



## 1. Project Data

<b>Project ID</b> P082337	<b>Project Name</b> ECSEE APL #3 (FYR MACEDONIA)		
<b>Country</b> Macedonia, former Yugoslav Republic of	<b>Practice Area(Lead)</b> Energy & Extractives	<b>Additional Financing</b> P096217	
<b>L/C/TF Number(s)</b> IBRD-48140,IBRD-80440	<b>Closing Date (Original)</b> 31-Mar-2011	<b>Total Project Cost (USD)</b> 39,710,000.00	
<b>Bank Approval Date</b> 10-Jan-2006	<b>Closing Date (Actual)</b> 31-Jul-2016		
		<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment		25,000,000.00	0.00
Revised Commitment		43,376,920.47	0.00
Actual		43,511,071.28	0.00
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## 2. Project Objectives and Components

### a. Objectives

The European Commission and the governments of countries in South Eastern Europe (SEE) signed a memorandum in Athens, Greece (the Athens Memorandum) on December 8, 2003, to “cooperate in the power sector, in recognition of potential gains from increased trade, and as part of a wider movement to strengthen regional cooperation” (Project Appraisal Document - PAD, p.16). The treaty establishing the Energy Community of South East Europe (henceforth Energy Community – EC) was signed on October 25, 2005. The main objectives of the EC were (i) to create a stable regulatory and market framework capable of attracting investment to the region in gas network and power system; (ii) to establish integrated regional



markets in SEE, closely linked to the internal energy market of the European Union (EU); (iii) to enhance the security of energy supply of SEE and the EU; and (iv) to improve the environmental situation in relation to energy in the region.

At the time of the signing of the Athens Memorandum, the World Bank had already been involved in the regional efforts to promote cooperation and integration in SEE through the Stability Pact initiative of the EU, which was founded in 1999 with the aim of establishing and reinforcing peace and security in the region. (The Regional Co-operation Council superseded the Stability Pact in 2008.) Therefore, upon the request of the European Commission, the Bank took active part in the process of establishing the EC and published a strategy paper for energy trade in SEE in March 2004. Within this framework, an Adaptable Program Loan (ECSEE APL) was approved by the Bank in January 2005 to finance priority investments of the SEE countries in the power sector to support the development of a functional regional electricity market in SEE and its integration into the electricity market of the EU (PAD, p.4-5). This project was the third to be financed by the ECSEE APL.

Although similar in content, the project development objective was articulated differently in the main text of the PAD (p.5) and the PAD's Results Framework (p.27), respectively, as follows (AD MEPSO referenced in both versions of the objective given below is the state-owned transmission system operator in FYR Macedonia. Henceforth MEPSO):

“To strengthen transmission and dispatch and improve efficiency of AD MEPSO to support functioning of this new company in the context of the regional power market through (a) financing investments necessary to rehabilitate and upgrade the power transmission network (b) financing investments to increase the level of interconnection with neighboring power systems (c) strengthening the institutional capacity of AD MEPSO.”

“To support the functioning of the new transmission company (AD MEPSO) in the context of the regional power market through financing investments necessary to rehabilitate and upgrade the power transmission network and increase the level of interconnection with neighboring power systems, and to strengthen the institutional capacity of AD MEPSO.”

The original Loan Agreement #4814 (p.15.) defines the project objective as follows:

“The objective of the Project is to support the implementation of the Investment Program and to improve the overall operational efficiency of AD MEPSO.”

When the Loan Agreement #8044 for additional financing was signed in April 2011, the project objective was replaced by the wording in the Results Framework of the PAD. (LA8044, p.5) The reason for this restructuring was explained in the Project Paper dated March 9, 2011 (p.3): “There is a discrepancy between the Project Development Objective (PDO) in the original Loan Agreement and the one used in the PAD dated December 8, 2005, for the ongoing project. ... This will be addressed as part of the additional financing package and the PDO definition used in the PAD will be introduced in the amended Loan Agreement”.

Since there is no material difference between the two versions of the project objectives, nor is there any material revision in the project components or key associated outcome targets, following IEG procedures,



this ICR Review is based on the project development objectives as stated in the original Loan Agreement. A split evaluation will not be undertaken.

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

No

**c. Will a split evaluation be undertaken?**

No

**d. Components**

The project consisted of five components, some with multiple sub-components. Component cost figures are in euros and they include physical and price contingencies.

**1: Expansion of Skopje 5 Substation.** (*Appraisal cost: €2.91 million; Actual cost: €3.02 million*)

This component included the construction of a second 400/100 kV transformer in the Skopje 5 substation and the corresponding 400 kV bay, a connection between the transformer and the substation.

**2: Rehabilitation and construction of interconnection and overhead lines.** (*Appraisal cost: €16.40 million; Actual cost: €22.89 million*)

This component included the construction of

1. Macedonia – Greece 400 kV interconnection line,
2. Skopje 1 – Tetovo 110 kV transmission line,
3. Bitola 3 – Bitola 4 110 kV transmission line, and
4. Stip – Serbian Border 440 kV interconnection line, which was added to the project in the second restructuring in 2011. Additional financing amount of €14 million covered this sub-component and also the financing required for the Skopje 1 – Tetovo transmission line.

