Program Information Document (PID)

Concept Stage | Date Prepared/Updated: 31-Mar-2021 | Report No: PIDC245308

BASIC INFORMATION

A. Basic Program Data

Country	Project ID	Parent Project ID (if any)	Program Name
Turkey	P176375		Scaling-up distributed solar PVs in Turkey
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Does this operation have an IPF component?**
EUROPE AND CENTRAL ASIA	04-Oct-2021	16-Dec-2021	No
Financing Instrument	**Borrower(s)**	**Implementing Agency**	**Practice Area (Lead)**
Program-for-Results Financing	Ministry of Treasury and Finance	TURKIYE SINAI KALKINMA BANKASI A.S. (TSKB), TURKIYE KALKINMA VE YATIRIM BANKASI A.S. (TKYB)	Energy & Extractives

Proposed Program Development Objective(s)

To expand the market and improve the enabling policy environment for distributed solar PV, thereby contributing to a reduction in greenhouse gases (GHG) emissions.

COST & FINANCING

SUMMARY (USD Millions)

Government program Cost	480.00
Total Operation Cost	480.00
Total Program Cost	480.00
Total Financing	480.00
Financing Gap	0.00

FINANCING (USD Millions)

Total World Bank Group Financing	300.00
World Bank Lending	300.00

Total Non-World Bank Group and Non-Client Government Financing	180.00
Trust Funds	30.00
Private Capital and Commercial Financing	150.00
of which Private Capital	150.00

Concept Review Decision

The review did authorize the preparation to continue

B. Introduction and Context

Country Context

1. **Turkey is a large, upper-middle-income country with a strong record of inclusive growth, but recent shocks are risking the economic and social gains made since the early 2000s.** Turkey achieved rapid economic and social development in the 2000s, with poverty incidence more than halving and real Gross Domestic Product (GDP) increasing by 50 percent by 2008. Since the Global Financial Crisis (GFC), rapid growth continued but was increasingly associated with stagnant productivity, a rising current account deficit and growing foreign exchange-denominated debt stock.

2. **An emergent economic recovery starting late 2019 has been undermined by the COVID-19 pandemic.** Over the course of late 2018 and 2019, the economy went through significant adjustments. Current account imbalances declined sharply, banks and corporations reduced their exposure to foreign currency debt, private sector credit growth resumed, and demand had started to recover. By the end of 2019, economic activity was rebounding with strong growth in the fourth quarter but was interrupted by the outbreak of COVID-19 pandemic in early 2020.

3. **The COVID-19 health crisis quickly turned into a deep economic shock.** The economy faced combined shocks of lower demand, activity restrictions, and supply chain disruption due to the pandemic. This caused a contraction of GDP by 9.9 percent (YOY) in Q2 of 2020, the most in over a decade. On the demand side, external trade and finance collapsed as the global economy pulled down its shutters. Private consumption and investment contracted significantly along with collapse in domestic demand. On the supply side, declining demand and containment measures led to business shutdowns and loss of cashflow and interruptions to domestic and international trade disrupted supply chains and production. The services sector was also not spared from contraction with closure of hospitality businesses, declining demand for transport, and others. The combination of all this negatively impacted the labor market.

4. **The policy response helped to cushion the blow for businesses and households but exacerbated the vulnerabilities in the economy.** On the monetary and financial side, the Central Bank injected significant amount of liquidity and the banking regulator introduced flexibilities that enabled public banks to extend credit to some of the most affected parts of the economy. On the fiscal side, the authorities provided support to households by extending social assistance, and to businesses mostly through tax reliefs. Short term work allowance and unpaid leave support have been provided to prevent massive layoffs and employment losses. All of these measures have helped the economy to bounce back sharply in Q3 of 2020. However, the monetary policy response exacerbated the existing vulnerabilities with renewed pressures on the current account, consumer prices and the currency. The economy is expected to grow by 0.5 percent in 2020. The pace of recovery beyond 2021 will depend on the duration of the pandemic, the availability and distribution of a vaccine and restoration of international trade and investment flows.

