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# Program Information Document (PID)

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Appraisal Stage | Date Prepared/Updated: 17-Dec-2023 | Report No: PIDA0022

**BASIC INFORMATION****A. Basic Program Data**

|   |   |  |   |
|---|---|--|---|
| Project Beneficiary(ies)<br>Armenia, Azerbaijan,<br>Kosovo, Kyrgyz Republic,<br>Tajikistan, Turkiye, Turkiye,<br>Turkiye, Ukraine, Ukraine,<br>Uzbekistan, Uzbekistan | Region<br><br>EUROPE AND CENTRAL<br>ASIA  | Operation ID<br><br>P176375                | Operation Name<br><br>Accelerating the Market<br>Transition for Distributed<br>Energy |
| Financing Instrument<br>Program-for-Results<br>Financing (PforR)  | Estimated Appraisal Date<br><br>12-Dec-2023   | Estimated Approval Date<br><br>30-Jan-2024 | Practice Area (Lead)<br><br>Energy & Extractives                                      |
| Borrower(s)<br>Development and<br>Investment Bank of Turkiye<br>(TKYB), Industrial<br>Development Bank of<br>Turkiye (TSKB)   | Implementing Agency<br>Development and<br>Investment Bank of Turkiye<br>(TKYB), Industrial<br>Development Bank of<br>Turkiye (TSKB) |  |   |

## Proposed Program Development Objective(s)

Expand Türkiye's distributed solar photovoltaic market and pilot distributed battery electricity storage to increase renewable energy.

**COST & FINANCING (US\$, Millions)****Maximizing Finance for Development**

Is this an MFD-Enabling Project (MFD-EP)? No

Is this project Private Capital Enabling (PCE)? Yes

**SUMMARY**

|                                |                 |
|--------------------------------|-----------------|
| <b>Government program Cost</b> | <b>5,300.00</b> |
| <b>Total Operation Cost</b>    | <b>930.00</b>   |
| Total Program Cost             | 928.50          |
| Other Costs                    | 1.50            |



|                        |               |
|------------------------|---------------|
| <b>Total Financing</b> | <b>930.00</b> |
| <b>Financing Gap</b>   | <b>0.00</b>   |

**FINANCING**

|   |               |
|---|---------------|
| <b>Total World Bank Group Financing</b>         | <b>600.00</b> |
| World Bank Lending                              | 600.00        |
| <b>Total Non-World Bank Group Financing</b>     | <b>330.00</b> |
| Trust Funds                                     | 33.00         |
| Private Capital and Commercial Financing Amount | 297.00        |
| of which Private Capital                        | 297.00        |

**Decision**

The review did authorize the team to appraise and negotiate

**B. Introduction and Context**

**Regional Context**

1. **Recent supply shocks in the natural gas markets have led to a significant hike in prices across the Europe and Central Asia (ECA) region given its overreliance on imported natural gas.** The ECA region was severely impacted by the successive waves of the COVID-19 pandemic and Russia’s invasion of Ukraine, which contributed to an unprecedented energy crisis, placing energy security and affordability in jeopardy. The supply shock in the natural gas markets lead to a significant hike in prices across Europe given its overreliance on imported natural gas. Even before the onset of the war, strong post-COVID-19 recovery had driven energy demand up globally in the second half of 2021 while gas supply and storage remained constrained especially in the ECA region, resulting in exceptionally high natural gas prices. A spike of wholesale electricity prices across Europe ensued, especially where gas fired generation sets the benchmark price, as well as spikes in heating costs. The hike in prices in natural gas and electricity exposed European consumers to price volatility, negatively affected energy-dependent sectors of the economy, pushed inflation to multi-decade highs, and affected vulnerable households, in a region where energy poverty remains high.<sup>1</sup> Although Central Asia is not as dependent on gas imports, it was not spared an energy crisis, as it experienced significant blackouts in power and heating services during the winter of 2022-23, arising from chronic under-investments and the harshest winter conditions in decades

2. **The energy crisis highlighted the urgency for ECA countries to transform their energy sectors, reduce dependency on imported fossil fuels, and enhance energy security and affordability.** Europe’s policy response to the