**3: Upgrading of the Existing EMS System and Planning Software.** (*Appraisal cost: €0.46 million; Actual cost: €0.6 million*)

1. Energy Management System (EMS) software expansion at the National Dispatch Center (NDC).
2. Power System Simulator for Engineer (PSS/E) software expansion.

**4: Upgrading and Rehabilitation of 110 kV Substations.** (*Appraisal cost: €12.12 million; Actual cost: €8.6 million*)

1. Supply of 13 remote terminal units (RTU), 8 substation control systems (SCS) and 21 new control



houses with AC/DC supply, auxiliaries and wiring.

2. Replacement of 42 circuit breakers, 111 current transformers and 81 voltage transformers located in fourteen 110 kV substations.

3. Installation of optic ground wire telecommunication cables on 110 kV lines from Stip Substation to Skopje 5 Substation (102 km) and from Dubrovo Substation to Strumica 1 Substation (63 km).

**5: Institutional Development.** (*Appraisal cost: €1.18 million; Actual cost: €1.04 million*)

1. Provision of consultancy services to support the strengthening of the financial management function in MEPSO.

2. Purchase of a Financial Management Information System (FMIS).

Annex 5 of PAD includes a sixth component consisting of office equipment purchase and training for the Project Implementing Unit in the amount of €0.02 million. This component was not included in the Loan Agreement.

**e. Comments on Project Cost, Financing, Borrower Contribution, and Dates**

**Project Cost:** The total project cost was originally estimated at €33.09 million. The actual project cost at project completion was €50.6 million. The increase in the total project cost was due to the addition of the construction of Stip-Serbian Border interconnection line in the scope of work under second restructuring and also the fluctuations in the exchange rate. The ICR did not include a breakdown of actual cost of project components in Annex 1 (a). The project team promptly addressed the IEG's request to provide more detailed breakdown of actual project cost per component. The itemized components costs were used in Section 2 d above. However, their total is far too short of the total actual project cost of €50.6 million based on the financing.

**Financing:** Initial World Bank funding was a €20.07 million loan. Due to exchange rate fluctuations and the addition of the Stip-Serbian Border interconnection line in the scope or works, a second additional financing (AF) loan agreement was signed on April 11, 2011, for the provision of €14.00 million taking the Bank's total financing commitment to €34.70 million. According to the ICR (p.26), the actual Bank financing was €33.30 million. It was confirmed at the meeting with Team Task Leader that only €6,000 was cancelled at project closing.

**Borrower contribution:** In this project MEPSO was the Borrower and the GoM provided sovereign guarantees. At appraisal, the Borrower's contribution was agreed at €12.48 million. The Borrower's actual contribution was €17.4 million (ICR, Annex 1 (b)).

**Restructurings and Dates:** There were four restructurings all of which included extension of the loan closing date.



**First Restructuring (January 10, 2011):** Project closing date was extended for six months from March 11, 2011 to September 30, 2011 to be able to conclude the second loan agreement for additional financing before the closing of the original loan.

**Second Restructuring (April 11, 2011):** This restructuring involved

- Stip-Serbian Border interconnection line was added to the scope of works to be financed under the Loan Agreement for additional financing.
- Two new indicators were added for the new sub-component.
- The description of Component 2 was amended to include the names of the transmission lines to be constructed under the original project.
- The wording of the project objective in the original Loan Agreement was revised to match the project objective in the Results Framework of the PAD.
- After the change of its single-buyer status, MEPSO was no longer under the obligation to purchase all electricity generated in domestically or imported to sell to low/medium voltage customers and some of high voltage customers in the FYR Macedonia. Therefore, two of the three financial covenants, i.e. (i) accounts receivable in any year should be 18% or less of revenue; and (ii) funds from internal sources should be greater than 35% of capital investments, became irrelevant in measuring MEPSO's financial viability and they were eliminated.
- Project closing date was extended for two years and six months from September 30, 2011 to March 31, 2014. The extension was given to accommodate the completion of the remaining activities under the original Loan Agreement and the newly added Stip-Serbian Border interconnection line.

**Third Restructuring (March 5, 2014) :** Project closing date was extended for one year and eight months from March 31, 2014 to November 30, 2015 in order to accommodate the completion of the transmission and interconnection lines which were delayed due to land acquisition problems.

**Fourth Restructuring (November 10, 2015) :** Project closing date was extended eight months from November 30, 2015 to July 31, 2016 to accommodate the completion of the only remaining activity, i.e. the construction of Skopje 1 - Tetovo 110kV transmission line, which was delayed due to limitations in accessing some sites where transmission towers were to be built.