5. **Increasing energy demand driven by Turkey's growing economy constitutes a macroeconomic challenge and an energy security risk**. The primary energy consumption in Turkey more than doubled over the past two decades to fuel the economic growth, and is projected to increase 50 percent over the next two decades. A large portion of its energy demand (up to 75%) depends on import (99% of gas and 93% of oils are being imported) and its energy imports accounted for almost 20 percent of Turkey's total imports in 2018, contributing to massive current account deficits (US$27.2 billion in 2018). Recognizing the energy security risk, Turkey's energy reforms have prioritized several measures to meet energy needs with a fast-growing economy since early 2000's. Those reforms have resulted to several strategic documents on renewable energy (RE) and energy efficiency as well as introduced legislations, and regulations to support this agenda.

Sectoral and Institutional Context of the Program

6. **Maximizing exploitation of domestic primary energy resources and securing reliable and affordable energy to a growing economy in an environmentally sustainable manner have long been core energy policy priorities of the Government of Turkey (GoT).** While fossil fuels still dominate Turkey's *primary energy mix*, with coal accounting for 30 percent, oil 30 percent, gas 26 percent, and renewable energy (RE) 14 percent, Turkey has made impressive achievements to increase RE in its *power generation mix*. By the end of 2020, RE power capacity (including hydro, wind, solar, and geothermal) reached historically high at 49 GW, more than 50 percent of the total power capacity of 92 GW. RE dominates the power generation mix of 43 percent, with coal accounting for 37 percent and gas 20 percent. This achievement has way exceeded the RE target of 30 percent in the power generation mix by 2023 set in the Electricity Sector Security of Supply Strategy (2009) and the National Renewable Energy Action Plan (2014). Development of RE resources is again at the core of Turkey's Energy Strategic Plan 2019-2023. This Plan includes a specific target to increase the share of installed power capacity based on indigenous (mostly coal) and RE resources to total installed power capacity from 59 to 65 percent.

7. **Solar power has emerged as a promising long-term option for meeting growing energy demand in Turkey while addressing the adverse environmental impacts of conventional fuels.** Turkey is endowed with substantial solar energy potential with most of the country having about 250 days of sunshine per year with annual average solar

radiation in the range of 1,338-3,038 kWh/m^2. With declining cost trends in solar photovoltaics (PV), as well as recent technology advance and declining price in battery storage, solar PV (with or without storage) will be a key contributor to meet Turkey's growing electricity demand as well as to foster energy security by reducing dependence on imported fossil fuels which, in turn will contribute to a reduction in emission of local pollutants as well as greenhouse gas (GHG) emissions. Solar pumps can also provide reliable cost-effective irrigation for agricultural consumers.

8. **While the utility-scale solar PV has expanded substantially, the distributed solar PV market in Turkey is at a nascent stage**. The solar market in Turkey has grown over the last few years, with installed PV capacity growing from 40 MW in 2014 to about 6,667 MW at the end of 2020. A significant percentage of this capacity has benefitted from a feed-in-tariff (FiT) of 13.3 USD cents/kWh (this FiT is applicable to projects commissioned before June 30, 2021). In addition, most of the installed capacity are ground-mounted unlicensed projects (i.e. under 5 MW) that have also benefitted from eased permitting procedures. The government has recently announced new FiT for solar PV to around 4.5 cent/kWh, effective after June 30, 2021, a significant reduction from the previous FiT level. In the meantime, the government also announced 1 GW of competitive auction for utility-scale PV, which has been eight times oversubscribed. On the other hand, however, only 267 MW of rooftop solar photovoltaics (RSPV) have been installed in Turkey as of 2020, mainly in large industrial and commercial establishments. This is despite a large market potential of about 4 GW[1] in industrial, commercial, residential and public buildings, based on a World Bank assessment carried out in 2017. Thus, installed RSPV capacity represents only 6% of the potential.

