

INTEGRATED SAFEGUARDS DATA SHEET CONCEPT STAGE

Report No.: ISDSC2567

Date ISDS Prepared/Updated: 22-Mar-2013

Date ISDS Approved/Disclosed: 27-Mar-2013

I. BASIC INFORMATION

A. Basic Project Data

Country:	Turkey	Project ID:	P144534
Project Name:	Renewable Energy Integration (P144534)		
Task Team Leader:	Sergio Augusto Gonzalez C		
Estimated Appraisal Date:	01-Sep-2013	Estimated Board Date:	15-Mar-2014
Managing Unit:	ECSEG	Lending Instrument:	Specific Investment Loan
Sector(s):	Other Renewable Energy (80%), Transmission and Distribution of Electricity (20%)		
Theme(s):	Infrastructure services for private sector development (80%), Regional integration (20%)		
Financing (In USD Million)			
Total Project Cost:	475.00	Total Bank Financing:	300.00
Total Cofinancing:		Financing Gap:	0.00
Financing Source			Amount
Borrower			125.00
International Bank for Reconstruction and Development			300.00
Clean Technology Fund			50.00
Total			475.00
Environmental Category:	B - Partial Assessment		
Is this a Repeater project?	No		

B. Project Objectives

The PDO is to assist Turkey to meet its increased electricity demand while containing Green House Gas (GHG) emissions by strengthening the transmission system and facilitating large-scale renewable energy generation.

C. Project Description

I. Description

The REI project is expected to strengthen the transmission system by increasing its capacity and expanding the automation of control, management, and protection systems to maintain high voltage grid stability and counteract the propagation of large disturbances. This includes upgrading the Supervisory Control and Data Acquisition (SCADA) system software expanding the number of Remote Telemetry Units and Communication Equipment; modernizing the Human Machine Interface, a new National Control Centre with a renewable dispatch console; constructing a submarine and underground power cable, and Gas-insulated substations (GIS). The REI project consists of the following four components:

1. Construction of wind power grid connection structures;
2. Smart-grid applications to improve grid operation and management;
3. Lapseki-Sutluce 380 KV submarine power cable;
4. Expansion of urban transmission networks.

More details for each component are provided below:

1. Construction of Wind Power Grid Connection Structures: This component includes the development of four 380kV 500 MVA highly digitalized wind power grid connection structures in the provinces of Can, Izmir, Hamitabat, and Catalca consisting of: i) high voltage (HV) wind power substations; ii) HV grid interfacing equipment; iii) commercial smart-metering systems; iv) feeders (underground cables) to evacuate power from the site; v) telemetered dispatch systems; vi) digital protection systems; vii) supervisory systems; and viii) automatic voltage control systems;

2. Smart-grid Applications to Improve Grid Operation and Management. These applications will provide detailed information to enable operators to manage demand/supply balance in real time to reduce outages, the need for peak power, and the need for spinning reserves in the system. They will add new capabilities for measurements and control through Phasor Measurement Units (PMUs) to make the Turkish grid much more reliable and minimize the possibilities of blackouts in the face of the progressive integration of variable renewable generation. This component comprises protective relays with digital microprocessors to analyze power system voltages, currents, and other process quantities for the purpose of detecting system faults. It also comprises the upgrade of the existing SCADA system with a new functionality for renewable energy management. It involves the replacement of a comprehensive SCADA/EMS operational database customized to accurately replicate the existing TEIAS HV grid. The subcomponent includes the development of a new National Control Center with a dedicated Renewable Dispatch Desk. These facilities will have Human Machine Interface (HMI) capabilities consisting of large, dynamic, and high-performance wall-mounted boards illustrating the HV grid single line diagram. The component also involves the installation of 200 Remote Telemetry Units (RTUs) to bolster TEIAS' smart grid solutions. The RTUs will have capabilities that include data collection and monitoring, grid analytics, and rules-based economic decision-making tools to help TEIAS realize its next-generation strategies.

3. Lapseki-Sutluce 380 KV Submarine Power Cable (phase II): Just as the first phase of this undersea project under the ongoing Adaptable Program Loan (APL6) project, the cable under this component will go under the Dardanelles strait. The cable is expected to be one single length 3.8 km long. This is a crucial project for connecting the Asian and the European sides of Turkey. Its

relevance to renewable energy lies with the transmission of bulk electricity including renewable generated power from the Anatolia side to the high-growth Istanbul area and beyond towards the European ENTSO-E networks.

4. Expansion of Urban Transmission Networks. The component adds two open air 380/154 kV substations to help reduce transmission losses and voltage drops in the provinces of Antalya and Urgup and will increase system capacity to cope with the rapidly rising demand. In addition, it will add six 154/33 kV (GIS) located in the provinces of Atasehir, Hadimkoy, Selcuk, Yakuplyu, Muratpasa, and Sultanbeyli. The component also contains five 154/33kV underground cable projects to be built as part of a loop to serve increased load growth and to boost system reliability. The cables will connect the following substations: Yeni Ambarli – Yenibosna with a length of 14 km; Karabaglar – Buca with a length of 8.7 km; Kucukbakkalkoy – Kadikoy with a length of 8.5 km; Yakuplu – Ambarli with a length of 5 km; and Umraniye – Dudullu with a length of 9 km.