<sup>1</sup> 34 percent of the population in ECA spend 10 percent or more of their average monthly expenditure on energy, a typical threshold for energy poverty. According to World Bank estimates, an additional 4.3 million residents in the ECA region fell into poverty in 2021 when energy prices soared.



energy crisis is bearing fruit. The International Energy Agency estimated in December 2022 that, through the Repower EU program, the gas supply gap in the European Union (EU) for 2023 was half that of 2022, through energy-saving measures, a diversification of energy supply, and an accelerated deployment of renewable energy (RE). The energy crisis highlighted the shortcomings of fossil fuel dependence, as countries with higher shares of renewable energy in their grids experienced a lower increase in electricity prices. Following this crisis, energy security – defined as the uninterrupted physical availability of energy supplies at an affordable price while respecting environmental concerns – has emerged as a key policy objective for countries in the ECA region, alongside the need to decarbonize the energy sectors.

3. **Efforts to achieve energy security can be aligned with efforts to decarbonize economies and achieve stronger, long-term economic growth.** The clean energy transition, consisting of scaling up the development of domestic renewable energy, using energy efficiently, and supplementing these measures with effective energy trade policies will help decarbonize the energy sector and make countries more energy secure. Moreover, the adoption of new technologies is an opportunity to boost economic growth rates that have languished for many countries to the lowest levels over the last three decades. Without efforts to decarbonize the ECA region, long-term economic prospects look grim: there is no economic model based on fossil fuels that makes economic sense over a longer horizon, largely because of global efforts toward net zero emissions, which will lower fossil fuel demand with significant impacts on fossil fuel exporting countries.

4. **As part of the Evolution Roadmap, the Bank seeks to assist countries to better manage and cope with global challenges, including climate change, pandemics, fragility and conflict, as they pursue poverty reduction and shared prosperity on a livable planet.** Part of the response to the urgency and enormity of the challenge is an evolution of the World Bank's knowledge and financing model that can scale impact commensurate with the challenge. The proposed Renewable Energy Scale-up in ECA (ECARES) Multiphase Programmatic Approach integrates key elements of the new vision expressed in the World Bank's *Evolution Roadmap*, to deliver solutions and impact at scale. It is also aligned with the Global Challenge Program for Energy Transition (GCP-E) as it seeks to accelerate the scale up of renewable energy in the region while ensuring affordability. It is designed to help establish the enabling conditions to mobilize private capital for renewable energy at scale in the ECA region, which requires the concerted efforts of the World Bank, IFC and MIGA. It also aims to enable ECA countries to be beneficiaries as well as contributors of the knowledge generated among countries that seek to accelerate the energy transition.

## Country Context

5. **Türkiye achieved high economic growth in the past decade that supported rapid poverty reduction, but at the expense of elevated macro-financial vulnerabilities.** Average annual gross domestic product (GDP) growth accelerated from 4.0 percent between 2001-10 to 5.2 percent between 2011-20 with the poverty rate<sup>2</sup> nearly halving from above 20 percent in 2007 to 12.9 percent<sup>3</sup> in 2020 (UMI poverty rate of US\$6.85 in 2017 PPP). 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 (5.6 percent). However, the policy framework that ensured a strong economic performance during and in the aftermath of the pandemic compounded by the effects of the war in Ukraine also heightened macroeconomic risks, including rising inflation (with annual inflation reaching 61.5 percent in September 2023 after having peaked at 85.5 percent in October 2022), currency depreciation (79 percent against the US\$ between January

<sup>2</sup> US\$6.85 in 2017 PPP poverty line.

<sup>3</sup> World Bank staff estimates.



2020 and October 2023), 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, but large imbalances from the previous over-accommodative policy stance persist.

### Regional and Country Sectoral and Institutional Context

1. **The energy sector is the largest contributor to greenhouse gas emissions in ECA due to its continued reliance on fossil fuels.** Over half the emissions from emerging and developing ECA countries are attributable to the energy sector, including electricity generation and space heating. About 88 percent of the total energy supply is from fossil fuels (of which roughly half is from natural gas and 22 percent from oil and coal each), nuclear accounts for 6 percent, followed by hydro (2 percent), and other renewables (4 percent). In the electricity sector, 11 of the 25 most emission-intensive country grids globally are ECA countries<sup>4</sup>. The legacy of the 'unfinished transition' to market economies in some ECA countries has limited private sector participation and maintained relatively weak institutions, which has led to chronic underinvestment in the sector. In addition, the power sector remains at the center of the transition challenge as the biggest emitter within the energy system, generating over 40 percent of emissions.

