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PROJECT PERFORMANCE ASSESSMENT REPORT

TURKEY

FIRST PROGRAMMATIC ELECTRICITY SECTOR DEVELOPMENT POLICY LOAN (IBRD-77180)

SECOND PROGRAMMATIC ENVIRONMENTAL SUSTAINABILITY AND ENERGY SECTOR DEVELOPMENT POLICY LOAN (IBRD-79070)

THIRD PROGRAMMATIC ENVIRONMENTAL SUSTAINABILITY AND ENERGY SECTOR DEVELOPMENT POLICY LOAN (IBRD-81460)

September 25, 2015

IEG Public Sector Evaluation
Independent Evaluation Group

Currency Equivalents

Currency Unit = New Turkish Lira (TL)

2009	US$1.00	TL 1.46
2010	US$1.00	TL 1.52
2011	US$1.00	TL 1.76
2013	US$1.00	TL 2.02

(Source: Program documents World Bank 2009, World Bank 2010a, World Bank 2012 and ICR World Bank 2013)

Abbreviations and Acronyms

DPL	Development Policy Loan
EIA	Environmental Impact Assessment
EU	European Union
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
PPAR	Project Performance Assessment Report
SEA	Strategic Environmental Assessment
SOE	State Owned Enterprise

Fiscal Year

Government: January 1 – December 31

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Principal Ratings

	ICR*	ICR Review*	PPAR
Outcome	Satisfactory	Satisfactory	Satisfactory
Risk to Development Outcome	Significant	Significant	Significant
Bank Performance	Satisfactory	Moderately Satisfactory	Moderately Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently validate the findings of the ICR. For this Development Policy Operation there was a single ICR at the end of the series of DPLs. The ICR Review was produced in parallel with the PPAR and by construction shares the same ratings.

Key Staff Responsible

Project	Task Manager/Leader	Sector Director	Country Director
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* Appraisal indicates appraisal of the first project in the series; completion indicates completion of the third and final project in the series.

IEG Mission: Improving World Bank Group development results through excellence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20-25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEG Rating System for Public Sector Evaluations

IEG's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEG evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEG website: http://worldbank.org/ieg).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High, Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Preface

This is the Project Performance Assessment Report (PPAR) for the First Programmatic Electricity Sector Development Policy Loan, Second Programmatic Environmental Sustainability and Energy Sector Development Policy Loan, and Third Programmatic Environmental Sustainability and Energy Sector Development Policy Loan (IBRD-77180, IBRD-79070, IBRD-81460). Together these represent a completed Programmatic Development Policy Operation series.

The first operation in the program was approved on June 11 2009 and closed on December 31 2009, disbursing US$ 773,792,400. The second operation was approved on June 15 2010 and closed on December 31 2010, disbursing US$ 657,034,200. The third operation was approved on March 27 2012 and closed on June 30 2013, disbursing US$ 574,327,710.

The report presents findings based on a review of the project's Implementation Completion and Results Report, program documents, legal documents, and other relevant material. An IEG mission to Turkey in May 2014 held discussions with World Bank country office staff, government officials and state-owned agencies, other development agencies, private sector companies or representatives, civil society organizations and other project stakeholders in Ankara (see Annex B). These included a range of energy and environmental experts. IEG met with government officials across all areas supported by the program, with the exception of some environmental and water departments where it was not possible to arrange meetings. Government officials were sometimes reluctant to share data; data presented in the evaluation is primarily from publicly available sources.

This program was selected for a PPAR for a number of reasons. The program represents one of the relatively few closed Development Policy Operations with environmental goals outside of the Latin America and Caribbean Region. With total financing of roughly US$ 2.1 billion, the program represents significant financial support and is a priority for evaluation for accountability purposes. The World Bank's Implementation Completion and Results report focused on documenting outputs and policy changes, with relatively little assessment of the outcomes of policy reforms or on attribution to the World Bank operation. The experience of the electricity sector in Turkey has been touted as a major success story by the World Bank and others, and so potentially offers important lessons to other countries. The PPAR is also designed to offer a case study to feed into a forthcoming IEG Learning Product on Development Policy Operations with environmental goals.

The contributions of all stakeholders, including World Bank staff in Washington DC and Ankara, are gratefully acknowledged. We are grateful for administrative support to the mission from Selçuk Rusçuklu in Ankara.

Following standard IEG procedures, copies of the draft PPAR were shared with relevant Government officials and agencies for their review and comment. The Borrower comments are printed in Annex C.

Summary

The World Bank has had a long engagement in the energy sector in Turkey, with support through investment lending and policy dialog. The government of Turkey has pursued an agenda of market-oriented electricity sector liberalization since 2001. In the mid-2000s, analytic work showed that Turkey faced the prospect of electricity shortages as early as 2009-11. The Bank aimed assist the government to alleviate these shortages by supporting an increase in the pace of the reforms, which were intended to increase private sector investment in electricity generation, distribution, and energy efficiency.

The Programmatic Electricity Sector Development Policy Loan, approved in June 2009 as the first in what was intended to be a two operation programmatic series, aimed to provide this support and to serve as a platform for continued policy engagement. The objectives of this operation were to *"address the projected electricity supply-demand imbalance*". These objectives were highly relevant to the development strategy of Turkey, including the FY08-11 Country Partnership Strategy with the World Bank and the Ninth Development Plan. The design of the programmatic series was highly relevant to this objective, with a coherent design of mutually reinforcing prior actions covering electricity sector market development, pricing reform, renewable energy development, distribution company privatization, energy efficiency, and others.

After 2008, the government increased its prioritization of environmental issues, particularly following the opening of the environmental chapter of the European Union *acquis* and accession to the Kyoto Protocol. The government requested World Bank assistance on environmental policy through the electricity programmatic DPL series. The design of the series was expanded from two operations to three, a number of new prior actions and triggers on environmental issues were added, and the objectives of the series for the Second Environmental Sustainability and Energy Sector Development Policy Loan and the Third Environmental Sustainability and Energy Sector Development Policy Loan were to *a) enhance energy security; b) integrate principles of environmental sustainability, including climate change considerations, in key sectoral policies and programs; c) improve the effectiveness and efficiency of environmental management processes*. The energy sector objective increased its relevance by expanding to cover energy security beyond the electricity sector, but the environmental objectives were less relevant, as the main weaknesses in environmental management were in implementation rather than policy.

The design had modest relevance to the revised objectives. The electricity sector design remained strong, but relatively little was added to address energy issues outside of the electricity sector. The design of the climate change pillar was relatively strong, as a national climate change strategy and action plan were important steps in addressing climate change. But there were weaknesses in the design of the environmental pillar. Some individual prior actions were for relatively minor policy changes, and many prior actions may have had little additional impact as these changes were already being pursued by Turkey motivated by EU harmonization.

The series was implemented largely as designed, though triggers on strategic environmental assessment and on gas market law amendments were dropped. However,

an important trigger on energy efficiency, which was at risk of being dropped, was preserved and the policy was adopted. The main factor affecting implementation was structural reorganization and separation of the environmental ministry into new ministries, which delayed progress.

The efficacy of the DPL series on addressing electricity supply-demand imbalances was substantial. The government's strategy of using policy reforms to encourage private sector investment in electricity generation has been generally successful, and the Bank DPL played an important supporting role. However, there have been some wintertime power shortages driven in part by gas shortages, and there has been less progress on energy efficiency. The efficacy of the DPL series on enhancing energy security is substantial. The electricity reforms led to increased electricity supply security, but there was little impact on other aspects of energy security including natural gas supply. The efficacy of the DPL series on integrating environmental sustainability and climate change considerations is rated substantial, as the climate change strategy and action plan are important steps, though the climate change strategy involves substantial increases in GHG emissions particularly from coal power development in the medium term. The efficacy of the DPL series on improving the effectiveness and efficiency of environmental management is modest, as many of the prior actions supported by the DPL were relatively modest, or were motivated by EU harmonization goals with little additional impact from the DPL. In particular, little progress has been made on increasing the degree of public participation in environmental decision- making. The Bank team argues that the environmental impact of the DPL should not be seen solely in terms of the impacts of the prior actions, as they hope that policy dialog will lead to significant environmental improvements in the future.

There were a number of weaknesses in the design of the monitoring and evaluation system. Many of the indicators were designed in a qualitative manner that made their fulfillment ambiguous or subjective, and many indicators tracked outputs rather than outcomes. The actual measured values did not track the targeted indicators in some cases, and there were no indicators for some key outcomes. The quality of monitoring and evaluation is rated modest.

The program had the potential for a number of positive environmental and social effects, by helping to improve efficiency in the energy sector, supporting renewable energy development, and avoiding electricity shortages, which could hinder economic growth and harm the poor. It also had some potential for some negative effects, as the policy reforms were aimed at increasing investment in electricity generation with associated environmental impacts, as electricity price increases could harm consumers in the short term, and as electricity distribution privatization could increase prices or fees or reduce service quality. The Bank assessed the capacity of the government to manage these risks, and carried out some analysis of impacts (though in one case only after the policy reform had been implemented).

The risk that the specific electricity sector reforms will be undone is relatively low, but there are ongoing risks to supply security as demonstrated by power shortages, due in part to little progress on natural gas sector reforms. The new institutional structure with the creation of the environment and urbanization ministry poses risks that environmental

issues will be dominated by urban development priorities. Overall the risk to development outcome is significant.

The quality at entry of the initial operation was strong, as the electricity sector reforms were built on a long history of engagement and substantial analytic work. The quality at entry of the environmental aspects was less strong; when the main environmental challenges were due to weaknesses in implementation and enforcement rather than policy, and the main motivation of environmental policy reform was for EU harmonization rather than the presence of Bank policy lending, then a DPL may not have been the right instrument for environmental engagement, especially absent parallel technical assistance. Quality at entry is rated moderately satisfactory. The Bank provided supervision largely through preparation of subsequent operations in the series, and provided ongoing policy dialog, leading to satisfactory quality of supervision. These lead to a Bank Performance rating of moderately satisfactory.

The government has retained high ownership of and commitment to its electricity reforms, though institutional reorganizations have been disruptive. Line ministries implemented the approved prior actions as planned. This leads to satisfactory government performance, satisfactory implementing agency performance, and overall satisfactory borrower performance.

This evaluation finds a number of lessons:

- The Bank can maximize its development impact by concentrating its strategic engagement including its lending and advisory support in sectors with track records of success.

- A well-designed programmatic DPL can be a key instrument in the Bank's long-term engagement that leverages the Bank’s strengths on technical quality, convening power, and credibility to help support sectoral reforms that can yield substantial impacts.

- Prior actions should focus selectively on those reforms that are critical to achieving project objectives but are difficult to undertake because of political or institutional resistance. Prior actions should also ensure that they are additional to what would occur in the absence of the DPL operation.

- DPLs can achieve good outcomes when they serve as the culmination of a process of engagement rather than the initial engagement in a new sector.

- A comprehensive yet well integrated set of market reforms can provide credible signals and incentives to private investors.

- Changing laws and regulations may not have much impact on environmental outcomes when environmental management agencies are weak and lack implementation and enforcement capacity.

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1. Background and Context

1.1 The power sector in Turkey was a legislated public sector monopoly until 1984. Following legislative reforms, the first private independent power producers were established in the 1990s to combat shortfalls of electricity generation. These plants were seen as very expensive, and required public guarantees from the Treasury. A second round of independent power plants was established using competitive bidding, but still required government guarantees. These guarantees posed fiscal risks to the government and were seen as undesirable, so the government aimed to attract subsequent private sector investment in the 2000s without Treasury guarantees.

1.2 The government launched a general energy sector reform program in 2001, with the goal of privatization/liberalization. Over 2001-2004, there was structural reform of the state-owned energy companies, and establishment of an energy regulator. An electricity sector strategy paper approved by Higher Planning Council in 2004 (Higher Planning Council 2004) included privatization, establishment of a competitive market, and a regulatory regime for cost-based pricing. Initially the government planned to carry out distribution and generation privatization in parallel, but later decided to proceed with distribution privatization first, because of difficulties in privatizing generation plants including the status of coal mines and concerns about environmental aspects of coal plants. However, implementation of the strategy was delayed, leaving key reforms incomplete. Retail tariffs and wholesale prices had fallen below supply costs, which inhibited investment and made generation privatization infeasible.

1.3 In the mid-2000s analytic work of the electricity sector carried out by the Bank and by others noted the possibility of serious electricity supply shortfalls starting 2009-11, depending on the rate of electricity demand growth and hydrological conditions (Krishnaswamy and Stuggins 2007).[1] The study notes that without action, peak load would exceed total reserve capacity by roughly 7 GW by 2014. Analysis suggested that electricity risks risk would occur because of insufficient investment in generation due to a lack of cost-based tariffs, insufficient distribution investment caused by delays in distribution privatization, and slow development of the energy market. This provided a rationale for Bank intervention in the form of policy-based lending, with the hope that a Bank Development Policy Loan (DPL) could help to provide pressure to accelerate progress on reforms, and that these reforms would encourage private sector investment and so eliminate supply shortages. The First Programmatic Electricity Sector Development Policy Loan was then designed as a two operation programmatic series to support policy reforms that would help avoid electricity supply-demand imbalances.

1.4 The World Bank has been involved in the energy sector in Turkey since 2001 through investment lending (see Table 1), analytic work, and engagement with stakeholders. The Bank's continuous engagement meant that it had substantial sector experience and strong

[1] The study built on scenario models carried out in a Report on Long Term Electricity Demand produced jointly by the Turkish energy ministry, energy regulator, state planning organization, and treasury, and in an Electricity Planning Study carried out by the Turkish transmission company.

relationships with key players in government and the private sector. Many of these operations were seen as highly successful in meeting their objectives. However, though investment lending could support highly successful individual projects, transformational policy changes at a system level would require a different approach and instrument. Investment lending through SILs and APLs could not help to change the investor incentives needed to unlock private investment.

Table 1: Major World Bank energy sector investment lending in Turkey prior to the DPL

Renewable Energy Project (2004), which provided a line of credit aimed at supporting private sector investments in renewable energy.
ECSEE APL2 (2005), which financed investments in the SCADA energy management and control system and transmission and technical assistance for the electricity market design in order to support electricity market development.
Gas Sector Development Project (2006), which financed a gas storage facility in order to improve the reliability and stability of gas supply.
ECSEE APL3 (2006), which financed investments in transmission infrastructure in order to strengthen the transmission system.
Electricity Generation Rehabilitation and Restructuring Project (2006), which aimed to improving the reliability and efficiency of one of the largest generating plants in Turkey.
Electricity Distribution Rehabilitation Project (2008), which financed investments in strengthening of the distribution network in order to improve power supply reliability.
Private Sector Renewable Energy and Energy Efficiency Project (2009) which financed credit lines to Turkish banks for renewable energy and energy efficiency investments.
ECSEE APL 6 (2010) which finances transmission system investments in order to strengthen the transmission system.

1.5 While the Bank had a long history of engagement in the energy sector, there had been little engagement on environmental, climate change, or water issues, as the government had not expressed an interest in working with the Bank on such issues. As progress on environmental issues was limited over 2004-7, environment was not included in as a pillar in the FY08-11 Country Partnership Strategy. However after 2008, the government increased its prioritization of environmental policy in its own development strategy, with the opening of the environmental chapter of the European Union (EU) *acquis* in 2009 (as part of EU accession negotiations started in 2005) and accession to the Kyoto Protocol. The government requested support on this from the Bank by expanding the electricity DPL to include environmental objectives and policy actions. The Bank saw this as an opportunity to expand its policy dialog and potentially develop a substantial environmental sector engagement, and expanded the originally planned series to three operations and increased the overall level of budget support financing.

2. Objectives, Design, and their Relevance

Objectives

2.1 The Loan Agreements did not include a formal statement of objectives. The Program Document for the first operation noted that the program development objective was to "*address the projected electricity supply-demand imbalance*" (World Bank 2009, page 19)[2].

These objectives were changed for the second and third operations in the series, as climate change and environment pillars were added to the program. The electricity-related objective was adjusted, and new objectives on environmental policy and environmental management were added. The revised program development objectives were to:

> a) *enhance energy security;*
> *b) integrate principles of environmental sustainability, including climate change considerations, in key sectoral policies and programs;*
> *c) improve the effectiveness and efficiency of environmental management processes.*
> (World Bank 2010a, page 34)[3]

Relevance of Objectives

Relevance of original objectives:

2.2 The original objectives focusing on avoiding electricity imbalances were highly relevant to Turkey. Due to high rates of electricity demand growth, planners were projecting potential supply shortages, which could hamper growth. Other rapidly growing large economies have had growth constrained by power shortages. Avoiding shortages was thus a central aspect of development.

2.3 The DPL series was designed to support the 2008-2011 Country Partnership Strategy, which aimed to support adequate and affordable electricity supply under its pillar on improved competitiveness and employment opportunities. The DPL also supported the medium-term reform program of the Government as laid out in the Ninth Development Plan, covering 2007-2013. The Plan lays out the objective of ensuring security of energy supply, while keeping environmental effects at a minimum level. The overarching objectives of the

[2] The full objective statement notes that the objective was to "support the implementation of the Government's program that aims to address the projected electricity supply-demand imbalance: (a) through energy efficiency measures to reduce the rate of growth of demand for electricity, and (b) by enhancing the efficient supply of electricity".