II. Cost Breakdown

The estimated cost breakdown and financing by sub-components are as follows:

Sub- Components	IBRD CTF	TEIAS (VAT & Project Management)
Wind power grid connection	USD \$ 25 million	USD \$ 50 million
Smart-grid applications	USD \$ 23 million	
Submarine power cable	USD \$ 83 million	
Urban Networks	USD \$169 million	
TOTAL	USD \$300 million	USD\$50 million
		USD \$125 million

As with the previous loans to TEIAS, this proposed project covers a time slice of the investments required. Given the unpredictability of system access requests from system new/old users (in the face of the sustained demand growth showed in the last years), including new generators, the priorities around investments identified under this loan could change over time. Therefore, actual investments financed by this proposed loan may be different in the future contingent upon changes in priorities of the grid and market evolution. However, because of the contribution expected from the CTF funds, CTF co-financed investments can only be replaced with CTF-eligible investments. In spite of this provision, the proposed investments can be changed if and only if they comprise subprojects originally listed under this proposed loan to build underground cables and/or to develop substations (GIS and open air) exclusive of those (and their specific equipment and systems) to serve the evacuation of renewable (wind) generation.

D. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

TEIAS has identified a tentative list of investments within the scope of the new project. The list includes GIS substation installations, underground cable construction and a Phase II stage of an undersea cable (the first phase is being financed under ongoing APL 6 project). The projects will be realized in different provinces of the country, some of them could be listed as: Istanbul, Antalya, Urgup, etc.)

E. Borrowers Institutional Capacity for Safeguard Policies

The project will be implemented by TEIAS in its roles as the Transmission System Operator and Owner and Market Operator. TEIAS has been effective in supervising and monitoring individual

sub-projects in accordance with the specifications of their EMPs which were prepared along with the procedures outlined in the framework documents. TEIAS is successfully implementing the APL 6 project and previously had implemented APL 2 and 3. TEIAS is getting experienced for complying with WB's social safeguard policy (OP 4.12). Bank and TEIAS team also agreed that a training on OP 4.12 will be conducted to increase TEIAS' capacity (both in central and regional level) for implementing the requirements of the policy and providing necessary documentation to WB. TEIAS will need support and training for getting familiar with Natural Habitats (OP 4.04) Policy of the World Bank. Since, the area of influence for component 1 will not be limited to the footprints of the substations but it will also cover the areas that would be used for establishing the wind power plants which will be connected to the substations that would be financed by this project, TEIAS should make sure that the requirements of OP 4.04 are met. Bank will support TEIAS by conducting some baseline studies and rapid ecological/biodiversity assessments, which will provide an initial indication of whether there are any critical or important natural habitats within the areas of influence of the substations. These initial studies will be followed up with more detailed surveys by TEIAS as appropriate when they are preparing the EAs/EMPs for the sub-projects. WB will also offer safeguard training to TEIAS (SG training tailored for PIUs) which is planned for May 2013.

F. Environmental and Social Safeguards Specialists on the Team

Zeynep Durnev Darendeliler (ECSSO)

Esra Arikan (ECSEN)

II. SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/ BP 4.01	Yes	Expected environmental impacts of the proposed list of investments (substations, underground transmission lines and 1 undersea cable) are generation of dust, noise, disposal of non-hazardous waste (packing materials, vegetation from ROW clearing), construction of any access roads, and issues related to worker camps if any (water supply, sewage, and domestic waste disposal). Environmental impacts of a 4.5 km long undersea cable is expected to be temporary and short term on undersea/aquatic environment and marine traffic. Expected environmental issues associated with operation of the substations include electric and magnetic field strength. The project could be categorized as 'B' under OP 4.01, as the types of potential impacts are limited and should be relatively easy to assess and mitigate through careful siting and good construction practices. It is planned to have an environmental review framework which will be prepared by the client and disclosed in country and in Infoshop before appraisal. As it will be detailed in the environmental framework it is