6. **Nine countries in ECA have objectives to achieve carbon neutrality by 2050 to 2060<sup>5</sup>, which will require a significant scale up in the deployment of RE, calling for massive investments and a critical role for the private sector.** Achieving carbon neutrality would require decarbonizing the power sector first, typically a decade before the ultimate target, with most of new power capacity additions from RE. Installed RE capacity in the ECA region is 200 GW, of which more than 50 percent is hydropower. The potential for RE deployment is large, as many countries and regions are endowed with significant natural resources. However, progress over the past five years has been uneven and below expectations (see Annex 3). At the recent COP28 held in Dubai, more than 120 countries pledged to triple RE capacity and double the rate of improving energy efficiency by 2030, which are interim steps to avert the worst impacts of climate change. Country Climate and Development Reports (CCDRs) for ECA show massive RE capacity increase needs extending beyond 2030, along with upgrades and expansion of the transmission and distribution infrastructure. Overall, investments of 3.9 percent of GDP would be required to achieve ECA net zero targets by 2060, making private investment essential.

2. **Scaling up renewable energy is a core government development policy in Türkiye, critical to strengthen energy security and achieve the country's 2053 net zero emission target.** Türkiye is endowed with considerable RE resources, including solar, wind, and geothermal. Utilizing these RE resources and achieving energy security has long been at the core of the government strategy. At the end of 2022, RE installed capacity (including hydro, wind, solar, and geothermal) reached a historical high at 49 GW, about 54 percent of the total installed capacity and 45 percent of Türkiye's power generation. This achievement has significantly exceeded the original target of 38.8 percent of RE in the power generation mix by 2023 set in the National Renewable Energy Action Plan for 2013–2023), placing Türkiye as the fifth largest RE generator in Europe and the 12th largest in the world. Türkiye's recently released National Energy Plan (NEP, 2022) includes a target to achieve a share of RE of almost 65 percent in installed capacity and 55 percent in total power generation by 2035 to meet the economy-wide net zero emission target by 2053. More specifically, the plan indicates that over 74 percent of the expansion in generation capacity (72 GW out of 96.9 GW) in the period should come from RE resources, most of it solar (52.9 GW total installed capacity by 2035) and wind (29.6 GW of total installed capacity by 2035) energy. Integration of such amounts of RE will call for substantial accompanying deployment of energy storage solutions,

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<sup>5</sup> Nine ECA countries have adopted carbon neutrality targets by 2050 (Armenia, Bulgaria, Croatia, Kyrgyz Republic, and Romania), 2053 (Türkiye) or 2060 (Kazakhstan, Russia, and Ukraine). EU candidate countries, such as in the Western Balkans, have declared an ambition to work with the EU toward a net zero European continent by 2050.



including Battery Energy Storage Systems (BESS). To enable the ambitious RE target and increase network flexibility, 7.5 GW in BESS is also to be deployed by 2035.

3. **Distributed Energy Resources (DER), such as distributed solar photovoltaics (DSPV) and Battery Energy Storage Systems (BESS) will play an important role in the country energy transition.** However, accelerating the transition to a fully fledged commercial market for DER and distributed BESS will require a phased approach, characterized by strong public support in the early days, underpinned by a scalable financing mechanism. In a first phase, the Program will engage with Türkiye's two leading development banks as Program Borrowers (PBs), leveraging their technical and fiduciary experience to have a demonstrative effect and provide dedicated financing for DER and distributed BESS. In a second phase, the PBs will establish a facility to lend to commercial banks and other financing entities (Facility Borrowers [FBs]), who will access funds on-lent by the PBs; the PBs would transfer their technical and financial knowledge acquired on DER and BESS to the FBs, thereby enlarging the financial market for DER and BESS. In subsequent phases, public support is expected to decrease substantially, leaving more and more space to commercial financing until the market achieves full maturity.

