



Project Information Document/ Identification/Concept Stage (PID)

Concept Stage | Date Prepared/Updated: 06-May-2020 | Report No: PIDC208944



BASIC INFORMATION

A. Basic Project Data

Project ID	Parent Project ID (if any)	Environmental and Social Risk Classification	Project Name
P173247		Moderate	Energy Sector Support under EU/IPA 2018
Region	Country	Date PID Prepared	Estimated Date of Approval
EUROPE AND CENTRAL ASIA	Turkey	06-May-2020	
Financing Instrument	Borrower(s)	Implementing Agency	
Investment Project Financing	Ministry of Energy and Natural Resources (MENR)	Ministry of Energy and Natural Resources (MENR)	

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PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	3.65
Total Financing	3.65
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	3.65
Free-standing TF for ECA	3.65

B. Introduction and Context

Country Context

Turkey has high growth potential, but recent shocks have affected the sustainability of its economic gains since the early 2000s. After the Global Financial Crisis in 2008-2009, growth has been increasingly fueled by credit growth and accumulation of (mostly foreign exchange) private sector debt, together with temporary stimulus policies. These led to declining productivity growth and macroeconomic imbalances in early 2018. The situation was compounded by exogenous factors including multiple election cycles, regional conflict, and difficult international relations. In September 2018, the Government launched the New Economic Program



(NEP) for the period 2019-2021, which sets out Turkey's macro-fiscal and structural reform strategy and is a comprehensive statement of the Government's policy intent for the near-term. The Government has recently launched Turkey's 11th Development Plan for the period 2019-2023, which sets out the longer-term structural reforms to be pursued in order to address Turkey's development challenges, such as improving productivity, tackling energy supply security and energy efficiency to ensure sustained growth, and building the skills of its population to reap the benefits of greater global integration.

Economic vulnerabilities that had accumulated over the past four years came to a head in mid-2018. Policy stimulus in the aftermath of the 2016 failed coup led to economic overheating. Though growth accelerated to 7.4% in 2017, this came at a cost of double-digit inflation and a large current account deficit. A hardening of external economic conditions in mid-2018, together with tense international relations, led to a depreciation in the Turkish Lira. This profoundly affected the real and financial sectors. Corporations and banks suffered due to high foreign exchange debt, annual inflation peaked at 25% in October 2018, the economy went into recession in the second half of 2018, and unemployment spiked from 10% in January 2018 to 14% in June 2019. Unemployment among the youth is particularly high, jumping from 19% to 25% between May 2018 and May 2019.

With the fallout from Covid-19 now threatening fragile recovery, there is an increased need for consistent policy mix. Prior to the outbreak of Covid-19 pandemic, Turkey's GDP was projected to rebound to 3 percent and 4 percent in 2020 and 2021, respectively. However, given the sharply increased degree of uncertainty in the global outlook, maintaining confidence and supporting the productive economic activities through appropriate fiscal and monetary policies would be key for mitigating the damage. Turkey now faces a two-fold challenge: (i) in the near-term, to mitigate the likely economic downturn with the external environment highly uncertain, and corporate and financial sector already weakened by the 2018 currency crisis; and (ii) in the longer term, to put in place appropriate policy and institutional settings to support a shift to a more sustainable growth model driven by exports and FDI. Rigorous progress in advancing structural reforms such as deepening financial markets, completing overdue labor market reforms, and preserving stable and strong institutions will help address the underlying structural issues that impede both exports and FDI.

Sectoral and Institutional Context

As Turkey's energy intensity and demand grew in tandem with the country's economy, energy efficiency and renewable energy became critical for Turkey to sustain its economic growth while meeting its global commitments for climate change mitigation and environmental sustainability. The primary energy consumption in the period of 2005-2015 grew by 46%, lower than the 65% cumulative GDP growth for the same period. This signals that less energy is consumed to produce a unit of added value. Meanwhile, although Turkey's energy imports remain more than 3% of the country's GDP, they declined from US\$55 billion in 2014 to about US\$27.14 billion in 2016. These trends have been in part been due to an increase in use of local energy resources, including RE, and promotion of EE. However, total greenhouse gas (GHG)



emissions in Turkey have continued to increase by more than 120 percent from 1990 to 2015[1], requiring a stimulated uptake of EE and RE.

