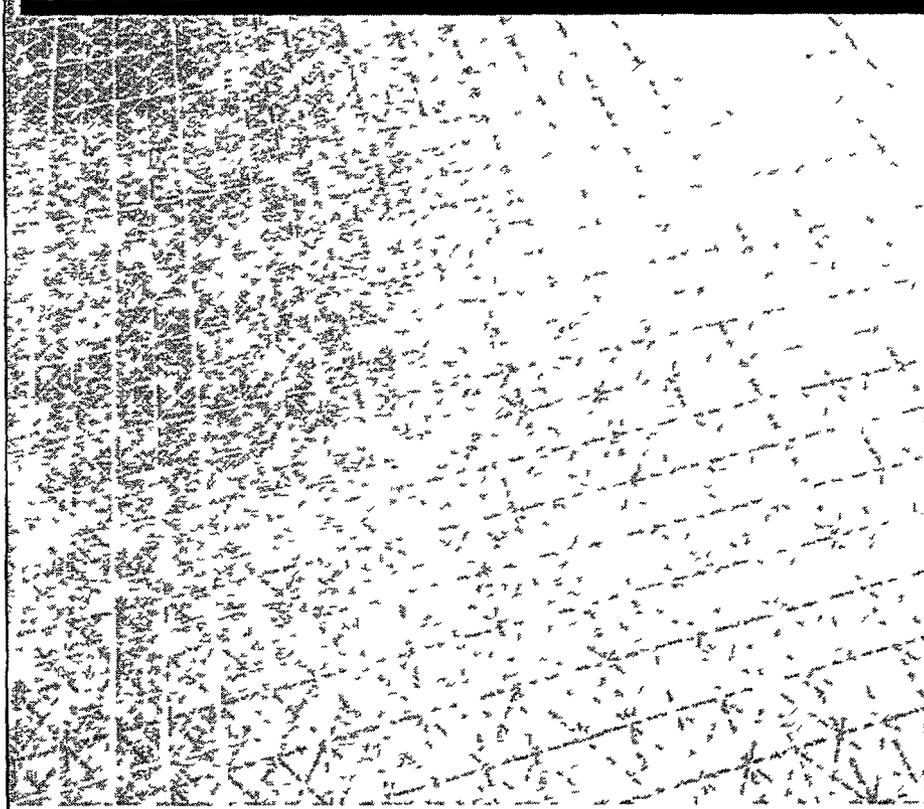


DRAFT Final Report

**Update: Analysis of Options for the
Structure of the Power Sector of**

MACEDONIA



Prepared under Contract to



U.S. Agency for International Development

Contract No DHR-C 00-95-00016 00

Prepared by

Bechtel International, Inc

22934-007-001

October 1998



Contents

Section	Page
Executive Summary	ES-1
ES 1 Objectives	ES-1
ES 2 1998 Situation Review and Analysis	ES-1
ES 3 Structural Options	ES-2
ES 4 Evaluation and Recommendations	ES-5
1 Introduction	1-1
1 1 Background and Objectives	1-1
1 2 Overview	1-2
2 Situation Review And Analysis	2-1
2 1 Progress Since 1995	2-1
2 2 Today's Power Sector Structure	2-3
2 3 General Economic Conditions in Macedonia	2-5
2 4 The Existing System	2-6
2 4 1 Generation	2-7
2 4 2 System Dispatch	2-7
2 4 3 Transmission	2-7
2 4 4 Distribution	2-7
2 5 Planning	2-7
2 6 Financial Issues	2-10
2 7 Legal Issues	2-11
2 8 Tariffs	2-12
2 9 Other Countries in Transition	2-13
2 10 Agreements With International Lending Institutions	2-15
2 11 European Union Directive 96/92/EC	2-17

Contents

Section	Page
3 Structural Options and Recommendations	3-1
3 1 Objectives for Restructuring	3-1
3 2 Criteria for Defining and Rating Options	3-2
3 2 1 Consistency With Objectives for Power Sector	3-2
3 2 2 Feasibility and Ease of Implementation	3-2
3 3 Specific Options Suggested for Consideration	3-2
3 3 1 Efficiency Improvements	3-3
3 3 2 EU Compliance - Competition in Generation	3-7
3 3 3 Privatization	3-10
3 3 4 Evaluation	3-14
3 3 5 Recommendation	3-16
4 Implementation	4-1
4 1 Specific Changes Recommended	4-1
4 2 Implementation Process	4-2
4 3 Time Frame for Action	4-3
Appendix A Executive Summary of 1995 Report	A-1
Appendix B List of Meetings Held and Documents Reviewed	B-1
Appendix C Summary Of EU Directive 96/92/EC	B-1
Appendix D EU Directive 96/92/EC	B-1

Contents

Figure	Page
2-1 Electrical Losses in the Networks	2-8
2-2 Historical and Forecast Demand	2-9
2-3 Historical Average Tariff Levels	2-13
3-1 Structure for Option 1, Efficiency Improvements	3-4
3-2 Structure for Option 2, EU Compliance	3-8
3-3 Competitiveness of ESM Generation	3-8
3-4 Structure For Option 3, Privatisation	3-11
4-1 Possible Schedule	4-4
 Table	
2-1 System Losses	2-2
2-2 Size of Labor Force	2-2
2-3 Macedonian Gross Domestic Product	2-5
2-4 Macedonian Retail Price and Cost of Living Indices	2-6
3-1 Distribution System Consolidation	3-12
3-2 Evaluation Of Structural Options	3-15
4-1 Change Area Factors	4-3

Executive Summary

ES.1 OBJECTIVES

In June, 1997 the Ministry of Economy (MOE) and Elektrostopanstvo na Makedonija (ESM) requested the assistance of the United States Agency for International Development (USAID) in various areas of updating and implementing the recommendations presented in the 1995 Bechtel/Arthur Andersen report, "Analysis of Options for the Structure of the Power Sector of Macedonia"

The objective of this study is to update the 1995 report, with a special focus on the following

- For existing organizations (at the Electric Power Company of Macedonia), identify and characterize changes in organizational structure and/or policy/regulations to ensure third party access, competition, and compliance with European Union (EU) requirements
- For existing organizations, identify and characterize organizational linkages and access requirements to improve organizational efficiency
- For existing organizations, assess the potential for privatization and/or increasing development and growth of private enterprise participation the specific areas of the energy sector
- Provide recommendations for the establishment of additional organizations to improve existing performance in energy sector activity

ES 2 1998 SITUATION REVIEW AND ANALYSIS

Over a three week period in July, 1998 a two person Bechtel Consulting team conducted numerous interviews with the management of ESM, visited power plants and other sites around Macedonia, and collected documents related to the study. They observed significant changes compared to the situation in 1995, including the following findings

- The Government of Macedonia (GOM), the MOE, and ESM have made progress in almost every aspect of the power sector. Further steps are under way to continue the improvements
- The power sector in Macedonia is currently organized as a state-owned, vertically integrated monopoly. In general terms this has been its organization in the past also, but the details of its organization have changed since the 1995 report
- The severe economic decline in the Republic of Macedonia experienced in the years immediately following independence has stabilized, producing cautious optimism about future growth scenarios
- ESM's generation, system dispatch, and transmission systems are in reasonably good condition. There are relatively high losses in the distribution system, suggesting a need for more investment. The key competitive issue remains that Bitola's production greatly dominates the sector and limits the possibility of competition
- ESM's financial condition has improved since 1994. It has a sound balance sheet and substantial net cash flow from operating activities, although not enough to fully support its investment program

- The current tariff setting system is based on the principle of reasonable cost based prices, including depreciation and a 10-13% rate of profit on fixed assets. The structure of the tariff system (price differentiation) encourages the rational consumption of electricity.
- European Union (EU) Directive 96/92/EC, concerning common rules for the internal market in electricity, came into force in February, 1997. If Macedonia wishes to harmonize with EU requirements and eventually join the EU, it will have to comply with the provisions of this Directive, which include providing access to the transmission and distribution grids to independent power producers (IPPs) and creating an independent system operator (ISO) with the transmission and system dispatch functions.

ES 3 STRUCTURAL OPTIONS

Macedonia's objectives for its power sector include

- Comply with the requirements of the European Union (EU) Directive 96/92/EC concerning common rules for the internal market in electricity as soon as practical in order not to delay EU membership.
- Attract private (especially foreign) capital.
- Improve power sector performance by maintaining or improving technical proficiency, efficiency, reliability, and by minimizing cost.
- Introduce competition through independent power producers (IPPs).
- Create self-sustaining (self-financing) organizations.
- Maintain the ability to privatize power sector organizations if that eventually becomes desirable.

The Bechtel team defined and evaluated three power sector structures based on their consistency with the GOM's objectives for the power sector, and their feasibility and ease of implementation. We note that these Options are not the same as Options 1, 2, and 3 as defined in the 1995 Report. Circumstances have changed since 1995, and the Options presented in this study are a better fit for today's situation.

We also needed to consider

- The existing structure is working reasonably well. Over the last few years the GOM, MOE, and ESM have implemented a number of changes to address problems that existed when the 1995 Report was prepared. The motivation to make radical changes is less acute than is the case with the power sectors of many other transitional countries.
- Today's power sector structure obviously requires the least change.
- Opportunities exist to improve the performance of the power sector that do not involve substantial change to its structure.
- There is a strong desire for Macedonia to join the European Union and to harmonize the power sector and its operations with the EU's requirements.

- A fully competitive, disaggregated structure is not appropriate for a system of ESM's relatively small size, particularly where one generator (Bitola) exerts such dominance over the market
- Nevertheless, steps beyond the minimum necessary to comply with EU power sector requirements might provide important benefits. Privatization of existing organizations within the power sector offers the potential of improved efficiency and the other benefits of private ownership, along with raising money from the sale of government-owned assets

Option 1 Efficiency Improvements

This is based on the structure of the power sector in Macedonia today. We offer six suggestions for changes that might improve efficiency. These changes do not involve major changes to today's power sector structure. The changes include

- 1) **Investment In Distribution** In the next long-term planning process, devote additional effort to evaluating distribution system improvements
- 2) **Financial Models And Long-term Planning** Develop an integrated, internally consistent set of physical and financial planning models for ESM which would link the least cost to a financial module which would incorporate details of future financial structure and calculate tariff levels
- 3) **IPP Pricing** Develop a system for calculating payments to IPPs selling to ESM that relates the payments to the costs that ESM would avoid if the IPP were built
- 4) **Asset Appraisal** Revalue ESM's fixed assets revalued through an appraisal conducted according to International Accounting Standards
- 5) **Meter Reading** Conduct meter reading evenly over the course of the month
- 6) **Dispatch Autonomy** Give system dispatch some limited authority to engage in international purchases of electricity based on its own best judgment

Option 2 EU Compliance

This incorporates the structural changes needed as a minimum to comply with EU Directive 96/92/EC. Figure ES-1 summarizes the structure.

In order for the Macedonian power sector to comply with these requirements, the following would have to be accomplished

Organizational

- In ESM's current organizational structure, Transmission and Distribution are separate but report to the same Assistant General Manager. Transmission must have management autonomy, which as a minimum would seem to require that Transmission report to a separate new Assistant General Manager
- System Dispatch is presently in the Production organization. It would have to be moved to the newly independent Transmission organization, or ISO

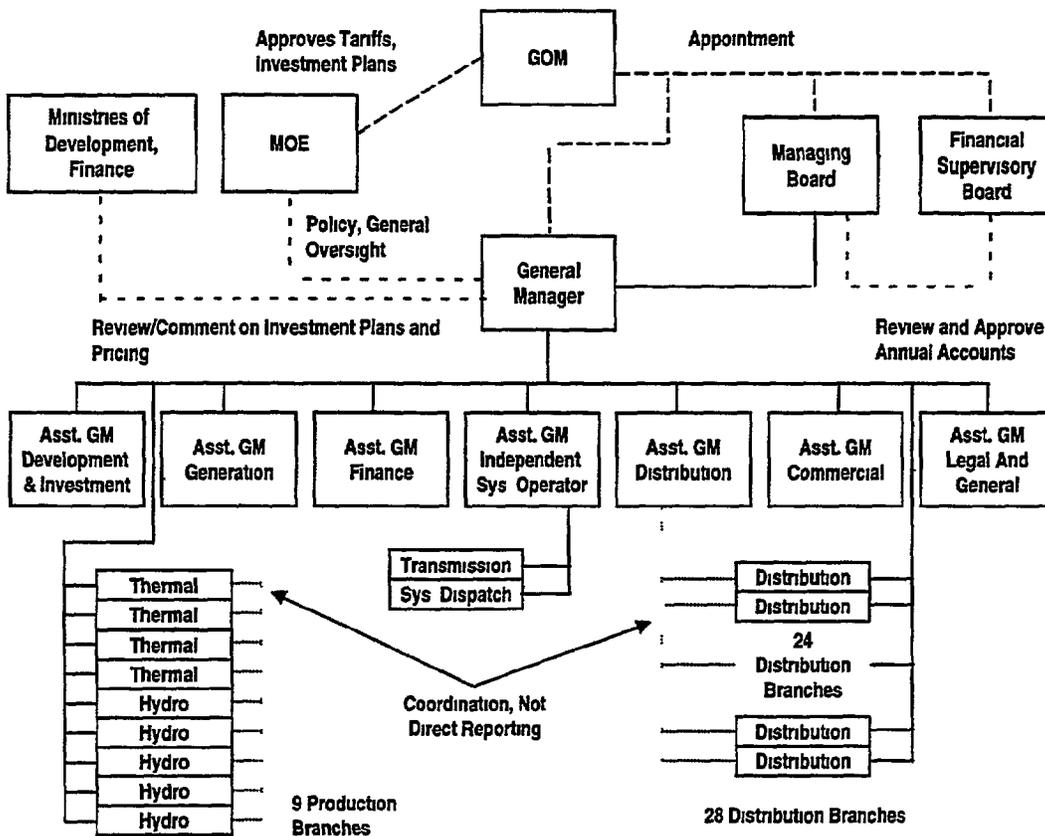


Figure ES-1 Structure For Option 2, EU Compliance

Accounting

- Most of the accounting features necessary to comply are in place. The main requirements could be met by aggregating existing accounts in a different manner
- There needs to be separate accounting for the generation, transmission, and distribution functions. Since all of these functions will have somewhat new organizations, new accounts will have to be established
- The potentially most difficult task will be to establish separate accounting for the network-related functions of distribution, and its commercial functions

Procedural

- Define the customer groups which will be provided open access to the transmission and distribution grids
- Establish an authorization procedure at least for new IPPs and self-generation
- If there is to be tendering for new generation, establish that process
- Establish open access transmission and distribution tariffs
- Establish dispatch criteria for generating plants

ef

- Revise the Statute and Regulations for ESM

The changes suggested to improve efficiency in Option 1 also should be incorporated in Option 2

Option 3 Privatization

This goes beyond the minimum steps needed for EU compliance. In this structure ESM would be privatized as a vertically integrated utility. The primary structural changes would deal with the GOM's relationship with ESM, and ESM's governance. The functional organization of ESM would be the same as for Option 2, and the same features that provide EU compliance would remain.

The specific changes that are envisioned include

- Privatize ESM as a vertically integrated utility
- Establish an independent regulatory agency to set tariffs, make rules governing ESM's operation, and in general balance the interests of customers and owners
- Consolidate distribution branches to improve efficiency and reporting relationships

ES 4 EVALUATION AND RECOMMENDATIONS

We evaluated these three options with respect to their consistency with the GOM's objectives and their feasibility. In summary, we recommend a transition to Option 2, EU Compliance, at a pace consistent with the GOM's goals for joining the European Union. The basis for this recommendation is

- Option 2 is consistent with the objectives for the power sector
- There is a clear objective of joining the EU. Option 2 achieves this objective
- The structural changes to ESM are not great in Option 2
- The transition costs should be moderate, occur over the transition period, and are small in comparison to the benefits
- Option 1 is not consistent with the objective of EU compliance
- Option 3 may offer more long term benefits, but it also has the certainty of more near term costs

Specifically this would involve implementing the Organizational, Accounting, and Procedural steps outlined in the discussion of Option 2 in Section ES 3 above.

Since the six changes noted as efficiency improvements in the discussion of Option 1 are part of Option 2, our recommendation includes implementing those changes involving Investment In Distribution, Financial Models, IPP Pricing, Asset Appraisal, Meter Reading, and Dispatch Autonomy.