4. **The Program delivery through development Financial Intermediaries (FIs).** There is a strong development rationale for the GoT to select the privately-owned Industrial Development Bank of Türkiye (*Türkiye Sınai Kalkınma Bankası*, TSKB) and the state-owned Development and Investment Bank of Türkiye (*Türkiye Kalkınma ve Yatırım Bankası*, TKYB) as implementing entities to scale up the DER and BESS market during the first phase. TSKB and TKYB are Türkiye's leading development banks. As Türkiye's lead private and public development banks, TSKB and TKYB focus their activities on identified market gaps for nascent markets. Both institutions explicitly align their activities to the Sustainable Development Goals (SDGs) and climate change. TSKB and TKYB are also the market leader in green finance, providing a demonstration effect for the whole industry, and holds the best environmental, social, and governance (ESG) score among Turkish banks (and good scores globally).

### Multiphase Programmatic Approach

5. **The World Bank seeks to develop a regional Program, under a multiphase programmatic approach (MPA), to support ECA countries in accelerating their RE transition and achieving scale and impact through private investment, while fostering regional knowledge sharing.** The proposed ECA Renewable Energy Scale-up (ECARES) MPA Program (the ECARES Program) seeks Board approval for an amount of US\$2.0 billion in financing (tentatively c. US\$1.69 billion for IBRD and c. US\$ 310 million for IDA), also leveraging concessional climate financing and grants from a variety of sources. The ECARES Program includes the [appraised] Türkiye 'Accelerating the Market Transition for Distributed Energy' (P176375, IBRD US\$ 600 million loan, CTF US\$30 million loan, ESMAP US\$3 million grant) operation in Phase 1, as well as additional operations for Armenia, Azerbaijan, Kosovo, Kyrgyz Republic, Tajikistan, Türkiye, Ukraine and Uzbekistan, for which letters of request for Bank support to increase renewable energy have been received from the respective governments in the last few months, and which will be covered in subsequent phases under the MPA framework. These subsequent operations under the MPA will be approved in accordance with the MPA policy. The full MPA will be committed during FY24-31 and implemented during FY24-34, to enable up to 15 GW of RE deployment and contribute to the goal of tripling RE capacity in ECA by 2030. The Program aims to enable about US\$ 6.0 billion from the private sector, and additional funding from other development partners, governments, national utilities, carbon markets, climate finance and other impact-oriented financiers and philanthropic donors.

6. **The MPA will pilot the implementation the GCP-E in ECA and enable shared learning as well as knowledge creation and exchange across ECA countries.** The ECARES Program has been designed to address the above-mentioned barriers and risks systematically, by prioritizing enabling policy development and strengthening institutional capacity, to scale up renewable energy in a wholesale approach. The Program will develop more harmonized systems, create more



predictability, increase the level of information and understanding of risks to the benefit of commercial financiers, lead to further economies of scale, bring down costs and help foster new local industries.

7. **The MPA Program will be anchored in three complementary pillars of activities** – enabling policies and institutional frameworks, investments to develop flexible electricity networks, and financing and risk mitigation instruments for clean energy investments.<sup>6</sup> The ECARES Program has a strong focus on expanding finance for renewable energy, especially from the private sector and climate, while addressing underlying issues constraining private sector expansion, including the enabling environment and implementation capacities and risks - notably by leveraging IFC and MIGA, as well as the WBG’s global knowledge and its Climate Change Group. The Program will also seek to identify concessional funding and grant financing to complement the activities supported under the program, including for technical assistance, knowledge creation and sharing, and critical investments. These would be implemented in a coordinated manner under an ECARES Regional Support Network.

### PforR Program Scope

7. **The proposed Program is closely linked with the NEP and the results areas described under Objective 1, ‘Ensure sustainable security of supply’ of MENR’s Strategic Plan 2019–2023.** The PforR is designed to focus on the areas underperforming in Türkiye’s DER market. MENR’s Strategic Plan highlights that the country has high untapped RE potential and that it needs investments to increase the integration of renewable and distributed generation.

8. **The geographic coverage of the PforR operation will be nationwide in line with the government program.** The duration of the PforR will be five years, with the expected start in 2024 and the target completion at the end of 2028. The MENR Strategic Plan is from 2019 to 2023, finishing just as the proposed PforR begins. However, a new MENR strategic four-year plan for the period of 2024–2028 is currently under development and will be effective in 2024 with enhanced targets for RE and ambitious goals for climate change mitigation, in line with the NEP published in 2022.