MENR initiated several legal and institutional reforms to support and increase EE, reduce GHGs, foster security of supply, and create a sustainable energy sector within an efficiently functioning liberal energy market. These include laws such as the Law No: 6446 Electricity Market Law, 5346 Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy, 5627 Energy Efficiency Law and 4646 Natural Gas Market Law; and strategic documents including MENR's 2015-2019 Strategic Plan, Electricity Market and Security of Supply Strategy Paper, National Energy Efficiency Action Plan (NEEAP), National Renewable Energy Action Plan, National Energy and Mining Strategy, 11th National Development Plan 2019-2023, National Climate Change Strategy 2010–2023, and National Climate Change Action Plan.

MENR identified a strong market potential for residential energy efficiency. Recent assessments by the World Bank and other institutions have identified substantial potential for energy efficiency gains across all sectors. In Turkey's residential sector, for example, estimates indicate potential savings of about 30 percent. The occupancy permit statistics in Turkey suggest a rapidly growing and transforming building stock based on more than 100,000 new buildings added every year. Accordingly, it is possible to save energy significantly through making the new buildings more energy-efficient as well as improving the existing buildings, raising awareness in purchase and use of household appliances and heating/cooling habits of households. However, realizing these energy saving potentials would require overcoming various market barriers in Turkey. Enhancing MENR's capacity to promote and track behavioral change in households towards efficient energy consumption and consciousness of energy efficient household appliances would support Turkey's energy efficiency goals.

Energy efficiency measures should also be promoted in the gas sector. Millions of cubic meters of natural gas are flared or wasted annually at oil and gas production and transmission sites. Losses and flaring waste a valuable energy resource that could be used to support economic growth and progress. They also contribute to climate change through the release of tons of CO₂ to the atmosphere. Under previous IPA programs, studies are ongoing concerning energy efficiency of the natural gas transmission system. The next phase of the analytical work in this area includes looking into the feasibility of Flare Gas Recovery (FGR) system at the state-owned Petroleum Pipeline Corporation (BOTAS) infrastructures. BOTAS represents an important potential for improvement of energy efficiency for emission reductions and energy savings mainly because of the largeness of its operations that consume sizeable amount of energy. The studies will help assess the feasibility of FGR in Turkey and measure corresponding savings from implementing such technology. If feasibility is confirmed, potential investments could be unlocked.

Turkey's electricity infrastructure has been strengthened and production has increased in parallel with the rise in consumption. Additional efforts are needed to increase the share of renewables. The parallel trial interconnection of the Turkish power grid with the European Network of Transmission System Operators for Electricity (ENTSO-E)'s Continental European Synchronous Area has been successfully completed in the last quarter of 2014 and a long-term agreement between the state-owned Electricity Transmission Company (TEIAS) and ENTSO-E was signed on 15 April 2015. The Turkish power system has been permanently operated



in connection with the system of Continental Europe since January 2016. This is a major step for the integration of the Turkish system into the European electric system, opening the way to new opportunities to reinforce this integration for both market activities and flexibility of network operation. TEIAS also became an observer member of ENTSO-E with the observer membership agreement signed on January 14, 2016. The World Bank has been providing long-term support to TEIAS to modernize its transmission network and to facilitate renewable integration. The advisory services through IPA 2012 and 2013 and the Energy Sector Management Assistance Program (ESMAP) financing aimed to help TEIAS take operational measures, including better monitoring of the system and improved coordinated operations. To further the penetration of renewables, TEIAS's capacity for transmission/generation planning and R&D would need to be improved.