[3] The full objective statement notes that the program objective was to "a) enhance energy security by promoting private sector clean technology investments and operations; b) integrate principles of environmental sustainability, including climate change considerations, in key sectoral policies and programs; c) improve the effectiveness and efficiency of environmental management processes, in the context of harmonization with the Environmental Acquis of the European Union."

Plan were to achieve sustained stable growth that translates into job creation and poverty reduction.

2.4 The Relevance of the Original Objectives is rated *High*.

Relevance of revised objectives:

2.5 The revised energy objective remained consistent with the Country Partnership Strategy and the Ninth Development Plan. The expansion in focus to include energy security more broadly was relevant to energy issues outside the electricity sector, including natural gas. Roughly 70% of Turkey's energy consumption came from imports, including roughly 40% of electricity production which was based on imported natural gas. Energy security covers both the risks of supply shortfalls as addressed by the original objectives, and the balance of payments and supply security risks posed by high reliance on imported energy.

2.6 Environmental goals were not covered by the 2008-11 Country Partnership Strategy, but had some relevance to the Ninth Development Plan, which included goals on mitigating and adapting to climate change and on sustainable development. However, the objectives as stated were focused on the environmental policies, programs, and processes, and not on environmental outcomes.

2.7 Integrating environmental sustainability principles in policy may not have been the highest priority for three reasons. First, many of the problems in environmental management in Turkey were in implementation, rather than in policy or regulations. Environmental experts interviewed by IEG argued that Turkish environmental laws and regulatory standards were already relatively good, but that even these existing laws were often not fully implemented or enforced.[4] In this case, the incremental benefit of further tightening environmental laws and regulations without addressing implementation and enforcement may be low. Second, the principal motivation for environmental regulation changes was EU harmonization, and this motivation was likely to drive policy reform even in the absence of the Bank's DPL. Consequently, including environmental policy changes related to harmonization in a DPL may have little additional development impact over what would have occurred without the operation. Third, the objectives did not require actual improvements in environmental outcomes (though these may have been difficult to observe by the time of evaluation) or changes in implementation of environmental practices (which should be observable if the policies are to have a substantive effect).

2.8 An important exception to this is on work on climate change, where support by the Bank on policy dialog and reform had the potential for larger impact, and where EU harmonization was not a major motivation.

[4] Environmental experts interviewed by IEG argued that one of the main reasons for weak enforcement is lack of monitoring systems by environmental ministries. The ministries do not have monitoring and evaluation units and face limited monitoring capacity. Increasing standards and strengthening regulations will not address these gaps.

2.9 There were some synergies between the broad energy and environmental management objectives. Electricity generation and other energy sources provide the largest source of many forms of pollution and greenhouse gas emissions, especially through coal power generation, so environmental management would affect the operation of electricity generation. Any policies on climate change mitigation through greenhouse gas emission abatement would need to be coordinated with overall electricity strategies.

2.10 The Relevance of the Revised Objectives is rated *Substantial*.

Design

POLICY AREAS

2.11 The programmatic development policy operation supported policy and institutional reforms under three pillars:

1) Energy Sector (DPL1, DPL2, DPL3): Under the original design, the program had four policy areas:

- **Improving sustainable electricity supply security,** including prior actions on adoption of an electricity strategy, amending the electricity market law, modifying balancing and settlement regulations, and providing budgetary allocations for transmission investment.

- **Ensuring financial viability of the electricity sector,** including prior actions on revising electricity retail prices, establishing a cost-based pricing mechanism for state owned enterprises, and payments for streetlights.

- **Improving operational efficiency and the conditions for attracting enhanced private investments**, with prior actions on privatization of electricity distribution companies.

- **Improving energy efficiency in the supply and consumption of electricity,** with prior actions on energy efficiency regulations.

Following restructuring of the program, the energy sector pillar was revised to cover three policy areas, covering the prior actions from above and spreading the indicative triggers from the first operation over the second and third operations:

- **Improving electricity and gas supply security,** covering implementation and launching of the electricity day ahead market, and amendments to the gas market law.

- **Promoting financial viability of the electricity sector and improving efficiency in the consumption of energy,** including implementation of the cost-based pricing mechanism, and approval of an energy efficiency strategy.

- **Attracting private investment,** including an electricity generation privatization strategy, and a renewable energy law amendment.

2) Climate Change (DPL2, DPL3): Under the second and third operation, this pillar had actions supporting approval of a national climate change strategy and a climate change action plan.

3) Sustainable Environmental Management (DPL2, DPL3): The program had two pillars:

- **Improving the effectiveness and efficiency of environmental management processes in support of the implementation of EI environmental *acquis*,** including prior actions and triggers on an EU environmental approximation strategy, adopting a directive on strategic environmental assessment, adopting a directive in environmental impact assessment, and issuing a regulation on permits and licensing.

- **Mainstreaming sustainable development principles and reducing environmental degradation**, including actions on regulations for landfill waste, soil pollution and contaminated sites, large combustion plants, and industrial air pollution control; also including a clean air action plan, and water resource sensitivity designation.

The indicative triggers on strategic environmental assessment and on the gas market law revision were dropped and did not become a prior action for the third operation.

IMPLEMENTATION ARRANGEMENTS AND PROGRAM FINANCING

2.12 The program was to provide general budget support to the Government of Turkey. Formally, the Development Policy Loan was to be implemented by the Undersecretariat of the Treasury. In practice, many of the policy reforms were implemented by a range of ministries and agencies, including the Ministry of Energy and Natural Resources, the Ministry of Environment (which during implementation was split into parts of the newly formed Ministry of Environment and Urbanization and the Ministry of Forestry and Water Affairs), the Ministry of Development, the Privatization Administration, state-owned energy utilities for distribution (TEDAS), transmission (TEIAS), generation (EUAS), and trading, and the electricity sector regulator (EMRA). The Treasury provided a coordination and supervision function.

2.13 The three loans were denominated in Euros, so changing exchange rates meant that the total disbursed was smaller in $US than originally committed. The first operation had commitments of $US 800 million; disbursements were valued at $US 774 million. The second operation committed $US 700 million and disbursed $US 657 million, the third operation committed $US 600 million and disbursed $US 574 million. The financing

represented a small but nontrivial portion of the Turkish budget deficit, which was $30.8 billion in 2009.[5]

2.14 The program document for the first operation did not specifically indicate the planned level of financing for the second operation. The total planned financing expanded when the operation design was expanded from two to three operations, but the financing per operation declined over time. Some Bank staff argued that the size of financing was determined largely by the envelope space in the Bank's lending program, and that the level of financing for latter operations was less than might have otherwise been expected.

MONITORING AND EVALUATION DESIGN

2.15 The monitoring and evaluation design contained some strengths. It included some indicators tracking important outcomes, such as on electricity demand-supply imbalance, new generation capacity from private sector investment, financial performance of state-owned power companies, and coverage of population by sanitary landfills.

2.16 But the M&E design also contained a number of weaknesses. Many of the indicators were designed in a qualitative manner that made their fulfillment ambiguous or subjective. For example, the key indicator on avoiding electricity demand-supply imbalances was recorded in the Bank's ICR as "imbalances have been avoided" even though some power shortages had occurred in winter periods. A quantitative indicator (e.g. number of days when shortages or load shedding occurred) could have been less subjective.

2.17 Many indicators tracked outputs rather than outcomes, such as the adoption of policies rather than tracking the changes that those policies were designed to achieve. For example, government financing of transmission investments and privatization of distribution companies were designed in part to reduce technical and non-technical losses – but losses were not tracked by the M&E system, nor were actual investment levels by distribution companies.[6]

2.18 There was a disconnect between some indicators and the value used for tracking them. The indicator labeled "improved operational efficiency in privatized companies" (an important outcome to track) was used only to track whether privatization had occurred, and contained no content on operational efficiency – whether the newly privatized companies would improve operational efficiency was an empirical question that could not be assumed. An indicator used to track public awareness of energy efficiency benefits tracked the overall rate of electricity demand growth, which is likely driven primarily by short-run economic growth rather than energy efficiency.[7] An indicator to track increased transparency,

[5] The deficit in 2009 was larger than in other recent years due to economic downturn related to the international financial and economic crisis.

[6] The energy regulator collects this data but does not publish it.

[7] It should be noted that economy-wide energy efficiency is very difficult to measure, that systematic firm level data is not being collected, and alternative proxies such as economy-wide energy intensity have their own problems. However, public awareness of energy efficiency or behaviors could have been assessed using survey data.

accountability and public participation in the environmental consent process tracked only the transcription and issuance of particular EU directives, not any measure of whether public participation actually increased (e.g., based on survey data).

2.19 When the indicators were expanded to encompass the revised design, environmental indicators were added to cover the new pillars, but little was done to revise the indicators to track the broadened energy sector objective of energy security. For example, there were no indicators on the proportion of energy coming from imported sources, or on supply quality or outages.

2.20 Many of the indicators did little more than track production of prior actions – which had already been achieved by definition at approval.[8] Some indicators tracked completion of outputs that were not clearly attributable to the Bank's operations. For example, an indicator tracked the creation of the Marmara Clean Air Center, which was a separate donor project financed by the European Union.

Relevance of Design

Relevance of design for original objectives:

2.21 The design of the electricity sector pillar was very relevant to the objective of preventing supply shortages. The goal of the government was to meet generation supply needs through private investment rather than public financing. It was unlikely that public sector financing could be available within the government budget, and the government had an overall preference for market oriented private sector development. The objective would be accomplished primarily by taking policy actions to encourage private sector investment in electricity generation and distribution

2.22 The design of the specific prior actions was strong. It included a coherent design, with mutually reinforcing actions. The updates to the electricity sector strategy outlined the broad approach, and made these clear to prospective investors. Establishing and supporting a wholesale electricity market would increase investor confidence that they would be able to sell power at prices that reflected market forces and would signal a declining level of political intervention in price setting. Increasing the government-set retail electricity tariffs to reflect fuel cost increases would help to ensure that tariffs reflected costs of supply and adequate returns on investment. Establishing a cost-based pricing mechanisms for state-owned enterprises overseen by the independent energy regulator would help to reduce investor fears that they would be competing with implicitly subsidized state-owned enterprises. Amending the renewable energy law to differentiate feed-in tariffs across fuel types could help to encourage wind and solar investments. Committing to necessary funding of transmission investments by the state-owned transmission company would increase investor confidence that new generation plants would be able to connect to the grid,

[8] In some cases however (such as for the cost-based pricing mechanism) there was value in tracking that the prior action had been implemented or maintained over time.

especially for renewable energy plants, which might be located near good natural resource potential and further from existing transmission infrastructure.[9]

2.23 Privatization of distribution companies could enable increased investment in the distribution systems, it could help to bring down non-technical losses, and it could improve operational and management efficiency of the sector. Large outstanding debts for street lighting from municipalities to the state owned distribution companies were a barrier to privatization, as new private owners might fear that they could not easily collect from government agencies. Thus, legislative amendments to improve payments for street lighting would help to make privatization of electricity distribution companies more feasible.[10]

2.24 The program supported a strategy for electricity generation privatization, but not implementation over this time period. This was the result of a deliberately phased approach; it made sense to establish private distribution companies and an electricity market prior to generation privatization, so generation investors would have confidence that there would be a market to sell to. There was also a concern that private banks would not be able to raise sufficient capital to finance both distribution privatization and generation privatization simultaneously. However, there was some potential risk in encouraging private capital investment in distribution when generation supply security was still partly insecure.

2.25 The design of support for energy efficiency was weaker, and it was clear from the overall design that the main focus would be in meeting supply-demand balance through generation investment rather than efficiency. Approving an energy efficiency strategy by itself would not clearly lead to energy efficiency improvements, but might still provide a useful first step. The tariff increases and cost increase would also encourage consumers to invest more in energy efficiency.

2.26 A strength of the design of the programmatic series was that there were strong actions from the first operation, such as the tariff revision, cost-based pricing adoption, and initial distribution company privatization. This helped to ensure that there would be development impact even if subsequent operations in the series were not approved. It also ensured that urgently needed actions on tariff reform were put up front, as many other reforms may not have worked without this.

2.27 For the design to be relevant, it must also be the case that there was additionality from the Bank. The policy reforms were all part of the government's electricity strategy, and so it could be argued that they would be accomplished even in the absence of the Bank. However, progress on electricity sector reforms had lagged in the years prior to the Bank involvement, and it was plausible that the Bank and the Treasury could use the DPL to help speed adoption of the reforms (especially those that were politically or institutionally challenging), and to use disbursement conditionalities to help line ministries prioritize the most critical reforms. The expectation that DPL financing could be available had also played a role in supporting

[9] Other issues in the transmission sector were largely not policy issues, and so a DPL might not be the right instrument for addressing them.

[10] However, outstanding debts from power from other municipal and government buildings were also a problem, and were not addressed by the street lighting prior action.

the high level policy dialog by the Bank on energy sector issues over preceding years. The high level of financing provided also helped to get the attention needed on electricity policy reforms from top government officials including the cabinet and the high planning council. The Bank was well respected in government and the private sector, and based on interviews with private companies it is likely that Bank involvement in the reforms encouraged investor confidence, as involvement of a respected neutral party would help to reassure investors that market rules would be fair.

2.28 The relevance of design to the original objectives is rate *High*.

Relevance of design of revised objectives

2.29 The original design objective of avoiding electricity supply-demand imbalances is a subset of energy security, so the results chain of the original design remained relevant to the revised objectives. Elements of the design aimed at energy efficiency and renewable energy development could also have some effect on energy security by reducing the need for imported fuels at the margin.

2.30 The revised objectives expanded the scope of the operation from the power sector to energy security more broadly. While highly relevant to Turkey's development strategy and challenges, little was added to the design to achieve the broader scope. One prior action included signature of a contract on natural gas imports, to address gas supply shortages and to help to diversify supply sources. A second planned action contained amendments to the gas market law to split the gas import and trading functions and the gas network and storage functions of the state gas company, but this action was dropped from the third operation. But otherwise there was little engagement in the gas or other energy sectors. Gas prices are still set administratively and do not represent real costs, and so investment signals for private sector investment in the gas sector have not been changed in the way that they have in the power sector. There are implicit cross subsidies in gas prices, with a smaller gap between industrial and household users than in most high-income countries. This is a significant problem as natural gas constitutes roughly 40% of electricity generation as well as a broader use for heating.

2.31 The other major change was the introduction of environmental objectives and prior actions. The design of the environmental aspects was not as strong as those of the power sector reforms. They were not based on the same history of engagement, base of analytic work, policy coherence, and careful selection of reforms as the electricity sector aspects; rather they were a rapid response to a perceived opportunity for engagement.

2.32 The design of the pillar on climate change was relevant to the objective of integrating climate change considerations into national development policy. The national climate change strategy and action plan were important steps in approaching climate change mitigation and adaptation, and the existence of prior actions in the Bank's DPL could help to support approval of these by government at a high level.

2.33 However, there were weaknesses in both the overall approach to the environmental pillars and to the specific selection of prior actions. In the overall approach, the first issue

was that of instrument; the main weaknesses in environmental management for Turkey were in implementation and enforcement, not in the quality of laws and regulations. The second issue is that the principal motivation for Turkey on environmental policy reforms was on EU harmonization; there were already strong incentives for Turkey to pursue these reforms without the presence of the Bank, and it is not clear that the Bank DPL provided much additional impact.

2.34 The level of additionality and criticality of the environmental prior actions was variable. There were some actions that were likely to have a significant impact. But in other cases either the reforms were relatively minor, or their inclusion in the DPL seemed to have little impact on the timing or nature of the reforms. On the EU harmonization agenda, some of the potentially most difficult reforms were not included, as the government had not decided to harmonize with EU acquis requirements on transboundary issues or international waters. Another flaw was that few prior actions were related to increasing the effectiveness of regulations; most were aimed at strengthening standards rather than increasing the ability to implement those standards.

2.35 It appears that an action was selected for most divisions of the environment ministries, which combined with the modest nature of some prior actions suggests an approach aimed at ensuring that there was some basis for policy dialog and engagement with each division rather than a highly strategic approach that selected critical priority environmental policy reforms. Some policy actions appeared to have been chosen as relatively low hanging fruit, looking for things that could be completed on time before appraisal. The main purpose of the environmental pillar from the Bank's perspective appears to have been to support a policy dialog engagement aimed at creating a basis for future support rather than for achieving substantial impacts through the prior actions. The main purpose of the pillar from the government's perspective may have been to have the Bank publicly lend its weight to EU harmonization and potential accession.

2.36 In the operation design, the synergies in combining environmental and energy were less than might have been expected. Except on climate change actions, the DPL did not appear to function as a platform for bringing agencies together to work jointly on implementation; energy reforms were carried out through the energy ministry; environmental reforms were carried out through the environmental and planning ministries, with little coordination. The principle reasons for putting environment and energy in same DPL appeared to be rather for convenience of processing and for leveraging the high priority energy actions to gain access to decision makers on environmental issues.

2.37 Despite the weaker environmental design, the design of the electricity sector actions remained strong, so the Relevance of Design for revised objectives is rated *Modest*.

3. Implementation

Implementation Experience

3.1 The program was initially designed as a two operation programmatic series focusing on the electricity sector, as noted above, following approval of the first operation the series plan was adjusted. The second operation was approved with revised objectives, additional policy areas and triggers, an expanded M&E system, and increased overall financing.