9. **The proposed PforR will focus on two results areas:**

- (a) **Results Area 1 - Scaling-up distributed solar PV.** Investments will support the installation of grid-connected distributed solar PV systems. The DSPV systems could include rooftop solar photovoltaic (RSPV) and ground-mounted solar PV, as well as newer technologies such as façade PVs and floating PV. The systems installed will be primarily for self-consumption, eligible for net metering and connected to the distribution grid.
- (b) **Results Area 2 - Expanding the market and promoting innovation for distributed energy, including BESS.** This will help unlock commercial financing at scale for DSPV and support innovation for BESS. Under this results area: (i) the two Program Implementing Agencies (PIA) will set up a facility to finance commercial banks; and (ii) these commercial banks will finance DSPV projects, including through their own financing. A recipient-executed grant of US\$3 million from the Energy Sector Management Assistance Program (ESMAP) will be disbursed against the DLI for establishment of the facility. Separately, a Clean Technology Fund (CTF) US\$30 million credit will support BESS investments financed by the PIAs.

<sup>6</sup> The composition of financing (public/private) will depend on a country’s institutional context, market situation and the type of investments.



### C. Proposed Development Objective(s)

#### MPA Program Development Objective(s)

10. The proposed MPA Program Development Objective (PrDO) is to increase renewable energy capacity in participating countries in the Europe and Central Asia (ECA) region. The project development objectives (PDOs) of individual operations under the MPA Program will align with the PrDO, while reflecting key expected outcomes specific to each operation.

#### PforR Program Development Objective(s)

11. The Türkiye operation PDO is to expand Türkiye's distributed solar photovoltaic market and pilot distributed battery electricity storage to increase RE capacity.

### D. Environmental and Social Effects of PforR

12. Overall, it is anticipated that the PforR Program shall have positive E&S impacts, such as reduction in local pollutants and GHG emissions, and improved access to RE sources. The Program shall contribute to strengthening the policy framework and institutional capacity of financial institutions (FIs) as well as EMRA. Overall, E&S risks and impacts associated with the Program were assessed as Moderate. The E&S risks under the PforR are assessed as Moderate. The Program design will aim to limit impacts, and the GoT and the Program implementing agencies have largely well-established and functional E&S regulatory and institutional frameworks in line with the core principles of the World Bank policies. The World Bank carried out an ESSA to assess the adequacy of the E&S systems of the FIs—TSKB and TKYB. The ESSA found that implementing agencies have adequate systems to manage E&S impacts of the Program.

13. **Grievance Redress.** Communities and individuals who believe that they are adversely affected as a result of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance mechanism or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit <https://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, visit <https://accountability.worldbank.org>.



**E. Financing**

**Table 1. Proposed Financing of PforR\***

| Source  | Amount (US\$, Millions) | % of Total    |
|---|-------------------------|---------------|
| <b>Commercial Financing</b>   | <b>297.00</b>           | <b>31.94%</b> |
| Unguaranteed Commercial Financing                                   | 297.00                  | 31.94%        |
| <b>Trust Funds</b>  | <b>33.00</b>            | <b>3.55%</b>  |
| Energy Sector Management Assistance Program                         | 3.00                    | 0.32%         |
| Clean Technology Fund   | 30.00                   | 3.23%         |
| <b>International Bank for Reconstruction and Development (IBRD)</b> | <b>600.00</b>           | <b>64.52%</b> |
| <b>Total Program Financing</b>                                      | <b>930.00</b>           |               |

\* Total proposed financing envelope for the Europe and Central Asia Renewable Energy Scale-Up Program financed from IBRD and IDA is expected to total to US\$2 billion equivalent.

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**APPROVAL**

|                      |  |
|----------------------|--|
| Task Team Leader(s): | Manuel Berlingiero, Alan David Lee, Arnaud Braud |
|----------------------|--|

**Approved By**

|                           |                    |             |
|---------------------------|--------------------|-------------|
| Practice Manager/Manager: |                    |             |
| Country Director:         | Agata E. Pawlowska | 18-Dec-2023 |