9. **Battery Energy Storage Systems (BESS), is expected to be a game changer for supporting higher penetration of renewable energy in the power system in the future**. This includes BESS at the generation-side, grid-side, and consumer-side (also known as behind-the-meter storage complementary to RSPV). At generation-side, BESS coupled with large-scale grid-connected RE, is essential to provide system flexibility and reduce RE curtailment to integrate high penetration of variable renewable energy (VRE). At the transmission and distribution grid side, BESS can provide an additional source of load in the off-peak hours, transfer energy supply to peak hours and increase flexibility for power system dispatch. This will reduce congestion of the transmission system and enable the integration of more RE, as well as leading to a reduction of RE curtailments. At the consumer level, on-site small-scale behind the meter battery storage enables higher utilization of distributed renewable energy (DRE) to maximize self-consumption. BESS will bring new opportunities to reduce costs, increase service reliability, and reduce greenhouse gas (GHG) emissions and other environmental impacts. BESS has already proven to be technically and economically viable in developed countries and a few developing countries, but it has not yet taken off in Turkey, primary because of the policy and regulatory barriers that do not compensate and value BESS services. Such policy support is essential to stimulate investor appetite and thereby to catalyze the BESS market.

10. **The scale-up of distributed solar PV would bring significant economic benefits to Turkey due to a combination of reduced generation costs from the large centralized systems running on expensive imported fossil fuels, and**

1 The technical potential for RSPV was estimated at 47 GW (23 GW residential, 22 GW commercial and industrial, and 2 GW public). The estimation of the market potential took into consideration grid capacity constraints, projected growth in RSPV sales, affordability, and creditworthiness of consumers.

reduced emissions of localized pollutants and carbon dioxide (CO_2). A shift to domestic and renewable energy sources is part of Turkey's national energy strategy. Solar energy is the most cost-competitive of all renewables at present because global market forces have led to a decline in the cost of solar panels which has been the sharpest compared to all other renewable technologies. RSPV has additional advantages of reducing distribution technical losses by co-locating onsite generation and load, and creating more informed and energy conscious prosumers (energy producers and consumers). Cost-benefit analysis suggests that Turkey could gain about US$811 million in cumulative net economic benefits from reduced generation costs from 2020 to 2030, assuming that RSPV reaches 4 GW of installed capacity by 2030. In 2021, 0.4 GW of RSPV capacity would decrease total annual generation costs by about US$9 million in nominal terms compared to a scenario with no RSPV uptake. By 2030, 4 GW of RSPV capacity would decrease annual generation costs by about US$170 million in nominal terms.

11. **The Government of Turkey (GoT) has taken some steps to promote this underdeveloped distributed solar generation segment, especially RSPV, yet the market still faces several barriers that prevent its scale-up.** Distributed solar PV refers to small-scale solar PV, usually less than 5 MW, connected to the distribution grids, and includes both roof-top solar PV and ground-mounted distributed solar PV. However, only RSPV enjoys the net metering policy in Turkey right now, so at present distributed solar PV is largely synonymous with RSPV in Turkey. In 2019, the GoT streamlined the permitting and licensing process for RSPV installations up to 10 kW and also introduced a net metering system[2] for RSPV. The Electricity Market Regulatory Authority (EMRA) is currently looking at harmonization of technical standards for grid-connected RSPV and also working on an amendment to the net metering regulation to allow for different injection and consumption points. EMRA is also working on a new regulation to further promote BESS in Turkey. However, the slow uptake of RSPV in all consumers segments still persists, mainly due to gaps in the existing regulatory and financial framework of the sector. The proposed program will support the government in addressing regulatory and institutional gaps.

Relationship to CAS/CPF

12. **The partnership between Turkey and the World Bank Group (WBG) is outlined in the Country Partnership Framework (CPF),** which was initially designed to cover the FY18–21 period but has recently been updated and extended to include FY22–23 through the Performance and Learning Review (PLR), that was discussed at the WBG's Board of Directors on March 13, 2020.

13. **The PLR confirmed that the CPF's pillars of growth, inclusion, and sustainability remain valid and that most of the objectives set out under these pillars also remain relevant,** although some amendments were incorporated into the program to reflect the changes in country circumstances, client demand, and the program's evolution. Continued support from the International Bank for Reconstruction and Development (IBRD) was confirmed due to Turkey's challenging economic context, which is leading to in decreasing rather than increasing income per capita in dollar terms. The WBG program ensures continued alignment with the Government's strategies, including the recently launched 11th National Development Plan (NDP, 2019–23) and the New Economic

[2] Net metering means that a customer with RSPV will get paid at the consumer retail tariff, not wholesale power generation tariff. So the consumer buys electricity from the grid at the same price as the power sales to the grid. This is an incentive policy for RSPV.