### 3. Relevance of Objectives & Design

#### a. Relevance of Objectives

The project objectives were relevant to the country conditions and the Bank strategy at the time of appraisal. The transmission system was old and the performance of the electric grid was poor by international standards. The supply of power to consumers was not reliable due to frequent outages caused by transmission system failures and voltage variation was high. New transmission line investments were needed to meet the n-1 security criterion. This criterion was defined as the capability of delivering electricity from a generation site to a substation without any load loss in case of a failure in one of multiple transmission lines



between these two points. Faced with insufficient generation capacity, Macedonia would not be able to meet the future power demand unless its power grid was connected to the neighboring countries' grids through power trading. Supported by the EU's Energy Community (EC) initiative, Macedonia prepared a plan to rehabilitate and expand its transmission system in order to improve the security, reliability and efficiency of power supply, which was called the Investment Program. The Bank also published a strategy paper in March 2004 supporting the EC initiative. The paper defined the areas the Bank would focus on in Macedonia as payments discipline and energy strategy. To this end, the Bank and the Macedonian counterpart, MEPSO, worked together to prioritize the projects in the Investment Program. The project objective was also consistent with the Country Assistance Strategy (CAS) at appraisal. Paragraph 60 of CAS (Report no. 26513, dated August 14, 2013) clearly defines how the Bank will approach the development of the energy sector in Macedonia.

Although the priority of the Government of Macedonia (GoM) has shifted to the development of power generation sector, including renewable energy sources, the energy sector strategy of the GoM targets the rehabilitation of the transmission system components and also the construction of new high voltage transmission lines to neighboring countries. (Web Portal of GoM, <http://vlada.mk/node/84>) On the other hand, in the current CAS 2015-2018, the Bank's focus has shifted on "enhancing new renewable energy capacity (possible investment in small hydropower station) and improving energy efficiency (Energy Efficiency Fund Project)" (CAS 2015-18, p.28). Therefore, this project's objectives are not included in the current CAS, although it is listed as an ongoing project. As this Review will show the project contributed to the improvement of the reliability and efficiency of power transmission in the country; and although there are still rehabilitation and new construction works to be implemented to improve the transmission system, MEPSO received funding for those projects from other international financial institutions, such as the European Bank for Reconstruction and Development (EBRD).

## **Rating**

Substantial

### **b. Relevance of Design**

The project design was consistent with the project objectives. The Bank and MEPSO agreed on the top priority projects from the Investment Program to be included in the project. Therefore, the project directly supported the implementation of MEPSO's Investment Program. Furthermore, the components were designed to improve the reliability and efficiency of the transmission system and to strengthen the institutional capacity of MEPSO. These were to have a direct positive impact on the overall operational efficiency of MEPSO by achieving a technically problem-free operation of the grid system, lowering operation and maintenance (O&M) costs, improving financial management system and enhancing energy management capability of MEPSO through the installation of relevant software. There was a direct causal chain between the project components and the objectives.

As discussed in section "2.a Objectives", although the wording of the project objective is different in the Results Framework, than that of the original Loan Agreement, there was no material difference between the two. The wording of the objective in the Results Framework includes project components along with the



objective of supporting the functioning of MEPSO. Notwithstanding this discrepancy in the wording of the objective in different documents, the key associated outcome targets are clearly defined in the Results Framework as reliable and efficient operation of the Macedonian power transmission network. The Intermediate Results and Indicators are also clearly defined and a clear and convincing causal chain can be established between funding and outcomes of the construction and upgrading activities. Yet, a PDO-level indicator was not included in the Results Framework to establish a causal relationship between the implementation of technical assistance activities and project objectives. This was an important shortcoming in the Results Framework which was not corrected during project implementation, either.

### **Rating**

Substantial

## **4. Achievement of Objectives (Efficacy)**

### **Objective 1**

#### **Objective**

To support the implementation of the Investment Program.

#### **Rationale**

#### **Outputs**

- Expansion of Skopje 5 substation was completed.
- Rehabilitation and construction of interconnection and overhead transmission lines listed below was completed.
  - Macedonia – Greece 400 kV interconnection line
  - Skopje 1 – Tetovo 110 kV transmission line
  - Bitola 3 – Bitola 4 110 kV transmission line
  - Stip – Serbian Border 440 kV interconnection line
- Upgrading and rehabilitation of twenty one 110 kV substations was completed.
- Optic ground wire telecommunication cables were installed.
- Energy Management System (EMS) and Planning Software expansion was completed.

#### **Outcomes**

Above activities were included in the Investment Program of MEPSO as projects to rehabilitate and strengthen the transmission network in the FYR Macedonia. Under the ECSEE APL, the Bank supported the Investment Program of MEPSO by providing financing and technical assistance for the realization of these projects. However, although they were successfully completed, the outcome of these activities were the outputs. Therefore, this sub-objective is merely an output objective and defined very low in the results chain.





## Rating

High

## Objective 2

### Objective

To improve the overall operational efficiency of AD MEPSO.

### Rationale

#### Outputs

- Please see the outputs under Objective 1.
- Financial Management Information System (FMIS) was installed.
- Consultancy services to support the strengthening of the financial management function in MEPSO were provided.

