Report Number : ICRR0020332

1. Project Data

Project ID	Project Name
P110841	ECSEE APL#6 (TURKEY)
Country	**Practice Area(Lead)**
Turkey	Energy & Extractives

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IBRD-79570	31-Dec-2015	240,000,000.00
Bank Approval Date	**Closing Date (Actual)**	
30-Aug-2010	31-Dec-2015	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	220,000,000.00	0.00
Revised Commitment	220,000,000.00	0.00
Actual	211,242,347.98	0.00

Sector(s)
Energy Transmission and Distribution(98%):Public Administration - Energy and Extractives(2%)

Theme(s)
Infrastructure services for private sector development(67%):Regional integration(33%)

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2. Project Objectives and Components

a. Objectives

Project Portal Project Development Objective
"To increase the reliability and capacity of the power transmission system in the Republic of Turkey and improve its ability to integrate renewable energy into the system." (Loan Agreement dated October 4, 2010, page 5). The project is the sixth phase of a US$1,000 million APL program (hence, APL 6) for the Energy Community of South East Europe, and the third TEiAŞ project.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Components

Transmission System Strengthening and Expansion (Appraisal estimate US$189.5 million; Actual cost 217.9 million): There were 17 subprojects, including five transmission substations, three 380-kV underground cables, two undersea cables, associated remote control systems, and a market management control system. Two of the substations and one of the underground cables were started under previous Bank-funded projects, namely, the National Transmission Grid Project, the ECSEE APL 2, and the ECSEE APL 3. The project also included completion of the following: the upgrade of the SCADA system, an Automatic Meter Reading system, a Balancing and Settlement System, and a remote terminal control system, all of which had also been started under those previous projects. It was understood that these subprojects may change over time in response to the uncertain timing of new entrants to the generation market.
Technical Assistance (Appraisal estimate US$3.7 million; Actual cost US$2.1 million): This component was **to** support TEİAŞ in the areas of financial and operation management, accounting, auditing, enterprise resource planning, and the management of wholesale markets, including the balancing market and the day-ahead market.

Note: The actual costs indicated above, which total US$220 million, do not include the Borrower's contribution of US$20 million, as explained in Section 2(d) below.

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost and Financing:
The ICRR reports a total project cost of US$240 million, of which US$220 million was financed by the Bank. There was no other foreign financing. However, because the project was a time slice of a multi-year investment program, several of the project components completed under this project had been started under previous Bank funded projects (APL2 and APL3), and several other components started under this project were to be completed under a subsequent Bank-funded project, the Renewable Energy Integration Project (REIP). According to the information in Table 2.2 of Annex 2, the total project cost was approximately US$464 million, of which US$72 million was financed by previous Bank projects, US$220 million was financed by this project (APL6), and US$161 million will be financed by the REIP, approved by the Bank in 2014.

Borrower Contribution:
The Borrower contributed US$20 million to finance land acquisition and environmental activities, including obtaining permits, preparation of necessary environment-related documents, and project supervision.

Dates:
The project was approved by the Board on August 30, 2010. It was restructured in July 2013 (to apply the Bank's latest procurement guidelines) and in July 2015 (to reallocate funds between categories and update the Results Framework). It closed on schedule on December 31, 2015, without any extensions.

3. Relevance of Objectives & Design

a. Relevance of Objectives

The project was implemented during a period of rapid growth of Turkey′s electricity supply, from many private sector and public sector generating sources, including solar and wind. This necessitated major upgrades the capabilities of the Turkish transmission system to efficiently meet the requirements of the rapidly increasing energy demand, as well as the introduction of a significant level of renewable intermittent (solar and wind) energy sources. The project contributes to the World Bank′s FY2012–16 Turkey CPS, one of whose main strategic objectives is to deepen sustainable development in energy, environment, and climate change in an integrated manner. Thus the objectives of Increasing the system′s capacity and reliability and to improve its ability to integrate renewable energy sources into the system were and are still highly relevant to objectives of Turkey′s energy sector. The project was also in line with Turkey′s 2009 Energy Strategy, which focused on strengthening the country′s transmission system, and it′s Tenth Development Plan (2014–18), which attaches importance to

the integration of renewable energy into the transmission system.

Rating
High

b. Relevance of Design

The project was designed as a time slice of a multi-year investment program that integrated the Bank financed two previous APL projects (APL1 and APL3) and the subsequent REIP project. The components were appropriately focused on the expansion of the transmission system and the improvement in the operating system critical for achieving the requirements of an independent transmission system. The Results Framework was simple and presented a logical causal chain between the project's activities and attainment of the objectives of increasing system reliability and allowing for further load growth. However, the intermediate output indicators were inadequate for assessing the project's progress, and were revised only months before project closing, at a time when they were no longer useful for assessing the project's progress.