3.2 The policy actions were generally implemented as planned. However, the indicative trigger on Strategic Environmental Assessment (SEA) was dropped from the third operation and was not implemented, on the grounds that it could not be completed on time. Similarly, the indicative trigger on gas market law amendment was also dropped. There was pressure to drop the third operation action on approval of an energy efficiency strategy, but the Bank resisted this as it was seen as an important action, and the strategy was approved before the third operation proceeded. The third batch of distribution company privatization was not completed on time, but following a rebidding process was subsequently completed.

3.3 The main factor affecting implementation was the restructuring of the environment ministry, merging the water management function of the ministry to be merged with the forestry ministry, and merging the environmental policy part of the ministry with the urban development ministry, leading to two environmental ministries: the Ministry of Forest and Water and the Ministry of Environment and Urbanization. At the same time, there was a restructuring within the latter that separated policy-setting divisions from implementation divisions. Government officials argued that the merger had not made much difference to their daily work, but non-government officials generally argued that this was a major change that had in some cases disrupted environmental policy and that had deprioritized environmental protection.

IMPLEMENTATION OF MONITORING AND EVALUATION

3.4 The monitoring and evaluation system was implemented largely as designed. Some indicators were dropped and additional indicators added when the program was restructured for the second and third operations. As noted above some indicators were not quantifiable and so were not measured consistently. The Treasury played the principle role in monitoring implementation of the program and maintaining contact with the Bank team. The Bank team including a substantial set of sector experts based in the country office provided additional monitoring through their policy engagement, separate from the formal M&E system of the series. The program closure was set to close later than usual to allow for monitoring to continue.

ENVIRONMENTAL AND SOCIAL IMPACTS

3.5 As a Development Policy Operation, the program is not subject to the "safeguard" policies on environmental impact assessment or others. However, under the Bank’s Operational Policy 8.60 the Bank is still required to assess the potential for likely significant positive and negative environmental and social effects, and then for any such effects to

conduct analytic work, to support government consultations, to assess country systems for managing effects, and to provide support to the government to fill gaps in country systems.

3.6 The policy actions supported by the DPL series offered the potential for a number of positive environmental effects. Support for expansion of renewable energy and energy efficiency would likely provide environmental benefits (relative to a counterfactual) by reducing the need for fossil fuel consumption. Energy pricing and market development policies would likely help to ensure higher energy prices that better reflected supply costs, which would tend to reduce the quantity of energy demanded and so reduce the associated environmental impacts. Environmental regulations aimed at air, water, and soil pollution control could help to improve natural resource management. Climate change strategies and action plans would be steps in a path towards climate change mitigation and climate resilience.

3.7 The policy actions supported by the series also offered the potential for positive social effects. The policy actions were aimed at avoiding a shortfall in electricity supply, which would help to sustain economic growth, and avoid unemployment and poverty. The consequences of a shortfall in electricity supply may fall more heavily on the poor, who would be unable to mitigate the effects through diesel generation or other practices.

3.8 However, there was also some potential for significant negative environmental effects. The climate change strategy and energy strategy lay out plans for large continued expansion of thermal power, primarily coal power. Many electricity policy actions aimed overall at encouraging private sector investment in power generation including fossil fuel plants. There was also the potential for some negative social effects, particularly through electricity tariff increases arising as a consequence of adopting a cost-based pricing mechanism. There was also some potential for negative effects through privatization of electricity distribution companies, as privatized companies may charge higher prices to consumers and may provide higher or lower service quality.

3.9 The original program document did not specifically assess the potential for negative environmental or social effects of specific policy actions as required under OP 8.60. However, it did assess the capacity of the government to manage environmental risks from energy investments in general, noting that Turkey had fairly robust requirements for environmental impact assessment of energy projects and describing the main requirements. It also described a number of actions taken by the Turkish government to mitigate the overall environmental effects of energy sector investment. In addition, environmental policy actions added in subsequent program documents could serve as partial mitigation of air and water pollution effects from energy sector investments. However, it should be noted that the EIA requirements are not always carried out. There have been a significant number energy projects with legal cases based on their environmental impacts.[11] Courts have halted projects

[11] For example, there were 65 lawsuits on hydropower projects filed against the Ministry of Environment over 2002-13, mostly over issues of the Ministry's determination that the project would not require a full EIA. Most of these cases were still pending as of 2013. (Ministry of Environment and Urbanization 2013)

in a number of cases, ruling that the environment ministry did not implement EIA regulations adequately as there was insufficient public notification and participation.

3.10 The Bank carried out substantial analytical work on the welfare consequences of the adopting of the increase in electricity tariffs by at least 50 percent in 2008 (Zhang 2011). The study concluded that the price increase would affect poor consumers more seriously than wealthy consumers: the welfare loss of the poorest income quintile - measured by the change in consumer surplus as a percentage of income - was 2.9 times that of the wealthiest quintile. For bottom quintile households, the welfare loss from the 2008 change was equivalent to a decline of household income by 2.16 percent. This work was not published until well October 2011, well after the policy was implemented and after approval of the first and second DPLs in the series, and as such had no opportunity to inform policy implementation. Some Bank staff reported that one reason for the delay was that the Turkish government did not want the Bank to produce analytic work which might conclude that the poor could not pay large energy tariff increases, as this might suppress the bids of buyers in the auction process for distribution company privatization. However, the Bank had conducted simulation modeling prior to approval of the first DPL operation, estimating that a 30 percent increase in electricity tariff would increase poverty by up to 0.4 percent (assuming that consumption levels did not reduce as a result of electricity tariff increases).

3.11 The Bank's initial Program Document noted that the government already had systems in place under the electricity market law for reviewing the impacts of tariff increases on vulnerable customers, it noted the range of social assistance programs designed to support poor and vulnerable families, and it noted that the Bank was supporting the social safety net programs through a separate DPL program. The Bank did not engage directly in supporting mitigation measures for price increases within the electricity DPLs, but many energy sector experts report that the government continues to support measures that provide an implicit subsidy to household consumers of electricity and natural gas. The Bank is providing ongoing support and social specialist expertise in regions where electricity nonpayment rates are high, aimed at reconciliation between power companies and communities.

3.12 Environmental groups are concerned about the environmental implications of the climate change and energy plans, which call for large increases in fossil fuel generation, especially from domestic lignite coal product. Civil society groups are also concerned about the social impacts of electricity distribution privatization, noting the effects of fee and price increases, and showing concern that service quality will decline. Efforts by privatized companies to reduce non-technical losses include increased disconnection of customers for non-payment.

3.13 The privatization of distribution companies had some potential for adverse impacts on workers. The government mitigated this to some extent by building requirements into the privatization deals that limited staff reductions that could be made. According to civil society groups, there have been large numbers of layoffs at some newly privatized companies, and a change in structure from use of employees to subcontractors.

3.14 The Bank did not appear to monitor whether adverse environmental or social effects occurred, and did not report on these in its ICR.

FINANCIAL MANAGEMENT

3.15 Funds from the DPL were deposited at the Central Bank of the Republic of Turkey, and provided financing of the general Turkish budget. No financial management issues or challenges were reported.

4. Achievement of the Objectives

Address the projected electricity supply-demand imbalance (original objective)

Attribution:

4.1 Market-oriented electricity sector reform was a longstanding policy of the Turkish government and most of the policy actions were already present in the government's Ninth Development Plan. It is not the case that reforms would not have been carried out without the presence of the Bank DPL, so achievement of the objective is only partially attributable to the operation. Nonetheless, it is plausible that reforms happened more rapidly than they otherwise would have, and that the specific approach to reforms was informed by Bank policy advice and was carried out with design elements and sequencing that may not have occurred without the Bank DPL. Energy agency officials argued that the DPL helped to raise the profile of the energy sector within the Treasury. Former government officials argued that the existence of the DPL helped the Treasury to encourage line agencies to complete difficult reforms on time. Some other donors argued that the Bank has an exceptional role in Turkey; that it is more involved in policy dialog than any international financial institution other than the European Commission, that government often asks the Bank for advice on technical issues, and that the existence of DPLs is a part of the cause for this, as the Bank can accompany policy dialog with large scale lending, technical expertise, perceived neutrality, and long term commitment.

OUTPUTS

Electricity price reform

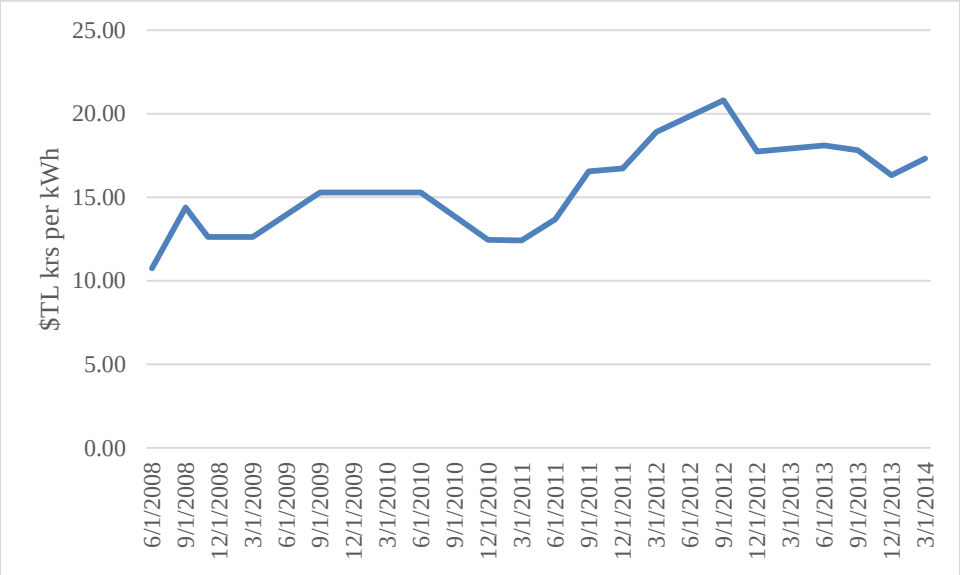
4.2 The DPL included support for a revision of retail electricity prices that included a tariff increase of more than 50%. Tariffs set by the electricity regulator had been stagnant for some years, despite fuel cost increases, and this was dampening incentives for investment in new generation and contributed to weak profitability of generators. The tariff increase encouraged investment in new generation plants.

4.3 However, energy experts argue that revisions in retail prices have not continued to track supply cost increases and that prices have not remained cost-reflective. Tariffs were kept constant in several years despite input price increases. The level of cross-subsidization across users has declined over time, but there remains a significant degree of cross subsidization between industrial and household users; as of 2014 industrial tariffs averaged

17.4 cents per kWh, while household tariffs averaged 20.6 cents per kWh. As household users are more costly to supply, in most countries there is a larger gap between these prices.

4.4 A cost-based pricing system for energy prices for sales between state-owned energy companies was established over 2008-12 (see Figure 1). Prices were calculated based on formulas and data on fuel costs and other input costs. Following 2012, energy prices between SOEs (e.g. from the generation SOE to the retail SOE) are still set administratively based on input cost calculations, coordinated through the Treasury. The energy regulator must still approve prices charged by the state owned generator to distribution companies and all consumer prices. Energy sector experts argued that the adoption of the cost-based pricing mechanism was an important signal to investors in improving trust that cost-increases would be passed through to prices by the state-owned generator, and so that private generators would not have to compete with an implicitly subsidized competitor. However, the adoption of cost-based pricing is incomplete; there is widespread agreement by energy sector experts outside of government that significant political involvement in price-setting remains for many energy prices, especially at the retail level.

Figure 1: Wholesale electricity prices from Turkish Energy Trading company (TETAS)



Source: Energy Market Regulatory Board (EMRA)

4.5 Feed-in tariffs for renewable energy existed prior to the DPL, but were adjusted under the DPL program to offer higher prices for new renewable energy and for companies using locally produced technology. The feed-in tariff existed as the sole renewable energy incentive mechanism and functions as an effective subsidy to renewable energy development. Turkey has not utilized other support mechanisms present in some high-income countries (net metering, renewable energy mandates, capital subsidies, tax credits or reductions, public investment loans/grants/guarantees, etc.). Feed-in tariffs were set at moderate levels.[12] The

[12] Initially, there was only one feed-in tariff for all renewable energy. This was adjusted under the 2011 renewable energy law amendment to differentiate the tariff by fuel type, so that higher tariffs would be available for geothermal (10.5 cents per kWh), and biomass and solar (13.3 cents per kWh),

government aimed to set feed-in tariff rates at a level that would help to spur development, but would not be high enough to be overly burdensome on public funds, or to set prices high enough that relatively less desirable plants (e.g. those in areas with less water or wind resource and so low capacity utilization) would be feasible, which could lock in low productivity assets. There was a perception that very high feed-in tariff rates in some countries could lead to budgetary problems as faster than expected technological progress led to greater investment than had been expected and a higher budgetary cost of meeting the tariff. Turkey appears to have avoided this problem thus far.

4.6 As of 2014, few companies were selling at the feed-in tariffs, as the prices prevailing in the day-ahead electricity market were usually higher. However, some energy experts argued that the feed-in tariffs had been important early on in encouraging renewable energy investment, as investors were more willing to invest when there was a price floor that could be guaranteed.

4.7 The goal of the local production incentives was to encourage development of domestic industry and technology, such as for wind turbine manufacturers. Energy sector experts have mixed views on the local production incentives. While the motivation has been to encourage development of component production industries domestically, some experts argue that local components are often of lower quality and lead to lower capacity utilization, so the overall returns to investors are similar with or without the incentives, and the incentives have led some investors (including the EBRD) to require additional due diligence work to prove that local components are purchased at a fair market value. It is too soon to tell how effective the incentives have been at developing domestic industry and technology.

Electricity market development

4.8 The day-ahead electricity market (where prices are set based on bids made a day in advance) was established in 2011. This was the first electricity market; prior to this market, a day-ahead planning tool was based which was based on bids at the individual plant level rather than by companies. Under the market, participants make block bids on an hourly basis with price/quantity combinations. Generation companies are sellers; buyers are retail companies or direct sales to large industrial users.

4.9 Establishment of an electricity market has meant that there are electricity prices that reflect supply costs to a greater extent than previously existed. Most energy experts argue that price discovery effect generally seems to be working as expected. According to the market operator, the main drivers of price variation are weather, maintenance problems for plants or transmission systems, and power plant conditions. However, some energy sector experts say that spot prices do not rise as much as would be expected during periods of power shortages, they suspect because of informal measures used by the government to

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as compared to wind or hydropower (7.3 cents per kWh). The tariffs are denominated in $US to appeal to international investors and avoid currency risk. Local production credits that pay a higher rate depending on the proportion of the equipment/components that are produced within Turkey are also available, up to 2.3 cents per kWh to 9.2 cents per kWh depending on the fuel type.

require major energy users to shut down consumption. Prices may also not fully reflect regional transmission congestion issues.

4.10 The electricity market covers only a portion of electricity sales; roughly 28% of power was sold through the market in mid 2014 (and an additional few % are sold in a balancing power market). For example, as of mid 2014 the state electricity generator (which produces roughly one third of power) still sells 85% of its power directly to the state owned electricity trading company at prices set administratively, with 15% sold on the market.[13] Private generators sell primarily through bilateral contracts rather than through the market, but the prices of these contracts will still be influenced by market prices. Similarly, renewable energy producers may choose to sell either through the market, or through the feed-in tariffs set by the government. In recent years the market price has mostly exceeded the feed-in tariff and so this has been their preference. The market has allowed for a small level of international power trading.

4.11 Energy sector experts argue that the market has been an important part of setting overall price signals that encourage investment. Industrial users are supportive of the market development, believing that market prices are more competitive than government-set prices. The market operator plans to continue with a range of further reforms in future, including demand side management, a same-day market, and establishing possibilities for derivatives trading.

Electricity generation privatization

4.12 The DPL supported development of a strategy for privatization of electricity generation plants rather than support for implementation of privatization. The idea was that there should be a phased approach, as it was seen as important to proceed first with distribution company privatization and electricity market development so that generation company investors would be able to observe that there were electricity purchasers who would pay market-based prices. The goal of generator privatization was to establish a more competitive structure and management, which would encourage more efficient use of resources, and with a long run goal of reducing electricity prices. The strategy also aimed to free up government funds and to reduce the need for ongoing investments in existing plants.

4.13 There has been some progress by government in privatizing generation companies. As of 2014, privatization of 45 small hydro plants had been completed, and offers were being collected for 5 more plants, with the 50 plants collectively covering roughly 150 MW of capacity. In 2013 there were privatizations of two large coal plants and one large combined cycle gas plant, collectively comprising roughly 2100 MW, and offers were being collected for a further four large thermal power plants. There were 18 thermal power plants and 27 large hydro plants still to be privatized, along with up to 10 large hydro plants which were

[13] The state electricity generation company notes that for all of 2014, approximately 93 percent of power from the state generator was sold to the state electricity trading company and 7 percent on the market, and that these prices vary over time.

not planned to be privatized as there were transboundary water issues. Privatizations have continued since 2014 (see Annex C).

4.14 There are a number of outstanding issues for thermal plants on who will undertake the investments needed for them to meet environmental emission standards. The period for when these plants will have to comply has been repeatedly pushed back, to 2018. However, a constitutional court ruling of May 2014 cancelled these changes, and ruled that the deadline for exemptions is the end of 2017.