#### Outcomes

- Operational efficiency of a company is “the ability to deliver products and services cost effectively without sacrificing quality.” (Lee and Johnson, Operational Efficiency.) The project objective “to improve the overall operational efficiency of MEPSO” can, therefore, be defined as “to improve the overall ability of MEPSO to supply electricity to consumers cost effectively without sacrificing quality.” This definition of operational efficiency also includes the technical efficiency of the transmission system. Equipped with a more efficient transmission system, MEPSO could supply reliable electricity to the consumers more efficiently and with increased quality. Therefore, the outputs listed under the first sub-objective are relevant to the achievement of the second sub-objective.
- Reliability and efficiency of the transmission system improved. There was no major unscheduled power outage in the 12 months preceding project closing, and transmission losses were reduced below 2%. There was no baseline value for these targets in the only PDO Indicator of the project. The project team provided additional information on technical losses from selected European countries to make a comparison. With a ratio of 80 inhabitants per km<sup>2</sup>, FYR Macedonia is classified as a sparsely populated country. Serbia is classified as a moderately sparsely populated country with a ratio of 93 inhabitants per km<sup>2</sup>. Technical loss in Serbia is 2.5 percent.
- Quality of power supply at Skopje 5 substation improved to 110 kV +/- 1 kV from a baseline value of as low as 93 kV during peak demand.
- A 64 MW incremental supply of power was achieved as a result of the expansion at Skopje 5 substation. The target was 50 MW. This increase will be sufficient to meet additional electricity demand in the substation area.
- The cross-border electricity trade with Greece increased to 2,017 GWh from a baseline value of 624





GWh in 2005. The target was a 20% increase to 749 GWh. Actual increase was 223%. This achievement contributed to the security of power supply.

- Power outages on the Skopje 1 – Tetovo transmission line was completely eliminated. In 2005, the total duration of outages was 1,480 minutes. Target was to reduce outages by 80%.
- With the construction of the Stip-Serbian Border interconnection line under additional financing, power volumes transited through the Macedonian power grid increased by 61 MW which was the target. This also contributed to the regional integration of SEE countries' power systems.
- Upgrading and rehabilitation of 21 substations lowered the O&M costs associated with these substations to €94,000 per year from a baseline figure of €227,000 per year. The reduction was 58% compared to a target of 25%. The reduction in outages in the substations could not be measured.
- The ICR claims that the installation of the Energy Management System software into the already existing SCADA system improved the functioning of the National Dispatch Center (NDC) and resulted in a higher volume of power trade through Macedonia. Although the latter assertion can be supported by evidence, the ICR does not provide any evidence for the former claim, i.e. improved functioning of the NDC.
- Like the previous point, the ICR claims that the Planning Software expansion improved MEPSO's capability in load flow simulations and the assessment of the reliability of the transmission system. There is no evidence in the ICR to support this claim.
- Although the ICR claims that the quality of financial reporting was improved and efficiency of financial monitoring and planning were enhanced due to the installation of FMIS, it does not provide any evidence.

Achievement of the above outcomes helped MEPSO in two ways. Firstly, the technical operation of the grid system became more efficient and reliable. Outages were completely eliminated on one of the transmission lines. Amount of electricity supplied to the system was increased through regional integration. Quality of electricity was improved in the Skopje region. But although the ICR claims that the energy management and load flow planning were improved by the installation and use of new software, it does not support this claim with measurable evidence. Secondly, the ICR states that the financial monitoring and management of MEPSO was enhanced through the installation and use of FMIS. Although there is a close correlation between the installation of FMIS and improved financial management, the ICR does not provide any evidence to support this conclusion, either. Notwithstanding those shortcomings, the project was substantially successful in improving the overall operational efficiency of MEPSO.

### **Rating**

Substantial

## **5. Efficiency**

### **Economic Analysis**



The project economic benefits were assessed under five categories: (i) reduction in energy losses through the upgrading of transmission lines and substations, which reduced the amount to be imported from neighboring countries; (ii) increased capacity to meet new loads from an expanded metallurgical facility and also demand growth in the Skopje region; (iii) reduction in energy supply interruption; i.e. outages; (iv) reduction in O&M costs; and (v) benefits from regional integration of power grids, such as reduced costs. No economic benefits were assumed from the construction of the Bitola 3- Bitola 4 transmission line, which was necessary to improve n-1 system security in the Bitola area, software expansion, delivery of consulting services and the installation of the Financial Management Information System.

The calculations resulted in an overall project economic rate of return (ERR) of 61% at project completion compared to 80% at appraisal. The main reason behind this difference is the less-than-full capacity operation of a steel plant in the Skopje 5 substation area since the economic crisis in 2008-09 when it was forced to shut down. New load from an expansion of this steel plant was not realized as estimated at appraisal. The ERR calculated for this component at appraisal was 200%. At project completion, the ERR was calculated as 75%.

Economic benefits expected from the upgrading and rehabilitation of 110 kV substations were not included in the calculations because data on energy supply interruptions were not collected from these substations. Hence, the percent of total project cost for which an ERR was calculated dropped from 84.84% at appraisal to 45.50% at project completion. On the other hand, it should be noted that the ERR calculated for the excluded component was 13% at appraisal. Below table, which is summarized from the ICR (p.32), shows the component and project level ERR calculations at appraisal and project completion.