The establishment of the Gas Trading Platform (GTP) and the Turkish Energy Exchange (EXIST) signals transition to a well-functioning energy market, but further efforts are needed to improve EMRA's capacity to ensure market transparency, competitiveness, and monitoring. To ensure the move towards a transparent and well-functioning energy market in Turkey, the IPA 2012 project triggered the establishment of the GTP, being a crucial step towards a well-operating gas market. EMRA issued a regulation for the constitution of the GTP. In line with this regulation, EXIST initiated market operations on April 1, 2018. To improve Turkey's readiness to align with EU gas market, EMRA's capacity to implement the Legislation on Transparency and Competition in Turkish Natural Gas Market in line with the EU Regulation on Wholesale Market Integrity and Transparency (REMIT) and legislation on natural gas market transactions needs to be supported and a platform for monitoring natural gas market transparency and transactions needs to be established along with the requirement to increase the level of trust and market depth.

The World Bank has been supporting Turkey's energy sector agenda and alignment with the EU Acquis and the Europe 2020 sustainable energy targets through investment and advisory projects. Under the IPA 2012 and 2013, the World Bank was entrusted with activities entitled "*Enhancement of the Turkish Energy Sector in line with the EU Energy Strategies*" aiming to achieve a secure, liberal and transparent Turkish energy market, in line with the EU Acquis and the Europe 2020 sustainable energy targets. Phase I, which focused on natural gas market, EE, and RE, was funded under IPA 2012 and completed successfully at the end of March 2018. Phase II, which was funded under IPA 2012, is ongoing and expected to be completed in May 2020. The ongoing Phase II project aims to develop the administrative and technical capacity of relevant institutions in the areas of energy efficiency, electricity and gas markets, and long-term energy planning and modelling. The Project has achieved to build considerable capacity in the energy sector through trainings, peer work, workshops, site visits, awareness raising activities and trainings. The World Bank will continue supporting Turkey through this Phase III Project funded under IPA 2018.

[1] Source: UNFCCC (http://di.unfccc.int/detailed_data_by_party).



Relationship to CPF

The Project will contribute to the Turkey Country Partnership Framework (CPF) for the FY18-21 period by supporting the objective to improve reliability of energy supply and generation of green energy. Energy efficiency and renewable energy are among the key priorities for the energy sector cooperation between the World Bank and the Government of Turkey as articulated under the CPF Focus Area 3 - Sustainability. Through the Project, the World Bank will contribute to support relevant institutions to adopt and plan for increased use of low-carbon energy technologies, and to promote energy efficiency in residential buildings. Accordingly, the Project will serve under Objective 7 of the CPF, which aims to help Turkey enhance its energy independence. The Project will also indirectly target Objective 8, which supports sustainable and resilient cities, and Objective 9, which aims to improve the sustainability of Turkey's infrastructure assets and natural capital.

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C. Project Development Objective(s)

Proposed Development Objective(s)

The project development objective is to: (i) identify low-carbon energy technologies to be deployed by BOTAS, (ii) increase MENR's capacity to promote awareness of households on energy efficiency benefits, (iii) build EMRA's capacity to increase the level of trust and market depth in natural gas market and, (iv) improve TEIAS's capacity for enhanced electricity grid operations.

Key Results

- 1) Efficient and low-carbon energy technologies to be deployed by BOTAS are identified.
- 2) MENR's capacity in implementing and measuring the impact of energy efficiency awareness-raising activities and strategies towards households is enhanced.
- 3) EMRA's capacity to implement the Legislation on Transparency and Competition in Turkish Natural Gas Market in line with REMIT and to monitor natural gas market transparency and transactions is developed.
- 4) TEIAS's planning-related activities, such as R&D implementations, transmission and generation planning activities, are improved.

D. Preliminary Description

Activities/Components

The following components have been formulated for the IPA 2018 program and would be supported under the EU/IPA-financed World Bank-administered trust fund for the Phase 3 Project.