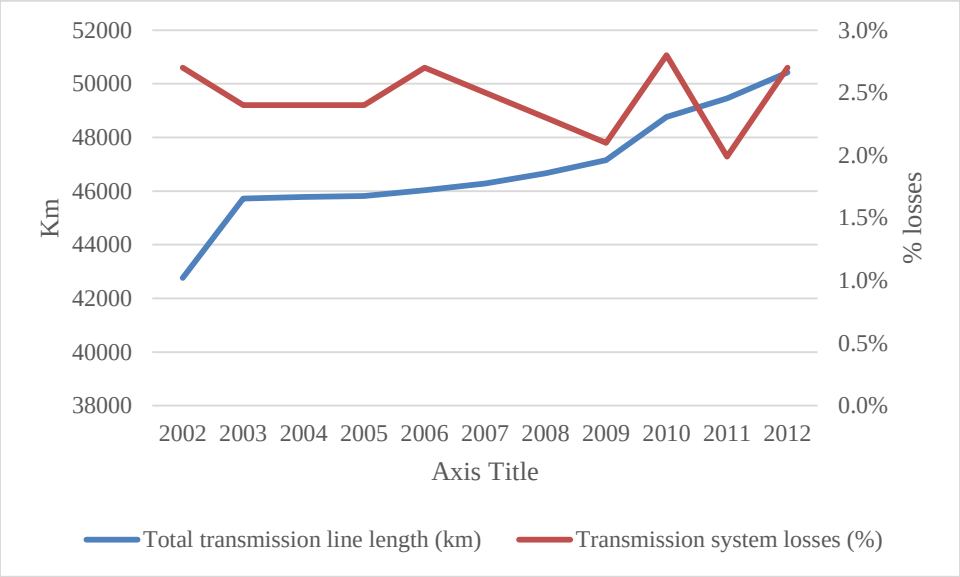
Electricity transmission

4.15 Ownership, operation of, and investment in the high voltage electricity transmission grid remains the responsibility of a state-owned transmission company TEIAS. Under the electricity market law aimed at encouraging generation investment, the transmission company is required to connect any new generation facility and to bear the cost of doing so. In some cases, private investors in generation will construct their own transmission connection, and receive a reimbursement from transmission charges.

4.16 The DPL included a prior action to require agreed budget allocations to the transmission company to finance needed transmission investment. There has been a high need for increasing transmission capacity on existing connections and on expanding the grid due to the rapid increase in electricity generation and the large number of new privately owned generation plants. According to the transmission company, sufficient funding has been provided. Transmission investments have been made, and system losses have not increased as the overall load has risen (Figure 2). It is unclear whether there was a significant risk to funding in the absence of the DPL, but the action was designed to also support the Bank's parallel investment lending operations in the transmission sector and the Bank's ongoing positive relationship with the transmission company.[14]

[14] Through investment lending the Bank has provided financial and technical support to the transmission company. Government officials noted that the presence of the Bank had helped signal the reliability of the company, had provided useful technical expertise for high priority projects, and had assisted with public tendering processes and procurement.

Figure 2: Transmission system expansion and losses



Source: Turkish electricity transmission corporation

4.17 Some electricity sector experts argued that transmission had not been well coordinated with private investment, and that the need for rapid expansion of the grid to connect new generation had reduced the ability to undertake effective system planning. The high rate of grid expansion has led to some problems in reliability or congestion effects, leading to higher losses and some periods where transmission capacity cannot meet peak load. Industrial users argue that low quality and reliability of electricity supply meant that some users were investing in their own captive power supply. Government officials argue that these are temporary problems that can be overcome if the rate of generation expansion slows, and that overall the level of technical losses from the grid are roughly 2.5%, which is within European standards.

Electricity distribution privatization

4.18 The DPL supported privatization of electricity distribution companies with explicit prior actions for target numbers of distribution companies to be approved. A prior action on legislative amendments to improve the payment through street lighting also contributed, as settling payment to distribution companies for outstanding debts for street lighting resolved an issue that could otherwise have deterred bidders. The goal of distribution company privatization was to increase the level of investment in distribution infrastructure, and to improve management of the distribution companies including the reduction of non-technical losses.

4.19 While privatization of the electricity companies was a government long-standing government policy, it is plausible that the successful implementation of the privatization process was partially attributable to the DPL and to Bank involvement. The government had originally aimed to start privatization in 2006, but this was delayed. The existence of the DPL may have helped to hasten the process relative to what would have otherwise have occurred; privatization is politically controversial in Turkey and is opposed by many civil

society groups and others. The involvement of the Bank in the process may have added to investor confidence and willingness to make bids.

4.20 The privatization process was delayed as worsening financial market conditions meant that some bids were withdrawn and the third phase of bidding had to be repeated, but has since been successfully completed. A corporatization process started first, followed by privatization through a tender and auction process.[15] Three companies were privatized in 2009, six companies in 2010, one in 2011, and eight in 2013. All distribution companies are now private, and bidding companies included a mix of large domestic energy companies, international investors with domestic partners, and others.[16] The privatization process was handled by the Privatization Administration, a distinct agency under the Prime Ministry. Energy sector experts reported that the process was generally seen as transparent.

4.21 Demand from bidders was seen as strong and bids as competitive. The total revenue raised from sale process was US$ 12.74 billion.[17] This was higher than official valuations that served as a reserve price on the auctions, but was less than had been originally hoped for in some cases in the third phase. There were some challenges in the process: one tender in 2008 was cancelled because of a court decision, and there were a number of cancellations following the second phase, as tender winners did not sign sale agreements. One reason for this was that some investors could not obtain financing for their bids, in part due to tightening credit from banks (related to broader macroeconomic issues in Turkey). The last companies to be privatized were the most challenging – these were companies for two regions in southeastern Turkey where non-technical losses remain high.

4.22 One reason that demand from was strong was that bidders knew that distribution tariffs would be set by the energy regulator in a manner that guarantees revenue for bidders based on capital expenditure. Over 2011-16, tariff increases would be set each year to target a roughly 10.5% real rate of return on capital; if this target was not reached, then the company would be compensated the following year by allowing a higher price increase. The establishment of this regime was seen as a strong signal to investors.

4.23 The privatization contracts were written with specific targets for investment and loss reduction, along with other measures such as three-year restrictions on the ability of new operators to reduce staff some numbers. The loss reduction targets, investment requirements, and distribution company regulation were designed in such a way that the companies would

[15] In most cases the privatizations are not permanent sales of assets: they are a sale of operation rights for 30 years. Ownership of the underlying assets is retained by the state-owned electricity distribution company. However, the purchasing company gains full management control (except for prices and fee setting which are regulated), funds all investments (as based on investment targets set by the regulator), bears all expenses and retains all profits. Government officials argued that this model had a number of advantages: retained ownership by the government meant that eminent domain could be used to obtain land needed for distribution lines in a way that would not be possible for privately owned assets, while leaving profits in private hands provided incentives for cost minimization.

[16] Of 21 power distribution areas, 1 was privatized in 1926, 2 in the 1990s, and 18 under the program.

[17] Source: Privatization Administration calculation.

earn effectively guaranteed specific returns on capital if they met the loss reduction targets, and would still face incentives to reduce losses below that target because loss reductions below the target would contribute directly to revenues. Government officials emphasized two major contributors to investor confidence and willingness to pay: clear rules for defining tariffs, and effective cooperation across public organizations (energy ministry, privatization administration, energy regulator) who listened to advice from private banks, government agencies, and international organizations.

4.24 Privatization has been politically controversial. Some elements of the public and civil society groups strongly oppose privatization base on ideological grounds (arguing that electricity access is a general public need and should be provided by the state), on concerns about effects on service quality under private ownership, and on concerns that private ownership will lead to higher prices for consumers. In addition to price increases, private distribution companies have introduced a ranged of new fees which are opposed by civil society groups. In contrast, some environmental experts have been strong supporters of energy sector privatization, arguing that it is easier to use the legal system to hold private companies accountable for environmental problems than it is for government entities.

Energy efficiency

4.25 The DPL supported energy efficiency primarily through a prior action on issuance of a range of secondary regulations supporting energy efficiency, and through a prior action on government approval of an energy efficiency strategy. The strategy established ambitious national energy efficiency targets with government support at the highest levels: it aimed to decrease energy intensity (energy consumed per unit of GDP) by 20% by 2023.[18] There was pressure to drop the trigger on the strategy for DPL3, but the Bank insisted on keeping the trigger which helped to achieve approval of the strategy. This is a clear example where a policy action occurred earlier than what would have been likely to happen without the Bank's DPL.

4.26 However, the strategy was not clearly connected to instruments that might help to achieve the objective. The strategy did not clearly assign responsibilities for actions, so accountability is diffuse. Government responsibility for energy efficiency is spread across multiple ministries, including the energy, industry, urban development, and science and technology agencies without clear targets for each entity; this diffusion means that there is little accountability for any individual ministry for its contribution towards achieving the overall target.[19] Environmental and energy experts from other IFIs argued that it was plausible that the Bank's DPL helped to achieve the adoption of energy efficiency targets, but that the targets themselves may not have much impact without accountability or enforcement.

[18] The base year for comparison is unclear, but appears to be the publication year of 2013.

[19] For example, a 2014 energy efficiency action plan (Ministry of Energy and Natural Resources 2014) specifies reforms to be taken by ministry and agencies, but does not have quantitative targets against which each action could be assessed.

4.27 There have been a range of energy efficiency approaches by government including funds to banks to conduct EE lending, technical case studies for particular industries, efforts in public lighting, changes in some energy efficiency standards, and others. But energy experts report that overall progress on energy efficiency has been relatively slow, especially by public institutions. Efficiency efforts have been spread very widely, and are not well coordinated. Most public investments have been rehabilitations of buildings at relatively small scale. Public sector institutions face few incentives to improve efficiency without specific targets, as agencies receive budgets based on existing energy costs. Large industrial users such as steel or cement producers have invested in energy efficiency improvements for many years, including with some government support (mostly for smaller plants) but it is unlikely that the DPL had much impact on this.

4.28 Energy experts argue that the ESCO (energy service company) model has not yet been successful in Turkey.[20] There are relatively few ESCOs, they have relatively little capital, and face a number of barriers to attracting finance. They have had some successes on small-scale projects, but find it difficult to finance large scale improvements. There are legislative barriers on ESCOs to work with the public sector. Private banks have also been relative slow to finance energy efficiency because of barriers to energy efficiency lending common in many countries. Banks primarily provide relationship financing based on balance sheet conditions of companies, not project finance based on cash flows of a specific investment. Energy efficiency equipment is not good collateral as it is hard to seize.

4.29 The Bank carried out an institutional review of energy efficiency in Turkey in 2015 (World Bank 2015). The review noted that the national program on energy efficiency had not met expectations, and provided a number of findings and recommendations on the need to improve enforcement of existing policies, to improve data collection, to expand and formalize incentive measures, to develop monitoring and evaluation systems, to improve financing access for SMEs and public entities, and to develop residential programs. The Bank has ongoing engagement with the government on institutional and other aspects of energy efficiency.

4.30 The former energy efficiency directorate in the energy ministry was disbanded and merged into the General Directorate for Renewable Energy in the energy ministry in 2011. Some energy sector experts argued that this reduced the profile and prioritization of energy efficiency, reduced the independence and autonomy of the agency, and made information sharing more difficult. But Bank staff argued that the impact of this restructuring had been overstated, and that there had been no measureable reduction in EE activity by the government as a consequence of the reorganization. The Bank's 2015 institutional review noted that with the closure of the former directorate some changes needed to be made to reassign responsibilities and bring greater accountability for energy efficiency, and recommended that Turkey should consider introducing a visible and independent EE entity,

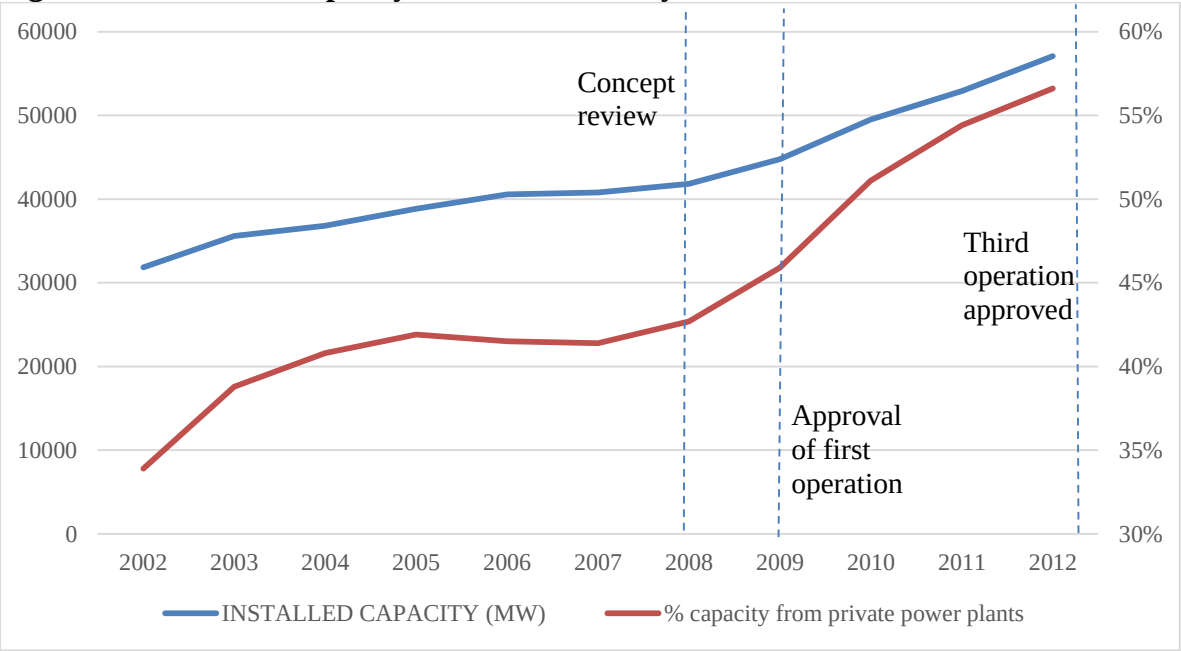
[20] The ESCO model is one where the ESCO finances specific energy efficiency improvements in in other businesses in exchange for a portion of the value of the energy saved by the investment. There is no central database of ESCOs of their support and there are disagreements on how to define an ESCO, so the full picture of the ESCO sector is difficult to assess.

but did not find that the institutional restructuring had been a major barrier to progress on energy efficiency.

OUTCOMES

Overall, the government has been successful in its goal of securing the large scale investment needed to meet power sector demands utilizing private sector financing and without public guarantees. Imbalances in electricity supply-demand have been largely avoided due to large-scale private sector investment in generation capacity, with roughly 15 GW of new generation capacity added over 2008-12 (Figure 3).[21] Private sector generation installed capacity increased 81 percent over 2008-12 while public sector generation capacity increased by 3 percent. It is likely that the policies supported under the DPL were an important contributing factor to this outcome. The level of investment in generation has been impressive as financing conditions remain difficult for investors.[22]

Figure 3: Generation capacity installed in Turkey



Source: Turkish electricity transmission corporation

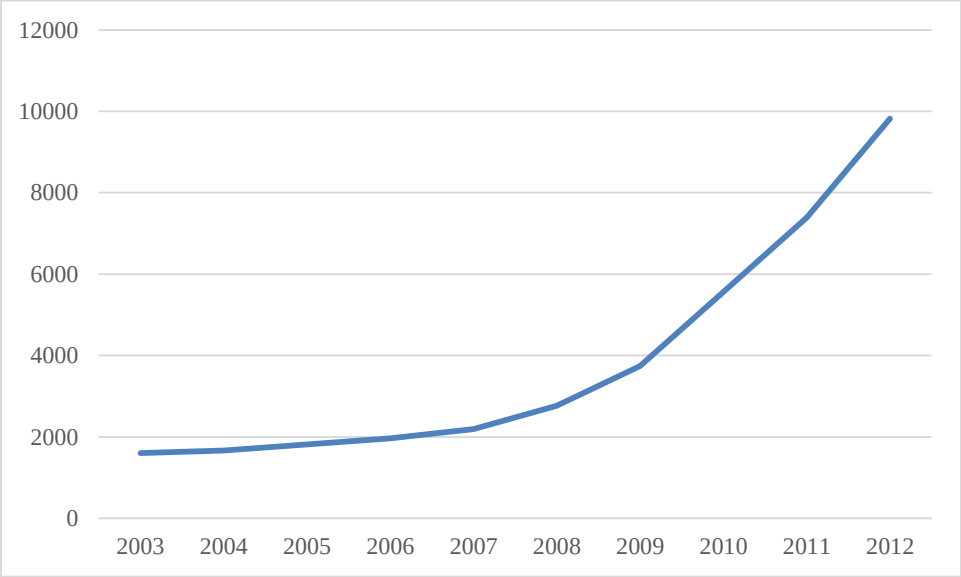
4.31 Feed-in tariffs and other policies appear to have been successful in triggering private sector renewable energy investment, which has increased dramatically over recent years from a low base (see Figure 4). The share of total electricity generation from renewable energy

[21] Some energy sector experts even argue that there has been overinvestment in generation capacity (as recent economic and electricity demand growth has been slightly lower than expected) and that excess capacity exists.