Component	ERR at Appraisal	ERR at Project Completion
Skopje 5 Substation Upgrading	200%	75%
400 kV connector line to Greece	66%	71%
110 kV Skopje-Tetovo transmission line	20%	22%
110 kV substations upgrade	13%	N.A.
Other components and sub-projects	N.A.	N.A.
<b>Project Total</b>	<b>80%</b>	<b>61%</b>

Although Greece, Serbia and Bulgaria benefited from the integration of their national grids with Macedonia which increased the flow of power from low-cost countries of Serbia and Bulgaria to Greece, those benefits were not included in the economic analysis.

The net present value (NPV) at project completion was €53.7 million compared to an estimated US\$151.9 million at appraisal using 10% as the discount rate for a period of 20 years.

## Financial Analysis

A project financial analysis was not conducted. The PAD and the ICR include detailed financial analyses of MEPSO at appraisal and at project closing, respectively. The financial analysis focuses on the improvement in the financial situation of MEPSO after it was relieved of its single-buyer obligation. As a result, two of the three financial covenants were eliminated at the time of the additional financing. However, although the PAD (p.11)



stated that “[r]ecognizing the key importance of mitigating financial risks for sustainability both of the project and of the sector reform program, the Bank will carry out a review of sector financial performance one year after the project becomes effective”, such a review was not carried out.

### Operational and Administrative Efficiency

Originally, the project was planned to close in March 2011 after an implementation period of five years. However, due to the addition of the construction of Stip-Serbian Border interconnection line as a sub-component, the project implementation period was extended by three years. Project implementation period had to be extended further because of the problems MEPSO had in acquiring land necessary for the construction of the Skopje-Tetovo and Bitola3 and Bitola 4 transmission lines. The management change at MEPSO in 2007-08 to deal with the financial problems of the company did also negatively affect the implementation period. As a result, it took more than ten years to complete the project, which was five years and four months longer than originally planned.

Overall, the absence of an ERR for the performance of the crucial substations (accounting for about 40 percent of the total cost) is a major shortcoming in the ICR’s assessment of project efficiency. The Task Team Leader explained the reason of this shortcoming as the inability to collect information on the performance of the substations. On balance, this review rates the project’s efficiency as Substantial, but only marginally so.

### Efficiency Rating

Substantial

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

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	80.00	84.84 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	61.00	45.50 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

The relevance of objectives and project design was Substantial. The project activities were successful in supporting MEPSO’s Investment Program and the investment program was eventually implemented. The project led to the improvement of the overall operational efficiency of MEPSO, but the outcomes of technical assistance activities could not be validated. Efficacy was rated Substantial. A longer than planned project



implementation period resulted in a substantial reduction in the NPV for the project. The ERR calculated at project closing did not include the economic benefits gained from the rehabilitation of substations. Efficiency is rated Substantial. Overall, the project had minor shortcomings and its outcome is rated Satisfactory.

a. **Outcome Rating**  
Satisfactory

## 7. Rationale for Risk to Development Outcome Rating

- **Poor maintenance of the newly built transmission infrastructure by MEPSO due to insufficient financial resources is a moderate risk.** The GoM took steps to liberalize and integrate the Macedonian power sector with that of the EU. Vertically integrated electricity sector was unbundled as generation, transmission and distribution, and MEPSO's single-buyer obligation was terminated in 2011 which improved the financial situation of the company. However, since the transmission tariffs are still regulated by the Energy Regulatory Commission of Macedonia (ERC), there is a modest risk that the tariffs might not be set high enough to provide MEPSO with funds to properly maintain the transmission infrastructure.
- **Political and economic instability in Macedonia, if worsened, might adversely affect the project outcomes.** Between December 2016 and June 2017, there had been a deadlock in forming a government. Political uncertainties, coupled with ethnic tensions, slowed down foreign direct investment and economic growth. This might cause the focus of the GoM to shift from improving the power sector in Macedonia through new investments and maintenance of newly built infrastructure, and integrating it with the EU power system, to other politically urgent issues.
- **Although a low risk, a major earthquake can be detrimental to the achievements of the project.** Being located in an earthquake zone, Macedonia experienced very strong tremors in the past above the magnitude of 6.0 on the Richter scale. On September 11, 2016, Skopje was hit by an earthquake with a magnitude of 5.5. The earthquake was close to the Skopje-Tetovo transmission line, but the line did not suffer any significant damage.

a. **Risk to Development Outcome Rating**  
Modest

## 8. Assessment of Bank Performance



### **a. Quality-at-Entry**

The project was designed to support the top priority transmission network rehabilitation and construction projects of MEPSO. It was strategically relevant to the objectives of MEPSO's Investment Program and the Bank's strategy paper for energy trade in SEE published in March 2004. The Bank's approach to the project was sound because through the realization of both the investment and technical assistance activities under the project, the creation of a regional electricity market in the SEE was directly supported. The project directly benefitted from the experience gained from the Power System Improvement Project previously implemented in Macedonia and also funded by the Bank. The choice of an APL covering the countries participating in the ECSEE was appropriate. The Bank had a sound set of criteria agreed with MEPSO to apply in the selection of the activities to be funded by the project (PAD, p.33). Technical and economic analyses were thorough. Fiduciary and safeguard issues were adequate and mitigation measures were adequately designed and were consistent with the World Bank's fiduciary role. Implementation arrangements were defined (PAD, Annex 6).