Program (2018–21) of Turkey. The Bank program continues to maintain a long-term focus that maximizes opportunities to support Turkey's progression to higher-income status.

14. **The PLR focuses on strengthening policies, institutions, and investments for resilient and sustainable recovery**. Special attention is being paid to timely preparation of the Pandemic Preparedness ASA. Moreover, when preparing the operations that had been envisaged in the PLR's pre-COVID pipeline for FY21, a strong emphasis will be put on strengthening sectoral policies and institutions to **support a "building back better" approach**.

15. **The proposed RSPV program is therefore fully aligned with the Turkey Country Partnership Framework (CPF, 11096-TR) for the FY18-21 period, which focuses on improved reliability of energy supply and generation of green energy as part of building back better**. Improving reliability of Turkey's energy supply and generation of green energy continue to be among the key priorities of the energy sector cooperation between the Bank and the GoT, as articulated under the CPF Focus Area 3 – Sustainability. As noted, the CPF program pursues increasing the use of renewable sources (wind, solar and geothermal) of electricity generation and improving its integration into the grid through the ongoing Renewable Energy Integration, the Geothermal Development and the EU/IPA Energy Sector TA Projects; and the recently closed Private Sector Renewable Energy and Energy Efficiency Project. The proposed project will also directly support Pillar 4 (Strengthening Policies, Institutions and Investments for Rebuilding Better) of the WBG COVID-19 Approach Paper. It will help Turkey support the recovery of local economies in a more sustainable and resilient way. It will also support labor-intensive programs that can create local jobs in green industries; sustainable employment creation (green jobs) is a key priority of the government as part of post-Covid-19 recovery efforts.

Rationale for Bank Engagement and Choice of Financing Instrument

16. **The proposed Program for Results (PforR) Program has been requested by the GoT as an important contribution to achieving the country's solar PV capacity targets of 10 GW by 2023 set in the Energy Strategic Plan 2019-2023**. Large scale deployment of distributed solar generation and battery energy storage systems (BESS) has the potential to transform and further modernize Turkey's electricity sector in the medium term. Distributed solar PVs and BESS are an integral part of the economic development in Turkey, as it can reduce the overall cost of generating, transmitting and distributing electricity while fostering economic growth and improved environmental sustainability. Distributed energy technologies have also the potential to reduce the pressure on land required to develop larger utility scale PV projects. Scaling up RSPV and distributed BESS can therefore offer triple benefits: significantly lower energy costs, create fiscal space for other development priorities and enhance competitiveness and job creation. The Ministry of Energy and Natural Resources (MENR) is thus keen to demonstrate a business model that can be successful without the need for capital subsidies in this underdeveloped market segment.

17. **The World Bank has had a long-term engagement in Turkey's RE and power sector over the past 20 years, and is well positioned to support Turkey's distributed solar PV and BESS market by removing the policy, regulatory, and financing barriers.** The Bank has in-depth experience with policy support, institutional strengthening, as well as improving monitoring and evaluation, which together contribute to increasing the sustainability of investments. The Bank will leverage its partnership with other countries and institutions to also support the GoT tap into relevant

global knowledge including on efficient and effective regulatory and institutional framework, and successful investment programs. The Bank has actively supported the RE sector in Turkey with both analytical work and investment lending in geothermal, RE grid integration, off-shore wind, and battery storage. The Bank also supported improved competitive power market, establishment of EMRA, and increased private sector competition that leveraged more than $80 billion private sector investments in the power generation market. In particular, the ESMAP funded TA activity in 2017, *Turkey: Rooftop Solar PV Assessment*, and subsequent TA funded by KGGTF/ESMAP in 2020, *Design of Financial Support and Capacity Building Program for Rooftop Solar Photovoltaic in Turkey*, have provided key recommendations and critical input to the GoT and the program design. The use of World Bank financing will help boost investor confidence in distributed energy solutions, thereby mitigating risk around financial returns and making needed private investments in the energy sector. By building this initial track record, the Government of Turkey will be able to attract more investments resulting in distributed generation capacity and ultimately clean energy transition. In addition, World Bank's technical assistance and overall support in project implementation is expected to add significant knowledge and value to the sector, and speed up the learning curve for Turkish authorities.