We also recommend that serious consideration be given to consolidating distribution branches and having branch Managers report to Assistant General Managers, as described in the discussion of Option 3.

Implementation

Our recommendation would involve change in 16 specific areas. For most of the change areas the technical issues are not a serious barrier. For each area, the following steps would be appropriate:

- Identify the decision making person or group
- Prepare an analysis of the potential change, identifying the advantages and disadvantages, the impacts on stakeholders, specific implementation steps, links to the other potential changes, the time frame for action, and other relevant factors
- As necessary, involve the stakeholders in the process
- Based on the analysis, develop a specific proposal, including detailed implementation steps
- Present the proposal for the decision maker's approval
- Implement the approved proposal

We suggest an implementation process over a two and a half year period. The technical issues can be resolved within this time frame. The more important question is whether the GOM would want to aim to achieve EU compliance for the power sector on a schedule perhaps well in advance of harmonizing with other EU requirements. We believe that the changes necessary for EU compliance are beneficial in themselves and worthy of implementation in any event. Nevertheless this is an issue that should be addressed in the decision-making process.

11 BACKGROUND AND OBJECTIVES

Since achieving independence in 1991, the Republic of Macedonia has sought to reform and restructure its economy, including its power sector. In September, 1997 a Law On Energy was passed by the Parliament which requires, among other things, that the Government of the Republic of Macedonia (GOM) establish an Energy Strategy. The implementation of the Energy Strategy is the responsibility of the Ministry of Economy (MOE). Based on the Energy Strategy, public utilities, including the national electric power utility, Elektrostopanstvo na Makedonija (ESM), are required to define a long-term development program. In addition, as part of the covenants for a loan from the World Bank for power sector improvements, the GOM and ESM have agreed to prepare a least-cost electricity supply plan by the end of 1999.

The structure and operation of the power sector are crucial elements in the Energy Strategy and in the least cost electricity supply plan. In June, 1997 the MOE and ESM issued a document, "Directions for Electric Power Restructuring in Republic of Macedonia", which requested the assistance of the United States Agency for International Development (USAID) in various areas of updating and implementing the recommendations presented in the 1995 Bechtel/Arthur Andersen report, "Analysis of Options for the Structure of the Power Sector of Macedonia".

The objective of this study is to update the 1995 report, with a special focus on the following

- For existing organizations (at the Electric Power Company of Macedonia), identify and characterize changes in organizational structure and/or policy/regulations to ensure third party access, competition, and compliance with European Union (EU) requirements

This is addressed in Section 3.3.2, which discusses the changes necessary to comply with EU requirements.

- For existing organizations, identify and characterize organizational linkages and access requirements to improve organizational efficiency.

This is addressed in Section 3.3.1, which discusses efficiency improvements including some involving organizational linkages.

- For existing organizations, assess the potential for privatization and/or increasing development and growth of private enterprise participation in the specific areas of the energy sector.

Section 3.3.1 suggests improvements to the independent power producer (IPP) pricing approach. Complying with EU requirements should increase private sector participation, as discussed in Section 3.3.2. Section 3.3.3 discusses full privatization of the power sector.

- Provide recommendations for the establishment of additional organizations to improve existing performance in energy sector activity.

The structure of Section 3.3.2 requires an Independent System Operator (ISO), which will require a new organization formed from two existing organizations. Fully privatizing the power sector (Section 3.3.3) would require a new regulatory organization.

1.2 OVERVIEW

Over a three week period in July, 1998 a two person Bechtel Consulting team conducted numerous interviews with the management of ESM, visited power plants and other sites around Macedonia, and collected documents related to the study. After returning to the United States, the project team conducted its analysis and prepared this report.

The project team wishes to express its sincere gratitude to ESM and the MOE for their cooperation, candor, and assistance in our performance of this study. The level of support and responsiveness was exceptional, making our work as efficient as possible. Although we worked closely and cooperatively with those organizations, and this report has been reviewed and commented upon by them and USAID, its contents represent Bechtel Consulting's independent professional judgment regarding the appropriate direction for power sector restructuring in Macedonia.

The balance of the report contains the following sections:

- Section 2 provides a review and analysis of the current situation in the Macedonian power sector.
- Section 3 develops and analyzes structural options for the power sector in Macedonia and presents our recommendations.
- Section 4 describes the steps necessary to implement our recommendations.
- Appendix A contains a copy of the Executive Summary of the 1995 report.
- Appendix B lists our meetings with various organizations and people.
- Appendix C summarizes EU Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity.
- Appendix D provides a copy of EU Directive 96/92/EC.

21 PROGRESS SINCE 1995

The 1995 report "Analysis of Options for the Structure of the Power Sector of Macedonia" was the product of a series of meetings between USAID, the MOE, ESM, and Bechtel Consulting. As a result of the meetings it was agreed that USAID would provide technical specialists in the area of electric power sector restructuring to work cooperatively with the MOE, ESM, and other institutions. They would acquire a better understanding of the sector in Macedonia and then develop options for restructuring the sector.

The objectives of the technical assistance were

- Provide a basis for the GOM to decide the future structure of the power sector
- Provide the basis for developing and implementing a detailed plan to carry out the GOM decision

Appendix A contains a copy of the Executive Summary of the 1995 report

The 1995 report also noted that ESM had established working groups to identify ways to improve its performance. As a result of that work, ESM was undertaking the following actions:

- Improve financial performance through pricing measures
- Reduce technical losses by 2 percentage points
- Reduce labor force by 1% per year
- Automate systems
- Spin off unprofitable activities (mainly hotels and restaurants)
- Identify other ways to improve operations

There have been improvements in some areas discussed in the 1995 report, as noted below, and in other areas as well.

Goal: Improve Financial Performance Through Pricing Measures

Result: The 1995 report characterized ESM as "technically insolvent", although comprehensive financial statements were not available for detailed review. Since then tariffs were increased by 15% in 1995 and by another 10% in 1996. Average revenues in US\$/MWH increased from 35.8 in 1994 to 42.7 in 1995 and 43.6 in 1996, before falling to 34.5\$/MWH in 1997 as the exchange rate dropped without a tariff increase.

ESM's 1997 financial statements showed net income of 45 million denars (after 2,837 million denars in depreciation and 705 million denars provision for doubtful debt). About 4,000 million denars in debt was held against 46,000 million denars of net assets. Cash increased to 510 million denars by the end of the year. Doubtful debt of about 7% of electricity revenues and receivables of about 32% of electricity revenues were the most troubling factors. With its net profit and substantial depreciation, ESM generated 2,571 million denars in net cash flow from operating activities in 1997 vs. only 493 million denars in 1995.

The tariff increases combined with other factors such as cost control and increased kWh sales led to improved financial performance

Goal Reduce Technical Losses By 2 Percentage Points

Result Table 2-1 summarizes loss results since 1994 Overall losses clearly have increased, not decreased However, part of this is due to the increase in load The column labeled "Projected Losses, %" estimates what losses would be if there were no changes to the configuration of the networks and load increased from the 1994 values in proportion to the ratio of loads squared (Electrical losses roughly increase with the square of load on a given piece of equipment)

**Table 2-1
System Losses**

Year	System Total Losses, GWH	Total System Inputs, GWH	Losses, %	Projected Losses, %
1994	626 8	5,738 0	10 92%	Base
1995	686 5	5,874 5	11 69%	11 45%
1996	785 7	6,275 7	12 52%	13 07%
1997	797 8	6,413 5	12 44%	13 65%

Ideally the system would expand to keep pace with load increases, and even faster than that to reduce losses This has not happened

Goal Reduce Labor Force By 1% Per Year

Result Table 2-2 shows the size of the labor force at the end of each year 1994-1997 The overall labor force has declined by an average of 3 6% per year since 1994 When the reductions due to the spin-offs are accounted for, the decline still amounts to 1 5% per year since 1994, well in excess of the target

**Table 2-2
Size of Labor Force**

Year	Number Of ESM Employees	Yearly Rate Of Reduction, %		Employees In Firms Separated That And Previous Years	Number Of Employees Incl. Those In Separated Firms	Yearly Rate Of Reduction, %	
		This Year	Since 1994			This Year	Since 1994
1994	8 757	Base	Base	0	8 757	Base	Base
1995	8 784	-0 31%	-0 31%	0	8 784	-0 31%	-0 31%
1996	7 949	9 51%	4 60%	493	8 442	3 89%	1 79%
1997	7 884	0 82%	3 66%	493	8 377	0 77%	1 50%

ESM has reduced the size of its labor force in two ways First, it has spun off six non-core businesses Their employees are no longer part of ESM's total Although spinning off non-core activities is desirable, part of the reason to reduce the size of the labor force is to increase efficiency Including the reductions due to the spin-offs probably overstates any increases in labor force efficiency

Second, it has reduced staff in general, primarily by attrition and with very little replacement hiring. As such, ESM finds itself with an increasingly older work force, the virtual absence of "new hires" may become problematic over the next 5-10 years.

Goal Automate Systems.

The Bechtel team did not survey the organization as a whole regarding improved automation. We did learn that the system used to collect accounting and financial data at the branch level was put in place in 1995 and 1996. System Dispatch is also in the process of improving its automated control of the system, as are the Transmission branch and some Distribution branches.

Goal Spin Off Unprofitable Activities (Mainly Hotels And Restaurants)

In 1996 ESM spun off six organizations performing non-core functions and having a total of 493 employees.

Goal Identify Other Ways To Improve Operations

ESM and the power sector in general have improved in other ways, some of which are noted below. These items apply to all aspects of the power sector, not just its operations.

- Passage of the Energy Law
- Approval of ESM's Statute and Regulations
- Reorganization of ESM
- Acquiring a World Bank loan for hydro rehabilitation and other improvements
- Completing a 400 kV loop from Bitola to Skopje
- Progress on the Kozjak hydro project and its financing
- Progress towards rationalized tariffs and tariff structures
- Aggressive efforts to reduce commercial losses and improve payments

Summary

The GOM, the MOE, and ESM have made progress in almost every aspect of the power sector. Further steps are under way to continue the improvements. When the Methodology on Prices and the Tariff Structure System are implemented (this is expected to occur by early 1999), another significant step will have occurred. Helped by prices that recover true costs of service, ESM's financial condition is likely to continue its trend over the last few years. Foreign financing has been found for improvements to many parts of the electric system. The Kozjak hydro facility will add 82 MW of peaking capacity. In summary, the power sector has improved substantially and continues to move in the right direction.

2.2 TODAY'S POWER SECTOR STRUCTURE

The power sector in Macedonia is currently organized as a state-owned, vertically integrated monopoly. In general terms this has been its organization in the past also, but the details of its organization have changed since the 1995 report. ESM is the main power sector organization, other organizations play only minor roles.

The Law on Public Enterprises, passed 31 July 1996, governs the organization and operation of ESM and other business entities doing activities in the public interest. Pursuant to that law, ESM's managing body is a nine member Managing Board. The GOM appoints 6 of the members. The ESM Employees Council proposes for GOM approval the other 3 members from among ESM's employees. The current board was appointed in March, 1997.

The GOM also appoints ESM's General Manager, who is its chief executive and operating manager. The current General Manager has held that position since 1996.

ESM's material and financial transactions are also subject to the review and approval of a five member Controlling Board appointed by the GOM. The Managing Board can not adopt its annual accounts before it gets a positive opinion from the Controlling Board.

GOM controls over the power sector are achieved in several ways:

- The GOM appoints or approves the Managing Board, the Controlling Board, and the General Manager. It also approves the major investment plan and sets electricity prices.
- The MOE has primary oversight responsibility for the power sector. In addition to this general role, it reviews and approves ESM's development and investment plans, proposes tariffs, and has a role in selecting ESM's top management.
- The Ministry of Development reviews and comments on major investment plans. It can also review and comment on pricing proposals.
- The Ministry of Finance reviews and comments on pricing proposals, and on investments when GOM guarantees are required for financing.

The main elements of ESM's organization are six headquarters divisions led by Assistant General Managers, and 38 operating branches led by local Managers. All 44 positions report to the General Manager, but the 38 local branches also have reporting responsibilities through two of the Assistant General Managers. Figure 3-1 (shown in Section 3) summarizes ESM's organization.

The six divisions are responsible for headquarters functions such as coordinating, reporting, and investment planning. The Production division has some oversight responsibility for the nine production branches, and System Dispatch resides within the Production Division. The Transmission and Distribution division has some oversight responsibility for the one Transmission branch and the 28 Distribution branches. The 38 branches communicate with other headquarters divisions as necessary regarding issues in those fields.

Each of the nine production branches is responsible for the operation and maintenance of a power plant and, in the case of the two mine-mouth coal plants, the associated mine. (In the case of Kozjak, the hydro plant is under construction.)

The Transmission branch is responsible for the operation and maintenance of the high voltage transmission system, including most of the 110 kV system and all of the higher voltage equipment.

Each of the 28 Distribution branches is responsible for the operation and maintenance of the low voltage system within its geographical area. Each is also responsible in its area for the commercial aspects of selling power to low voltage customers and servicing them (Substantial load is served directly from the high voltage network. The Commercial division handles the commercial aspects of these customers.)

The Distribution branches vary greatly in size. There are some service centers that cover several branches. The Transmission branch also provides some assistance in maintenance for some Distribution branch equipment.

Depending on their size and function, the branches have departments dealing with financial, commercial, and legal/general issues. For example, each branch has a financial department which coordinates closely with the headquarters Finance division.

2.3 GENERAL ECONOMIC CONDITIONS IN MACEDONIA

The Republic of Macedonia is a transitional economy and has been since the collapse of the Yugoslav federation in 1991. Nonetheless the severe economic decline experienced in the years immediately following independence has stabilized, producing cautious optimism about future growth scenarios.

Macro-economic policies are expected to promote the development of a fully-functioning market economy and the Macedonian government is seeking structural reforms that will come from large-scale privatization. These measures are being implemented within the context of future accession to the European Union.

As shown below, gross domestic product, which was US\$2,165 million in 1990 declined by 27% to US\$1,581 million in 1996, but has been relatively stable at that level over the period 1995-96.

**Table 2-3
Macedonian Gross Domestic Product**

Year	Gross Domestic Product, US\$ Millions	Change From Previous Year, %
1990	2,165	N/A
1991	2,000	-7.6%
1992	1,832	-8.4%
1993	1,659	-9.4%
1994	1,618	-2.5%
1995	1,583	-2.2%
1996	1,581	-0.1%

Similarly, Macedonia experienced hyperinflation in the early years of its independence. However, as indicated by indices of retail prices and cost of living, inflation has effectively been curbed.

Table 2-4
Macedonian Retail Price and Cost of Living Indices

Year	Retail Prices Relative Index, 1996 = 100	Cost Of Living Relative Index, 1996 = 100
1990	0 6	0 5
1991	10 6	8 0
1992	43 4	37 0
1993	90 4	84 5
1994	98 1	97 8
1995	100 0	100 0
1996	100 6	102 6

By the mid-1990's a stable Macedonian currency was exerting positive influences upon the longer-term development of the economy and a recovery from the effects of recent blockades to the north (with the former Yugoslavia) and to the south (Greece)

2.4 THE EXISTING SYSTEM

2.4.1 Generation

There are three major thermal and four major hydro power plants. There are a number of smaller hydro plants, some with non-ESM ownership, some thermal self-generation, and recently a 27 MW thermal plant associated with an industrial facility was transferred to ESM as payment for the facility's electricity bill. Exports and imports have not played a major role in Macedonia.

The Bitola power plant dominates the generation mix. Its three, 225 MW coal-fired units account for nearly half the total installed capacity in Macedonia, and the plant delivers about 70% of the annual electrical energy supply. The plant is in good condition, well maintained, and achieves high availability. The key issues with respect to Bitola are (a) whether its fuel supply can be extended beyond the 15-20 years remaining, and (b) whether additional fuel supply could be arranged for a fourth unit there.

The largest hydro facility is the three plant Tito (also called Mavrovo) facility. Its 182 MW is not quite half the installed hydro capacity. The plants are well maintained and achieve high availability. They and the other major hydro plants will be rehabilitated as part of a recent loan from the International Bank for Reconstruction and Development (IBRD). This will increase their efficiency, capacity, and annual energy delivery, help maintain high availability, and extend the life of the units.