However, there were some substantial shortcomings in the quality-at-entry. The project development objective was articulated differently in different parts of the PAD and also in the Loan Agreement. Furthermore, although the results framework was designed to establish a clear causal chain between the project activities and outcomes, it did not include PDO indicators to capture the achievement of technical assistance activities of the project. Problems related to land acquisition, which severely hampered the implementation of the project, were not identified as a potential risk at the appraisal stage. Monitoring arrangements were not sufficient to capture the reductions in outages at the upgraded twenty-one 110 kV substations, as a result of which ex post economic analysis could only be made for a smaller part of the project. Lastly, Project Operations Manual was not prepared until the signing of the Loan Agreement for additional financing in 2011.

### **Quality-at-Entry Rating**

Moderately Unsatisfactory

### **b. Quality of supervision**

The Bank team with adequate skill-mix held regular supervision missions. Land acquisition problems were noted early in the project implementation and although the Bank team had taken necessary actions to solve these problems by advising the GoM in the necessary amendments to be made in the related legislation and regulations, and by initiating dialogue between MEPSO, the contractors and the local communities, the construction of the three transmission lines, excluding the line connecting the Greek network to the Macedonian one, could not start before 2014. The Bank team also encouraged MEPSO and the GoM to pass the law to liberalize the electricity market and relieve MEPSO from the single-buyer obligation. Supervision of fiduciary and safeguard aspects were adequate.

Since the project objectives were defined low in the results chain closer to being output objectives rather than demand-side outcomes, the Bank's focus was more on the implementation of the project rather than the achievement of development impact. The Bank team did not take action to amend the Results Framework to include indicators to monitor the achievements of institutional strengthening components or to improve the monitoring arrangements to capture the economic benefits from the upgrading of the 110 kV



substations.

### **Quality of Supervision Rating**

Moderately Satisfactory

### **Overall Bank Performance Rating**

Moderately Satisfactory

## **9. Assessment of Borrower Performance**

### **a. Government Performance**

The GoM had already fulfilled the conditions to be eligible for financing under the ECSEE APL, which were defined in the Athens Memorandum, as the establishment of an electricity sector regulator and a transmission system operator. To remain eligible for Bank support under the ECSEE APL, the GoM fulfilled the conditions by signing the ECSEE Treaty, establishing distribution system operators and opening its electricity market to non-household customers. The GoM's commitment to the project was strong at appraisal and during implementation.

Project related government representatives, sometimes including the ministers, were available for meetings when project implementation issues were needed to be discussed. Necessary actions were taken by the GoM to solve these issues, but with some considerable delays. There were three main issues which required timely resolution:

- 1 . MEPSO's financial situation deteriorated due to its obligation to act as the single-buyer of electricity. When electricity tariffs were frozen in 2007 due to political reasons, MEPSO was faced with cash shortage and not able to pay the vendors and undertake O&M activities. Upon the Bank's advice to either increase the tariff to cost-recovery level or restructure the electricity market to relieve MEPSO from its single-buyer obligation, the GoM chose the latter option which took two years for the GoM to complete the restructuring of the electricity market. Change of MEPSO's top management during this period further exacerbated the challenges.
- 2 . Property and Legal Affairs Office (PLAO) under the Ministry of Finance was in charge of the land acquisition process. The PLAO office in Bitola overseeing the land acquisition activities for the Bitola 3 – Bitola 4 transmission line was understaffed and they were not familiar with the new expropriation processes and procedures of the Construction Law adopted in 2009. Furthermore, their duties also included the establishment of titles to land in Bitola, which increased their workload. MEPSO supported the PLAO office through various means, but the issue needed to be brought to the attention of the Minister of Finance who personally dealt with the problem until it was solved in 2013 with considerable delay.
- 3 . As a result of a ruling by the Constitutional Court, constructions were stopped until MEPSO acquired all of the rights of way and concluded contracts for the acquisition of land. GoM was quick to amend the relevant law to allow the resumption of works. Yet, the change in law required new documentation for





Ministry of Transport to be able to issue construction permits for some of the transmission lines. This also took considerable time. As a result, land acquisition for Bitola 3- Bitola 4 transmission line took six years. At appraisal, this process was planned to be completed within two years. Similarly, Stip – Serbian Border transmission line construction was negatively affected by the late issuance of construction permit which took two years and a half.

## **Government Performance Rating**

Moderately Satisfactory

### **b. Implementing Agency Performance**

Project Implementing Unit (PIU) within MEPSO was already set up during project preparation and works had already started on the Greece interconnection line which was funded retroactively by the project. Members of the PIU were familiar with the Bank's guidelines and procedures which they had gained during the implementation of the previous Power Sector Improvement Project. The ICR (p.23) states that "[t]he PIU in MEPSO operated very professionally and there were no notable procurement, financial management or environmental/social safeguards compliance issues". MEPSO regularly reported the monitoring and evaluation data to the Bank. The quality and timeliness of data were found satisfactory by the Bank during project implementation.