Rating
Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective
To Increase the reliability of the power transmission system and improve its ability to integrate renewable energy into the system.

Rationale

Outputs:
All of the project's investment components contributed to the project's objectives of increasing the transmission system's reliability and capacity, as well as increasing its ability to integrate new renewable energy systems.
The investments completed under the project were: five substations, two underground cables, 3 Remote Control Centers, and 75 Remote Terminal Units for integrating the operation of this highly complex system.
However, it must be noted that the APL6 investment program represented only about 10% of TEiAŞ's total investment program, estimated to have been about US$2.4 billion between 2010 and 2015. The outcomes identified in the ICR, presented below, cannot be attributed to APL6 alone, since they were the result of TEiAŞ's total cumulative investment over the period, which was much greater than that financed by APL6.

Outcomes:

Outcome 1: **increasing the reliability of the power transmission system:**
The reliability of the transmission system was substantially increased, both in terms of temporary system faults and longer term faults. By project conclusion, long-term system fault had declined to 0.18 faults/100 km, in the last year of project implementation, which was 50% better than the project's target of 0.36 faults/100 km. Short-term faults declined to 6.4 F/100km during the same period, which was about 11% better than the target of 7.5 F/100 km.

Outcome 2: Increasing the capacity of the power transmission system:
The peak load that the Turkish electricity network can handle increased from 29.9 GW in 2009 to 43.3 GW in 2015, which exceeded the target level by 23%. The energy transmitted through the transmission system supported by the project reached 264 TWh, exceeding the

appraisal target of 201 TWh by 31%.

Outcome 3: Improving the ability of the transmission system to integrate renewable energy into the system.
The ICR (page 21) notes that, at project closing, the renewable generating capacity connected to the system was 31.2 GW, thus exceeding the targets set at appraisal (17.5 GW) and at restructuring (28 GW).

Rating
Substantial

5. Efficiency

Economic efficiency. The PAD and the ICR undertook cost-benefit analysis on TEiAŞ's total transmission investment program because the project was designed to fund a time slice of that much larger program,. The PAD's analyses of TEiAŞ's transmission investment program yielded an estimated ERR of 27 percent. Although TEiAŞ's total investment of US$3.1 billion over the project period (2010-2015) was somewhat higher than the US$2.4 billion forecast in the PAD, and there were substantial changes in both its operating costs and its benefits, the ICR 's ex-post estimated ERR of 22 percent was close to the PAD estimate. These positive ERRs, along with the outcome indicator values, demonstrate that the costs involved in the transmission investment program were reasonable and that the investments were efficient.

The calculation of the economic rate of return for individual sub-project components was made quite complex because many of these components involved the completion of investments that were either started under ALP 2 and APL 3 loans, or scheduled for completion under the follow-up REIP project; moreover, several of the projects that were initiated and completed during the implementation of the APL were not in the original proposed project list, while several others were dropped, due primarily to delays related to with land acquisition issues. The ERRs for the individual components identified in the PAD ranged from 17 percent to 148 percent, while those in the ICR for the components actually financed under the project ranged from 20 percent to 116 percent.

Implementation efficiency. Overall implementation of this complex project was satisfactory. Implementation delays that did occur were primarily due delays in the land acquisition process and some equipment delivery delays. Two subprojects with land acquisition delays were dropped when it became clear that they could not be completed before project closure, and disbursements were directed to other appropriately chosen subprojects. All of the other project components planned for completion during the implementation period were completed, and the project closed on schedule with all of it funds disbursed.

It must be noted, however, that TEiAŞ cancelled the study of the constraints it faced in recruiting and retaining staff, its financing, and its procurement processes, and the options for resolving these constraints, with a view to improving its operational capacity and financial strength. The financing originally allocated for this study was shifted to important physical investment subprojects.

Efficiency Rating
Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	27.00	0 ☑Not Applicable

ICR Estimate	✓	22.00	0 ☑Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of the project's objectives is high given the close alignment with current Government and Bank strategies for Turkey's energy sector. The relevance of design was substantial in that the Results Framework presented a valid and comprehensive causal chain between the project's inputs, implementation activities, and the attainment of the project's objectives.

The project's efficacy was substantial. The objectives of simultaneously increasing the reliability and capacity of Turkey's power transmission system--including the capacity to integrate wind and thermal renewable energy production into the system--were achieved. The investments undertaken by the project (in conjunction with other investments financed by TEİAŞ) provided a major improvement in the system, including reduced risk of major blackouts due to system faults, increased efficiency through lower operating costs, reduced technical losses, increased reliability, and less probability of power outages. This increased transmission capacity enabled the introduction of new power supply facilities, including enabling more renewable energy generation to be connected to the grid. It also had the effect of extending Turkey's access to trade possibilities in the regional market.