Although the generating system is in relatively good condition and has prospects for good performance in the future, the key competitive issue remains that Bitola's production greatly dominates the sector and limits the possibility of competition.

2.4.2 System Dispatch

The System Dispatch center, located in Skopje, is currently part of the Production division. It operates the Macedonian system in effect as a control area, as part of a voluntary regional group coordinated out of Belgrade. The same IBRD loan that is supporting hydro plant rehabilitation also will fund additional software, hardware, and telecommunications to improve system control and communications.

The focus of System Dispatch appears to be on the physical operation of the system, which it accomplishes effectively. Most cross-border transactions are exchanges, not purchases or sales, and purchase/sale arrangements need the prior approval of the General Manager. There does not appear to be a formal economic dispatch, but considering the size of the system and obvious cost characteristics of the plants, something close to optimal economics is probably achieved in any event.

2.4.3 Transmission

With completion of the 400 kV loop through Bitola, the transmission system is in acceptable condition with respect to configuration, performance, and condition of the equipment. Losses in recent years have averaged about 3%, a reasonable level. Some of the 110 kV system is old and needs to be replaced. A program for the phased upgrading of that equipment is being developed.

2.4.4 Distribution

The distribution system and the distribution branches have two important issues. First, from a technical standpoint, losses are too high (see Figure 2-1). Second, unpaid bills are a serious financial problem. Commercial losses (theft) no doubt contribute to the high technical losses.

The percentages are calculated as losses/(inputs to relevant system). The distribution system has smaller inputs than transmission or the total system, because substantial load is served at transmission voltages and that power never becomes an input to distribution. Therefore it can (and does) have higher percentage losses than the total system, even though its losses in MWH are obviously less than total system MWH losses.

The Distribution branches have been taking active and productive steps to reduce unpaid bills and address commercial losses. Reducing technical losses requires investment, so a key issue for ESM is how investment in distribution will be analyzed and prioritized compared to investments in generation and transmission.

2.5 PLANNING

The major development and planning activities take place in the headquarters Development and Investment division. The process starts with an understanding of the existing system and current loads. They also get information on and requests for improvements to existing facilities from the branches and the other headquarters divisions. The current mid-term plan covers the period through the year 2005.

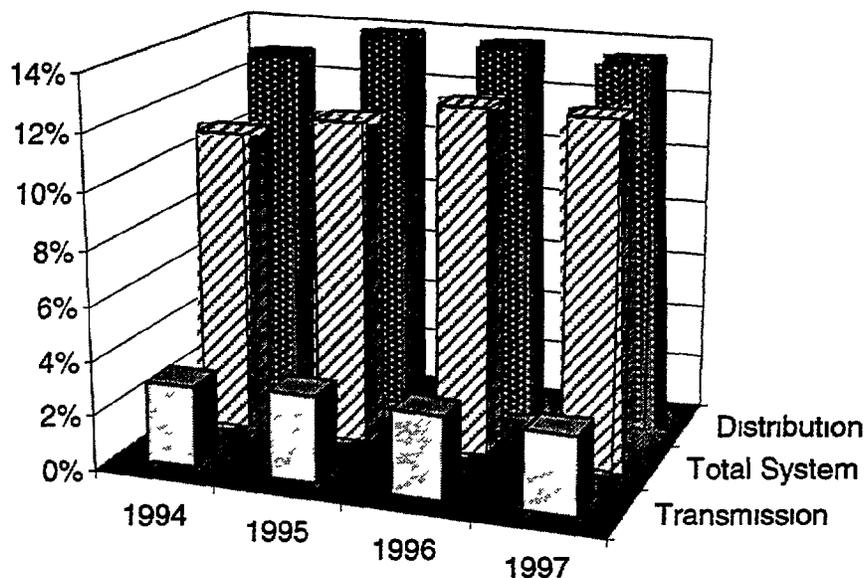


Figure 2-1 Electrical Losses in the Networks

A load forecast is developed based on estimates of future demographics and economic activity by sector in Macedonia, adjusted for special circumstances. For example, the last forecast (completed in 1994) accounted for the impact of expected industrial restarts in 1995-2000, which contribute to growth. It also accounted for the impact of electricity price increases 2000-2005, which tend to reduce growth.

The forecast was for average growth of 1.7% from 1995 through 2000, and 1.3% from 2000 through 2005. For 1997, the forecast showed 6433 GWh. Actual consumption in 1997 was 6,329 GWh, a difference of 1.6% compared to the forecast. Historical growth from 1990 through 1997 averaged 2.7%, but only 1.1% for the period 1986-1997. Figure 2-2 displays historical and forecast loads. The forecast is somewhat below recent year growth but above recent year loads and long-term load growth, which however was seriously affected by changes to the political and economic climate in Macedonia. Overall the forecast seems reasonable, but the situation is somewhat uncertain given the changing nature of the economy.

There was a decline in industrial demand associated with the breakup of the former Yugoslavia, which led to an eight-year interruption in overall demand growth – total consumption in 1986 was greater than in 1994. This has left generation and transmission in reasonable balance with demand. For example, there is 1,441 MW of installed capacity, most of it operating with high availability, and the possibility of imports if the need arises. This is more than adequate to meet demands such as the 1997 peak load of 1,121 MW. Low voltage demand increased throughout the period, however, putting additional stress on the distribution network.

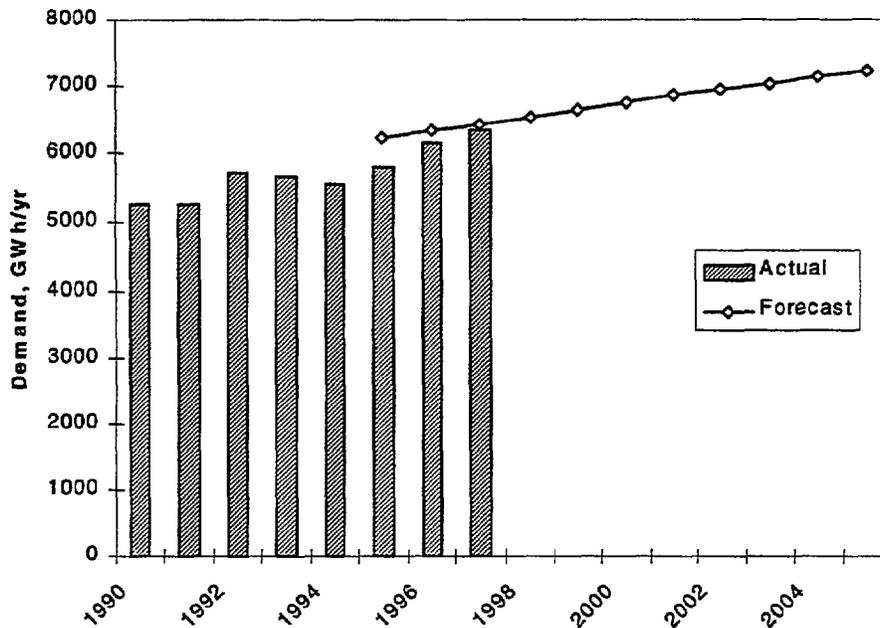


Figure 2-2 Historical and Forecast Demand

The next step is to develop an expansion plan to meet that load. Resources are added approximately in economic order as needed to maintain reliability based on a cost of unserved energy of three to five times the tariff level. Rehabilitation of existing plants and transmission and distribution network expansion and rehabilitation is also included. The plan developed, however, is not directly linked to a financial plan that assures that there will be sufficient funds to implement the investments. The current plan's investment requirements average 139 million US\$ per year from 1995 through 2000, and 73 million US\$ per year from 2001 through 2005. Of the total, 53% is for new generation, 12% is for generation rehabilitation, and 35% for network expansion and rehabilitation.

The major investments planned (or under construction, such as the 82 MW Kozjak plant) are hydro facilities, primarily for peaking service. Options for the expansion of the transmission system focus on interconnections rather than internal expansion. These are in a sense strategic investments to gain access to other resources (and loads, for possible sales) more similar to generation choices than transmission infill and upgrade investments. The increase in low voltage demand and the relatively high losses in that network suggests that a higher level of investment in the distribution network might be justified.

Based on current financial results, this cannot be supported by internal cash generation alone, which was equivalent to about 47 million US\$ in 1997. Tariff increases and/or actions such as issuing debt and buying from IPPs (who make the generation investment themselves) will be needed.

Each year a short-term plan for the next year is created, based on the priorities of the mid-term plan but taking into account the ability of ESM to provide funds for the projects. As noted above, in order to implement the current plan it will be necessary to take steps outside

ESM's direct control Thus the mid-term plan is not directly linked to the financial plan, in that together they do not represent a consistent and realistic plan for the future

Reflecting a concern that ESM does not have a least cost electricity supply plan, for capital budgeting purposes and to determine long run marginal costs, the World Bank and the GOM and ESM agreed to have such a plan developed by 31 December 1999 Steps are in progress to complete the study by or before that time

2.6 FINANCIAL ISSUES

ESM's financial condition has improved substantially since 1994, when it was "technically insolvent" according to the 1995 report Several factors have contributed to this improvement

- Increased tariffs that reflect the cost of service
- Increased sales in kWh
- Cost control
- Improved collections

ESM has also made improvements in its internal financial operations

- Working towards achieving IASB standards and a positive opinion of international accounting for 1997 results
- Improved systems and communication for reporting from branches

As a result of these changes ESM's current financial condition is sound As noted in Section 2.1, ESM reported net income of 45 million denars in 1997 (vs a loss of 424 million denars in 1995) This was after depreciation of 2,837 million denars and writing off bad debts of 705 million denars ESM's balance sheet shows debt of only 4,067 million denars vs net assets of over 46,000 million denars Cash and cash equivalents of 510 million denars indicates adequate liquidity

With its net profit and substantial depreciation, ESM generated 2,571 million denars in net cash flow from operating activities in 1997 vs only 493 million denars in 1995 With a 579 million denars increase in net long-term debt and 314 million denars in interest received, over 3,400 million denars were available to fund capital projects and other investment activities

The World Bank and ESM internal forecasts are for continued good cash flow from operations The trend of improvement in collections and a GOM/ESM commitment to the World Bank to maintain average tariffs at 7.5 pfennigs/kWh or more suggest a high probability of achieving those results In addition, ESM's solid balance sheet leaves room for borrowing to finance its capital program, if necessary

With respect to ESM's 1996 and 1997 financial statements, ESM's auditor (Deloitte & Touche) was unwilling to offer an opinion For the 1997 statements, the sole reason noted by the auditor that prevented it from offering an opinion was that ESM's fixed assets have not yet been revalued at appraised value ESM has agreed with the World Bank to revalue its fixed assets and to work with its auditors to the extent required that they can express an opinion on ESM's 1998 financial statements

2.7 LEGAL ISSUES

As noted above, Macedonia adopted an Energy Law in 1997 and is actively in the process of implementing it. Early in 1998 a cost-based tariff methodology was prepared by the MOE, it is expected that this methodology will be in place by 1 January 1999.

By the end of August, 1998, the MOE, with the assistance of Bechtel Consulting, had completed "final draft" licenses for each of the electric utility sectors – generation, transmission, and distribution. Under the Energy Law enacted last year, each license must be accompanied by a contract between the licensee and the Macedonian government. Each "final draft" license includes a draft contract that is intended to address the specifics of the licensed function and is subject to negotiation with the licensee.

These draft licenses and contracts will undergo further review and revisions before being presented to the Prime Minister. The review process is expected to include review by (1) experts from the MOE, (2) experts from ESM, (3) the Chamber of Commerce, and (4) the Ministry of Justice for legal review.

A number of issues continue to be under discussion, one of which is which provisions should be in the license as opposed to the contract. In particular, the provisions under consideration are:

- 1 Force majeure
- 2 A license holder's subcontracts for its responsibilities
- 3 Separate accounting practices
- 4 Insurance requirements
- 5 Provisions regarding labor strikes
- 6 Environmental compliance
- 7 Submission of data to the MOE

Each of the three licenses contain a number of common provisions, such as compliance with certain technical and quality requirements, access to the company's books and records, a fixed term for the license, a non-transferability provision except with government approval, and revocation of the license under limited circumstances.

Similarly, each of the draft contracts that accompany the license contain common terms, such as:

- 1 The right to perform the licensed activity
- 2 The right to subcontract certain functions of that activity with government approval for significant subcontracts
- 3 The use of tender for large subcontracts

- 4 A program to maintain quality assurance
- 5 A transparent system of accounting to expose any cross-subsidization
- 6 A more detailed explanation and limitation on transfer of the company's assets or sale of a controlling interest in the company
- 7 Provision of insurance to ensure a safe and continuous operation of the facilities
- 8 Compliance with certain laws and environmental obligations
- 9 Certain reporting requirements, including an annual report by March 31st of each year
- 10 Provisions dealing with termination of the contract under defined limited circumstances

2.8 TARIFFS

Historically tariffs were established for Yugoslavia as a whole. Upon independence, Macedonia reduced tariffs substantially to reflect local conditions. Since then the GOM has increased tariffs several times, as shown in Figure 2-3.

Presently, the MOE proposes tariff changes to the GOM, usually supported by calculations made by ESM. The GOM then approves (or denies) the request, taking into consideration its agreements with international lending institutions.

The Energy Law specifies that prices be set according to a Methodology on Pricing that was passed by the Macedonian Parliament in August 1998 and will take effect on 1 January 1999. The Methodology is based on the principle of reasonable cost based prices, including depreciation and a 10-13% rate of profit on fixed assets. The Methodology is at a high level of summary, with many details to be worked out. Nevertheless, it is consistent with the appropriate principles for establishing tariffs for monopoly organizations. If implemented in accordance with those principles, it would give additional confidence to potential investors that they would be treated fairly.

The Methodology on Pricing deals with the overall level of tariffs. The Energy Law also specifies that resolutions on a Tariff Structure System, defining the tariffs for different categories of consumers, be passed by March, 1998. These resolutions have not yet been passed. The current draft states that its Tariff System encourages the rational consumption of power. Based on our review, this appears to be the case. "Rational consumption" should be based on reasonable links between cost causation and cost responsibility, in other words on sound economic principles. In the Tariff System tariffs are differentiated according to voltage level, type of metering, season, and time of day. They include charges for energy, peak demand, and reactive power, and provide possible discounts based on economic analysis for large consumers who can manage their loads. In every case the differentiation assigns prices to customers based on the reasonably probable costs they impose on the system. For example, low, middle, and high seasonal rates would be set in the proportion 1.0 : 1.6 : 2.0. Power (i.e., charges related to peak demand) accounts for 55% of costs at high voltage and 30% at low voltage. The relative price ratios for consumers at 110 kV and households at 0.4 kV would be 1.0 : 1.8.

The Tariff System also provides for payments to independent power producers. The basic payment is what the tariff for consumption would charge, less a discount (for example, a 10% discount for delivery at 35 kV) to account for losses and ESM direct costs associated with the transaction.

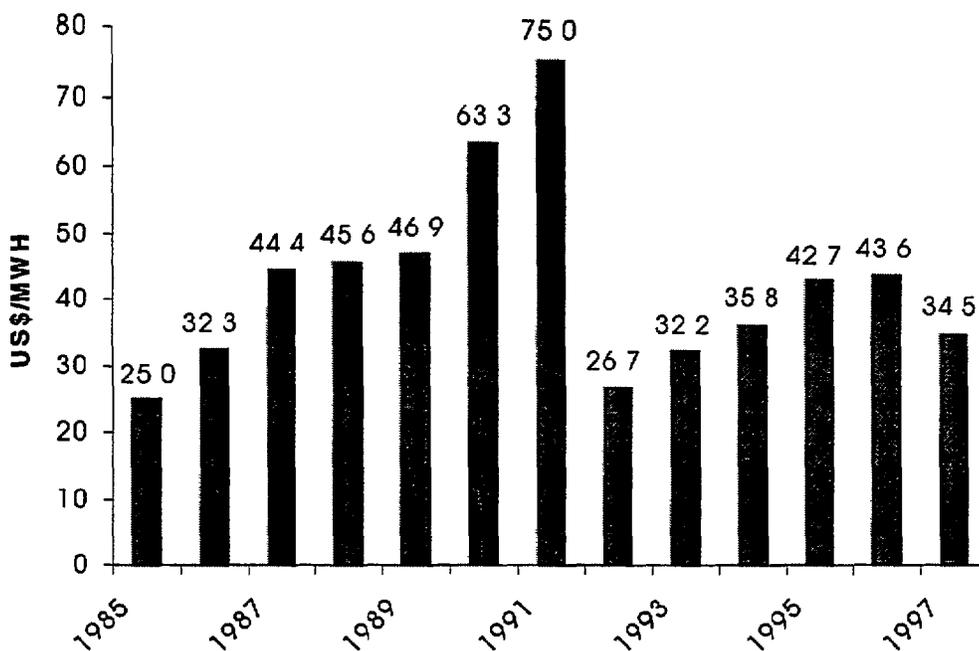


Figure 2-3 Historical Average Tariff Levels

2.9 OTHER COUNTRIES IN TRANSITION

Macedonia is not alone in the process of transition from a command to a market economy. This sub-section outlines the progress that other countries have made in transforming their electricity sectors and making provision for an independent regulatory authority.