On the other hand, consultants hired through competitive bidding, which was conducted according to the local regulations and financed by MEPSO's own funds, performed poorly in designing the routes of the transmission lines without visiting project sites. This caused frequent changes to the routes when obstacles were found in later stages of project implementation. Although land acquisition was not a direct responsibility of MEPSO, potential problems with land acquisition were also overlooked by MEPSO and the Bank. However, when those problems occurred, MEPSO took necessary actions to solve the problems by supporting the Property and Legal Affairs Office (PLAO) and processing numerous compensation cases from paper to digital form by providing additional manpower. MEPSO was quick to utilize the experience gained in land acquisition and construction permits for the Bitola 3 – Bitola 4 transmission line in the implementation of the activities for the construction of Stip – Serbian Border interconnection line, which had similar problems. Furthermore, although the financial distress MEPSO experienced in 2008 and 2009 because of the single-buyer obligation was a problem to be solved through the restructuring of the electricity market by the GoM, the change of the top management in MEPSO during that period adversely affected the project implementation since the focus of the new management was on solving the financial problems of MEPSO and they were not fully knowledgeable about the project. The failure in collecting data on the reduction of outages in the upgraded 110kV substations was a shortcoming in M&E implementation.

The original Loan Agreement included three financial covenants that MEPSO needed to meet: (i) accounts receivable in any year should be 18% or less of revenue; (ii) funds from internal sources should be greater than 35% of capital investments; and (iii) a debt service coverage ratio of greater than 1.5 in the preceding year before taking on any new debt. After the electricity market restructuring and the removal of MEPSO's single-buyer obligation, the first and the second financial covenants were eliminated. MEPSO easily met the remaining covenant of debt service coverage ratio, due to improved





cash flows.

### **Implementing Agency Performance Rating**

Moderately Satisfactory

### **Overall Borrower Performance Rating**

Moderately Satisfactory

## **10. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

MEPSO was responsible for M&E data collection. As mentioned in previous sections, although there was no material difference, the project objectives were articulated differently within the PAD and also in the original Loan Agreement. Intermediate outcome indicators were designed to capture both the progress in the implementation of project components and the achievement of component specific outcomes. The only PDO indicator defined in the Results Framework was related to the improvement of power supply reliability and efficiency, but it was not adequately designed to capture the improvement in these two fields. Data monitored by the intermediate outcome indicators were partly sufficient to evaluate whether the power supply system was operating reliably and efficiently as a result of the activities completed under the project.

However, the M&E did not include an indicator to measure the improvement in the reduction of outages in the upgraded substations. Another important shortcoming of the M&E design was the lack of indicators to monitor the outcomes of the technical assistance activities which were to contribute to the improvement of MEPSO's overall operational efficiency. Furthermore, the table titled "Arrangements for Results Monitoring" (PAD, p.29) included two outcome indicators which were related to the achievement of the overarching objectives of the ECSEE rather than the achievement of the project specific objectives.

### **b. M&E Implementation**

The quality and timeliness of data collection and reporting by MEPSO was found to be satisfactory by the Bank team during implementation. MEPSO had the capacity to collect data, and some project activities supported the remote monitoring of the transmission system, such as the installation of Remote Terminal Units, control systems and telecommunication equipment. Even so, data could not be reliably collected to monitor the reduction in outages in the upgraded 110kV substations which would be used in the calculation of project completion ERR to measure the efficiency of the project. All other data, as defined in the PAD-enumerated indicators, were properly collected to measure the achievement of component specific outcomes.

### **c. M&E Utilization**



Since the achievement of project outcomes were directly linked to the physical construction of the transmission lines and the upgrading of substations, the intermediate outcome indicators were mainly used to monitor the progress in project implementation. Delays in implementation were spotted in time. Once the activities were completed, data were collected to measure the achievement of component specific objectives, except the reduction in outages in 110kV substations. There was no reframing of strategy nor any shift in the project's direction attributable to M&E findings.

## M&E Quality Rating

Modest

## 11. Other Issues

### a. Safeguards

The project was classified as a Category "FI" under OP/BP 4.01 (Environmental Assessment), and OP/BP 4.12 (Involuntary Resettlement) was triggered.

**Environmental Assessment OP/BP 4.01:** At appraisal, the project was given Category FI, because the projects to be financed by the Bank loan were not fully identified, therefore, each project activity was later screened and classified either B or C. All the transmission line construction activities were classified as B Category due to the limited, predictable and short-term environmental risks from earth works and use of heavy machinery. All other project activities were classified as C Category.

MEPSO had already prepared a Framework for Environmental Assessment Procedures (FEAP) describing the mitigation measures of environmental risks. Under the FEAP, Environmental Management Plans were developed and implemented during project implementation. There were no major non-compliance issues with the environmental safeguard, but some minor shortcomings in waste management and reporting. To protect biodiversity, bird diverters were used for the first time in FYR Macedonia under this project.

**Involuntary Resettlement OP/BP 4.12:** A Land Acquisition Management Framework was prepared at appraisal which included provisions related to public consultation and disclosure of information (PAD, 14). The ICR (p.14) reports that "there were no major social problems, such as loss of substantial assets or livelihoods or cases of displacement of dwellings or a business." However, there were major problems in managing the land acquisition process. Some households affected by land acquisition showed strong resistance to the project and in some instances construction crews were denied access to the sites. This was mostly due to the lack of coordination and dialogue between the contractor and the locals, which was later improved as a result of the Bank's intervention and MEPSO's involvement (ICR, p.23).