18. **Alternative lending instruments were considered, but the Program for Results is regarded as the most suitable IBRD lending instrument to address the GoT's request and support the country to achieve its ambitious target for scaling up distributed solar PV solutions**. Initially, the government requested for a line of credit for this program. However, the P4R instrument was deemed better suited for the current level of market development where significant support is still needed on policy, regulatory and institutional strengthening. The team also discussed a number of alternative instruments, including guarantee instrument, with the government. In the end, the Bank and the government reached an agreement to adopt the PforR instrument for the first time in Turkey, as the PforR instrument can provide an integrated package to tackle the policy, regulatory, and financing barriers altogether to make a transformational impact on the distributed solar PV market in Turkey. Since most of the proposed investments are commercial-oriented to end-users, this operation adopts a market-based approach with domestic financial institutions as implementing agencies (IA) to help the government achieve result-based targets. IFC could also provide equity investments, partial risk guarantees, and/or advisory services to enhance credit and lower risk and complement the IBRD operation.

C. Program Development Objective(s) (PDO) and PDO Level Results Indicators

Program Development Objective(s)

To expand the market and improve the enabling policy environment for distributed solar PV, thereby contributing to a reduction in greenhouse gases (GHG) emissions.

PDO Level Results Indicators

i. Distributed solar PV installed capacity (MW) and/or electricity generated (MWh);
ii. Distributed PV policy and regulatory framework improved;
iii. CO_2 emissions avoided (tons).

D. Program Description

PforR Program Boundary

19. **MENR's Strategic Plan 2019-2023 defines 7 objectives and 31 goals accompanied by 113 performance indicators linked to these goals.** The seven objectives include Objective 1. Ensure sustainable security of supply; Objective 2, Prioritize and boost Energy efficiency; Objective 3, Strengthen the organizational and sectoral capacity; Objective 4; Improve regional and global effectiveness in the Field of Energy and Natural resource; Objective 5, Promote technology Development and Localization in the Field of Energy and Natural Resource, Objective 7: Expand the sustainable mining and Production Capacity.

20. **The proposed PforR operation will support Objective 1, 'Ensure sustainable security of supply' of MENR's Strategic Plan 2019-2023.** Specifically, this operation will support the government program on (i) 'The ratio of installed power capacity based on indigenous and renewable energy resources to installed power capacity will be raised from 59 percent to 65 percent and Performance indicator of 'Installed power capacity based on solar energy (MW) to achieve 10 GW by 2023' among other RE sources; (ii) 'Update of the legislation governing electricity generation without license depending on implementation and developments', which is specifically related to the distributed solar PV market; and (iii) "Creation of the legislation governing electricity storage systems and its update depending on implementation and developments."

21. **This PforR aims to help GoT achieve its target by unlocking the underdeveloped segments of the distributed solar PV market, particularly RSPV, as well as the market for BESS.** MENR's Strategic Plan highlights that the country has a high untapped RE potential and that it also needs investments to increase the integration of RE into the grid. In addition, it recognizes the need to develop the regulatory framework for battery storage, together with a cost analysis and an assessment of viable financing models for fixed energy storage systems.

22. **The proposed PforR Program will focus on removing the policy and regulatory barriers and mobilizing private sector investments in distributed PV, thereby, contributing to the achievement of the GoT's solar PV deployment targets**. The total proposed PforR Program boundary is expected to be around US$ 480 million. The proposed IBRD financing is US$300 million, with additional US$ 30 million from the Clean Technology Fund (CTF) to be mobilized (including both concessional CTF loan and CTF grant) to support investments in battery storage as well technical assistance (TA) for key policy and regulatory updates (Result Area 2). The remaining $150 million (to be confirmed) will come from the two participating PFIs, TSKB and TKYB. Specifically, the proposed Program will focus on the following three activities on a country-wide basis:

    a) **Scaled-up rooftop and distributed solar PV installed capacity and BESS**. Investments will support the installation of grid connected distributed PV systems, primarily RSPV systems, and battery storage systems in industrial, commercial, public and residential buildings. Distributed solar PV is defined as less than 5 MW here, and individual RSPV sizes ranges from a few kWp for average residential households to about 1 MWp for large industrial customers. However, the PFIs may require a minimum aggregated size for each sub-project, and this will be possible if the policy is expanded to allow third party developers who will originate orders from multiple customers and aggregate them to a minimum threshold per loan application. The BESS investments would be primarily for pilot demonstration of the battery storage compensation policies, linked to result area 2, including (a) generation-