Bulgaria

The National Electric Company is still a state-owned, vertically integrated entity. There is no independent commission at present, proposed legislation provides for a part of a newly-created Ministry of Energy to perform various functions related to the regulation and control of the energy sector including pricing, licensing, and EU harmonization.

Czech Republic

The Ministry of Industry and Trade's Department of Energy Regulation and Policy is not an independent commission, rather it is a part of the Ministry of Industry and Trade and performs ministerial functions related to the regulation and control of the energy sector with the exception of final decisions on energy prices. The Ministry of Finance controls pricing.

Hungary

The function of the Hungarian Energy Office is the regulation and supervision of energy activities of gas and electricity companies enjoying natural monopolies, and the protection of consumer interests, through (a) licensing, (b) preparation of prices and conditions for price application, as well as the rules of calculation, and (c) assistance in the preparation of legal and official regulatory environment of the companies

Latvia

The Energy Regulatory Council (ERC) was formed in July 1996 to regulate electricity and natural gas. It is "a state institution" supervised by the Ministry of Economy. The ERC also regulates district-heating prices in Riga. Outside Riga, it has responsibility for determining the methodology for setting district-heating prices, which are the responsibilities of the municipalities. In this regard, the ERC has the following authorities:

- Issues all licenses for energy supply enterprises
- Develops methodology for calculation of energy tariffs
- Approves retail tariffs for natural gas and electricity for the country and the district heating tariffs in Riga
- Promotes efficient operation of energy supply companies and efficient use of energy supplied to customers
- Encourages the use of indigenous renewable energy resources
- Develops regulations on energy production and supply
- Promotes competition in energy supply
- Protects the interests of energy consumers
- Reviews disputes between energy customers and suppliers and make binding decisions (can be appealed to court)

Lithuania

The National Control Commission of Prices for Energy Resources and of Energy Activities in Lithuania (NCC) has five commissioners for a 5-year term approved by the Government of Lithuania. The NCC has the responsibility of establishing principles of energy price-fixing, establishing the rules for calculating prices and tariffs, and checking and approving calculations of prices and tariffs of electric and thermal energy and natural gas for confirmation by the Government of Lithuania. The NCC is given the right to control the quality of energy, its conformity to standards, and to inspect the trade in energy raw materials and energy products.

Poland

The mission of the Energy Regulatory Office (ERO) is to regulate energy companies (gas, electricity and district heating) who have monopoly positions in the market, and to promote competition in all energy sub-sectors. Their authority includes:

- Licensing energy activities (production, storage, transmission/distribution, and trade)

- Approving tariffs (price regulations) and controls
- Concurring with development plans
- Controlling quality customer service standards
- Resolving disputes
- Imposing financial fines
- Cooperating in counteracting monopolistic practices
- Publishing information on energy efficiency
- Collecting and processing information on energy economy
- Controlling qualifications

Romania

In July 1998, the National Electricity Authority (RENEL) was restructured into a holding company structure with separate operating companies for generation, transmission, and distribution. The modality of this separation is still under debate, but the eventual system is likely to include separate, competing generators and distribution companies. Presently there is no independent commission. However, legislation and a draft government ordinance is pending which would create a commission within the Ministry of Industry and Trade (MOIT). Currently, the MOIT is overseeing the regulation and control of the energy sector.

Slovakia

With the passage of the Energy Law, the Department of Energy Regulation is responsible for licensing all electricity, gas, and heat entities, EU compliance in the energy sector, and the recommendation of a pricing methodology to the Ministry of Finance.

2.10 AGREEMENTS WITH INTERNATIONAL LENDING INSTITUTIONS

The World Bank (acting in association with the IBRD loan) and the European Bank for Reconstruction and Development (EBRD) have negotiated agreements with the GOM and ESM as conditions for their loans to ESM. The primary objective of these loan conditions appears to be to provide assurance that ESM will have the necessary resources to service its loans. The World Bank conditions are noted below.

The GOM agreed

- To adopt regulations acceptable to the World Bank governing the operations of IPPs by 31 December 1999
- To set electricity prices at an average level of at least 7.5 pfennigs/kWh within one year of first disbursement under the loan

The GOM and ESM agreed

- To prepare a least-cost electricity supply plan by 31 December 1999

ESM agreed (among others)

- To undertake various physical, financial, and project management activities associated with the IBRD loan and the projects it funds
- To reduce each year the ratio of its accounts receivable to revenues from sales so that it attains a target level of 18% of annual revenues by 31 December 2002
- To limit payments to ESM for electricity in the form of shares to no more than 5% of ESM's revenues from sales
- To achieve certain financial ratios starting in 1998
 - Funds generated from internal sources at least 30% of investments
 - Funds generated from operations at least 150% of debt service
 - Current ratio no less than 1.2
- To revalue its fixed assets and work with international accountants so they can express an opinion on ESM's 1998 financial statements
- Not to undertake any large new projects before Kozjak is complete unless it can provide evidence satisfactory to the World Bank that it would continue to meet the specified financial ratios

Some of the conditions are already met. Steps are under way to meet others. All appear to be achievable. Two of the more difficult are discussed below.

The average realized tariff in 1997 was 1,802 denars/kWh, and tariff levels have not changed. At current exchange rates of 55 denars per US dollar and 1.80 Deutschmarks per US dollar, the average tariff is equivalent to 3.28 US cents per kWh or 5.90 pfennigs per kWh. To reach 7.5 pfennigs/kWh would require an increase of 27% of the current level. Imposing such an increase may be a difficult step for the GOM to take and is probably the most challenging of the conditions to meet. Nevertheless, the GOM has taken difficult steps before, and has already agreed to this one.

ESM's accounts receivable at the end of 1997 were 3,107 million denars compared to revenues from sales of electricity of 9,772 million denars, giving a ratio of 32%. However, accounts receivable is the sum of historical bills not yet paid less bad debts written off. If bad debts have not been written off as rapidly as they were incurred, accounts receivable may not provide an accurate measure of current performance in collections. Furthermore, ESM charges interest on overdue accounts, mitigating the impact of late payments.

At 9,802 million denars, cash receipts from customers, which includes some interest and some payments related to own-use equipment, were slightly larger than the revenues of 9,772 million denars. Bad debt written off was 705 million denars, the increase in accounts receivable was 65 million denars, and the sum of the two was 770 million denars, or 8% of revenues. For the first six months of 1998 ESM billed 5,786 million denars and was paid 4,718 million denars, or 82%. All these figures suggest that reducing the ratio to 18% by 2002 is reasonably achievable.

3.1 OBJECTIVES FOR RESTRUCTURING

All around the world, reform and restructuring are reshaping the electric power industry. A variety of motives drives the desire to reform:

- Improve power sector performance: efficiency, cost, customer service
- Create more competitive power sector businesses
- Improve economic efficiency by rationalizing prices
- Attract needed investment
- Raise money from the sale of government-owned assets

Restructuring and reform are intended to address these issues. The direction of reform is based on several fundamental beliefs:

- Free, competitive markets maximize economic benefits
- The role of government is to set policy, not operate businesses
- Private ownership provides the most effective incentives for efficient operation and investment
- In the power sector, generation and supply (sales to end-use customers) are potentially competitive functions. Transmission and distribution (ownership and operation of the physical low-voltage system) are natural monopolies
- Monopoly functions should be regulated in an evenhanded manner
- Prices should be at an economic level, not too high or low, and with minimal subsidies and cross subsidies

Each country's situation is of course unique. Macedonia has its own set of objectives:

- Comply with the requirements of EU Directive 96/92/EC concerning common rules for the internal market in electricity as soon as practical in order not to delay EU membership
- Attract private (especially foreign) capital
- Improve power sector performance by maintaining or improving technical proficiency, efficiency, reliability, and minimizing cost
- Introduce competition through IPPs
- Create self-sustaining (self-financing) organizations
- Maintain the ability to privatize power sector organizations if that eventually becomes desirable

There are also other objectives not directly connected to reform and restructuring: maintain security of supply by diversifying supply sources and maximizing hydro development, participate in UCPT, and minimize environmental damage.

3.2 CRITERIA FOR DEFINING AND RATING OPTIONS

The objective of this study is to determine which power sector structure would be best for Macedonia. Two questions arise from different aspects of this issue and need to be addressed:

- First, what structures should be considered for further analysis?
- Second, how should one evaluate the advantages and disadvantages of the different structures considered?

With respect to both questions, we need to consider their consistency with the GOM's objectives for the power sector. In doing that we should evaluate their feasibility and ease of implementation.

3.2.1 Consistency With Objectives for Power Sector

Macedonia's objectives for its power sector are summarized in the six bullet points noted in Section 3.1 above.

There are also other objectives not directly connected to reform and restructuring: maintain security of supply by diversifying supply sources and maximizing hydro development, participate in UCPE, and minimize environmental damage.

3.2.2 Feasibility and Ease of Implementation

In general, more radical changes can offer the prospect of greater benefits, as indicated by the degree to which they achieve the objectives noted in Section 3.1, but carry with them the likelihood of greater costs. We measure the costs by the following:

- The amount of change required compared to today's structure
- The transition costs associated with the changes
- The need for changes in laws

3.3 SPECIFIC OPTIONS SUGGESTED FOR CONSIDERATION

Our general approach was to define a range of options based on the amount of change required for their implementation. Several factors contributed to our approach. Perhaps most significant, the existing structure is working reasonably well. The GOM, the MOE, and ESM all appear to be committed to creating and supporting an efficient, cost-effective, financially strong power sector. Over the last few years they have implemented a number of changes to address problems that existed when the 1995 Report was prepared. Accordingly, the motivation to make radical changes is less acute than is the case with the power sectors of many other transitional countries. Within that framework, we also needed to consider:

- Today's power sector structure obviously requires the least change
- Opportunities exist to improve the performance of the power sector that do not involve substantial change to its structure
- There is a strong desire for Macedonia to join the European Union and to harmonize the power sector and its operations with the EU's requirements

- A fully competitive, disaggregated structure is not appropriate for a system of ESM's relatively small size, particularly where one generator (Bitola) exerts such dominance over the market
- Nevertheless, steps beyond the minimum necessary to comply with EU power sector requirements might provide important benefits
- Although to date the GOM has acted responsibly, the current level of GOM direct control of the power sector offers the potential for inefficiency or for use of the power sector to achieve social policies, thus weakening the sector
- Privatization of existing organizations within the power sector offers the potential of improved efficiency and the other benefits of private ownership, along with raising money from the sale of government-owned assets

The following options are discussed within the context of these factors

- **Option 1 – Efficiency Improvements** We offer several suggestions for changes that might improve efficiency. These changes do not involve major changes to today's power sector structure
- **Option 2 – EU Compliance** This incorporates the structural changes needed as a minimum to comply with EU Directive 96/92/EC
- **Option 3 – Privatization** This goes beyond the minimum steps needed for EU compliance. However, it is still assumed that ESM is privatized as a vertically integrated utility

We note that these options are not the same as Options 1, 2, and 3 as defined in the 1995 Report. Circumstances have changed since 1995, and the options presented in this study are a better fit for today's situation.

3.3.1 Efficiency Improvements

This is based on the structure of the power sector in Macedonia today, as described in Section 2.2. Its basic form is a state-owned vertically integrated monopoly. ESM generates nearly all the power in Macedonia, dispatches and operates the system, buys any power sold by independent producers, and provides all sales to customers. Figure 3-1 summarizes this structure, with a focus on ESM's organization and relationship with the GOM.

As noted above, the existing power sector in Macedonia seems to be working reasonably well. The key organizations all appear to be committed to creating and supporting an efficient, cost-effective, financially strong power sector, and have been taking active steps to make needed changes. The focus of our work was to identify structural and organizational issues, not to conduct a comprehensive performance evaluation of ESM. Nevertheless, during the course of the situation review reported in Section 2, we identified several areas where it appears that additional changes might lead to improvements in performance.

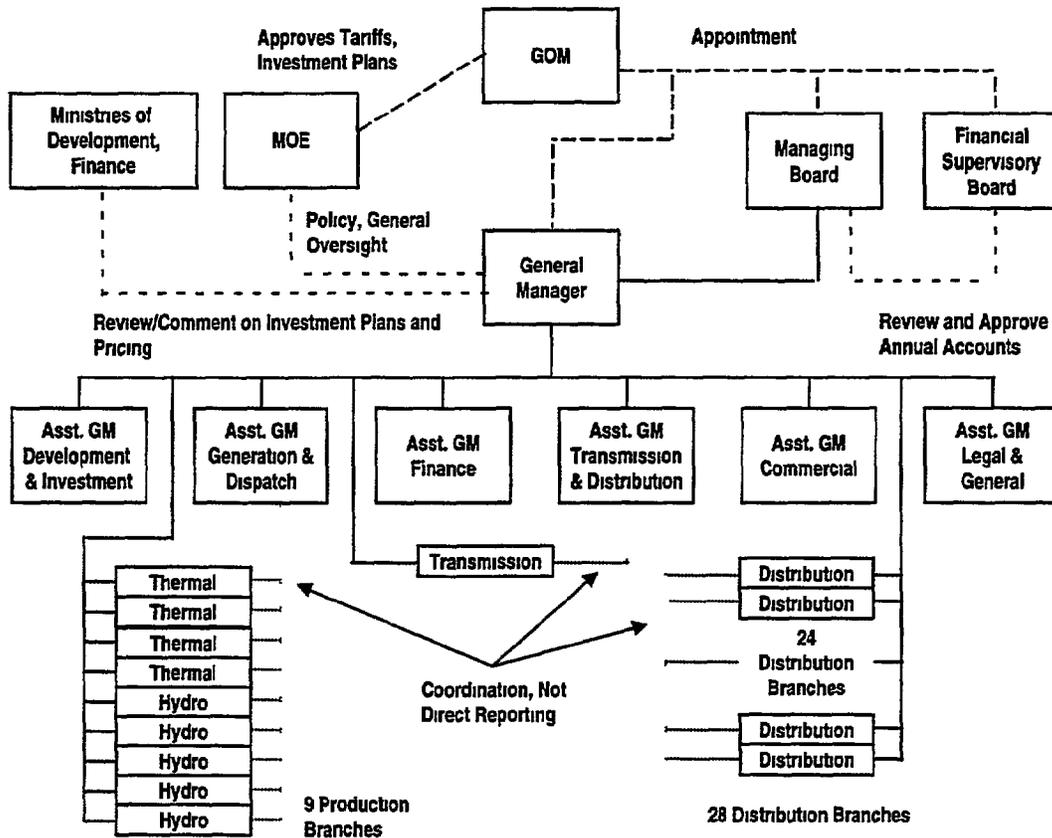


Figure 3-1 Structure for Option 1, Efficiency Improvements

Investment in Distribution

Throughout the world, the distribution function tends to be neglected where power sectors have limited funds for investment. Generation tends to be the primary focus. In Macedonia, the generation and transmission systems generally are in good condition and adequate to perform their function. The distribution system losses of 13% of input energy in 1997 are high.

We suggest that in the next long-term planning process additional effort be devoted to evaluating distribution system improvements. They are possibly more cost effective choices for limited investment funds than some generation or transmission interconnection alternatives. We expect that the result of this evaluation will be more investment directed to the distribution system.

Financial Models and Long-term Planning

Although sufficient modeling is done to serve the needs at hand, there does not appear to be a formal and comprehensive approach that links financial models, the development and

investment plans, and tariffs. The need for MOE approval to show any tariff increase in future financial plans is at least an important constraint.