[22] Non-recourse loans are not available, and lenders typically require security, creditworthiness, and price guarantees from project sponsors (PWC 2012).

increased from 19 percent in 2007 (primarily state-owned hydropower) to 27 percent in 2012 due to private investments in hydropower and wind power; the share of installed capacity in renewable energy increased from 33 percent to 39 percent over the same period. There has been strong demand from bidders for renewable energy generation licenses. Some energy sector experts made the (unconfirmed) assertion that there was irrational exuberance in bidders, in prices that were too high, over-bidding, relative to what was justified by tariff rates. Some energy experts also had concerns that some bidders had little or no experience in operating in the power sector (for example some winning bidders were construction companies), and so faced a steep learning curve in managing the new investments. The number of licenses granted was substantially higher than the number of projects actually being invested in, and so some energy experts argued that in the process to confirm large numbers of generation licenses, the energy ministry may have been too focused on price rather than capacity to deliver.[23] As of May 2014 licenses for solar power had not yet been issued but were expected to be issued by the end of the year. The energy ministry reports that as of the end of April 2015, the bidding process has been completed and 49 companies are entitled to own pre-licenses.

Figure 4: Private sector renewable energy generation installed capacity (MW)



Source: Turkish electricity transmission corporation

4.32 However, imbalances have not been completely avoided. Turkey experienced power shortages in November 2011-February 2012, again in December 2013. During these shortages, electricity market prices increased significantly, there were power cuts in major

[23] Licenses were granted to build in a particular location, and this provided an effective monopoly on that site. Bidders could be granted a generation license with no intention of building a plant, and then sell the license to others. The energy ministry responded to this scenario, and altered its policy so that licenses now expire if no serious attempt at construction has begun after a period.

cities, and some large industrial power consumers were required to shut down.[24] The main cause of these shortages has been a shortage of natural gas, causing some large power plants to shut down or convert to alternative fuels at lower capacity. Severe winter weather conditions were also a contributing factor, as this increased the demand for gas and power for heating. The shortages of gas have been caused in part by supply restrictions from international gas suppliers, but also in part because of insufficient gas transmission and storage capacity. Turkey faces continued potential supply security risks as some gas pipelines from Russia connect through Ukraine and could be affected by political conflicts. Recent decisions have meant that the South Stream gas pipeline originally intended to supply gas from Russia to southeast Europe will likely be used to supply Turkey by replacing the current Western Route pipeline for the supply of the same quantity of gas. Still, overall these shortages are relatively rare and mild.

4.33 Some energy sector experts argue that gas shortfalls occur in part because of implicit subsidies in natural gas prices from the state owned gas company BOTAS. They argue that the inability of private sector suppliers to compete with subsidized gas prices has led to insufficient private sector investment in import terminals and gas storage facilities. Government officials note that they are considering plans for public investment in gas storage facilities.

4.34 The program document noted that the expectation was to "address the projected electricity supply-demand imbalance (a) through energy efficiency measures to reduce the rate of growth of demand for electricity, and (b) by enhancing the efficiency supply of electricity. However, in practice demand has been met largely through supply increases rather than through energy efficiency. While targets have been set, energy sector experts argue that it is hard to see that the targets could be achieved without further action by government.

4.35 It is difficult to assess change in energy efficiency. Little data exists at the aggregate level. Many private companies or public or international agencies have data on their efforts, but much of the data is not available publicly. One proxy is the energy intensity of the economy: GDP per unit of energy consumption. This has declined over time, but at a slower rate than many other middle-income countries. But this is a weak proxy, it ignores for example the relative industrial makeup of the economy.

4.36 The goals of distribution company privatization were more efficient management, more physical investment in distribution assets, reductions in non-technical losses, lower prices for consumers in the long term, and improved service quality. Government and some other energy sector experts argue that the process has been successful. Non-technical losses remain high by developed country standards but are declining. Goals of investment and loss reduction appear to be generally met. According to government data shared with IEG on a

[24] The process for shutting down some major energy users appears to have been informal. This imposes significant economic costs, and may be less efficient and equitable than a system of reserve capacity.

confidential basis[25], investment levels and loss target reductions are being met in most regions, but losses remain high in some regions.[26] Energy sector experts argued that even in areas with high losses, they expected that it would be easier to encourage users to pay charges to a private business than to pay the government for a service that they believe is a basic right. Some energy experts report that there have been some improvements in the ability of the privatized companies to collect fees they are owed by municipalities and government agencies.

4.37 However, distribution charges to consumers have risen in the short term. [27]No hard data on service quality is available but civil society groups and some electricity sector experts argued that service quality had declined, with voltage and current variation and power cuts. Some energy sector experts argued that they expected system efficiency to improve for privatized companies, but that they had not yet observed this. Some experts argued that the new managers had little or no prior experience in electricity distribution and so faced a steep learning curve in some cases, and so short-term challenges may not be indicative of long term performance. It is too soon to tell whether management has become more efficient; some energy experts argued that new managers had little experience with the electricity sector and faced a steep learning curve.

4.38 Privatization of electricity generation plants is still in relatively early stages, and it is too soon to tell whether the goals of this strategy are being met.

4.39 Achievement of this objective is rated *Substantial*.

Enhance energy security (revised objectives)

4.40 The revised energy objectives of the DPL program were similar to the original objective, and the outputs and outcomes relevant to the original objective (as described above) also contributed to the revised objective.

4.41 However, the new objectives broadened the scope of the operation to include wider energy sector goals, though few actions outside the electricity sector were added to the program.

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[25] The electricity regulator does not publicly release data on whether distribution companies are meeting investment or loss reduction targets.

[26] IEG heard some concerns from civil society groups that the electricity regulator decisions are made based on data self-reported by the private distribution company owners, and that whether or not investments were being made and technical loss reductions achieved should be subject to independent monitoring and technical inspections. The data is audited by the regulator on a desk review basis, and government officials argued that if investments were not being made that this would have showed up in service quality declines.

[27] The Chamber of Electrical Engineers collected data showing a significant increases in a number of charges and fees in 2011 by newly privatized companies (Elektrik Mühendisleri Odası 2012), some by 25-50%.

OUTPUTS

4.42 In addition to the outputs described above, the DPL supported signature of a gas import contract for 6 billion cubic meters in 2011. While in principle additional gas imports would help to diversity the sources of gas imports and would support supply security, this contract was not renewed but the volume was shared by private sector participants from the same source, and hence the contract cannot be considered a source of diversification. Planned reforms of the state gas company were dropped from the third operation.

OUTCOMES

4.43 The increases in electricity generation capacity and the near avoidance of imbalances in electricity supply and demand have been major contributing factors to improving energy security in the electrical sector. However, Turkey remains heavily reliant on energy imports: in 2013 72% of primary energy supply was imported, and 59% of electrical generation was dependent on imports.

4.44 Less progress has been made in improving energy security outside of the electricity sector. The gas sector has not seen reforms or investment at anything like the scale of the power market. According to energy sector experts consulted, gas prices do not reflect supply costs.

4.45 Achievement of this objective is rated *Substantial*.

Integrate principles of environmental sustainability, including climate change considerations, in key sectoral policies and programs (revised objectives)

Attribution

4.46 The main contributions to this objective were support for the approval of a national climate change strategy and of a climate change action plan, but some other environmental policy actions discussed under the final objective were also relevant to this objective. It is plausible that the timing of the national climate change strategy and the content of and process for approving the climate change action plan were influenced by the existence of the Bank DPL. Bank staff reported that there was some risk that climate change strategy would not meet the necessary deadlines for the second operation, and that there was pressure to delay or drop the trigger. However, the Bank kept the trigger in place and this may have helped with timely approval of the strategy. The Bank was involved in convening events on climate change, in raising awareness, and in bringing together a range of stakeholders to discuss climate change issues. Some environmental experts argued that the Bank's involvement played a major role in supporting the adoption of an official action plan.

OUTPUTS

Climate change strategy

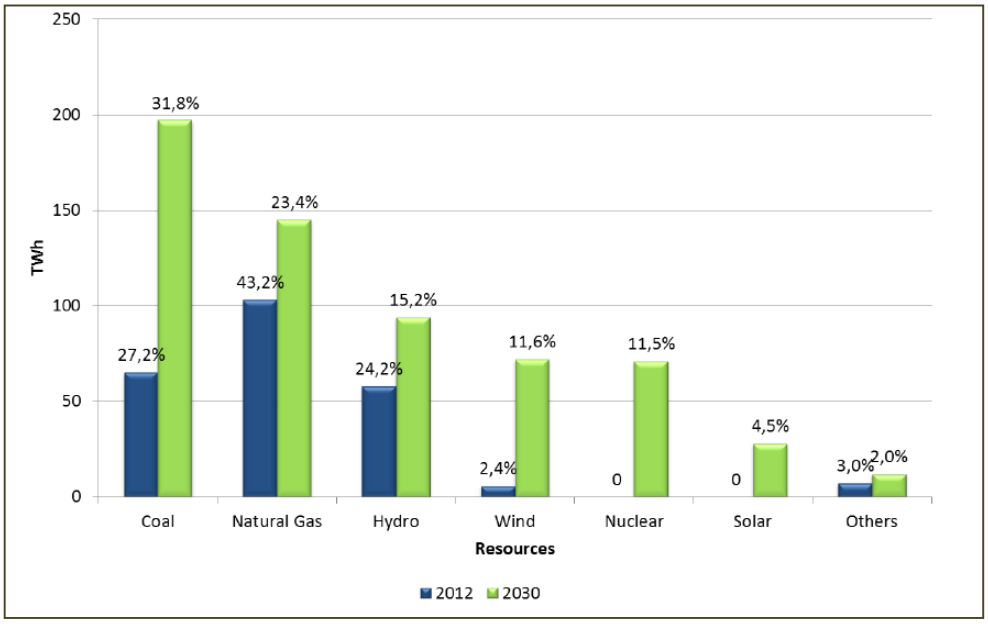
4.47 Turkey produced a national climate change mitigation strategy, and approved it at the Higher Planning Council, the highest planning authority in Turkey. Some environmental experts argue that the Bank played an important role in supporting adoption of the strategy, in part because of the DPL and in part because of Turkey's interest in accessing the Climate Investment Funds. They also argue that the Bank helped to increase the profile of the climate change program, and to increase buy-in by using the Bank's convening power to bring stakeholders to events. Other experts noted that the development of the strategy and of the climate change action plan were financed largely by other European donors and that the Bank did not play a major role in design of the strategy or action plan.

4.48 The strategy reflects that, as with many other countries, Turkey prefers unofficial targets rather than official commitments. It reflects the principle of differentiated responsibilities, as Turkey was not a major historic contributor to the existing stock of atmospheric GHGs. The principle targets of the climate change strategy and linked sectoral strategies were not to reduce emissions, but rather to increase the generation of renewable energy (primarily wind power followed by solar power), to decrease the rate of increase of GHG emissions relative to business as usual (by 7%), and to decrease energy intensity (i.e. energy consumption per unit of GDP).

4.49 Many environmental experts argue that the climate change strategy is relatively unambitious. The strategy does not provide a path to reducing GHG emissions, and based on plants in pipeline Turkey will be one of the largest sources of new coal power generation in the world (after China, India, and Russia) with roughly 50 planned new coal plants. The 2023 targets involve exploiting all coal reserves in Turkey, and the share of generation coming from coal power in 2023 is planned to be higher than today. Under the energy strategy and climate change strategy, the share of total energy supply coming from coal is expected to rise, from 31% in 2011 to 37% in 2023. Even by 2030, the total proportion of electricity generation coming from renewables is expected to increase only slightly, as generation from hydropower is expected to grow at a much slower rate than generation from coal (see Figure 5).[28] Decreases in energy intensity may not require much action as energy intensity typically declines as countries grow richer and as the share of services grows. Some experts also argued that one weakness of the strategy was that it did not assign a clear division of responsibilities to institutions in order to achieve the targets.

[28] Some environmental experts suggest that the targets for increases in hydropower generation may also be infeasible, as this would require fully utilizing hydro potential, and would require that water use be prioritized for hydropower, which may limit availability for irrigation or other use.

Figure 5: Electricity generation projections for Turkey, 2012-2030



Source: Ministry of Energy and Natural Resources

4.50 The principle motivation for coal development has been for energy security, to exploit domestic lignite sources as an alternative to imported natural gas. Turkey faces difficult energy security challenges, with heavy reliance on fossil fuel imports, and the strategy includes large increases in wind and solar power from a low base. But the environmental consequences of the increase in coal generation will be significant, and will create long lasting investments that will lock-in emissions for decades to come. Environmental groups and some civil society groups argue that there should be an even higher priority on wind and solar than planned for in the strategy. Energy sector experts argue that the rate of renewable energy generation increase is already very high, and that the only way to get energy security in an environmentally friendly manner will be through intensive efforts on energy security.

Climate change action plan

4.51 Turkey issued and released a climate change action plan in 2012. The plan covers both climate change mitigation and adaptation, and imposes obligations on government agencies including at the provincial level across a range of sectors.[29] It specifies dozens of objectives to be achieved, supported by 550 sectoral actions on which progress will be tracked by central government agencies over 2011-23. Mitigation actions focus in greenhouse gas abatement, while adaptation measures focus on no-regret actions to reduce

[29] Mitigation actions exist for energy, buildings, industry, transportation, waste, agriculture, land use and forestry sectors. Adaptation actions exist for water resource management, agriculture and food security, ecosystem services/biodiversity/forestry, natural disaster risk management, and public health.

vulnerability. The monitoring system is to be run by the environment and urban ministry, based on reporting from other agencies. Some environmental experts note however that that the environment ministry has relatively weak oversight and control powers over the wide array of other agencies, there is no verification system, and that reports on progress will not be made public so it will be difficult to assess the degree of progress.

4.52 Some environmental experts argue that the plan is substantial both as a self-contained document providing a detailed roadmap for climate change actions to be taken, and as a set of ambitious goals. Other experts say they believe the action plan will not have much additional impact, as the actions contained in the plan are largely a listing of actions already in existing plans and strategies. However, the strategy expanded the range of climate change adaptation measures, and more clearly assigned responsibilities and timelines.

4.53 The plan development included a collaborative process, with large numbers of participants including government officials, civil society, industry groups, IFIs, and bilateral donor agencies with roughly 45 workshops, 200 experts/specialists over 2 years. Government officials report that the framework was established based on consultation across all stakeholders and that most opinions were included. However, environmental NGO groups report that while the meetings and workshop process were positive, the final document produced reflected little of the actual discussions and rather appeared to be similar to initial government proposals.

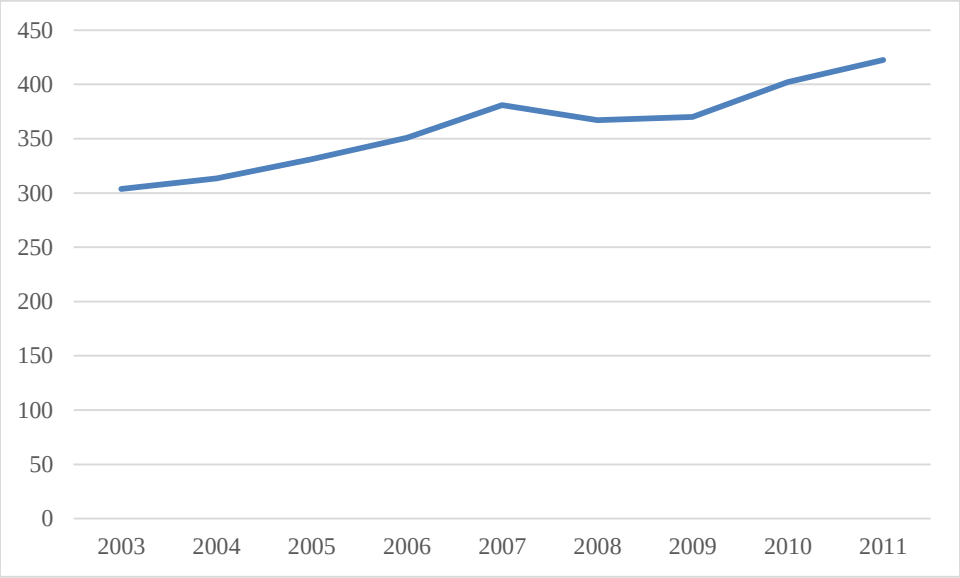
4.54 In addition to the national plan, some work is starting on action plans at the local level on a pilot basis, funded by other donors (such as an AFD pilot in Gaziantop). The central environmental ministries plan to eventually work with all provinces, but to start with those who are most interested.

4.55 Though they contain weaknesses, the strategy and action plan were important first steps for Turkey, as these were the first formal high-level government climate change plans.

OUTCOMES

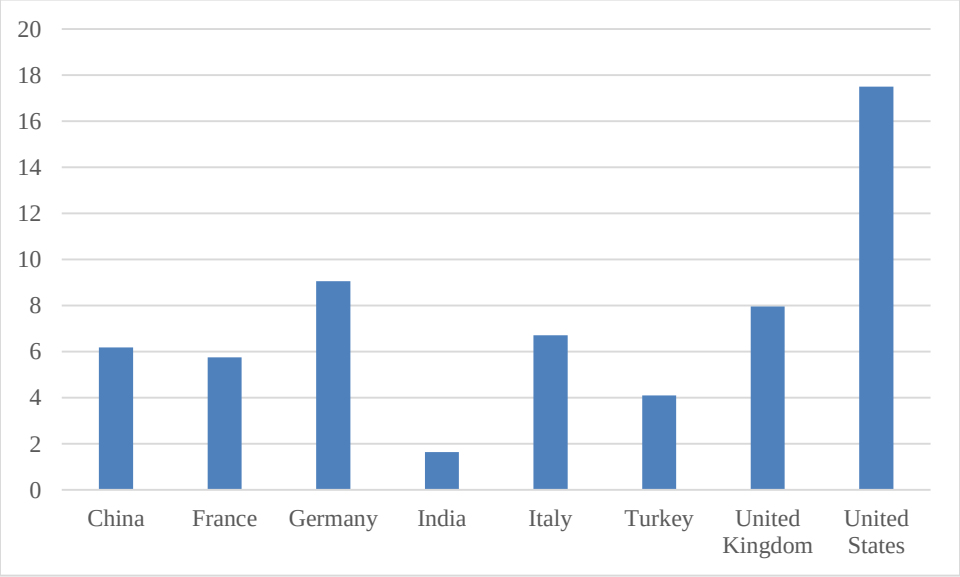
4.56 Greenhouse gas levels have continued to rise as the Turkish economy has expanded and energy consumption has grown (Figure 6). This is expected to continue, based on the energy strategy. Turkey's emissions per capita remain well below that of most major emitters (Figure 7).