Efficiency was also substantial based on the estimated ERRs in the 20 percent range. The successful implementation of the project and proactive resolution of the issues resulted in the completion of all subprojects (other than the three projects which were planned to be completed under the REIP) on the closing date scheduled at project appraisal, without any extensions or cancellation of funds.

a. Outcome Rating
Satisfactory

7. Rationale for Risk to Development Outcome Rating

Technical. The subprojects financed by the project are being operated and maintained by TEİAŞ's relevant operational departments, which are highly experienced, and the risk that they would not be properly maintained is low. In addition, TEİAŞ is implementing an extensive investment program, largely financed from its budget appropriations, which further supports the ECSEE APL Program.
Financial. TEİAŞ's financial situation has been greatly improved since 2010 due to several measures taken by the Government to ensure payment by other Government entities. TEİAŞ's transmission tariff, have been revised annually, and have secured enough revenue for TEİAŞ to cover its costs, including investment, its operational, maintenance, and ancillary services costs. All transmission system users are required to be in compliance with the approved tariff and pay TEİAŞ for the system usage and operation.
As a result, after 2010, TEİAŞ has collected all its receivables from state and legal entities. It continues to collect its future receivables regularly without any delay. In addition, TEİAŞ covers all investment income from system usage and system operation and market operation costs under "transmission tariff cost" and regularly collects and converts to investments.

a. Risk to Development Outcome Rating
Negligible

8. Assessment of Bank Performance

a. Quality-at-Entry
The project was identified, prepared, and appraised in the broader policy context of Turkey's electricity sector reform, and in the context of the lessons learned in the previous APL2 and APL3 projects, which were still ongoing when APL 6 was being appraised. The project objectives were in line with the government priorities. As a long time slice (five years) of TEİAŞ's total investment program that is ten times larger, the

appraisal focused on the criteria for approving new project components that were anticipated to be identified later. One might, however, have expected the appraisal team to have put more thought into the formulation of the definition of the project's intermediate output indicators, which had, eventually, to be expanded and revised in the months before project closure.

Quality-at-Entry Rating
Moderately Satisfactory

b. Quality of supervision

The World Bank collaborated well with TEİAŞ during the implementation of the project. Formal World Bank missions took place 2 to 3 times per year, and new project components were appraised and added as they were put forward by the Borrower. The team was able to monitor and verify social and environmental impacts, meet with contractors, clients, other relevant authorities, and beneficiaries, to listen to and discuss possible adverse impacts. However, the task team leader (TTL) was also changed three times during supervision, and was finally transferred to the country-office in the second half of the project implementation, along with the fiduciary and safeguard staff. During this process, the Social Safeguards team members also changed three times, and each team revised the reporting requirements, which according to the implementing agency, presented some inconsistencies on the implementation of social safeguards issues, as well as some problems in reporting on these subjects. The supervision team waited until the project was about to close in December 2015, when the project was about to close, to implement a restructuring that was needed to reflect the project's physical accomplishments and the project's development impact.

Quality of Supervision Rating
Moderately Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

The Government strongly supported the project and the sector throughout project implementation. Throughout the project lifespan, its budget allocation to TEİAŞ was nearly US$3.8 billion, showing the dedication of the Government for the improvement of security and reliability of electricity supply. It remained committed to the implementation of its reform agenda in the energy sector, through a variety of interlinked measures, including legislation regarding electricity, gas, and renewable energy, and the establishment of an independent energy regulator. It supported large-scale private sector participation in generation and distribution. This enabled the development of an electricity market with over 800 participants, and a separate energy exchange was established in 2015, taking over the market activities from TEİAŞ.

Government Performance Rating
Satisfactory

b. Implementing Agency Performance

TEİAŞ collaborated well with the World Bank during the implementation of the project. Its Project Coordination Unit (PCU) was effective in fostering coordination and cooperation within TEİAŞ and among other government departments, including the Ministry of Development and the Treasury. Its familiarity with the World Bank's policies and requirements, through its previous experience in NTGP, APL 2, and APL 3 contributed to the good progress of the project. Procurement was rated as satisfactory throughout the project implementation, during which no procurement waiver was needed. While the ICR states that the PCU performed well, it also noted that for large undertakings such as the first submarine power cable, where TEİAŞ did not have any prior experience, it would have been better to have recruited an experienced supervision consultant to support TEİAŞ by providing timely and effective supervision.