We suggest that ESM develop an integrated, internally consistent set of planning models. The foundation would be a long-term least cost plan covering all aspects of the organization's functions, including investments. All cost categories would be included, such as assumptions for energy deliveries from and payments to IPPs.

This least cost plan would link to a financial module which would incorporate details of future financial structure and the costs (such as interest on debt, return on equity, and income taxes) associated with capital investments. It would calculate the tariff levels necessary to cover the costs of the plan, and assume that they would be approved.

The financial module would produce pro forma financial statements, including balance sheet, income statement, cash flows statement, and notes as necessary.

The objective is to produce a realistic, internally consistent picture of the condition of ESM over the next 20 or 30 years. It should assist in identifying problems, the consequences of not addressing them, and the steps necessary to resolve them. It would also assist in evaluating the sensitivity of the results to changing assumptions or other parameters.

IPP Pricing

In the proposed Tariff System the prices paid to IPPs will be based on the tariff for sales to similarly situated customers (voltage, season, time of day, etc.). This is a reasonable approach because it captures many of the benefits (and costs) of an IPP's impact on the electric system, and it is very simple and easy to implement. However, there is probably room for improvement. There are several reasons for this.

One fundamental reason is that tariffs in a cost-based pricing system are calculated using historical costs. New equipment may cost more (or less, but usually more) than the average cost new of similar existing assets, and because existing assets have been depreciated to some extent their capital-related costs are lower than those for new equipment even if the cost has not changed.

Suppose that a new power plant costs 1000 US\$ per kW, but the average cost new of existing equipment is 500 US\$/kW, and on average the existing equipment is half depreciated. Payments based on tariffs calculated using the 500 US\$/kW as a basis probably would be too low for the plant to be built, but whoever else (ESM, for example) built such a plant would have to spend the 1,000 US\$/kW.

A second problem is that tariffs include components for transmission and distribution, but the impact of a power plant on those systems may not reduce costs associated with those systems and may even increase them.

A third problem is that the tariff-based payments do not provide for any competitive benefits, such as could be gained if there were a competitive bidding process.

We suggest that payments to IPPs selling to ESM be based on a system that incorporates some or all of the following features

- Relates the payments to the costs that ESM would avoid if the IPP were built, such as the cost of other new generating plants, if any are needed
- Incorporates the actual expected impact of the plant on costs in the transmission and distribution systems
- Provides for competitive pricing such as through a tendering system, at least in some circumstances

Establishing these procedures involves some effort and expense. Accordingly, simpler methods could be used for sellers below some minimum size

Asset Appraisal

The sole reason that Deloitte & Touche were unable to offer an opinion on ESM's 1997 financial statements was that its existing assets were revalued based on general inflation rather than appraised value. We suggest that ESM have its fixed assets revalued through an appraisal conducted according to International Accounting Standards, as has been agreed with the World Bank

Meter Reading

The distribution branches have a goal of reading their meters during the last 5 days of the month. This leads to a crush of work during those days, then slow periods later on during which the meter readers are assigned to other tasks. This wide variation in work load undoubtedly causes inefficiencies.

The reasons offered for this schedule do not seem compelling. When tariffs change in April and October, reading close to the last day of the pricing period provides the best accuracy. However, not all meters can be read on the last day in any event.

We suggest that meter reading be done evenly over the course of the month. When tariffs change, metered use can be pro-rated into the pricing periods according to the number of days in each pricing period, or some other simple algorithm. Inaccuracies will tend to balance out in the long run in any event.

Dispatch Autonomy

We understand that the international purchases of electricity must have the approval of the General Manager on a case by case basis. This appears to interfere with system dispatch's flexibility to minimize cost or maintain reliability in response to changing circumstances, and possibly distract the General Manager and Assistant General Manager for Production with minor issues.

We suggest that system dispatch be given some limited authority to engage in international purchases of electricity based on its own best judgment.

3 3 2 EU Compliance - Competition in Generation

Appendix C summarizes the requirements of EU Directive 96/92/WC, which is presented in its entirety in Appendix D

- Non-discriminatory access to the transmission and distribution systems must be provided to customers consuming at least 25% of the annual energy consumption (This fraction will grow to perhaps 35-40% by 2005)
- Access may be provided on the basis of published cost-reflective tariffs, or by negotiations which must also be related to the costs of providing the service
- There must be a transmission system operator independent at least in management terms from generation and distribution We refer to this organization as the independent system operator, or ISO
- This ISO is also responsible for dispatch of generation
- The ISO must use objective, non-discriminatory published criteria for the dispatch of generation
- There must be an authorization procedure for new generators, and there may also be a tendering procedure A vertically integrated entity's generation must not be favored in either event
- There must be separate accounting for the generation, transmission, and distribution functions
- In the distribution function, separate accounts should be established for 1) the costs of operating, maintaining, and developing the network, and 2) the costs associated with the commercial aspects of the distribution function (selling, billing, etc)

Figure 3-2 summarizes the structure which results from meeting the minimum requirements noted above ESM is still vertically integrated, but has a monopoly only on System Dispatch, Transmission, and the physical Distribution network Some consumers and all IPPs must be able to make transactions with each other, using ESM's network but not selling to ESM or (for the customer) buying from ESM If ESM were a high-cost utility, this would put their market share at risk, possibly creating an issue of stranded assets (whose costs are above what can be collected in revenues in a free market)

However, with its generation mix, ESM will be the lowest cost supplier (compared to new plants) for at least its existing load It should be able to buy power from new entrants and still sell at an average cost below their cost Individual customers probably will be better off to buy from ESM than the IPPs that they may be allowed to deal with Given this, ESM can maintain its position as the primary supplier of energy to customers

Figure 3-3 compares the levelized cost of power from ESM's plants, in 1997 US\$/kW-year, to IPP plants that might be built Figure 3-3 shows that the total cost of power from existing ESM plants is lower than that from new gas turbine and combined cycle IPP plants That indicates that ESM should be able to charge its full cost, including costs associated with its invested capital such as depreciation, interest, and return on equity, without being undersold

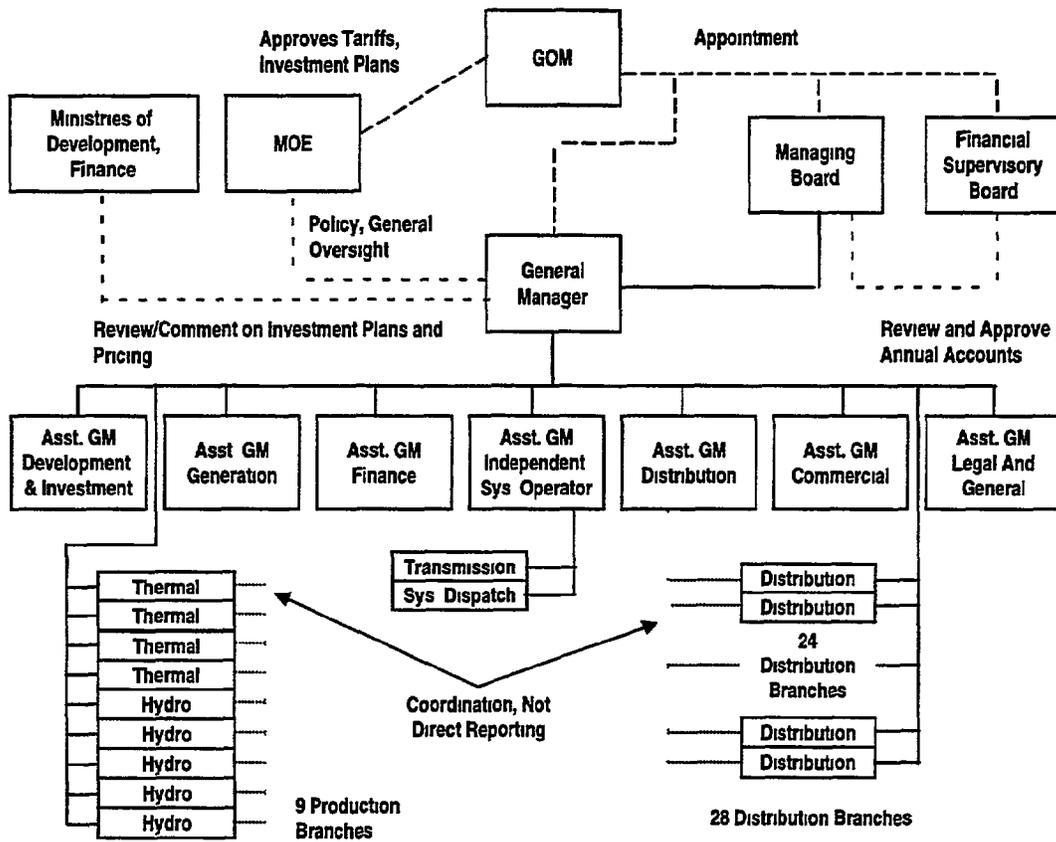


Figure 3-2 Structure for Option 2, EU Compliance

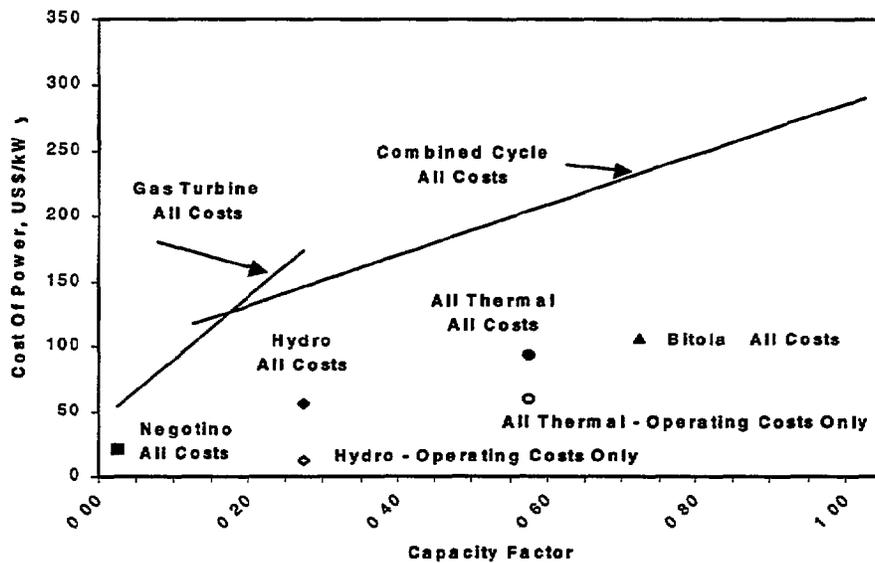


Figure 3-3 Competitiveness of ESM Generation

by competitors. For low capacity factor operation, even Negotino is less costly than new plants. When only operating costs are considered, ESM's position is even more favorable.

The calculations are based on 1997 cost data for ESM plants. The remaining net (after depreciation) capital is converted to annual costs over 20 years for the thermal plants and 30 years for the hydro plants using rates of 11.6% for the thermal and 10.3% for the hydro, assuming ESM must produce a 12% real return on equity but pays no taxes. The IPPs have higher annualization rates (16.3% for the gas turbine and 14.7% for the combined cycle) primarily because of taxes. The gas turbine costs \$300/kW and uses distillate oil costing \$5.00/GJ. The combined cycle costs \$600/kW and uses natural gas costing \$2.50/GJ. In comparison, ESM's net capital investment in its existing major plants is \$467/kW for the hydro plants and \$470/kW for the thermal plants.

These circumstances permit implementing a structure in compliance with the EU directive with the least impact on the existing power sector.

In order for the Macedonian power sector to comply with these requirements, the following would have to be accomplished:

Organizational

- In ESM's current organizational structure, Transmission and Distribution are separate but report to the same Assistant General Manager. Transmission must have management autonomy, which as a minimum would seem to require that Transmission report to a separate new Assistant General Manager.
- System Dispatch is presently in the Production organization. It would have to be moved to the newly independent Transmission organization, or ISO.

Accounting

- Most of the accounting features necessary to comply are in place. The main requirements could be met by aggregating existing accounts in a different manner.
- There needs to be separate accounting for the generation, transmission, and distribution functions. Since all of these functions will have somewhat new organizations, new accounts will have to be established.
- The potentially most difficult task will be to establish separate accounting for the network-related functions of distribution, and its commercial functions.

Procedural

- Define the customer groups which will be provided open access to the transmission and distribution grids.
- Establish an authorization procedure at least for new IPP and self-generation.
- If there is to be tendering for new generation, establish that process.
- Establish open access transmission and distribution tariffs.
- Establish dispatch criteria for generating plants.
- Revise the Statute and Regulations for ESM.

The changes suggested to improve efficiency in Option 1 also should be incorporated in Option 2

3 3 3 Privatization

There are potential benefits to going beyond the minimum requirements of EU compliance. In particular, privatization and independent regulation offer the prospect of increased efficiency, reduced governmental control, and generation of funds from the sale of government-owned assets.

In this structure ESM would be privatized as a vertically integrated utility. The primary structural changes would deal with the GOM's relationship with ESM, and ESM's governance. The functional organization of ESM would be the same as for Option 2, and the same features that provide EU compliance would remain.

The specific changes that are envisioned include:

- Privatize ESM as a vertically integrated utility
- Establish an independent regulatory agency to set tariffs, make rules governing ESM's operation, and in general balance the interests of customers and owners
- Consolidate distribution branches to improve efficiency and reporting relationships

Figure 3-4 summarizes the Privatization structure. From the viewpoint of IPPs and customers, the structure is similar to that of Option 2.

Table 3-1 illustrates a possible consolidation of the distribution branches into seven larger branches. The efficiency improvements would come from eliminating duplicated functions in the consolidated branches. For example, there would be seven branch managers rather than 28. It also would be easier to maintain consistent policies and a higher level of expertise in the larger branches.

Consolidation would improve reporting relationships by reducing the number of distribution branch managers reporting to the Vice President from 28 to seven. Having too many direct reports can have negative consequences. It can distract the manager from concentrating on the most important issues, and it can prevent the direct reports from getting adequate direction, advice, and general support by limiting their opportunity for direct contact with their manager.

The President's reporting relationships would also improve with Option 3. On paper at least, today the General Manager has 44 positions reporting directly to him: 28 distribution branches, one transmission branch, nine production branches, and six Assistant General Managers. It appears that informal reporting relationships through the Assistant General Managers mitigate the possible problem today. Option 3 formalizes these relationships.