### b. Fiduciary Compliance Financial Management



MEPSO's financial staff had sufficient experience in financial management of Bank funded projects gained through the implementation of the Power Sector Improvement Project previously. At appraisal, the financial management arrangements for this project were found acceptable by the Bank (PAD, p.12.) which was furthered supported by the installation of Financial Management Information System at MEPSO. Except the 18 month-period when MEPSO had financial problems due to the freezing of tariffs, there were no other counterpart funding problems. Flow of funds arrangements during implementation are reported as appropriate in the ICR.

External audits of MEPSO and the project were conducted regularly. In the 2013 MEPSO audit, there were recommendations concerning the internal controls framework of MEPSO. Those recommendations were promptly addressed by the company. The project's financial management was found satisfactory by the Bank throughout the project lifetime.

As explained in the Implementing Agency Performance section, the original Loan Agreement included three financial covenants: (i) accounts receivable in any year should be 18% or less of revenue; (ii) funds from internal sources should be greater than 35% of capital investments; and (iii) a debt service coverage ratio of greater than 1.5 in the preceding year before taking on any new debt. After the restructuring of the electricity market and the elimination of single-buyer obligation of MEPSO, the first and the second financial covenants were repealed in 2011. Due to improved cash flows, MEPSO easily met the remaining covenant when new loans were extended by the EBRD in the amount of €25 million in 2013 and €37 million in 2015. MEPSO did not take on any other debt during project implementation.

No issues of corruption or misuse of funds associated with the project were reported in the ICR.

### **Procurement**

There were no major procurement problems during project implementation. MEPSO's staff were experienced enough to conduct procurement activities according to the Bank's guidelines and procedures. The ICR reports that the procurement and installation of optic ground wire for remote monitoring of 110 kV substations was delayed until 2013 because of problems between MEPSO and Macedonian Telecom regarding ownership and applicable standards (ICR, p.13). For some project activities, such as the construction of Greece interconnection line, advanced procurement was used before effectiveness which was retroactively funded by the Bank (ICR, p.15). Procurement was rated as satisfactory by the Bank throughout the project implementation.

### **c. Unintended impacts (Positive or Negative)**

None.

### **d. Other**



None.

## 12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Modest	Modest	---
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	---
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of ICR		Substantial	---

### Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

## 13. Lessons

The lessons on the ICR were more in the nature of findings or conclusions regarding obstacles encountered during the project's implementation. The following lessons were drawn by IEG from the ICR.

- **Projects can face serious delays if crucial works dependent on implementation by third parties over which the project has no control are delayed. Consideration could have been given to making the completion of such works conditions of negotiation.** Land acquisition was a major problem throughout this project's implementation. The Property and Legal Affairs Office (PLAO) under the Ministry of Finance was in charge of the acquisition of land on which transmission towers were to be built. In particular, the construction of Bitola 3 – Bitola 4 transmission line could not be completed because the land acquisition procedures were not on time due to lack of capacity in the PLAO office in Bitola and the changes made in the related law. Although MEPSO and the Bank took necessary actions to mitigate this problem, the project closing date had to be extended more than five years partly because of the delays in land acquisition.
- **Advance dialogue with local communities affected by a project is likely to ensure smooth implementation of project activities.** Although the Land Acquisition Management Framework prepared by MEPSO included provisions related to public consultation and disclosure of information (PAD, p.14.), it is not clear from the ICR whether such dialogue was established with the households affected by the project. Some households showed resistance and denied construction crews to gain access to tower construction sites. According to the ICR this was mainly because of lack of proper coordination and dialogue between the



contractor and the locals (p.14). This problem was solved after the Bank's facilitation of a dialogue between the local communities, the contractor and MEPSO.

- **Counterpart funding can be adversely affected regardless of the commitment of the government to the project if revenues of the project implementing agency depend on a regulated tariff.** The commitment of the GoM to the project was strong, but, due to political reasons, the GoM froze tariffs in 2007 and 2008 during economic crisis. This caused cash balances of MEPSO to deteriorate and MEPSO could not fund the local portion of the project during that period.

#### 14. Assessment Recommended?

No

#### 15. Comments on Quality of ICR

The ICR is consistent both internally and with the OPCS guidelines. Narrative is concise and the report gives a candid evaluation of the project. Annexes 2 and 3 are well prepared. Quality of evidence and analysis was satisfactory.

However, the ICR is more of an implementation narrative rather an outcome-driven explanation of the project. This is partly because of the way the objectives were defined as output-objectives not as outcomes. M&E section could have benefited from a more detailed discussion. The ICR did not report whether all funds were accounted for at project closing. Lessons were not well formulated. They were mostly in the form of findings or recommendations. Disbursement Profile (p.ix) is missing and there are a few formatting issues (p.14). Annex 1 did not provide actual costs per component.

##### a. Quality of ICR Rating

Substantial