		<p>expected that sub-projects will be reviewed by TEIAS for having national environmental clearances and then necessary environmental assessment documentation in line with OP 4.01 requirements will be completed by the client. Sub-project partial EAs/EMPs will be submitted to WB for prior review and after getting no-objections these will be disclosed in client's websites and will be included in the corresponding bidding documents of the investment projects.</p>
Natural Habitats OP/BP 4.04	Yes	<p>The area of influence for the substations to be financed under this project will not be limited to the substation footprints. Since, the substations are intended for connecting the energy produced by wind power plants to the national grid, TEIAS should also consider the potential impacts of the the construction and operation of these wind power plants on natural habitats. In order to form a basis for screening high risk areas (regarding OP 4.04) a Rapid Ecological Assessment will be conducted. Results of the assessment will guide TEIAS to finance substations which are receiving energy from wind power plants that are not creating any significant adverse impacts on natural habitats and that are not placed in critical natural habitats. Issues related to natural habitats will be detailed in the EAs and EMPs that will be prepared for the substations.</p>
Forests OP/BP 4.36	No	
Pest Management OP 4.09	No	
Physical Cultural Resources OP/ BP 4.11	Yes	<p>Since sub-project specific civil works could potentially be within a historic district, the World Bank safeguard policy on Physical Cultural Resources (OP/BP 4.11) is applicable to these investments. For sub-projects in recognized historic areas and/or involving cultural property issues, the local authority of Ministry of Culture and Tourism is responsible for application of Turkish laws and regulations, including those relating to cultural heritage. The sub-borrower will be required to secure all necessary permits and approvals from these local authorities. For all sub-projects, whether</p>

		<p>or not they are in historic areas, any sub-project EMP/Mitigation Plan/Checklist will include procedures and responsibilities for managing accidentally discovered or chance find cultural artifacts. Consideration of such concerns is provided in the works contracts that will include requirements that the contractor is obliged to look for chance finds and immediately stop work at the contested location and alert responsible authorities in case of chance finds, and only continue works after official approvals from the responsible authorities are secured. Since the national regulations on the conservation of cultural properties are strict, it is not anticipated that any additional requirements would arise from the World Bank safeguard policies.</p>
Indigenous Peoples OP/BP 4.10	No	
Involuntary Resettlement OP/BP 4.12	Yes	<p>The proposed list of investments (substations, underground transmission lines and 1 undersea cable) will require land acquisition, though exact locations are not known at the moment due to the designs not being finalized. The underground transmission lines are expected to be on public land, but the substations will likely acquire private land. The Resettlement Policy Framework (RPF) prepared by TEIAS for APL6 and disclosed by TEIAS in June 2010 will be revised. The revised RPF will cover all possible involuntary project land use scenarios currently envisioned under this project. Special attention should be paid to potential linkages with associated facilities (i.e. wind farms) and the guidance provided in OP 4.12, paragraph 4 as well as any potential loss of livelihood (temporary or otherwise) to fishermen during the laying of the undersea cable. This RPF will be disclosed in country and in Infoshop before appraisal. For each sub-project TEIAS will prepare a RAP or ARAP (depending on the magnitude of impacts) that will need to be reviewed and cleared by the WB, and disclosed. All project affected people will be compensated at replacement value before any land acquisition takes place. In addition, OP 4.12 can apply to land acquisition that has been conducted under</p>

		ancillary components of the project, if these are directly related, necessary to achieve objectives and carried out contemporaneously. In addition, if any land is acquired involuntarily before the project but in anticipation of this project, social audits of completed involuntary land acquisition will be carried out in line with the objectives of OP 4.12. If any significant gaps exist, a time bound plan, satisfactory to the World Bank, will be developed to address these gaps.
Safety of Dams OP/BP 4.37	No	
Projects on International Waterways OP/BP 7.50	No	The laying of a submarine cable under the Dardanelles does not require triggering of this policy, as was confirmed by LEGEN in relation to the first submarine cable established under APL6. Adequate systems are in place to notify ship traffic of the temporary closure of the Strait which will be required for the cable laying.
Projects in Disputed Areas OP/BP 7.60	No	

III. SAFEGUARD PREPARATION PLAN

A. Tentative target date for preparing the PAD Stage ISDS: 02-Sep-2013

B. Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing¹ should be specified in the PAD-stage ISDS:

An environmental framework satisfactory to the World Bank was prepared under the previous APL 2,3 and 6 projects, which included very similar investments (substations, underground cables and an undersea cable). It is planned that these frameworks will be used as a basis for the preparation of an environmental framework for this project. It is expected that it will be consulted and disclosed to public in August/ September 2013. Sub-project specific environmental assessment documents (most probably Category B partial assessments/EMPs) will be prepared separately during project implementation when the detailed designs are being done, and shared with WB for prior review and will be disclosed for local consultation. The Resettlement Policy Framework prepared under APL 6 will be revised for this project. It is expected that consultations and disclosure of the final Resettlement Policy Framework will proceed in tandem with the Environmental Framework. Sub-project specific plans will be prepared during implementation to be reviewed and cleared by the World Bank before any land acquisition occurs.

IV. APPROVALS

Task Team Leader:	Name: Sergio Augusto Gonzalez C	
Approved By:		
Regional Safeguards Coordinator:	Name: Agnes I. Kiss (RSA)	Date: 27-Mar-2013
Sector Manager:	Name: Ranjit J. Lamech (SM)	Date: 25-Mar-2013

¹ Reminder: The Bank's Disclosure Policy requires that safeguard-related documents be disclosed before appraisal (i) at the InfoShop and (ii) in country, at publicly accessible locations and in a form and language that are accessible to potentially affected persons.