Figure 6: GHG emissions (GT of CO2e)



Source: UNFCCC

Figure 7: GHG emissions per capita as of 2010 (tons)



Source: UNFCCC

4.57 There is little detailed data on GHG emissions. An inventory of IPCC installations has been established (large combustion plants of at least 50 MW capacity) but the inventory tracks capacity and not emission levels. A new inventory with more details is being developed.

4.58 While there has been progress on raising awareness of climate change in government, the level of implementation of the climate change action plan is not clear. The Environment ministry has conducted an assessment of initial progress on the climate change action plans, but the report is not public. Ministry staff argue that they are learning from the engagement

and overcoming initial difficulties. Environmental experts argue that among the main problems have been the difficulty in getting other ministries and municipalities to report on progress and provide data and weak capacity at local government level. They argue that there has been good progress in raising awareness, but the level of action on the ground is unclear; concerns raised that action plan is not actually being implemented.

4.59 Climate change concerns are being integrated into a range of other government strategies, policies, and sectoral plans. It is not clear whether these can be attributed to the Bank's DPL. However, the effects of climate change are not being considered in the design of many forms of infrastructure. According to environmental experts, the design of recent hydropower plants is not based on projections of future climate risks. There are incentives to set projections for future water availability high at the appraisal stage in order to attract approvals an investment.

4.60 Achievement of this objective is rated *Substantial*.

Improve the Effectiveness and Efficiency of Environmental Management Processes (revised objectives)

Attribution

4.61 The DPL series included a number of reforms on environmental regulation and other policy actions. Many actions were related to harmonizing Turkey's regulations with the requirements of the EU *acquis*, and were motivated primarily by the harmonization goal. Others actions were other actions already underway in Turkey's environment policies. While the Bank played some role in policy engagement, in most cases it does not appear that the Bank was heavily involved in design of the policies, or that the DPL series was a major factor behind implementation of the policies. Consequently, the degree to which achievement of this objective can be attributed to the DPL series is modest. An important exception is on policy dialog on water management, where ongoing support is informing actions on water quality and potentially water quantity management.

OUTPUTS

Environmental Impact Assessment

4.62 Regulations for Environmental Impact Assessment have existed in Turkey since 1993. They have received numerous significant revisions since then, plus associated amendments. A significant revisions took place in 2008 after discussions with the EU, as part of the EU harmonization process. Following this, changes were made such that EIA regulations are in line with EU requirements, except for requirements on transboundary issues and on public participation. Harmonizing EIA rules with EU standards represents significant progress by the Turkish government.[30]

[30] However, some environmental experts argued that though the Turkish regulations are harmonized with the letter of the EU requirements, that for detailed issues that are not spelled out specifically by

4.63 However, it is difficult to attribute these changes to the existence of the Bank's DPL. To the extent that EIA reforms have been motivated by international actors, they have been largely driven by the EU harmonization agenda. The 2008 reforms were made prior even to the concept review for the first DPL in this series, let alone the concept review of the second operation which introduced environmental objectives and actions. Some additional improvements have been made since 2008, but the main international influence on these were discussions with the European Commission on some specific issues. In some cases there have also been further changes, which reduced the scope for public input (for example the public comment period for the final phase of the EIA was reduced from 10 business days to 10 days).

4.64 The sub-objective of EIA reforms in the Bank's DPL was to increase public participation in environmental decision making. Government officials argued that the EIA process was effective, and there was scope for public participation from be beginning of the process, including an initial public notice, and public meetings. They suggested that some design changes had been made in some cases in part as a result of public comment, such as changing the size of a reservoir, changing road routing, or changing sites for wind turbines.

4.65 However, all other environmental experts interviewed by IEG argued that the level of public participation remained weak and that there have been no significant improvements in recent years. Public involvement in environmental decision-making remains weak not because people are not interested in participating, but rather because of the institutional barriers to effective participation. Turkey has an access to information law, but in general this requires individual requests for information (which may be denied) rather than publication of information. Turkey has not aligned with the EU's related *acquis* (the UNECE Aarhus Convention) on access to information, public participation, and access to justice in environmental matters (EU 2014). Some experts argued that comments were sought primarily from officially sanctioned groups, that NGOs were largely shut out of the participation process, and that changes in response to comments were rare. Enforcement of EIA requirements is incomplete: project developers do not always take the necessary efforts to engage affected people, and some environmental experts claim that construction sometimes starts even before an EIA process has been completed. While monitoring of compliance is improving, enforcement remains difficult. Public access to information remains limited; environmental experts argue that the default is that data is not publicly, and must be specifically requested.

4.66 In addition, there are a small number of megaprojects where the formal domestic EIA process has been suspended.[31] The official rationale for this is that projects in the government's investment program prior to 1993 (when EIA was introduced) were to be

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EU requirements such as the specific length of public comment periods, the Turkish regulatory requirements are usually on the weaker side.

[31] In most cases EIAs are still being conducted, in part because requirements by international financiers, but these EIAs are not obligatory by the Turkish government, and so are not challengeable in Turkish courts. Many environmental experts are also concerned about the potential quality of these assessments.

exempt; recently this exemption was broadened to include projects prior to 1997. The Third Bosphorus Bridge project will not have an EIA[32]; other controversial projects such as the third Istanbul airport, a planned nuclear power plant, a trans-national gas pipeline, and a major channel in Istanbul are formally exempt but will have EIAs because of requirements by foreign financiers. Government officials noted that being exempt from EIA requirements does not mean that the projects are exempt from environmental permitting requirements.

4.67 When environmental objectives were added to the series with the second operation, a trigger was planned for the third operation to support regulations on use of Strategic Environmental Assessments to harmonize with EU standards.[33] This trigger was dropped during preparation of the third operation. Government officials, Bank staff and other environmental experts argued that this was the right decision, as there was insufficient administrative capacity, experience, and practical experience to implement the SEAs universally if the regulation were passed immediately. Passing the regulation without the capacity to implement it could have been hollow. Instead the environment ministry is supporting work on SEAs over a longer time period, with a capacity building and awareness-raising project to be completed in 2016. Specific pilots for testing the use of SEA have been developed for Energy, Agriculture, Watershed Management and Transportation, with the goal of adopting an SEA regulation in 2016. Arguably the original inclusion of this trigger was unrealistic.

Soil pollution and contaminated site control

4.68 IEG could not thoroughly assess the policy action on soil pollution. Some environmental experts noted that policy for soil pollution and contaminated site control is now very strong, surpassing EU standards in some respects.

Permit and licensing simplification

4.69 The DPL supported a reform of simplification of permits and licensing aimed at making the process simpler and less costly for government and for applicants. Only the process for permit issuance was changed; the regulations and rules setting for what actions require permits or pollution limits were not changed. Under the 2009 environmental law change, regulations for licensing and permitting were approved, and made effective April 2010.

4.70 Prior to the regulation, permits and licenses had their own department for each specialization (air, wastewater, hazardous waste, deep sea waste, etc.) and companies would have to apply separately to each department, some at the central level and some at the provincial directorate. Permits were not of uniform length and had different requirements. Licensing and permit applications can now be made through a single electronic online system, and last a uniform 5 years. Prior to the reform there were 199 different

[32] However, EIAs are being conducted for some associated works.

[33] Strategic assessments are important in environmental management because they can be used as an ex ante tool; EIAs for a specific investment often come after the major decision decisions of investments have been made, and so the project can be *fait accompli*.

environmental forms, now there are 16 forms. Service standards were created for the length of time to approve or decline a permit request. The change also requires that applicants have a certified expert, such as an environmental engineer.

4.71 Over 2010-14, roughly 10,800 temporary operation permits were issued, and 7,500 full environmental permits/licenses were issued (and additional licenses have been issued since then). Some environmental experts suggested that this was vastly lower than the total number of facilities in Turkey that would require environmental permits, and claimed that there are a large number of facilities that continue to operate without permits. There is no good inventory of facilities so this is difficult to assess. Other experts noted that there were initial implementation problems with the permitting process, with insufficient capacity in environmental agencies to assess all permit requests, leaving many industries to operate in a grey legal area. There were also challenges in the initial rollout of certification, as environmental agencies did not have the capacity to certify the large number of applicants.

4.72 While there was no direct role by the Bank in implementation of the reform and the main pressure for the reform came from government and industry, it is plausible that the selection of the licensing simplification as a prior action for the DPL helped to increase the speed at which this reform was carried out. Initially there had been resistance to change within licensing departments, and some civil servants had thought that it would be too difficult to simplify and unify the complex system of licenses. The DPL may have helped to provide pressure on agencies to adopt the reform.

Landfill and waste, soil pollution

4.73 Environmental experts argued that significant improvements in waste management had been achieved by the Turkish government, but there is relatively little evidence of attribution to the Bank DPL. Wastewater treatment and solid waste disposal projects have been financed by the EU, though there has also been Bank financed investment lending for a landfill under the Municipal Services Project. Bank staff argued that using the targets for landfill improvement from the national waste management plan in the DPL provided some additional pressure to meet the targets, but it is likely that main external motivation was from the EU.

Air pollution

4.74 Changes in air pollution regulation throughout the DPL preparation and implementation period have been modest incremental improvements.

4.75 A Clean Air Action Plan was published in 2010, coving 2010-13, and a follow-up action plan is being prepared. The plan addresses monitoring of air pollution; it does not directly include steps to reduce air pollution. Under the plan, the number of air quality measurement stations was increased, and is planned to eventually have 130 monitoring stations. Data on air quality is recorded, but is not publicly available. The plan also established a process for preparing an inventory of main sources of emissions, for industrial plants, transport, and heating. The process does not track aggregate level data, rather it targets emissions from specific individual large sources, so the effect of other sources are not

captured. The responsibility for taking action if needed is assigned to provincial level environmental agencies, it is unclear if they have the capacity to do so. The plan is a good first step, but it is unlikely to have any direct effect on air quality. Air pollution ceiling targets for 2020 and 2025 have been established but are nonbinding.

4.76 Some changes were made to regulatory rules on large combustion plants. According to government officials, these were relatively minor, and the more significant changes to large combustion plant rules were made under separate legislation not directly supported by the World Bank DPL. Large combustion plants have been inventoried, and a new inventory with more detail is being established, but work has focused on assessing installations and the costs of harmonizing with EU standards rather than reducing air pollution levels.

4.77 For old thermal power plants with significant particulate emissions, it is unclear if needed investments to reduce pollution will be made soon; government has set long phase-in periods of existing rules, with targets of 2018 and potential extensions to 2021, but a constitutional court ruling set the end of 2017 as the deadline for investments and extensions.

Water basin management

4.78 The DPL supported changes in water management through a prior action on designation of water sensitive areas and related policy dialog on action plans for improved water management. These action plans dealt with water quality issues at the basin level, and established an inventory of wastewater emissions. The plans were an advance over previous management, which had focused on emission standards for individual point sources but not the overall water quality outcome. Action plans for all 25 river basins were completed by 2014, through financing from the EU and from the Turkish government. Environmental experts argued that the action plans were of high quality, and noted that data from the measurements were publicly available at no cost. However, some environmental experts shared concerns about the data accuracy of quality measures.

4.79 Water quality issues, such as establishing integrated water management to help organize tradeoffs between water users across competing purposes (irrigation, hydropower, industry, etc.) were not addressed by the action plans, though there is ongoing policy discussion on this area. However, there are concerns about ability to implement water quantity management effectively, as water is managed primarily at the provincial level but in many cases basins are larger than provinces, and as agricultural basins are different from water basins (because of irrigation systems). Also, most water projects are analyzed at the level of the individual operation, rather than considering the system effects over the full basin.

OUTCOMES

4.80 After a period of environmental policy reform, Turkish environmental law and regulation are generally harmonized with EU acquis standards, with some notable exceptions such as on international waters and transboundary issues. But there is little evidence yet on whether these changes are having an impact on environmental outcomes. What data exists is rarely publicly available.

4.81 Environmental experts argued that harmonizing legislation with the EU has little impact when there are serious barriers to implementation, and that tighter standards may not have much effect when existing laws are not fully implemented.

4.82 Government officials say that environmental permitting reforms are working well, but there is little public evidence available to demonstrate this. Some environmental NGO groups argue that there are large numbers of sites that have environmental effects but that do not have permits (especially for small and medium sized businesses) and claim that the total the number of issued permits is dramatically less than the total number of sites which should have permits, but IEG cannot determine whether this is the case.

4.83 Data on air pollution emissions and quality levels not available. Environment ministry staff argue that it is too soon to tell whether policy changes are having an impact.

4.84 Achievement of this objective is rated *Modest*.

Other program impacts

4.85 Bank staff argued that the potential development impact should not be assessed by looking solely at outcomes in the medium term or at the outcomes of the specific policies supported by the DPL series. They argued that the DPL had been the beginning of an engagement with the Turkish government on environmental policy issues, and that this might pay off in the long term if the Bank has a continued engagement and portfolio on environmental issues. The Bank could potentially have a significant long-term impact if it could help the Turkish government improve the implementation of environmental laws, policies, and regulations.

4.86 Some Bank staff argue that adding environment to the DPL series and opening an environmental policy dialog was important for raising awareness of environmental issues and development/environment tradeoffs in high level government planning, and for setting up a portfolio of follow-on projects. The impact of policy engagement is difficult to assess at this point. Environment is not a major pillar of the Bank's engagement with Turkey. There is engagement on watershed management, some work on natural capital accounting, and support for an eventual emissions trading system through the Partnership for Market Readiness. But as of 2014 no major environmental investment lending operation has yet materialized, and the government may prefer not to borrow for environmental protection.

5. Ratings

Outcome

5.1 The relevance of the original objectives was high, as electricity supply shortages would have posed a serious threat to growth and development in Turkey. The revised objectives were substantially relevant; energy security was an important priority, but changes to environmental law and policy were not the highest priority, as the main barriers to environmental management were in implementation and enforcement. The design was

highly relevant to the original objectives, but only modestly relevant to the revised objectives, as little was added to address energy security outside of the power sector, and as many of the environmental policy actions may have had little impact or additionality. The project was successful in supporting private investment in generation including in renewable energy, though it was less successful in encouraging energy efficiency, or in natural gas policy reforms. Policies on climate change were an important step towards mitigating and adapting to climate change, but the impact of environmental policy actions is mixed. For example, there has been little progress on increasing the degree of public participation in environmental decision-making.

5.2 Overall, the stronger electricity sector policy efforts and the mixed performance on environmental aspects lead to an overall outcome rating of *Satisfactory*.

Risk to Development Outcome

5.3 The risk that electricity sector reforms will be reversed is relatively low. The Government has continued and intends to continue with the electricity sector policy reform process, including privatization of thermal power plants (which has already begun from 2013), issuance of licenses for solar power (which occurred in 2015), establishment of an intra-day electricity trading market (which commenced in July 2015) and potentially other market reforms such as establishing a market for electricity price derivatives linked to the electricity market, reforms to make the energy market operator independent with some private ownership by market participants, and other steps. However, there may be some risks to cost-based pricing. Many energy prices are still heavily driven by the decisions of state-owned entities that may not reflect costs or market value. Some issues such as privatization have become partisan issues and so may face potential risks from changes in government.

5.4 However, there remain ongoing risks to energy supply security and to avoidance of outages, and there have been repeated cases of wintertime shortages in recent years. The government has plans for investments in gas transmission and storage facilities that may help to alleviate these risks, but these may take some time to be completed.

5.5 It is unlikely that the specific reforms supported by the DPL series will be reversed or overturned, but there are a number of controversial proposals on weakening aspects of environmental protection outside the scope of the DPL, such as on the status of protected areas. There are cases where the government has harmonized with the letter of the EU *acquis* requirements which specify high level goals, but where the specific details not defined by the *acquis* have been established in a less stringent manner, such as the length of comment periods for public participation. The overall commitment of the government to prioritizing environmental management is mixed. Some reforms such as simplified permitting seem likely to be sustained. Expanding work on green growth approaches show that some elements of government are becoming more proactive on environmental issues. However, as in many countries, the priority of the government is economic growth, and according to environment experts consulted this usually influences the result in circumstances where development and environmental outcomes conflict. It is unclear to what extent more stringent environmental policies will be implemented and enforced given the capacity limits of agencies. The restructuring of the environmental agencies and particularly the

combination of environment and urbanization may hamper the ability to ensure that environmental aspects of development are prioritized.[34] The new ministry structure may also offer opportunities for progress on energy efficiency in the buildings sector.