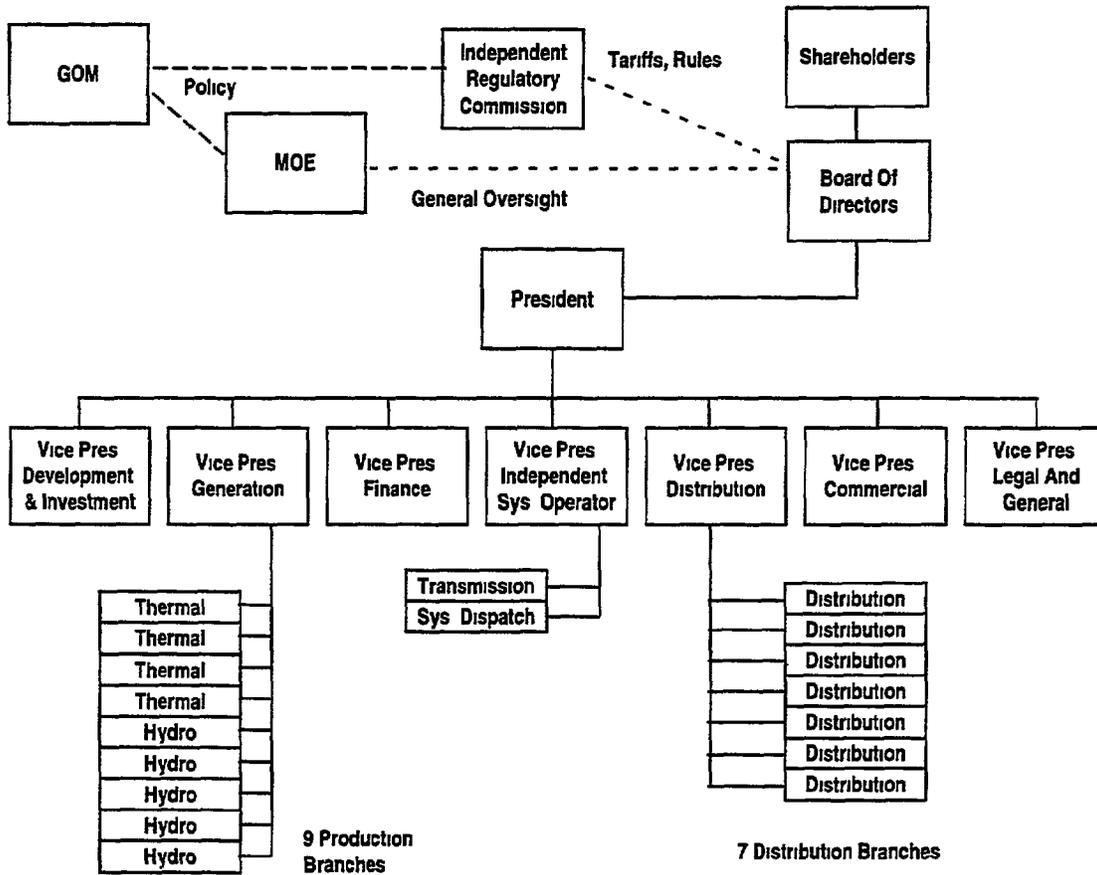


Figure 3-4 Structure For Option 3, Privatization

35

Table 3-1
Distribution System Consolidation

Branch Or Region	Number Of Employees 01-Jul-98	Number Of Customers			1997 Expenses, 1000 Denars			1997 Allocated Revenue
		HV	LV	Total	Labor	Materials	Total	
Skopje	790	284	181,517	181,801	175,384	144,397	320,771	598,728
North Central	790	284	181,517	181,801	175,384	144,397	320,771	598,728
Bitola	218	52	46,602	46,654	50,448	39,674	90,122	141,712
Resen	62	71	8,435	8,506	14,005	10,207	24,212	35,813
Ohrid	142	72	28,513	28,585	32,691	37,896	70,587	132,067
Struga	96	38	19,825	19,863	21,709	19,065	40,774	69,383
Southwest	518	233	103,375	103,608	118,853	106,842	225,695	378,975
Prilep	181	58	36,349	36,407	42,358	31,800	74,158	135,881
Mak. Brod	36	3	4,491	4,494	7,780	12,964	20,744	27,081
Veles	129	57	22,707	22,764	29,729	26,246	55,975	84,614
Central	346	118	63,547	63,665	79,867	71,010	150,877	247,576
Gostivar	110	31	25,483	25,514	24,290	30,122	54,412	76,318
Tetova	196	35	42,975	43,010	40,580	104,383	144,963	204,554
Debar	45	19	9,141	9,160	10,115	15,137	25,252	40,679
Kichevo	98	18	17,408	17,426	22,766	16,824	39,590	60,462
Northwest	449	103	95,007	95,110	97,751	166,466	264,217	382,013
Kumanovo	180	82	39,660	39,742	40,147	65,432	105,579	151,004
Sveti Nikole	50	23	7,119	7,142	10,853	6,704	17,557	24,105
Kratovo	33	11	4,212	4,223	7,817	4,777	12,594	18,117
Kr Palanka	56	8	9,150	9,158	12,903	9,315	22,218	32,386
Probishtip	52	7	5,583	5,590	12,074	5,218	17,292	32,799
Northeast	371	131	65,724	65,855	83,794	91,446	175,240	258,411
Shtip	104	56	18,174	18,230	24,684	31,043	55,727	102,417
Radovish	46	16	8,615	8,631	9,354	10,149	19,503	28,235
Delchevo	66	19	8,397	8,416	16,098	5,619	21,717	41,046
Vinica	31	33	5,951	5,984	7,512	4,021	11,533	18,272
Kochani	114	57	15,376	15,433	24,403	23,341	47,744	81,322
Berovo	39	24	7,420	7,444	8,736	6,753	15,489	21,960
East	400	205	63,933	64,138	90,787	80,926	171,713	293,252
Negotino	61	31	7,510	7,541	14,315	7,039	21,354	39,022
Kavadarci	63	24	14,672	14,696	14,856	12,085	26,941	41,971
Gevgelica	79	58	13,220	13,278	17,939	13,373	31,312	66,892
Valandovo	29	7	3,639	3,646	6,371	1,678	8,049	18,794
Strumica	104	42	26,482	26,524	23,745	38,441	62,186	105,609
Southeast	336	162	65,523	65,685	77,226	72,616	149,842	272,288
North Central	790	284	181,517	181,801	175,384	144,397	320,771	598,728
Southwest	518	233	103,375	103,608	118,853	106,842	225,695	378,975
Central	346	118	63,547	63,665	79,867	71,010	150,877	247,576
Northwest	449	103	95,007	95,110	97,751	166,466	264,217	382,013
Northeast	371	131	65,724	65,855	83,794	91,446	175,240	258,411
East	400	205	63,933	64,138	90,787	80,926	171,713	293,252
Southeast	336	162	65,523	65,685	77,226	72,616	149,842	272,288
Total	3,210	1,236	638,626	639,862	723,662	733,703	1,458,355	2,431,243

Table 3-1
Distribution System Consolidation (Cont'd)

Branch Or Region	1997 Net Assets	% Bills Paid Jan-Jun 98	Approx. Area, Km ²	Employees Per			
				1,000 Cus- tomers	1,000 Ex- penses	1,000,000 Net Assets	Km ²
Skopje	1 527 400	0 85	1 658	4 35	2 46	517	0 48
North Central	1 527,400	0 85	1 658	4 35	2 46	517	0 48
Bitola	198 760	0 81	1 723	4 67	2 42	1097	0 13
Resen	85 922	0 89	678	7 29	2 56	722	0 09
Ohrid	214 195	0 79	904	4 97	2 01	663	0 16
Struga	169 136	0 82	775	4 83	2 35	568	0 12
Southwest	668 013	0 81	4 134	5 00	2 30	775	0 13
Prilep	366 870	0 87	2 369	4 97	2 44	493	0 08
Mak Brod	108 725	0 79	474	8 01	1 74	331	0 08
Veles	145 897	0 85	1 292	5 67	2 30	884	0 10
Central	621 492	0 86	4 264	5 43	2 29	557	0 08
Gostivar	217 547	0 80	1 206	4 31	2 02	506	0 09
Tetova	790 303	0 92	947	4 56	1 35	248	0 21
Debar	70 991	0 74	388	4 91	1 78	634	0 12
Kichevo	168 132	0 84	1 077	5 62	2 48	583	0 09
Northwest	1 246,973	0 86	3 445	4 72	1 70	360	0 13
Kumanovo	417 779	0 74	904	4 53	1 70	431	0 20
Sveti Nikole	155 898	0 87	517	7 00	2 85	321	0 10
Kratovo	157 867	0 83	215	7 81	2 62	209	0 15
Kr Palanka	139 894	0 69	592	6 11	2 52	400	0 09
Probishtip	97 279	0 36	269	9 30	3 01	535	0 19
Northeast	968,717	0 69	2 412	5 63	2 12	383	0 15
Shtip	229,079	0 83	1 034	5 70	1 87	454	0 10
Radovish	40 400	0 78	345	5 33	2 36	1139	0 13
Delchevo	203,629	0 61	388	7 84	3 04	324	0 17
Vinica	55 051	0 87	345	5 18	2 69	563	0 09
Kochani	132 587	0 72	345	7 39	2 39	860	0 33
Berovo	57 886	0 85	323	5 24	2 52	674	0 12
East	718 632	0 76	2 713	6 24	2 33	557	0 15
Negotino	128 022	0 82	646	8 09	2 86	476	0 09
Kavadarci	90 385	0 80	969	4 29	2 34	697	0 07
Gevgelica	246 028	0 65	807	5 95	2 52	321	0 10
Valandovo	38 479	0 50	161	7 95	3 60	754	0 18
Strumica	182 047	0 88	1 292	3 92	1 67	571	0 08
Southeast	684 961	0 78	3 919	5 12	2 24	491	0 09
North Central	1 527 400	0 85	1 658	4 35	2 46	517	0 48
Southwest	668 013	0 81	4 134	5 00	2 30	775	0 13
Central	621 492	0 86	4 264	5 43	2 29	557	0 08
Northwest	1 246 973	0 86	3 445	4 72	1 70	360	0 13
Northeast	968 717	0 69	2 412	5 63	2 12	383	0 15
East	718 632	0 76	2 713	6 24	2 33	557	0 15
Southeast	684 961	0 78	3 919	5 12	2 24	491	0 09
Total	6 436 188	0 82	22 545	5 02	2 20	499	0 14

The principles used to create the consolidation were simple. Skopje is the largest distribution branch by many measures: number of employees, number of customers, expenses, revenues, and assets. It also appears to be operating well, indicating that its size is not a particular problem. We consolidated neighboring branches such that the resulting larger branch would still be smaller than Skopje in all the measures noted above. They would be larger than Skopje in geographical area. It would be possible to consolidate further, producing perhaps five larger branches rather than seven, without violating these principles.

If ESM is to be privatized, one issue is whether it should be disaggregated and privatized as one or more generation firms, a transmission/system dispatch firm, and one or more distribution firms. ESM is a small electric utility compared to most around the world. Some economies of scale would be lost in splitting it into three separate organizations. For example, having three or more development and investment groups and three or more finance groups would mean either more total personnel or a lower overall level of expertise in each group. In any event the resulting organizations would be weaker in some respects. For this reason we think it would be best to privatize ESM as a vertically integrated utility.

3.3.4 Evaluation

Table 3-2 summarizes how the three Options compare in their ability to achieve the objectives for the power sector, and in their implementation issues. We compare them against today's power sector structure as a base.

Table 3-2 shows that the results for Option 1 are quite similar to the Base, which is not surprising since they have essentially the same structure. We assume that the changes we have suggested for Option 1 will improve efficiency slightly, but there will also be some small associated cost. For example, some effort would be required to reorganize the meter reading process.

In Option 1 competition and IPPs are permitted, but not mandated. IPPs and supply from foreign sources will appear only to the extent that the MOE and ESM allow them. In Options 2 and 3 competition is mandatory. Therefore there should be more IPP development and more private capital invested in the power sector. The presence of competition tends to improve efficiency, so Options 2 and 3 rate better by that measure as well. By being more efficient, organizations are also more likely to be self-sustaining.

However, the crucial advantage of Options 2 and 3 is that they comply with the EU Directive. There is no doubt that Option 1 does not.

The structural changes associated with Option 2 are not great. Transmission is a separate branch at present. Having it report to a different, new Assistant General Manager for the ISO would be a small change. Perhaps more important from a cost standpoint is adding another Assistant General Manager and the support staff needed for that. System Dispatch is already a relatively autonomous organization within the Production area, and moving it to the new ISO would involve little organizational disruption, although existing organizations usually resist losing important parts of their functions.

**Table 3-2
Evaluation Of Structural Options**

Criteria	Base Today's Structure	Option 1 Efficiency Improvements	Option 2 EU Compliance	Option 3 Independent Divisions
Objectives				
Complies with EU Directive 96/92/EC	No	No	Yes	Yes
Attracts private (especially foreign) capital	Good, depending on implementation	Same as Base	Better than Option 1	Best
Maintains/improves power sector efficiency and/or minimizes cost	Base	Slightly better than Base	Better than Option 1	Best
Introduces competition through IPPs	Limited	Same as Base	Better than Option 1	Best
Creates self-sustaining (self financing) organizations	Base	Slightly better than Base	Better than Option 1	Possibly same as Option 2
Maintains the ability to privatize power sector organizations	Base	Same as Base	Slightly better than Option 1	Best – sector is entirely privatized
Implementation Issues				
Changes required compared to today's structure	No changes	No structural or competitive changes	Modest structural changes, significant competitive changes	Greatest
Transition costs	None	Small	Moderate	Greatest
Need for changes in laws	No changes in law	Same as Base	Yes – open access	More than Option 2

The larger part of the transition costs would be in creating the necessary accounting and procedural features. In accounting, existing accounts would have to be aggregated differently, some new accounts would have to be established, and principles and procedures would have to be developed for separating the costs of the network-related functions of Distribution from the commercial functions, and accounting for them. The level of effort required to make these changes appears to be manageable.

The procedural issues are more complex and potentially will require that different groups come to agreement. This suggests that some time and associated cost will be needed to develop and implement them. For example, although it is not necessarily an advantage to be eligible for open access, it cannot be a disadvantage. ESM remains the supplier if an eligible customer chooses not to buy from an IPP. If not all customers are to be eligible for open access, deciding which groups are to be eligible could be an argumentative process.

The EU Directive imposes requirements on the authorization procedure for new generation, the tendering process for new generation, and the dispatch criteria for generating plants. These all must be objective, transparent, and non-discriminatory. This means that in each case one must think of the different circumstances that might arise and consider how to resolve them consistent with those requirements. Developing open access transmission and distribution tariffs involves technical issues as well.

In all cases, however, if the will to create the procedure exists, the time and cost should be moderate. Something workable can be developed and modified and improved according to experience. Moreover, the Energy Law appears to require some of these procedures in any event. For example, Article 50 of the Energy Law appears to require that a license be granted for a generating plant (among others) if it has ensured in advance its right to use the energy resources.

The Energy Law does not address the issue of open access. It does not provide for, or prohibit, the procedures necessary for EU compliance. Thus a change in law is not absolutely necessary. Having a specific legal basis would demonstrate the GOM's commitment to EU compliance and provide a firmer basis for potential investors to consider projects in Macedonia.

The major potential benefits of Option 3 compared to Option 2 would be reduced state control of the power sector, the efficiencies in investment and operations that can accompany private ownership, and the funds that would come to the GOM from the sale of ESM to private owners. Thus Option 3 rates higher than Option 2 in the categories related to those aspects.

However, Option 3's transition costs would be higher than those of Option 2. The structural changes are substantially greater than for Option 2. A new regulatory body would have to be created. The GOM and the MOE would have to adjust to a changed and reduced role in the sector.

The Energy Law provides for private ownership of public utilities, but is silent regarding privatization of existing GOM-owned public utilities. For privatization of ESM to occur changes to law would be desirable and probably mandatory.

The relative attractiveness of Option 3 would increase if the GOM were committed to near-term privatization of ESM, or if ESM were operating poorly today. Neither of these appear to be the case. Therefore, it seems likely that in the near term the disruption and transition costs would outweigh the possible benefits compared to Option 2.

3.3.5 Recommendation

In summary, we recommend a transition to Option 2, EU Compliance, at a pace consistent with the GOM's goals for joining the European Union. The basis for this recommendation is

- Option 2 is consistent with the objectives for the power sector
- There is a clear objective of joining the EU. Option 2 achieves this objective.
- The structural changes to ESM are not great in Option 2.
- The transition costs should be moderate, occur over the transition period, and are small in comparison to the benefits.
- Option 1 is not consistent with the objective of EU compliance.
- Option 3 may offer more long term benefits, but it also has the certainty of more near term costs.

We note that the description of Option 2 includes the changes suggested to improve the efficiency of today's structure. We also note that Option 2's structure is entirely consistent with a later migration to Option 3. ESM's functional organization would change very little in moving from Option 2 to Option 3. Starting the process of going to Option 2 now will only make it easier to move to Option 3 later, if that becomes attractive at a later date.

We also recommend that serious consideration be given to consolidating distribution branches and having branch managers report to Assistant General Managers, as described in the discussion of Option 3. We believe these changes would be beneficial. We did not include them in Option 2 because they may be controversial and we did not want to distract from the clear need to move to Option 2.

Section 4 discusses the issues associated with implementing these recommendations.