side BESS to reduce RE curtailment and offer firm power to their off-taker; (b) grid-side BESS to address technical disturbance issues from high penetration of RE; and (c) the end user side to combine BESS with RSPV. No capital subsidies will be provided for distributed PV; however, capital subsidies may be provided for investment in battery storage if the buyer is willing to invest a certain percentage of equity. The detailed design of the minimum size of sub-project, maximum size of BESS, and CTF subsidies to BESS will be further defined during program preparation.

b) **Improved policy and regulatory framework for distributed PV and BESS**. The Program will focus on strengthening the policy and regulatory framework to scale-up private investment and enable the launch of a well-developed distributed PV and BESS market in Turkey. Specific activities and DLIs will be identified and agreed upon with MENR and EMRA during project preparation.

c) **Green financing mainstreamed in the PFIs and innovative business models piloted**. The two IAs will (i) establish a department focused on RE, particularly distributed solar PV, starting with a dedicated team and identifying the required internal institutional structure to mobilize staff in all the relevant departments and branches of their partner financial institutions; (ii) set up internal procedures for deal origination, risk assessment, and approval, and provide incentives to staff to undertake solar rooftop PV investments; (iii) provide training to staff on rooftop solar PV financing, particularly those responsible for deal origination and risk assessment; and (iv) develop and pilot innovative financing models and products tailored to RSPV investments, and market aggregation models for small and medium-scale consumers.

23. **The proposed PforR is expected to contribute to three key result areas in support of achieving the Government's target for the solar PV market by scaling up distributed solar PV investments**. The PforR will help with GoT objectives of increased use of domestic (i.e. non-imported) primary energy resources, and increased self-consumption of on-site energy generation from self-financed clean energy generation technologies. The results areas mentioned below have been identified based on an assessment of market barriers and have targeted the areas where the WB's result-based support could add value. The following preliminary result areas have been agreed with GoT (with a list of tentative indicators) and will be further refined during preparation:

Result Area 1: Scaled up distributed solar PV and battery storage solutions. The indicative disbursement-linked indicators (DLIs) are:

- Indicative DLI-1: eligible sub-loans of distributed PV disbursed to the sub-borrowers (US$) (TBC);
- Indicative DLI-2: distributed solar PV (primarily RSPV) installed capacity (MW) and/or power generation (MWh) (TBC);
- Indicative DLI-3: battery energy storage system (BESS) installed (kWh) (TBC).

Result Area 2: Improved policy and regulatory framework for distributed PV and battery storage. The DLIs under this result area will target the removal of the key policy and regulatory barriers listed above, and will be further discussed with the government, mainly MENR and EMRA. The indicative DLIs are:

- Indicative DLI-4: Third party RESCOs allowed to provide distributed RE services to consumers (TBC)
- Indicative DLI-5: RSPV approval procedures streamlined (TBC)
- Indicative DLI-6: Ground-mounted distributed PV eligible for net metering policy (TBC)

- Indicative DLI-7: Battery storage pricing policy established

Result Area 3: Green financing mainstreamed in the Participating Financial Institutions (PFIs) and innovative business models piloted.

- Indicative DLI-8: innovative financing models and products for distributed solar PV piloted (TBC)
- Indicative DLI-9: a RE or green financing department established within the PFIs (TBC)

E. Initial Environmental and Social Screening

24. An environmental and social initial screening was carried out by the Bank task team to identify potential risks as well as opportunities that may be associated with the Program. Overall, is it anticipated that the PforR Program shall have positive environmental and social impacts, such as reduction in local pollutants and GHG emissions, and improved access to renewable energy sources. The Program shall contribute to strengthening of the policy framework, and institutional capacity of participating financial institutions. Overall, environmental and social risks and impacts associated with the Program were assessed as Moderate.