5.6 Progress on climate change actions will depend on the degree to which the environmental capacity of agencies will be strengthened especially at the provincial level. Ongoing work on preparation for an eventual emissions trading system suggest that there may be market incentives for emissions reductions in the future.

5.7 The Risk to Development Outcome is rated *Substantial*.

Bank Performance

QUALITY AT ENTRY

5.8 The quality at entry of the electricity sector design was substantial. The program was built on a substantial prior engagement, including analytical and advisory work[35], and relationships forged through years of successful investment lending. The Bank had conducted a long term policy dialog with government on energy sector issues, and the Bank's prior lending program and the prospect of large scale policy lending had helped to provide high levels of access to government decision makers. The government saw the Bank as providing significant added value, both in terms of the technical advice provided and in terms of the credibility and reassurance to stakeholders provided by the Bank's engagement.

5.9 The choice of the electricity sector prior actions was developed in concert with senior government officials in Treasury and the energy ministry, to match already existing government programs and goals of the national development plan. This helped to contribute to the high level of government ownership of the reforms. While it did mean that the policy reforms would still have likely been carried out in the absence of the DPL, the DPL still added value by providing a tool for assisting the Treasury to encourage prioritization of particular reforms by line ministries.

5.10 The selection of prior actions involved significant policy reforms from the first operation. This helped to minimize the potential that large sums could be disbursed with little impact should the subsequent operations in the programmatic series not be continued.

5.11 The quality at entry of the environment aspects of the DPL were not as strong. The Bank was responding to a new request for assistance, rather than building on an existing

[34] The merger has also created some conflict of interest situations since the Urbanization department has large public housing or other projects that are subject to EIA process and approval, and then the Environment department issues EIA approvals.

[35] This work included technical advice by an independent expert panel on issues including supply security, market implementation, regulation, and privatization, advisory services on wind power development, analytical work on demand-side energy efficiency, an energy sector review, gas sector strategy studies, and a study on market incentives (World Bank 2009). Government officials report that they were satisfied with the quality of technical advice provided.

engagement. There was relatively little prior analytic work; for example there was no Country Environmental Analysis, which might help to identify weaknesses in environmental management and select priority reforms. A DPL may not have been the best instrument for environmental support, given that it is difficult to provide implementation support through a DPL, especially in the absence of parallel technical assistance.[36]

5.12 It is unusual to add new sectors to an existing sectoral programmatic DPL series, or to use a DPL for new engagements in a sector. Investment lending may have been more effective in improving environmental outcomes. But Bank staff argued that there was no government interest on investment lending on environment or a standalone DPL (as the government is reluctant to borrow for what it sees as investments that are not directly productive). Thus, they argue that the decision to bundle environment into the electricity DPL was the best feasible option given political constraints, and that the alternative would have been no significant environmental engagement. Bank staff argued that the joint DPL helped the Bank to engage on environmental issues beyond the environment ministries to other important ministries, particularly the development ministry. The environment work may have had greater impact if supported by parallel technical assistance, but there was little government interest in borrowing for technical assistance. Thus inputs on environment were largely limited to what could be supported through the Bank preparation and supervision budgets, though there was also some non-lending technical assistance particularly on preparation of the National Watershed Management Strategy.

5.13 The Bank worked closely with government in design of the DPL. There was some involvement and review from the EU and UNDP in the preparation process, though with little follow up engagement. Some other IFIs, including the EU, argued that there was little coordination between international financial institutions in Turkey. Many IFI staff in in Turkey in energy or environment sectors were unaware of the existence of the Bank DPL series. There are overlapping efforts in energy efficiency and other sectors which may lead to inefficiencies. However, Treasury officials reported that they were satisfied with the current arrangement; Treasury was capable of coordinating a portfolio of projects with various international agencies, could handle coordination on its own, and was satisfied with maintaining bilateral relationships.

5.14 However, the extent to which other stakeholders were consulted is unclear. There does not appear to have been any significant civil society outreach in program design. As described earlier, the monitoring and evaluation system design had a number of weaknesses. The assessment of the macroeconomic framework was satisfactory.

5.15 Quality at entry is rated *Moderately Satisfactory*.

QUALITY OF SUPERVISION

5.16 The Bank provided supervision largely through policy dialog and through the preparation of subsequent operations in the series. As is common in high level policy DPLs,

[36] Some Bank staff argued that investment lending would have been a more effective entry point for environmental management, but that government was not interested in this.

supervision of implementation was less intensive and focused on monitoring, as no significant implementation issues arose that required implementation Bank support. Implementation supervision was carried out largely by the Treasury. Technical policy dialog was ongoing, especially on areas of potential future energy sector operations or on water management. The Bank team coordinated the DPL with work on other current and future energy sector operations – investment lending projects were approved on energy efficiency and renewable energy development in 2009, electricity market development and transmission system support in 2010, energy efficiency and renewable energy development in 2011, and energy efficiency in small and medium enterprises in 2013. The Bank provided a continued series of analytical work throughout implementation of the DPL.

5.17 Government officials reported that they were generally satisfied with the technical advice, policy discussions, and other support provided by Bank. There was good continuity in the Bank's support across projects, the fact that there was a single Task Team Leader across the entire program helped with consistency and with maintaining relationships with government.

5.18 Quality of Supervision is rated *Satisfactory*.

5.19 Together, these lead to a Bank Performance rating of ***Moderately Satisfactory*.**

Borrower Performance

GOVERNMENT PERFORMANCE

5.20 The commitment of the government to electricity sector reforms has been strong. Energy sector market development and liberalization has remained a priority of the government, and the government remains interested in further improvements on energy efficiency. However, energy sector experts have expressed concerns that the ongoing government role in some electricity prices and in gas prices is distorting incentives for private investment and efficient sector operations by preventing prices from reflecting real costs.

5.21 There has generally been an increase in the commitment of the government to addressing environmental issues in laws and policies (including in increased attention in the main national development plan), though there are concerns in recent years that these may be reversed in particular subsectors. There has been commitment to EU environmental harmonization, with the exception of transboundary issues. However, many environmental experts and international agencies argue that environmental concerns are still viewed by many in government as a barrier to development, and that in cases where economic growth and environment are seen to conflict, development is prioritized. The merging of the environment ministry with the urbanization ministry is seen by many as a signal of priorities favoring urban development over environmental management and protection, as it creates a potential conflict of interest between environmental assessment/permitting responsibilities versus construction priorities. The Bank's ICR notes that the merger "has raised a concern that the urban construction agenda will prevail over the environment." However, Bank experts also argue that the merger has increased the ability of government to manage

environmental aspects of urbanization in territorial planning, and there may also be scope for synergies in other areas. Environmental ministry restructuring also led to delays on climate change strategies and action plans. Nonetheless, other than some delays, the restructuring did not significantly affect the specific policy reforms under the DPL, and it is difficult to determine what impact if any it may have had on the overall effectiveness and efficiency of environmental policy.
Government performance is rated *Satisfactory*.

IMPLEMENTING AGENCY PERFORMANCE

5.22 The Treasury provided an overall coordination and management role of the reform process, while implementation of specific reforms was carried out by line ministries and agencies. The prior actions were implemented as expected and on time, with the sole exception of triggers on SEA and on reforms of the state owned gas company, which were dropped.

5.23 Implementing agency performance is rated *Satisfactory*

5.24 These lead to a rating of overall Borrower Performance of ***Satisfactory***.

Monitoring and Evaluation

5.25 **Design.** As described earlier, while there were some useful indicators, there were a number of problems with the M&E system design, including ambiguous or subjective indicators, a focus on outputs rather than outcomes, indicators that were poor measures of the outcome they were intended to track, and indicators that tracked production of prior actions. Indicators were not sufficiently adjusted to monitor performance on the revised energy objective.

5.26 **Implementation.** As described above, the indicators were tracked and reported on largely as designed.

5.27 **Utilization.** Indicators appeared to be used solely for reporting purposes, there is no indication that the indicators were used for project management. The Treasury and the Bank appear to have used their own monitoring of the sectors and reform process for policy design, rather than using the formal M&E system of the DPL series.

5.28 The Quality of Monitoring and Evaluation is rated ***Modest***.

6. Lessons

6.1 The Bank can maximize its development impact by concentrating its strategic engagement including its lending and advisory support in sectors with track records of success. Even in large middle income countries, the Bank can sometimes maximize its impact by engaging in only a few sectors with heavy concentration of support, rather than trying to cover all sectors but being unable to sustain continuous engagement. Turkey

chooses to engage with Bank in only a few sectors, based on track records of success in those sectors. The long term engagement of the Bank in the electricity has helped to build a critical mass of operations that allows for significant locally based expertise (multiple sector experts in the Bank's Turkey country office), relationships of trust with key stakeholders, and use of a range of instruments (including investment lending, analytic work, and policy lending) which have relative advantages in supporting particular sub-objectives.

6.2 A well-designed programmatic DPL can be a key instrument in the Bank's long-term engagement. The DPL instrument can leverage the Bank's strengths on technical advice, convening power, and credibility to help support sector reforms that can have substantial impacts. In this DPL series, the electricity sector reforms had a strong design and so were successful in supporting the government's goals of increasing private sector investment in electricity generation. In contrast, the design of the environmental pillar was less well designed and so the DPL provided little additional impact relative to a without-operation counterfactual.

6.3 Prior actions should focus selectively on those reforms that are critical to achieving project objectives but are difficult to undertake because of political or institutional resistance. These are the cases where the DPL's ability to apply some pressure can have an additional impact. In this operation, prior actions on electricity tariff reform, cost-based electricity pricing, and distribution company privatization important effects.

6.4 Prior actions should also ensure that they are additional to what would occur in the absence of the DPL operation. A DPL is unlikely to lead to implementation of major government policies that would not have otherwise occurred, especially in large middle-income countries; effective policy changes require a high degree of government ownership. But a DPL can help governments to increase the pace of reforms and their technical quality if the existence of a prior action or trigger is a significant motivating factor. In this operation, many of the environmental policy reforms were motivated primarily by engagement with the EU rather than the Bank and by a desire for EU harmonization to support potential accession, and so the existence of Bank DPL triggers had little additional impact. If a DPL is used primarily to establish a policy dialog rather than to achieve substantial development results through the prior actions then it may have little impact.

6.5 DPLs can achieve good outcomes when they serve as the culmination of a process of engagement, as in the electricity sector in Turkey. With sufficient background work, DPLs can have significant "heavy" policy actions from the first operation. This increases the impact, and reduces the risk of failing to achieve positive results should the planned programmatic series not be completed. DPLs may not work as well if used as the initial point of engagement for a sector, as in the environmental aspects of this operation. Hopes that policy dialog through a DPL will then lead to a pipeline of follow-up projects may not eventuate.

6.6 A comprehensive yet well integrated set of market reforms can provide credible signals and incentives to private investors. A wide set of market reforms can provide credible signal to investors; combined program of price reforms, market development, incentives for RE, privatization encourage large scale investment. The order of reforms can

be important in determining successful: privatization can be more effective if investors are confident that there will be clear market demand.

6.7 Changing laws and regulations may not have much impact on environmental outcomes when environmental management agencies are weak and lack implementation and enforcement capacity. In these cases a DPL may not be the most effective instrument for achieving environmental goals.

6.8 A Bank DPL may have little additional impact if the design does not fully incorporate the existing political and institutional motivations. In this case, the primary motivation of the government for many environmental reforms was on EU harmonization, and the Bank's DPL added relatively little to this effort. The Bank may have had more impact if it had covered environmental issues not already covered by the EU harmonization process.

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Annex A1. Basic Data Sheet

Programmatic Electricity Sector Development Policy Loan (P110643) (LN# 7718)

Key Project Data (amounts in US$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs			
Loan amount	800	774	96.8%
Co-financing	n/a	n/a	n/a
Cancellation	n/a	n/a	n/a

Cumulative Estimated and Actual Disbursements

	FY09	***FY10***	***FY11***	***FY12***	***FY13***
Appraisal estimate (US$M)	0	800	800	800	800
Actual (US$M)	0	774	774	774	774
Actual as % of appraisal	0				
Date of final disbursement: July 2009					

Project Dates

	Original	Actual
Concept Review		03/18/2008
Negotiations		10/09/2008
Appraisal		07/02/2008
Board approval		06/11/2009
Signing		06/12/2009
Effectiveness	07/10/2009	07/10/2009
Closing date	12/31/2009	12/31/2009

Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank budget only)	
	Staff Weeks (number)	US$ 000s (including travel and consultant costs)
Lending	50.5	368,751.3
Supervision	0	0

Task Team members

Name	Title (at time of appraisal and closure, respectively)	Unit	Responsibility/ Specialty
Lending			
Tijen Arin	Sr. Environmental Specialist	EASER	Environment
Seda Aroymak	Sr Financial Management Spec.	ECSO3	Financial Mgmt.
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Selma Karaman	Program Assistant	ECCU6	Team support
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Hannah Koilpillai	Senior Finance Officer	CTRFC	Disbursement
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Rogier van den Brink	Lead Economist	EASPR	Peer review
Gurhan Özdora	Sr. Operations Officer	ECSEG	Energy policy

Second Programmatic Environmental Sustainability and Energy Sector Development Policy Loan (P117651) (LN# 7907)

Key Project Data (amounts in US$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs			
Loan amount	700	657	94%
Co-financing	n/a	n/a	n/a
Cancellation	n/a	n/a	n/a

Cumulative Estimated and Actual Disbursements

	FY10	***FY11***	***FY12***	***FY13***	***FY14***
Appraisal estimate (US$M)	0	700	700	700	700
Actual (US$M)	0	657	657	657	657
Actual as % of appraisal	0	0	0	0	0
Date of final disbursement: August 2010					

Project Dates

	Original	Actual
Concept Review		11/19/2009
Negotiations		04/19/2010
Appraisal		03/01/2010
Board approval		06/15/2010
Signing		07/01/2010
Effectiveness	08/12/2010	08/12/2010
Closing date	12/31/2010	12/31/2010

Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank budget only)	
	Staff Weeks (number)	US$ 000s (including travel and consultant costs)
Lending	50.5	365,239.8
Supervision	0	0

Task Team members

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Third Programmatic Environmental Sustainability and Energy Sector Development Policy Loan (P121651) (LN# 8146)

Key Project Data (amounts in US$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs			
Loan amount	600	574	95.7%
Co-financing	n/a	n/a	n/a
Cancellation	n/a	n/a	n/a

Cumulative Estimated and Actual Disbursements

	FY10	***FY11***	***FY12***	***FY13***	***FY14***
Appraisal estimate (US$M)	0	600	600	600	600
Actual (US$M)	0	574	574	574	574
Actual as % of appraisal	0	0	0	0	0
Date of final disbursement: June 2012					

Project Dates

	Original	Actual
Concept Review		01/13/2011
Negotiations		04/19/2010
Appraisal		01/23/2012
Board approval		03/27/2012
Signing		04/03/2002
Effectiveness		06/12/2012
Closing date	06/30/2013	06/30/2013

Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank budget only)	
	Staff Weeks (number)	US$ 000s (including travel and consultant costs)
Lending	48.9	342,744.28
Supervision	1.8	30,524.61

Task Team members

Name	Title (at time of appraisal and closure, respectively)	Unit	Responsibility/ Specialty
Lending			
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Carlos Pinerua	Country Sector Coordinator	ECSPF	Private sector
Cristobal Ridao-Cano	Country Sector Coordinator	ECSHD	Poverty and social
Jonathan Schwartz	Lead Economist	LCSSD	Peer review
Sameer Shukla	Sr. Energy Specialist	SEGES	Energy sector fin.
Yukari Tsuchiya	Team Assistant	ECSEG	Team support
Carolyn Turk	Lead Social Scientist	ECSSO	Poverty and social
Cevdet Cagdas Unal	Economist	ECSP4	Macro
Jari Vayrynen	Sr. Environmental Specialist	ECSEG	Climate Change
Mara Warwick	Country Sector Coordinator	ECSSD	Environment
Marina Wes	Lead Economist	ECSP1	Macro/REGE DPL2 TTL
Katalin Zaim	UNDP Programme Manager	UNDP	Peer review
Fan Zhang	Energy Economist	ECSEG	Poverty and social
Kamer Karakurum Özdemir	Sr. Economist	ECSP1	Macro

Annex A2. Prior actions and triggers

First Operation in a Programmatic Series

Planned policy action	**Status**
An updated electricity sector strategy that addresses the crucial challenge of meeting Turkey's growing electricity demand in an efficient and sustainable manner has been approved by the High Planning Council on May 18, 2009.	Approved
Amendments to the Electricity Market Law to monitor, evaluate and take measures to ensure security of electricity supply have been enacted - Law No. 5784 of July 26, 2008.	Approved
Modified balancing and settlement regulations to improve the functioning of the wholesale market publicly issued by EMRA - April 2009.	Approved
A decision to provide on a priority basis the necessary budgetary allocations in line with approved transmission system investment plans – covered by approval of the updated electricity sector strategy that contains relevant provisions.	Approved
Revisions to retail electricity prices to offset the impact of increases in the cost of supply approved in January 2008, July 2008 and October 2008.	Approved
A cost-based pricing mechanism that automatically covers future increases in costs incurred by the Turkish Lignite Company, TETAŞ, EÜAŞ, TEDAŞ and BOTAŞ, including the costs of electricity obtained on the wholesale market, and provides for periodic mandatory filings approved by the High Planning Council in March 2008, and became effective from July 1, 2008.	Approved
Legislative amendments to improve the payment for street lighting - done in July 2008 through Law No. 5784.	Approved
The bidding process for the first two lots of distribution companies launched by the Privatization Administration, with winning bidders for the first two distribution companies determined in July 2008 and for the next two distribution companies in September 2008.	Approved
First set of secondary regulations covering authorizations for provision of training and research and development services; support to companies to augment their energy efficiency efforts and implementation of projects under voluntary agreements; implementation covering supply side management; measures to increase efficiency in electricity generation, transmission and distribution systems; measures to increase energy efficiency in the public sector; and energy efficiency in the transport sector issued - July-October 2008.	Approved