4.1 SPECIFIC CHANGES RECOMMENDED

Section 3 recommends a transition to Option 2, EU Compliance, at a pace consistent with the GOM's goals joining the European Union. This incorporates the efficiency improvements proposed for Option 1, and we also suggest giving serious consideration to consolidating distribution branches and having branch Managers report to Assistant General Managers, as described in the discussion of Option 3. In summary we suggest specific changes in 16 areas, as noted below:

- 1) *Investment In Distribution* In the next long-term planning process, devote additional effort to evaluating distribution system improvements
- 2) *Financial Models And Long-term Planning* Develop an integrated, internally consistent set of physical and financial planning models for ESM which would link the least cost plan to a financial module which would incorporate details of future financial structure and calculate tariff levels
- 3) *IPP Pricing* Develop a system for calculating payments to IPPs selling to ESM that relates the payments to the costs that ESM would avoid if the IPP were built
- 4) *Asset Appraisal* Revalue ESM's fixed assets revalued through an appraisal conducted according to International Accounting Standards
- 5) *Meter Reading* Conduct meter reading evenly over the course of the month
- 6) *Dispatch Autonomy* Give system dispatch be given some limited authority to engage in international purchases of electricity based on its own best judgment
- 7) *Create Independent System Operator (ISO) Division* Create a new Independent System Operator Division, with a new Assistant General Manager, and move the Transmission Branch to this division. The former Distribution and Transmission Division becomes the Distribution Division
- 8) *Move System Dispatch* Move System Dispatch from the Production organization to the newly formed ISO Division
- 9) *Establish Separate Accounts* Create separate accounting for the generation, transmission, and distribution functions, including separate accounting for the network-related functions of distribution, and its commercial functions
- 10) *Define Open Access Eligibility Groups* Define the customer groups which will be eligible for open access to the transmission and distribution grids
- 11) *Establish IPP Authorization Procedure* Define the procedures through which potential IPPs can gain authorization to build and operate their plants
- 12) *Establish Tendering Procedure* If there is to be tendering for new generation, define that process

- 13) *Establish Open Access Tariffs* Create open access transmission and distribution tariffs
- 14) *Establish Dispatch Criteria* Establish dispatch criteria for generating plants that would apply to ESM plants and privately-owned facilities on a non-discriminatory basis
- 15) *Consolidate Distribution Branches* Combine the existing 28 Distribution Branches into about five to seven larger branches
- 16) *Streamline Reporting Relationships* Rather than have all the Branch Managers report to the General Manager, have the Branch Managers report to the corresponding Assistant General Managers

Some of these possible changes are linked to each other, some require changes to ESM's Statute and Regulations, and some appear to require changes to the Energy Law Table 4-1 shows these factors Although change areas 7-14 are not all directly linked to each other in the sense that they cannot be implemented independently, they all are required for EU compliance Accordingly, they all must be done if that is a goal

4.2 IMPLEMENTATION PROCESS

For most of the change areas the technical issues are not a serious barrier The more difficult issue is the process of deciding whether to proceed and then getting approval for the suggested change The first question is who should make the decision in each case For example, ESM probably has sufficient authority to decide to implement Dispatch Autonomy itself, but the decision to proceed on the path to EU compliance (areas 7 through 14) probably would involve the MOE and the GOM

For each area, the following steps would be appropriate

- Identify the decision making person or group
- Prepare an analysis of the potential change, identifying the advantages and disadvantages, the impacts on stakeholders, specific implementation steps, links to the other potential changes, the time frame for action, and other relevant factors
- As necessary, involve the stakeholders in the process
- Based on the analysis, develop a specific proposal, including detailed implementation steps
- Present the proposal for the decision maker's approval
- Implement the approved proposal

4.3 TIME FRAME FOR ACTION

Figure 4-1 presents a possible schedule for proceeding with the recommendations The time scale is given in three month "Quarters", the entire process is shown as taking 10 quarters, or two and a half years The technical issues can be resolved within this time frame The more important question is whether the GOM would want to aim to achieve EU Compliance for the power sector on a schedule perhaps well in advance of harmonizing with other EU requirements We believe that the changes necessary for EU Compliance are beneficial in

themselves and worthy of implementation in any event. Nevertheless this is an issue that should be addressed in the decision-making process.

**Table 4-1
Change Area Factors**

No	Change Area	Linked To Other Changes	Need Revise ESM's Statute & Regulations	Need Revise Energy Law	<i>Implementation Issues</i>
1	Investment in Distribution	No	No	No	MOE approves development and investment plans, coordination with least cost planning study
2	Financial Models/ Long-term Planning	No	No	No	MOE approves development and investment plans, MOE must approve plans showing tariff increases
3	IPP Pricing	12	No	No	Consistency with links, must revise Tariff Structure System
4	Asset Appraisal	No	No	No	Technical, potential impact on tariffs
5	Meter Reading	No	No	No	Job redefinitions, customer perceptions
6	Dispatch Autonomy	No	No	No	
7	Independent System Operator	8	Yes	No	Establishing new division, old divisions become smaller
8	Move System Dispatch	7	Yes	No	Establishing new division, old divisions become smaller
9	Separate Accounts	7, 8, 13	No	No	Separate accounting for network and commercial functions of Distribution Branches
10	Open Access Eligibility Groups	No	No	Yes	Some groups will be given a benefit, others may feel disadvantaged
11	IPP Authorization Procedure	No	No	Yes	Technical questions, Energy Law is vague on this issue
12	Tendering Procedure	3	No	Yes	Consistency with links, technical questions, Energy Law is vague on this issue
13	Open Access Tariffs	7-10	No	Yes	Consistency with links, technical questions, Energy Law is silent on this issue
14	Dispatch Criteria	3, 11 13	No	Yes	Consistency with links, technical questions
15	Consolidate Distribution Branches	No	Yes	No	Impact on employees
16	Reporting Relationships	No	Yes	No	Impact on employees

We considered several factors in preparing Figure 4-1

- The Efficiency Improvements (change areas 1 – 6) can be analyzed and implemented almost immediately, independent from each other and the other possible changes
- The areas associated with EU Compliance (change areas 7 – 14) should proceed together
- Areas where the change is likely to be controversial will take longer to get approval

- The key decision is whether to proceed with EU Compliance Presenting the decision to consolidate the distribution branches at the same time might confuse the issues

Figure 4-1 was created with these as guidelines, and bearing in mind the links between the areas

No	Change Area	Quarter									
		1	2	3	4	5	6	7	8	9	10
1	Investment In Distribution	█	█	█	█						
2	Financial Models / Long term Planning		█	█	█	█					
3	IPP Pricing		█	█	█	█					
4	Asset Appraisal	█	█	█							
5	Meter Reading	█	█	█	█	█	█				
6	Dispatch Autonomy	█	█	█							
7	Independent System Operator		█	█	█	█	█	█	█		
8	Move System Dispatch		█	█	█	█	█	█	█	█	
9	Separate Accounts		█	█	█	█	█	█	█	█	
10	Open Access Eligibility Groups		█	█	█	█	█	█	█	█	
11	IPP Authorization Procedure		█	█	█	█	█	█	█	█	█
12	Tendering Procedure		█	█	█	█	█	█	█	█	█
13	Open Access Tariffs		█	█	█	█	█	█	█	█	█
14	Dispatch Criteria		█	█	█	█	█	█	█	█	█
15	Consolidate Distribution Branches				█	█	█	█	█	█	█
16	Reporting Relationships				█	█	█	█	█	█	█
	Develop Proposal	█									
	Approval	█									
	Implementation	█									

Figure 4-1 Possible Schedule

5

Executive Summary

The purpose of this report is to evaluate and present options for restructuring the power sector of Macedonia. This analysis will provide a basis for the Government of Macedonia (GOM) to decide on the future structure of the power sector and develop the appropriate implementation plan

The restructuring models discussed in this report have been implemented in various countries only after careful consideration has been given to the electric industry in the context of the economic and institutional setting of the country. This process also needs to be followed in Macedonia while also taking into consideration the fact that GOM is currently formulating a master plan for the energy sector

ENERGY SITUATION

Macedonia has limited domestic resources and consequently imports approximately 45 percent of its energy supplies, most of which is crude oil and petroleum products. The country does not have access to supplies of natural gas, although plans have been implemented to bring gas from Russia via a new pipeline through Bulgaria. Large volumes of natural gas will not be available until the year 2000.

The power sector is comprised of Elektrostopanstvo na Makedonija (ESM), the state-owned vertically integrated power company, a small amount of hydro capacity owned by the Water Resources Department, and about 70 MW of captive generation. ESM has approximately 1,400 MW of installed capacity, of which 70 percent is thermal and 30 percent is hydro. The thermal capacity is coal which is supplied by ESM's coal mines.

LEGAL AND REGULATORY FRAMEWORK

There are two key proposed laws affecting the power sector. They are the Energy Law and the Law on Public Enterprises. This legislation will provide the framework for the structure and organization of the power sector.

Energy Law

Under the proposed Energy Law, the energy sector and related activities will be regulated, including the management of the companies, the nature of the contracts, and the prices charged. It also requires GOM to develop a comprehensive energy plan that includes the development, financing, and construction of new facilities to meet projected energy needs. Electric power, natural gas, heat, and geothermal energy are designated activities of public interest and are therefore to be organized as state companies. In particular, electric power and natural gas companies will be owned by GOM, while the others will be municipally owned. Foreign investors will be allowed to own generation companies which will be obligated to sell the power to the Government-owned distribution companies.

Law on Public Enterprises

This law establishes the legal basis for the formation, management and organization of public enterprises. The GOM-owned public enterprises will be considered legal entities that will be financially independent with no government appropriation. According to the Energy Law, a public enterprise will not be subject to bankruptcy procedures but the continuation of the public enterprise will be the responsibility of the Ministry of Finance in the event that it becomes financially insolvent.

ECONOMIC CONDITIONS

Macedonia has significant economic problems, which have been aggravated by the Greek embargo and the UN sanctions on Serbia. For 1994, inflation was on the order of 45 percent per year, while GSP is estimated at \$1.5 billion, a decline of 10 percent from 1993. While GOM has embarked on a rigorous fiscal and monetary regime, these measures will take some time to have effect.

Accordingly, very modest economic growth is unlikely before 1996, at which point the annual level of inflation should decline to approximately 15 percent.

The country is also confronting a significant external debt problem which amounted to approximately \$18 billion in 1994. GOM is undertaking efforts to renegotiate and reschedule the debt with the principal lenders. The results of these negotiations will have a significant impact on the country's borrowing capacity as well as its financial stature.

RESTRUCTURING THE ELECTRIC INDUSTRY

On a worldwide basis there are several industry models that are dominating the restructuring approach. The model that is chosen by a country is deemed to fit within the social, political and economic context of that country. Two primary models come out of the strategic transformation of a country's electric industry: vertically integrated generation, transmission, and distribution companies, and disaggregated segments with multiple generation and distribution companies with some form of a common transmission grid. Either of these models can allow independent power producers (IPPs) to fill the needs for additional generation capacity. However, this IPP variation on the models requires a well thought out regulatory framework that will protect the interests of the consumers, the private investors and the owners. Depending on the objectives, there are arguments to be given for each model. The vertically integrated model with private ownership exists in the United States, Japan, Spain, and Malaysia. Italy appears to be leaning in that direction in its privatization. The disaggregated model was first developed in Chile and then it was implemented in the United Kingdom, Argentina, and Peru. However, it has been significantly modified to address the special requirements of the economies and social structures of South America.

In balancing the requirements of the international lending agencies, the economic goals of the GOM, and the social and political objectives associated with the electric power sector it is appropriate to have an overall long term vision of where the electric energy sector will be in the next 10 years. This would include realistic expectations for identifying the required capital needed for the expansion of the system, while maintaining tariffs that are socially and politically acceptable. These objectives may be in conflict with creating a viable commercially oriented electric company.

The purpose in evaluating alternative models is to establish a reference point based upon lessons learned and past success factors. The goal in applying criteria is to identify and select those components of these models which provide the most appropriate fit to the needs and requirements of the Macedonian power sector. The criteria used in this analysis include both macro-level and operational level.

Macro-Level Criteria

These criteria reflect the policy and institutional environment in the country. They explicitly recognize the evolutionary nature of power sector development as a function of the country's economy and its institutions. This includes

- Capacity of the economy and the institutions in the country to support various restructuring approaches
- Policy objectives with respect to market reform in general
- Policy objectives with respect to power sector reform
- Capability of existing legislation to accommodate alternative structures

Operational Criteria

These criteria reflect the specific characteristics and needs of the power sector. Relevant criteria include

- Technical – consideration of specific system requirements for efficient operation and reliability as well as ability to support a competitive environment
- Economic – consideration of the viability of competition, the impact efficient pricing mechanisms, and the proper allocation of resources
- Financial – consideration of the commercial operation of the company which includes maintaining its credit worthiness through adequate cash flow and prompt debt repayments

- Organizational – consideration of the effective governance, management capability, and management systems
- Institutional – consideration of the appropriate legal and regulatory framework

SUMMARY OF ANALYSIS FOR MACEDONIA

GOM's objectives for economic growth and development cannot be disassociated from the disposition of the power sector. The economy of Macedonia is undergoing significant structural changes with its performance negatively impacted by exogenous factors.

Macedonia has not formally established specific objectives for the energy or the power sectors. However, through a series of meetings in Macedonia, the following principal objectives were identified for the energy and power sectors:

Energy Sector	Power Sector
<ul style="list-style-type: none"> ■ Maximize development of hydro resources ■ Diversify supply sources ■ Minimize environmental damage ■ Attract private investors 	<ul style="list-style-type: none"> ■ Institute competition through private power development ■ Attract private investment ■ Establish self-sustaining, efficient organization ■ Establish and operate technically proficient and reliable systems ■ Encourage competitive pricing ■ Maintain security of supplies ■ Join UCPT

Understanding the objectives of the energy and power sectors and recognizing the macroeconomic impacts of current events, the principal influencing factors for GOM include:

- Low economic growth, dependent in part on exogenous factors
- Fledgling financial markets
- Inadequate commercial laws
- Limited institutional capacity which includes a limited legal and regulatory framework
- Lack of financial markets
- Lack of a well-defined energy policy
- Inability of ESM to cash flow its operations
- The command-control governance system imposed by the Law on Public Enterprises which does not provide for operational autonomy

These factors suggest that in the short term, the potential for attracting outside investors is limited. It also suggests that perhaps a staged development program for the power sector may be appropriate. This would include

- Improve the performance of the existing system while the economy is still in transition
- Encourage greater diversity as the economy stabilizes
- Promote vigorous competition when the economy reaches full potential

RELEVANT LONG TERM OPTIONS

In light of these considerations, there have been several options identified that may be appropriate for the Macedonian power sector. The principal concerns in identifying these options were 1) limited market potential, 2) need to attract capital, 3) viability of competition, and 4) institutional barriers.

Any restructuring plan must recognize these issues. It is important to note that these factors will not be as binding over time therefore opening up a wider range of options. It must be emphasized that this is a dynamic process. Accordingly, our focus was on identifying options that will realistically achieve significant incremental improvements and therefore set the stage for more considerations. The options include

- Option 1 Vertically integrated utility
- Option 2 Generation and transmission company with separate distributors
- Option 3 Holding company or division-based entity

IMPORTANCE OF REGULATION

The restructuring of the electric power sector into various components of ownership can be most successful when consideration is given to the legal and regulatory framework that is required to successfully implement any structural change. The goal of transparent regulation is to take the regulation of the electric company out of the political environment to support and promote the operation of an efficient and effective energy sector. In the electric power sector, attention should be focused on substantive economic and procedural issues including

- Industry structure (i.e., the desired degree of vertical integration and those segments of the subject industries that will be subject to regulation)
- Scope of regulatory jurisdiction, the composition of the regulatory body, services subject to regulation, franchise regulation, and service obligation of regulated entities

- Legal standard by which regulation must set rates (i e , balancing the interests of ratepayers and investors) and the degree of flexibility necessary to permit the use of efficient pricing mechanisms (e g , cost, performance, or market-based rates)
- Needs determinations, system planning, and certification of new facilities including environmental restrictions and impacts
- Jurisdiction over corporate transactions (e g , issuance of securities, mergers, and the disposition of assets), financial reporting, and accounting standards
- Administrative and enforcement authority of regulators
- Due process for interested parties and appellate review of actions made by decision-making body

Any rules and regulations that are adopted are intended to reflect the authority conferred upon the regulatory body by the energy sector regulation

CONCLUSIONS

The following conclusions emerge from our assessment of the options

- Option 1 is the most immediate path to improving performance of the power sector under the current economic and political environments
- Options 2 and 3 would be more likely to introduce market principles and competition in the power sector, but additional study would be required to determine the timing and impact of these options
- Regulation will need to be explicitly addressed under any option addressed

All the options, in varying degrees, create an opportunity for improving performance, increasing competition, and stimulating private investment. The end result will make the industry more responsive to the needs of both customers and employees, while providing adequate electricity supply at the lowest cost, thereby benefiting both the consumer and the economy

Appendix B

List of Meetings Held and Documents Reviewed

The Bechtel project team consisted of Robert Borgstrom and Peter Hindley. One or both of them attended the meetings shown in Table B-1. Mihajlo Trpkoski was our initial contact and Jelena Graseska-Sekerinska was our primary counterpart for the meetings held in July with ESM personnel. One or both of them accompanied the project team to most meetings with other ESM staff and participated in the discussions. Table B-2 lists the main documents that were reviewed by the project team. In many cases the document has no formal name, in those cases the name given describes the subject of the document.