Implementing Agency Performance Rating
Satisfactory

Overall Borrower Performance Rating
Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

Two of the three PDO indicators (system faults per km and maximum capacity of the system) were formulated to measure project-level outcomes, but the baseline data and the target values were based on the overall system-wide data. Furthermore, there was only one intermediate outcome indicator (substation and cable contracts completed), which proved to be of little value in evaluating the project's progress, since it measured the number of contracts, not weighted by contract value, and was subsequently dropped.

b. M&E Implementation

The ICR states that the Results Framework was used to evaluate and inform decision making and resource allocation with respect to the investments. However, M&E was not utilized to follow project progress. The only intermediate output indicator that was available during project implementation was the percentage of completed contracts, which was subsequently dropped because it focused on number of contracts, rather than on percentage weighed by the value of the contract.
The deficiencies in M&E design were not reviewed until the final year of project implementation, when quantitative output targets were belatedly added. Outcome targets were also revised at the same time (June 2015). These new, almost ex-post, targets were of no value for evaluating the project performance relative to pre-project expectation.

c. M&E Utilization

M&E was of little use in following the progress of the project. The revised, essentially ex-post targets were not of much use for evaluating project performance.They were not utilized for providing ongoing feedback or for evaluating the project's success, since outcome measurements made within the last few months of a project's life are always very near the actual outcomes.

M&E Quality Rating
Negligible

11. Other Issues

a. Safeguards

The project, which was classified as Category B, triggered two policies: OP 4.01 – Environmental Assessment and OP 4.12 - Involuntary Resettlement. Site-specific environmental management plans (EMPs) were prepared by TEiAŞ during implementation, in accordance with the approved Environmental Management Framework document. EMPs approved by the Bank were added to the bidding documents. An independent environmental consulting firm reported regularly to TEiAŞ on the implementation of the EMPs. TEiAŞ shared these EMP monitoring reports with the World Bank.

There was no physical displacement of households or businesses, and no significant livelihood impacts. However, because the expropriation was implemented under the Turkish Urgent Expropriation Law, TEiAŞ's implementation practice relating to consultations and providing adequate advance notice were not initially in full compliance with the requirements of the World Bank's OP 4.12 in a few subprojects. In these cases, the Bank requested that construction on these sites be paused until TEiAŞ completed a social audit to assess whether there were gaps between the implementation of land acquisition and OP 4.12 requirements. TEiAŞ conducted the social audits, took necessary remedial action, and disclosed these on its website.

The ICR (para 32, page 15) states that "The project complied with the World Bank safeguards policy without deviations or waivers." At the time of the project closing, there were no pending issues.

b. Fiduciary Compliance

TEiAŞ had an acceptable FM system throughout the project life. Its financial performance was satisfactory over the period 2010 to 2015 and has been significantly above the minimum stipulated ratios. Financial statements were audited externally to ensure data quality. The interim unaudited financial reports were submitted on time. The project audit reports were submitted on time without any qualifications in the opinion of the treasury controllers, the auditors of the project financial statements. There are no overdue audit reports as of April 2016.

c. Unintended impacts (Positive or Negative)

None

d. Other

None

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Negligible	Negligible	---
Bank Performance	Satisfactory	Moderately Satisfactory	The Bank team performed well in supervising a highly complex project, but as discussed in Sections 8 and 10, there were weaknesses in supervision and on M&E design, implementation and utilization.
Borrower Performance	Satisfactory	Satisfactory	---
Quality of ICR		Modest	---

Note
When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

Political commitment and sustained dialogue are critical for market and institutional reform. During the implementation of the APL 2 and APL 3 projects, concern had emerged that the institutional setup of TEiAŞ might not be sustainable in the medium to long term. The dialogue at the time of project preparation established a broad agreement about the diagnosis of TEiAŞ's constraints and the need to consider options for increasing TEiAŞ's operational capacity and financial strength. A program of measures, reflecting relevant international best practices suitably

adapted to local conditions, was agreed upon and formed the basis of Government support for the project.
Continuity and consistency of the implementation arrangements and the policy dialogue are crucial for the successful execution of the World Bank's safeguards policies. The Bank's team experienced frequent changes of social safeguards team members and revisions of reporting requirements. It would have been useful if these issues had been resolved during the appraisal process, or at least implemented by a more unified safeguards team, since these changes required successive adjustment periods as well as some confusion and difficulties in the timely collection and reporting of the relevant information.

14. Assessment Recommended?

Yes

Please explain

This is the third of four Bank loans to TEiAŞ. There is a need to understand the Bank's value-added through this APL series towards Turkey's goal of integrating its power system into the European network, and to better understand the factors underlying the success of the series of projects in improving TEIAS's underlying financial situation.

15. Comments on Quality of ICR

The ICR was much too long, and the lessons, rather than being based on the evidence presented in the report, provided instead a long implementation narrative. Some paragraphs were copied directly from the PAD, and there was considerable repetition. Most importantly, the section on Lessons was more of a history of previous projects and the circumstances leading up to APL 6, much of which could have been included in the first section of the ICR on project context. The section on Bank Performance minimized the problems related to the lack of adequate M&E indicators at project entry, the lack of consistency in implementing the safeguards requirements, and the introduction of revised project outcome targets only when the project was almost substantially completed.

a. Quality of ICR Rating
Modest