Second Operation in a Programmatic Series

Planned policy action	**Status**
Implementation of energy regulator EMRA's wholesale electricity market regulations by the transmission system and electricity market operator TEIAŞ.	Approved
Sustained implementation of the cost-based pricing mechanism by the energy regulator EMRA.	Approved

Launching of the bidding process and determination of the winning bidders for seven distribution companies by the Privatization Administration.	Approved
Determination of the strategy for electricity generation privatization by the Privatization Administration, EMRA and the Ministry of Energy and Natural Resources.	Approved
Government approval of a National Climate Change Strategy and an assessment of clean technology options for the energy sector.	Approved
Government approval of an EU Integrated Environmental Approximation Strategy.	Approved
Transposition of Directive 85/337/EEC as amended with 97/11/EC and 2003/35/EC on Environmental Impact Assessments into law.	Approved
Publication of regulation on landfill of waste.	Approved
Approval of a Clean Air Action Plan by the Ministry of Environment and Forestry.	Approved
Designation and publication by the Government of sensitive and less sensitive areas for the improved management of water resources and water quality.	Approved

Third Operation in a Programmatic Series

Planned policy action	**Status**
Amendment of the Natural Gas Market Law	Dropped
Study of options and a program of measures for increasing the operational capacity and financial strength of TEIAŞ.	Dropped
Launching of a dayahead wholesale electricity market by the transmission system and electricity market operator TEIAŞ.	Approved
Government approval of an Energy Efficiency Strategy.	Approved
Enactment of an Amendment of the Renewable Energy Law No. 5346.	Approved
Government's Climate Change Coordination Board approval of Climate Change Action Plan (including sectoral actions for at least three key sectors).	Approved
Transposition of Directive 2001/42/EC on Strategic Environmental Assessment into regulation.	Dropped
Transposition of Directive 2006/11/EC on Dangerous Substanes in Water into law.	Dropped
Issuance by the Ministry of Environment and Urbanization of a Regulation, and amendments to the Regulation, on Permits and Licenses in Accordance with the Environmental Law.	Approved
Issuance by the Ministry of Environment and Urbanization of a Regulation on the Control of Soil Pollution and Contaminated Sites by Point Sources.	Approved
Issuance by the Ministry of Environment and Urbanization of a Regulation transposing Directive 2001/80/EC on Large Combustion Plants (for new installations).	Approved
Issuance by the Ministry of Environment and Urbanization of an amendment on Regulation on Industrial Air Pollution Control.	Approved

Source: World Bank 2009, World Bank 2010, World Bank 2012, World Bank 2014

Annex B . List of Persons Met*

Government officials and agency staff:

Gökben Yener, Head of Department, Undersecretariat of Treasury
Ayse Deniz, Undersecretariat of Treasury
Ali Murat Becerikli, Head of EU and IFI's Department, General Director for EU and Foreign Relations, Ministry of Energy and Natural Resources
Ozturk Selvitop, Head of Department, General Directorate of Energy Affairs, Ministry of Energy and Natural Resources

Özgür Pehlivan, Counsellor for Economic Affairs, Deputy Permanent Representative, Permanent Mission of Turkey to the United Nations (formerly Undersecretariat of Treasury)
Mithat Yuksel, Department of Electricity Market Services, Head of Department, EUAS
Nezir Ay, Head of Electricity Market Operations, PMUM
Nevin Ertürk, Director, Project Implementation Unit, TEIAS
Fatih Gokkaya, TEDAS
Mehmet Ertürk, Head of Tariffs Department, EMRA

Gurcan Secgel, Acting Chief, Department of Climate Change, Ministry of Environment and Urbanization
Aysun Bosca, Minstry of Environment and Urbanization
Ahmet Malkoç, Deputy Head of Department, Infrastructure Investments EIA and SEA, Ministry of Environment and Urbanization
Nihan Hamamcı, Division Manager, Infrastructure Investments EIA and SEA, Ministry of Environment and Urbanization
Betül Doğru, Deputy Head of Department, Air Management, Ministry of Environment and Urbanization
Ufuk Türkmen, Deputy Head of Department, Permission and Licensing, Ministry of Environment and Urbanization
Pinar Varoglu, Expert, Privatization Administration

World Bank staff:

Martin Raiser, Country Director, Ankara
Kari Nyman, Lead Specialist
Florian Fichtl, Lead Operations Officer, Ankara
Adriana Jordanova Damianova, Lead Environmental Specialist
Yasemin Orucu, Consultant, Ankara
Esra Arikan, Environmental Specialist, Ankara
Zeynep Darendeliler, Social Specialist, Ankara

Development partners:

Alper Acar, Sector Manager Environment/Climate Change, Delegation of the European Union to Turkey

Hasan Ozkoc, Sector Manager, Energy and Information Society, Delegation of the European Union to Turkey
Ozge Gokce Aktas, Sector Manager, Environment, Sustainable Development and Climate Change, Delegation of the European Union to Turkey
Marion Kneesch, Director of KfW Office Ankara
Julide Oguz, Senior Project Coordinator Energy and Municipal Finance, KFW
Katalin Zaim, Programme Manager Environment and Sustainable Development, UNDP
Adonai Herrara-Martinez, Energy Efficiency Specialist, EBRD

Other stakeholders and technical experts

Ozan Acar, Economic Policy Analyst, Economic Policy Research Foundation of Turkey (TEPAV)
Murat Alanyali, Professor, TOBB University of Economics and Technology
Serpil Çimen, Director Technical Affairs, Turkish Steel Producers Association
Veysel Yayan, Secretary General, Turkish Steel Producers Association
Budak Dilli, Energy Consultant
Emre Metin, Executive Director, Chamber of Electrical Engineers
Olgun Sakarya, Coordinator of the Department of Energy, Chamber of Electrical Engineers
Baran Bozoglu, Board Chairman, Chamber of Environmental Engineers
Turhan Cakar, General Director, Consumer Rights Association
Mustafa Ozgur Berke, Conservation Supervisor, WWF
Bahar Ubay, Regional Manager for Turkey, The Gold Standard Foundation

*These constitute the principal counterparts, additional conversations were carried out with technical experts in government departments. In addition, some other people interviewed in the private sector requested that they remain anonymous and so are not listed here.

Annex C. Borrower Comments

The Borrower provided a number of comments, on Energy issues and on Environment issues. Comments in *italics* are not verbatim.

Energy:

The comments stated that a number of statements in the report were subjective: on government involvement in setting electricity prices (Para 2.22, 5.20), on whether there was an implicit subsidy for state-owned enterprises (Para 2.22), on how gas prices are set and whether they reflect costs (Para 2.30), on the reasons behind increases in spot price increases (Para 4.9), on whether prices represent congestion costs (Para 4.9, Para 4.44), on causes of gas shortfalls (Para 4.33), on whether there are risks to cost-based pricing (Para 5.3), and on the view of the government on environmental issues (5.21).

Re Para 4.7 on local production incentives:
This argument includes prejudgments about local component production. Some European companies have constructed production facilities for renewable energy equipment like wind turbine tower and wind tower blade and they are producing high quality products. Investors use these products and benefit from local production incentives.

Re Para 4:30 on the restructuring of the energy efficiency directorate:
GDRE has given the opinion that instead of introducing a new EE entity in the middle term it was requested to improve GDRE since it has knowledge and experience.

Re the government's program on energy security:
For the purpose of increasing renewable energy sources in energy supply and improving the quality of electricity service, Pumped Storage Power Plant studies were initiated and it is necessary to implement detailed studies regarding the Pumped Storage Power Plants.

By-Law regarding Organizational Structure and Operation Principles of Energy Markets Operation Company (EPIAS) was published in Turkish Official Gazette in April 1, 2015 with reference number of 29313. This by-law regulates the activities, organizational structures, and units of EPIAS.

The intra-day market has been in operation as of July 1, 2015.

Under the privatization topic, by July 2015, the privatized thermal power plants are:
- Hamitabat Thermal Power Plant
- Seyitömer Thermal Power Plant
- Kangal Thermal Power Plant
- Yatağan Thermal Power Plant
- Çatalağzı Thermal Power Plant
- Kemerköy and Yeniköy Thermal Power Plants
- Orhaneli and Tunçbilek Thermal Power Plants

- Soma B Thermal Power Plant
The share of public company in total installed capacity is 28.3 % by the end of July 2015.

The Turkish electricity market operates as a bilateral market between market participants. Those bilateral contracts (excluding non-eligible consumption) are done over the counter. In addition, there is a day-ahead market, supplemented with balancing and settlement. The day-ahead electricity market (where prices are set based on bids made a day in advance) was established in 2011. The day-ahead market is supervised by EPİD (a department of TEİAŞ) where prices of electricity for every hour of the next day are determined through a supply and demand equation. License holders can sign day-ahead market participation agreements. The day-ahead market has the second largest volume for electricity trade after the bilateral market. The intra-day market has been initiated as of 1st June of 2015. Day-ahead and intraday market operations will be transferred to EPİAŞ which is Energy Markets Operation Company under the same rules and conditions as of 1st September of 2015.

We have seen assertions of cross-subsidy regarding the activities of the Petroleum Pipeline Corporation (BOTAŞ): Reporting such assertions and letting such assertions remain in this and other similar reports without any intervention by our relevant agencies/organizations would result in consequences that could affect the international trade of our country (for instance the processes concerning construction iron exporters).

In addition, the subject of unbundling the primary operations of BOTAŞ, which is covered by the Natural Gas Market Draft Law, is provided for in the existing Law No. 4646 as well, and it is not a new provision introduced by the proposed draft law.

Re comments on gas shortfalls (Para 4.33)
The sentence has a serial discrepancy in evaluations; the reason written for gas shortfalls is not true and expression followed by inability of private sector investment in storage facilities and followed by an explanation that mentions about public investment plants for storage facilities.

Among [*the state owned generator*] thermal power plants, three (2,177 MW) were privatized as of 2013. Four thermal power plants (1,980 MW) were privatized in 2014, and three thermal power plants (1,565 MW) were privatized in 2015. Currently, two thermal power plants (1,612 MW) are in privatization process, and one thermal power plant has been included in the scope of privatization (Hopa TPP. 50 MW). The Transfer of Operating Rights (TOOR) process continues for Afşin Elbistan-A Thermal Power Plant (1,355 MW) under Law No. 3096, and contracts have been signed with the company. Transfer committees carry on with their work. Five thermal power plants (4,300.9 MW) are in the scope of privatization at this stage.

As for hydroelectric power plants; 50 hydroelectric power plants (168.51 MW) have been privatized by the PA through TOOR method, and 3 hydroelectric power plants (569,8 MW)

have been privatized by the Ministry of Energy and Natural Resources through concession contracts within the framework of Law No. 3096. As of 2015, 5 hydroelectric power plants (2.872 MW) have been tendered and are at contract signing stage. Tenders have been announced for 10 hydroelectric power plants (537.6 MW), and they are at bid receiving stage. 17 hydroelectric power plants (842.19 MW) have been included in the privatization program. Subsequently 8 hydroelectric power plants (2,011.95 MW) have been included in the scope of privatization, and have not been planned yet. There are 28 hydroelectric power plants (9,607.52 MW) that have not been included in the scope of privatization. 9 power plants (2 thermal power plants -including one gas-fired and one geothermal power plant- and 7 hydroelectric power plants) have been transferred to ADÜAŞ Company (141.4 MW).

The Report states that 85 percent of EUAS energy sales is performed through bilateral agreements and 15 percent is sold in the market. However, these rates were approximately 93 percent and 7 percent, respectively, for 2014. Furthermore, these rates vary across years.
Furthermore, in relation to the cost-based pricing mechanism discussed in the aide memoire; the implementation has been ceased at the end of 2012 because of the Principles and Procedures of Cost-Based Pricing Mechanism to be Applied by Energy SOEs, issued by the High Planning Council, which provides that "Cost-Based Pricing shall take effect as of 01 July 2008 and shall remain in force throughout the transitional period specified in Provisional Article 9 of Electricity Market Law No. 4628."
The dates provided in Section 4.14 have been taken from the Electricity Market Law. The related article of the Law, in which the dates are specified, was cancelled by the Constitutional Court judgment dated 22 May 2014. The judgment was published in the Official Gazette dated 24 June 2015 and will take effect 6 months after its date of publication. Pursuant to Provisional Article 3 of Industrial Air Pollution Control Regulation, the deadline for investments and exemptions is 31 December 2017.

In paragraphs 1.2; 2.9; 3.8; 3.12; 4.49 and 4.50 of the aide memoire, it is stated that there has been an increase in Turkey's coal-fired generation targets and investments, and this caused environmental concerns since this would increase greenhouse gas emissions. According to data as of end-2014, the share of coal in Turkey's electricity generation is 29.2 percent, while the EU (28) average is 30 percent and the world average is around 41 percent. Even when the planned new coal-fired power plant investments are completed this rate will be much lower than the world average.

Likewise, Turkey's greenhouse gas emissions are below the OECD and world averages. According to the results of National Greenhouse Gas Inventory, prepared in 2014 and submitted to UN Secretariat of Climate Change, total greenhouse gas emissions are estimated as 439.9 million tons of CO2 equivalent as of 2012. 70.2 percent of total greenhouse gas emissions in 2012, in terms of CO2 equivalent, originated from the energy sector. Fossil fuel

consumption in Turkey plays a key role in this, however when evaluating TurkStat data and per capita greenhouse gas emissions in 2011, we see that OECD average is 12.8 tons of CO2 equivalent, whereas Turkey's average is only 5.7 tons of CO2 equivalent, making Turkey the country with lowest per capital greenhouse gas emission among OECD countries.

Furthermore, it should be noted that the new coal-fired thermal power plants being installed use environment-friendly and clean coal technologies meeting the emissions limits stipulated in the Large Combustion Plants legislation harmonized with the EU acquis in 2010.

Environment

The same provisions are applied to all of the projects that are subject to by-law on EIA (Annex-I list) and the first meeting held during EIA process is the Public Participation Meeting. EIA process is conducted transparently in all steps and all the reports prepared are issued in the Ministry's web site. In addition to this, the lawsuit regarding any EIA decision does not mean that EIA requirements in the regulation are not satisfied. All of the related parts have the right to access the justice as a requirement of democracy.

In the revised by-law on EIA, "day times" are converted to calendar days instead of business days for all articles in order to prevent confusion for the dates coincide with holidays. Furthermore, there is no limitation to access the notices for all of the parties.

EIA Commission is defined in Article 8, paragraph 7 of the by-law on EIA as: "The Ministry, when deemed necessary, and also by taking into consideration the subject and type of project universities, institutions, research and expert bodies, professional associations, trade unions, associations and non-governmental organizations as members to the commission meetings." For example, in EIA process of Akkuyu Nuclear Power Plant, many NGO's were invited to the meetings including Greenpeace and their opinions and suggestions were taken regarding the project. Similar implementations are conducted for many other procets including thermal power plants.

In Article 6, paragraph 3 of by law on EIA it is expressed that: "No incentive, approval, permission, construction and usage license can be given, no investment can be initiated, nor any tender be awarded for projects subject to this By-law unless unless "Environmental Impact Assessment is Positive" decision or "No Environmental Impact Assessment is Required" decision is made." Moreover, in Environmental Law no 2872 (article 20, paragraph e) it is ensured that punishment of fine at the rate of 2% of the project cost will be applied and the construction will be stopped for the projects starting construction before initiation of EIA process or before completing EIA procedure.

By-law on EIA has been first issued in Turkey in February 7, 1993 and the facilities which have commenced operation before this date are exempted from by-law on EIA. However they are subject to Environment Law no. 2872 and the related by-laws.

The Third Bosphorus Bridge is exempted from EIA since it was taken into the investment program before the first issue date of by-law on EIA (prior to 1993). However, the connection roads and the borrow pits are subject to EIA.

The nuclear power plant was also taken into government's investment program prior to 1993, however an alteration was made in the capacity of the nuclear power plant thus it was subject to by-law on EIA. The lawsuits filed at the court by NGO's and related parties against the EIA positive decision given by the Ministry of Environment and Urbanization are still continuing. The Third Airport in İstanbul was subject to EIA process and resulted with EIA positive decision.

It should be noted here that the aforementioned projects; nuclear power plant, 3. Airport in İstanbul, and express ways have no concern with the foreign financiers since they are all included in the Annex lists of by-law on EIA issued after 1993 and no exemptions are given.

In the Ministry of Environment and Urbanization (MoEU), the duties of Environment part and the Urbanization part are separately defined under different General Directorates. Moreover, punishment of fine rates applied by the Ministry are highest for projects related to cluster housing and tourism with respect to Environmental Law no 2872 which implies that structural bodies related to urbanization do not have pressure on environmental departments. Besides that, MoEU does not have construction projects directly but prepares regulatory legislation regarding construction projects.