Component 1. Supporting utilization of efficient and low-carbon technologies by BOTAS:



Under the overall IPA 2018 program, this component aims to support utilization of efficient and low-carbon energy consumption/production technologies by municipalities, their subsidiaries and municipal service providers, BOTAS and the Turkish Electro-mechanics Industry Company (TEMSAN), and piloting the implementation in their operations/buildings. The World Bank-administered part of this first component of the EU/IPA 2018, however, will only target BOTAS and include the following activity:

- **Activity 1.5** Feasibility, detailed engineering, and cost-estimation (including for the required valve, pipe, fittings materials) studies for establishment of FGR system at the BOTAS Marmara Ereğlisi LNG Terminal at BOTAS and organization of multiple technical site visits and workshops in EU member states to examine the FGR systems at liquefied natural gas (LNG) terminals.

Component 2. Enhancing MENR's capacity in implementing and measuring the impact of energy efficiency awareness-raising activities and strategies towards households:

This component aims to enhance MENR's capacity in implementing and measuring the impact of energy efficiency awareness-raising activities and strategies towards households. Activities under this component include:

- **Activity 2.1** Identification of market readiness in and preparation of a roadmap for harmonization with EU's eco-design and labelling regulations in Turkey; design of a monitoring and calculation tool for energy savings potential of replacement of inefficient household appliances;
- **Activity 2.2** Development of a purchasing guide and a calculation tool for public procurement of energy efficient products including office equipment, lighting, household appliances and consumers electronics; organization of trainings on preparing communication strategy and plans, awareness-raising and PR campaigns;
- **Activity 2.3** Auditing of household loads, investigation of demand-side participation and load-shifting potential of household appliances as well as analysis of their possible impact on the national electricity load curve; determination of monetary savings potential of load-shifting by consumers; calculation of load-shifting potential at the national level; site visits to EU member states for best practices;
- **Activity 2.4** Awareness-raising activities towards households including preparation of a communication plan; design of a public awareness campaign; preparation of brochures for efficient households appliances; design, recording, editing and delivery of public service advertisement videos; design of a brand face (logo/item/mascot etc.) representing energy efficiency campaign and supply and distribution of shopping bags made of recycled fabric/material with the brand face visuals on them to 500,000 households; site visits to EU member states for best practices;
- **Activity 2.5** Development of pre/post surveys for households considering the socio-economic and geographical factors to assess the level of household awareness on energy efficiency and key drivers of consumption habits of households; application of the survey on a selected group of households; conducting awareness-raising activities; re-application of the survey on selected households; development of a consciousness index to measure the level of awareness;



- **Activity 2.6** Development of a sustainable energy efficiency financing mechanism for replacement of inefficient household appliances, office equipment, lighting, and consumers electronics; review of the current situation and incentive schemes; identification of barriers; review of international best practices, including grants, subsidies, fiscal measures, loans (such as the German Energy Saving Ordinance (EnEv) and the British Green Deal), market-based instruments, energy service companies (ESCOs), and public-private partnerships, etc.; recommendations on legislative and financial reforms.

Component 3. Improving TEIAS's planning-related activities, such as R&D implementations, transmission and generation planning activities:

This component aims to improve TEIAS's planning-related activities, such as R&D implementations, transmission and generation planning activities. Activities under this component include:

