricity in the Electricity Market Production Regulation" No. 30772 published in the official gazette on May 12, 2019, and its subsequent amendments.

12. Prioritization criteria may be applied should the number of eligible buildings exceed available funding under the Project, i.e., buildings with (i) high specific annual energy consumption, (ii) use of carbon-intensive fossil fuels for heating, and (iii) larger gross floor area would be prioritized during the selection, while ensuring broad geographic coverage and adequate representation of all building types (hospitals, universities, offices, and high schools).

Component 2. Technical assistance and Project implementation support (US$4 million IBRD loan).

13. This component will include subproject development costs such as marketing and outreach, screening of subproject candidates, and review of energy audits and technical designs; technical support to develop and assess approaches for deeper renovations, comprehensive electrification of buildings, and improvements in water efficiency; day-to-day project management such as preparation and management of procurements, contract management, and supervision of renovation works; implementing financing requirements in compliance with the Bank's fiduciary policies and guidelines; ensuring satisfactory implementation of the Bank's Environmental and Social Framework (ESF); energy and water savings monitoring; Project monitoring and evaluation; training, capacity building, and knowledge sharing for the Project Implementation Unit (PIU) staff, service providers such as energy auditors and designers, construction firms, building administrators, women in the EE field, and any other relevant project stakeholders; Project communications and dissemination of results; equipment needed for day-to-day Project implementation; and incremental operational costs.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

14. The E&S impacts and risks of the Project are rated as Moderate as the potential impacts and risks are (i) predictable and expected to be temporary and/or reversible; (ii) low in magnitude; (iii) site-specific, without likelihood of impacts beyond the actual footprint of the Project; and have (iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents). These impacts will result from civil works under Component 1 including EE renovation/improvement activities. Component 2 of the Project is not expected to create any environmental and social

[13] MoEUCC's KAYES database is an official register of public buildings that covers about 530,000 buildings (410.5 million m^2 gross floor area) and uses a combination of multiple criteria to assess seismic safety of buildings.

impacts and risks. The potential adverse environmental risks and impacts from civil works can be listed as traffic, dust and noise generation, vehicle and machines emissions, generation of construction waste, handling of hazardous material and waste, and OHS risks. While solar panels are eligible as part of the EE renovation of buildings, solar panels will not be core for this operation.

E. Implementation

Institutional and Implementation Arrangements

15. The Project will rely on the same implementing entity and mostly on the same implementation arrangements as in the ongoing EEPB. The Project will be implemented by GDCA in MoEUCC, which has the mandate for construction and renovation of central government buildings. GDCA has an existing PIU that is already implementing two World Bank projects, the EEPB and PUMREP, while the third Bank project, the SREEPB, is implemented by a PIU in the Internationally Funded Seismic Retrofit Department of MoEUCC. MoEUCC's commitment and technical capacities in the construction sector are considered strong and the PIU in GDCA has already gained significant experience in preparation and implementation of Bank projects, including in fiduciary, and environmental and social (E&S) risk management. The current PIU of GDCA includes 17 in-house staff and 13 individual consultants (one procurement expert, one financial management expert, two mechanical engineers, one electrical engineer, three civil engineers, one environmental engineer, one occupational health and safety expert, one social expert, and one stakeholder engagement and communication expert, one project assistant), who would continue to implement the Project.

Corporate Commitments

16. **Gender.** Women have low representation in energy and STEM fields and are left out of decision-making processes. This is due to limited opportunities stemming from societal norms and information gaps (training, mentorship, internship) among other drivers. Therefore, the Project will: (i) host an internship program organized by the MoEUCC PIU for female university students and graduates; and (ii) incentivize consultancy firms to have higher shares of female experts in their key staff by including gender balance as a criterion in the procurement processes under the Project.

17. **Citizen engagement.** The Project will ensure the active participation of citizens and close the feedback loop: (i) disseminating subproject information (e.g., energy audit result, subproject scope, design, plans for construction works) to subproject beneficiaries and relevant stakeholders; (ii) collecting feedback to capture their expectations and concerns during preparation and implementation of the subprojects; (iii) reporting to beneficiaries how their feedback was incorporated and the result of subprojects and measuring their satisfaction about engagement processes.

18. **Climate.** The total GHG emission reduction potential is estimated to be 1.4 million tCO_{2eq} over the lifetime of the investments (20 years). The emission reduction potentials were estimated based on parameters derived from the ongoing EEPB project and relevant emission factors, following the World Bank's "*Guidance Manual: Greenhouse Gas Accounting for Energy Investment Operations*". The average EE investment costs per annual energy saving, and the share of energy saving from electricity and heat consumption were calculated from actual investment costs and from energy audits under the ongoing EEPB project. The operation has been assessed to be aligned with the goals of the Paris Agreement on both mitigation and adaptation.

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APPROVAL

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