25. The main social and environmental risks and impacts are associated with the Results Area 1. Distributed PV and battery storage shall have certain environmental adverse impacts and risks such as: (i) dust and noise and emission of pollutants during installation activities; (ii) solid and hazardous wastes; (iii) degradation of soil; and (iv) occupational health and safety risks. Potential social impacts and risks include (i) occupational health and safety risks during installation of RSPV, ground-mounted solar PV and battery systems; (ii) potential small land acquisition risks during installation of RSPV, ground-mounted solar PV and battery systems. The relevance of these land risks shall be determined during project preparation; and (iii) community health and safety risks during installation, operation and disposal of RSPV, ground-mounted solar PV and battery systems. Large civil works are not expected within the scope of the Program. Overall, installation related impacts are likely to be short term and site specific and can be mitigated by applying internationally recognized best construction practices. The environmental and social screening of PforR activities indicated that there are no activities which would be rated as high or substantial environmental and social risk. The environmental and social risks under the PforR are expected to be moderate, because the risks will be limited in impact by project design, and the GT and the Program implementing agencies have largely well-established and functional environmental and social regulatory and institutional frameworks in line with the core principles in World Bank policies. Since the PforR instrument cannot finance any investments associated with High or Substantial risk and adverse impacts, the eligibility criteria for financing in the Operation Manual will specifically exclude this kind of investments.

26. During Program preparation the Bank will carry out an environmental and social systems assessment (ESSA) to assess the adequacy of the environment and social systems. The ESSA will specifically assess the environmental and social institutional and regulatory framework, and systems relevant to results areas under the Program, to effectively manage the above-identified environmental and social risks and adverse impacts. ESSA will also assess the Environmental and Social Management Systems (ESMS) of the PFIs – TSKB and TKYB, who are Program implementing agencies. The ESSA shall be prepared, disclosed and consulted before Program appraisal. Internal and external stakeholder engagement and consultations will take place throughout the ESSA preparation process. Arrangements for consultations for the program's ESSA will consider the COVID-19 developments and relevant national and WHO

recommendations. The Program will build on the experience of other similar Bank financed projects and use other relevant measures such as the Operations Manual to mainstream environmentally and socially friendly practices in the Program.

27. The main implementing agencies of the PforR will be participating financial intermediaries (PFIs) – TSKB and TKYB. In addition, the Program will also engage other agencies including MENR and EMRA. The ESSA will assess ESMSs of TSKB and TKYB for managing the identified environmental and social impacts associated with Program, Result Area 1, including dedicated human resources, and compare these systems with core principles of the World Bank policies. On the basis of this assessment, the Bank and the PFIs will agree on measures and actions to manage any significant gaps in capacity to implement environmental and social management systems. Any measures to address potential gaps in the PFIs' ESMS will be defined in the legally binding Program Action Plan. The PforR Operational Manual will also include environmental and social exclusion criteria.

28. **Gender.** The 2017 Turkey Country Gender Assessment notes that Turkey has one of the highest gender gaps in labor force participation among upper-middle-income countries in the ECA region. World Bank Gender Statistics reveal that as of 2020, only 38.3 percent of women aged 15-64 participate in the labor force, compared to 78.3 percent of men who do so. The Turkey Gender Assessment shows that in 2016 women employed in the electricity, gas, steam, and air conditioning sector earned more than their male counterparts, as women tend to work mostly in technical and administrative positions. As of 2020, only 15.5 percent of female employment in Turkey was in the industry sector. While this is partially due to a smaller pool of female professionals in these fields (the female share of graduates from STEM programs in Turkey in 2014 was only 14.2 percent), an examination of women in engineering in Turkey found that women students believe that they have fewer opportunities than male peers and acutely feel the lack of role models. The human resources policies and practices adopted by energy companies can thus affect the career progression of the women who choose these fields, enable female role models to emerge, and hence encourage or discourage more women from joining their ranks. The PforR shall consider potential opportunities to promote female employment in the renewables sector.

29. **Citizen Engagement.** During preparation of the ESSA and PforR, internal and external stakeholders shall be engaged, and their inputs shall be incorporated in the ESSA report. Throughout the implementation of the PforR, in-country experts, government staff, developers of different types of renewable energy projects, representatives of the firms, and users of PVs will be consulted and informed. The PforR may consider carrying out a satisfaction survey of sub-borrowers from TSKB and TKYB to receive feedback on the main activities of the PforR.

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