- **Activity 3.1** Assessment of TEIAS's R&D Unit's organizational structure and operations; analysis of the types and methodologies of R&D applications and multi-party implementations performed by two selected ENTSO-E member transmission system operators (TSOs); gap analysis and benchmarking of TEIAS's R&D applications with the selected ENTSO-E TSOs' R&D organizational structure and operations; study visit for TEIAS staff to an ENTSO-E member TSO's R&D center; needs assessment and a feasibility study report for improvement of TEIAS's R&D restructuring;
- **Activity 3.2** Assessment of TEIAS's generation planning; analysis of generation planning types and methodologies implemented by ENTSO-E member TSOs; gap analysis and benchmarking of TEIAS's generation planning with two selected ENTSO-E TSOs' generation planning activities; training for TEIAS staff regarding new types of generation planning methodologies and practices; study visit for TEIAS staff to an ENTSO-E member TSO's generation planning unit; needs assessment and a feasibility study report for improvement of TEIAS's generation planning;
- **Activity 3.3** Assessment of TEIAS's transmission planning; analysis of transmission planning types and methodologies implemented by ENTSO-E member TSOs; gap analysis and benchmarking of TEIAS's transmission planning with two selected ENTSO-E TSOs' transmission planning activities; training for TEIAS staff regarding new types of transmission planning methodologies and practices; study visit for TEIAS staff to an ENTSO-E member TSO's transmission planning unit; needs assessment and a feasibility study report for improvement of TEIAS's transmission planning;
- **Activity 3.4** Improvement of TEIAS's international business development capacity through the delivery of assessments, ENTSO-E TSO benchmarking, site visits and recommendations.

Component 4. Developing EMRA's capacity to implement the Legislation on Transparency and Competition in Turkish Natural Gas Market in line with REMIT and the legislation on natural gas market transactions and to monitor natural gas market transparency and transactions:

This component aims to develop EMRA's capacity to implement the Legislation on Transparency and Competition in Turkish Natural Gas Market in line with REMIT and the legislation on natural gas market



transactions and to monitor natural gas market transparency and transactions. Activities under this component include:

- **Activity 4.1** Training of EMRA staff on drafting legislation on transparency and competition in the natural gas markets and the legislation on natural gas market transactions; study visits to relevant institutions, such as the Agency for the Cooperation of Energy Regulators (ACER) and the European Network of Transmission System Operators for Gas (ENTSO-G), to examine best practices in terms of transparency platforms and relevant legislation; study visits to active futures and derivatives exchanges, such as ICE ENDEX and the European Energy Exchange (EEX);
- **Activity 4.2** Preparation of the draft legislation on transparency and competition in the natural gas market and on natural gas market transactions following the impact assessments and internal and external consultations; preparation of a roadmap for the improvements to be made in the market to provide better transparency and a more active and liquid market; organization of multi-stakeholder workshops;

Activity 4.3 Design and development of a software/platform to monitor natural gas market transparency and transactions.

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Environmental and Social Standards Relevance

E. Relevant Standards

ESS Standards		Relevance
ESS 1	Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10	Stakeholder Engagement and Information Disclosure	Relevant
ESS 2	Labor and Working Conditions	Relevant
ESS 3	Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4	Community Health and Safety	Not Currently Relevant
ESS 5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8	Cultural Heritage	Not Currently Relevant
ESS 9	Financial Intermediaries	Not Currently Relevant



Legal Operational Policies

Safeguard Policies	Triggered	Explanation (Optional)
Projects on International Waterways OP 7.50	No	
Projects in Disputed Areas OP 7.60	No	

Summary of Screening of Environmental and Social Risks and Impacts

Social and environmental risks associated with this TA Recipient Executed activity are moderate. The project will have positive social impacts as it will support energy efficiency awareness among households, and studies on low carbon technologies. The activities will not require access to private land. Labor risk is low and project activities will be carried out by civil servants and technical consultants hired following World Bank procurement procedures. The environmental risks associated with this TA is Low. Most of the activities will be desk based and will not have adverse impacts on environment. The activities associated with flare gas recovery (FGR) system is expected to result in increased energy efficiency, reduced air emissions (including GHG) and pollution, noise and light pollution and thermal radiation. The FGR system may also increase efficiency in plant fuel and steam consumption due to recovery of flare gas. In case that the feasibility study leads to future investments, potential risks and impacts, which can be associated with construction and operation phase of the FGR systems could be noise, dust emissions, waste and wastewater generation and occupational health and safety, and community health and safety. These risks and impacts will be assessed within the scope of the feasibility studies, considering the requirements of the ESF.

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Implementing Agencies

Implementing Agency :	Ministry of Energy and Natural Resources (MENR)
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The World Bank

Energy Sector Support under EU/IPA 2018

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