Table B-1
List of Meetings Held

Date And Location	Organization or Subject	Attendees
8 July, Skopje	ESM – Initial Meeting	Mihajlo Trpkoski, Assistant General Manager – Legal and General Jelena Graseska-Sekernska, Head of Office in Department for Development and Investments
9 July, Gostivar	ESM – Hydro Power Plant Tito (Mavrova)	Jefremovski Miodrag, Director Ivan Kukovski, Head of Production Jelena Graseska-Sekernska
10 July, Bitola	ESM – Mining/Energy Combine Bitola	Mile Dukovski, Manager of Mining/Energy Combine Ljupco Trajkovski, Manager of Power Plant Jelena Graseska Sekernska
13 July, Skopje	ESM – Assistant General Managers (technical orientation)	Nikola Martinoski, Assistant General Manager for Development and Investment Stojko Mojancevski, Assistant General Manager for Production Stefan Hadzi-Kostov, Assistant General Manager for Distribution and Transmission Mihajlo Trpkoski Jelena Graseska Sekernska
13 July, Skopje	ESM – Assistant General Managers (non technical orientation)	Dobrija Stefanoska, Assistant General Manager for Finance Giovanni Assissi, Assistant General Manager for Commercial Mihajlo Trpkoski Jelena Graseska-Sekernska
14 July, Skopje	ESM – Distribution Branch Skopje	Ernil Arsov, Manager Vladimir Kocovski, Assistant for Law and Finance Jelena Graseska-Sekernska
14 July, Skopje	ESM – Transmission Branch	Aleksandar Sekernski, Manager Jelena Graseska Sekernska
15 July, Tetova	ESM - Distribution Branch Tetova, Hydro Plant Matka	Fisto Janevski, Tetova Manager Jelena Graseska Sekernska
16 July, Skopje	ESM – Counterpart Meeting	Mihajlo Trpkoski Jelena Graseska-Sekernska Peter Borgo (Electrotek Concepts)
17 July, Skopje	ESM – Development and Investment	Nikola Martinoski Jelena Graseska Sekernska
20 July, Skopje	ESM – Tariffs	Trajan Mafkov, Advisor in Commercial Sector Jelena Graseska Sekernska
20 July, Skopje	ESM – Finance	Dobrija Stefanoska Jelena Graseska Sekernska

**Table B-1
List of Meetings Held (Cont'd)**

21 July, Skopje	ESM – General Manager	Pande Lazarov, General Manager Sonja Petrova, Senior Officer Mihajlo Trpkoski Jelena Graseska Sekernska
21 July, Skopje	ESM – Counterpart Meeting	Jelena Graseska Sekernska
22 July, Skopje	ESM – Finance	Dobrija Stefanoska
23 July, Skopje	ESM – International Affairs	Sonja Petrova
23 July, Skopje	ESM – Counterpart Meeting	Mihajlo Trpkoski Jelena Graseska Sekernska
23 July, Skopje	ESM – EU Directive	Aleksandar Sekernski Mihajlo Trpkoski Jelena Graseska Sekernska
24 July, Skopje	ESM – Counterpart Meeting	Jelena Graseska-Sekernska
5 August, Skopje	Ministry of Economy – General Discussion	Nicola Cerepnalkovski, Assistant Minister of Economy (Energy)

Table B-2 - List of Documents Reviewed

Document or Subject
Final Report – Analysis of Options for the Structure of the Power Sector of Macedonia (1995)
Viewgraphs from workshop on Final Report (1995)
1997 ESM Annual Report
1996 ESM Annual Report
Booklet of summary information on ESM (1997)
1997 ESM Technical Operations Results
ESM Production Investment Projects (1998)
Current organization chart for ESM (1998)
Middle term consumption forecast of electricity in the period 1995 in GWh (1994)
Past and forecasted electricity demand 1990-2020 in GWh (1998)
Historical demand 1990-1997 in GWh and MW (1994)
Costs of new investments in the development plan 1995-2005 (1994)
Information package on Mavrovo hydropower system (1998)
Regulations for the internal organization of the public company ESM – Skopje (October 1996)
Statute of the Public Company for the generation, transmission, and distribution of electric power ESM – Skopje (October 1996)
Directions For electric Power Restructuring in Republic Of Macedonia (June 1997)
Tariff system On Electric Power Sales (dated November 1995, includes revisions since then)
Law On Energy (September 1997)
Information sheets giving dates of appointment of ESM General Manager and Managing Board, number of ESM employees at year end 1994-1997, number of ESM employees by branch 1 July 1998, and list of organizations separated from ESM with dates and number of employees (1998)
1996 ESM Financial Statements
1997 ESM Financial Statements
Staff Appraisal Report, Former Yugoslav Republic Of Macedonia, Power System Improvement Project, January 23, 1998
Bases In Defining The Methodology On Electricity Pricing (February 1998)
Current tariffs as of July 1998, effective since 1 October 1996
Information sheet describing tariff changes since 1994 (1998)
Graph showing yearly average realized prices 1985-1997 (1998)
Information sheet showing average forecast prices by customer class for 1997/1998 (1996)
Information sheet showing average realized prices by customer class for 1995, 1996 and 1997/1998 (1998)
Information sheet showing average price to the final consumer for the years 1990-1997 in dinars, denars, and US cents (1998)
Information sheet showing end-of-year customer receivables and yearly bad debt written off for the years 1994-1997 (1998)
Information sheet showing invoiced and paid bills to customers for the first six months of 1997, by distribution branch (1998)
Information sheet showing the number of employees as of 1 July 1998 for the 38 branches of ESM, and ESM headquarters (1998)
Information sheet showing the prices paid to non-ESM generators for power delivered to ESM (1998)
Information sheet showing, for each of the 38 branches in 1997, labor costs, material costs, and total costs, allocated revenues, and gross assets, depreciation, and net assets,

C 1 BACKGROUND

The Treaty of Rome is a foundation document for the European Community and ultimately the European Union (EU). Part One of the Treaty of Rome outlines the Principles guiding the document. The principles include:

- Article 3 (c) an internal market characterized by the abolition, as between Member States, of obstacles to the free movement of goods, persons, services, and capital,
- Article 3a 1 the activities of the Member States and the Community shall include the adoption of an economic policy which is conducted in accordance with the principle of an open market economy with free competition.

“Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity” (Directive) is an important step in implementing those principles.

The Directive implicitly incorporates certain assumptions regarding the feasibility of competition:

- The physical transmission and distribution networks are natural monopolies. As such, they should operate under objective, transparent, and non-discriminatory procedures, and be subject to regulation to ensure that they do not favor one party over another.
- Generation and the sale of electricity are potentially competitive functions. The organization of the power sector must provide for free competition for those functions for at least a significant fraction of the market.

Based on these principles and assumptions, the Directive imposes certain requirements on the organization of electric power sectors of each Member State:

- The relevant market is the EU, not an individual Member State. Competitors from other countries must be able to participate on an equal footing with the domestic electric system.
- Independent generators and other electric systems must be able to compete for sales to the domestic electric system and some of its customers.
- A significant and increasing fraction of the domestic customer market (25% based on 1997 statistics) must be able to buy freely from parties other than the domestic electric system. These customers are referred to as “eligible” customers.
- Access must be provided to the transmission and distribution grids so that eligible customers and generators can complete transactions with each other.
- Steps must be taken to assure that all parties will be treated in an objective, transparent, and non-discriminatory manner.

Although the Directive provides for some deviation from its requirements, it is important to recognize that the overall intent is to achieve the objectives of the Directive. Significant deviation is not likely to be tolerated. For example, Belgium, Greece, and Ireland were given extensions of the time allowed to apply the obligations of the Directive, but only for periods of one or two years. Public service obligations can be used to limit application of the competitive provisions of the Treaty, but only if a proposed restriction is the only way to

55

achieve the objective of the public service obligation, and even then the restriction is allowed only up to a point. Plants using domestic fuel can be given a priority in the dispatch of generation, but only up to a maximum in any calendar year of "15% of the overall primary energy necessary to produce the electricity consumed in the Member State concerned" (Article 8 4)

The Directive does not prescribe a single structure for the electric power sector. Member States are free to adopt any industry structure which meets the criteria outlined in the Directive. The basic structure of the industry in Macedonia today is a state-owned, vertically integrated monopoly. State-owned vertical integration is not by itself incompatible with the Directive. What is incompatible is a monopoly, either in generation or in sales to customers. Accordingly, as a minimum there must be provision for

- Competition in generation
- Eligible customers to be free to buy from independent generators
- If vertical integration remains, the organization's generation, transmission, and distribution functions must be unbundled to an extent, with a separation of accounts and managerial independence for the transmission system operator

The Directive establishes common rules for the generation, transmission, and distribution of electricity. It lays down rules relating to the organization and functioning of the electricity sector, access to the market, the criteria and procedures applicable to calls for tender and the granting of authorizations and the operation of systems (Article 1)

Throughout the Directive there are numerous references to the requirement for objective, transparent, and non-discriminatory procedures. This means that they should be based on facts relevant to the issues at hand, that the procedures should be known to the parties involved, and that they should not favor or discriminate against any party, especially favor a subsidiary or shareholder of an organization in a dominant position.

The Directive consists of a preamble summarizing the objectives, assumptions, and history leading up to the Directive, and 29 Articles organized into the eight Chapters listed below. The remaining sections of this Appendix will summarize the key elements and their implications on the organization of the electric power sector in Macedonia.

- Chapter I. Scope and definitions
- Chapter II. General rules for the organization of the sector
- Chapter III. Generation
- Chapter IV. Transmission system operation
- Chapter V. Distribution system operation
- Chapter VI. Unbundling and transparency of accounts
- Chapter VII. Organization of access to the system
- Chapter VIII. Final provisions

C 2 CHAPTER II GENERAL RULES FOR THE ORGANIZATION OF THE SECTOR

Article 3 1 provides that "Member States shall ensure that electricity undertakings (i.e., firms or other organizations) are operated in accordance with the principles of this Directive, with a view to achieving a competitive market in electricity, and shall not discriminate between those undertakings as regards either rights or obligations "

Article 3 2 permits Member States to impose public service obligations on electric sector undertakings. Such obligations must be clearly defined, transparent, non-discriminatory, and verifiable, and must be published. Article 3 3 permits Member States to decide not to apply certain provisions of the Directive relating to competition in generation and open access to the transmission grid. However, such exceptions must not impede competition with respect to eligible customers.

Implications: The power sector must be designed to achieve a competitive market in electricity. It must be non-discriminatory. Regardless of public service obligations imposed on undertakings, there must be effective competition for at least the eligible customers.

C 3 CHAPTER III GENERATION

For the construction of new generating capacity, Member States must provide an authorization procedure at least for autoproducers and independent producers. (Such facilities would serve their owners' needs, or sell to eligible customers.) They may also choose an authorization procedure to provide for new capacity in general, or may opt for a tendering procedure.

The authorization procedure must be conducted in accordance with objective, transparent, and non-discriminatory criteria which are made public. Applicants must be informed of the reasons for any refusal to grant an authorization, which must be well founded and duly substantiated. Appeal procedures must be available to the applicant.

The concept underlying the authorization procedure is that any party who can meet the criteria should be able to build new generating capacity. Presumably such parties would act in their own economic interest, and a competitive market would develop.

The tendering procedure must also be conducted in accordance with objective, transparent, and non-discriminatory criteria. A body independent of electricity generation, transmission, and distribution activities must be responsible for the organization, monitoring, and control of the tendering procedure.

The concept underlying the tendering procedure is that a competitive market would develop among parties trying to win the tenders.

Implications: There must be an authorization procedure for new generators, and there may also be a tendering procedure. A vertically integrated entity's generation must not be favored in either event.

C 4 CHAPTER IV TRANSMISSION SYSTEM OPERATION

There has to be a system operator for the transmission system, responsible for its operation, maintenance, and development. This includes managing energy flows, ensuring a secure, reliable, and efficient electricity system, ensuring the availability of all necessary ancillary services, and communicating and coordinating with interconnected systems.

The system operator must not discriminate between system users or classes of users, particularly in favor of its subsidiaries or shareholders. Unless it is already independent from generation and distribution activities, the system operator must be independent at least in management terms from other activities not relating to the transmission system. (Thus we refer to this entity as the independent system operator, or ISO.)

The ISO must be responsible for dispatching the generating installations in its area and determining the use of interconnections with other systems. Dispatch must be on the basis of objective, non-discriminatory published criteria. A Member State may require the ISO to give priority in dispatch to generators using renewable energy sources, waste, or cogeneration (combined heat and power). The ISO may also be required to give priority to generators using domestic energy fuel sources, but only up to a maximum of 15% of annual primary energy needs.

The ISO must preserve the confidentiality of commercially sensitive information.

Implications There must be a transmission system operator independent at least in management terms from generation and distribution. This ISO is also responsible for dispatch of generation, and must use objective, non-discriminatory published criteria for that purpose.

C.5 CHAPTER V DISTRIBUTION SYSTEM OPERATION

Member States may impose on distribution companies an obligation to serve customers in a given service territory. The distribution system operator has responsibilities for the distribution system that are similar to those that the ISO has for the transmission system. It also must not discriminate between users, and must preserve the confidentiality of commercially sensitive information.

C 6 CHAPTER VI UNBUNDLING AND TRANSPARENCY OF ACCOUNTS

Electricity undertakings must draw up, submit to audit, and publish (or otherwise make available to the public) their annual accounts. Integrated electricity undertakings must, in their internal accounting, keep separate accounts for their generation, transmission, distribution, and other (if any) activities, as if the activities were carried out by separate undertakings, with a view to avoiding discrimination, cross-subsidization, and distortion of competition. Each activity must have a balance sheet and profit and loss account.

Implications There must be separate accounting for the generation, transmission, and distribution functions.

C 7 CHAPTER VII ORGANIZATION OF ACCESS TO THE SYSTEM

This refers to the access to the transmission and distribution systems that is necessary for eligible customers and independent generators to conduct transactions. The chapter refers to two separate procedures, the negotiated access and single buyer procedures. However, both have the same practical effect. Both must operate in accordance with objective, transparent, and non-discriminatory criteria.

With negotiated access, electricity producers and eligible customers either inside or outside the service territory covered by the transmission and distribution systems must be able to negotiate access to the systems so as to conclude supply contracts with each other on the basis of voluntary commercial agreements. Access may be obtained on the basis of published tariffs or on negotiations.

Access may be refused if there is a shortage of necessary capacity, in which case duly substantiated reasons must be given.

The single buyer procedure is designed to operate in a situation where there is a single entity responsible for all purchasing of electric power from producers, and all sales of electric power at wholesale to distributors or eligible customers. This is a possible power sector structure intermediate between vertically integrated monopoly and full competition. With the single buyer procedure, there must be published tariffs for the use of the transmission and distribution systems. Eligible customers and electricity producers must be able to conclude supply contracts with each other. However, the single buyer is the single entity responsible for all purchasing of electric power from producers. In this case the single buyer may be obliged in effect to purchase the electricity contracted by the eligible customer at a price that leaves both the customer and the electricity producer economically equal to the situation where the single buyer was not involved. In other words, the result is the same as if they had negotiated access.

Article 19 requires a progressive opening of the market to customers eligible to transact with independent electricity producers. The initial share open to competition must be at least equal to the fraction (averaged throughout the EU) used by final consumers consuming at least 40 GWh per year. In 1997 this fraction was 25%. Three years after the Directive enters into force the share will be based on the fraction using at least 20 GWh per year, after six years the share will be based on the fraction using at least 9 GWh per year.

Member States can establish the criteria for defining eligible customers. Such criteria need not be based on the annual consumption amounts noted in the paragraph above, but in any event final consumers consuming at least 100 GWh per year must be made eligible.

In addition, independent producers and autoproducers must be able to negotiate access to the system to supply their own premises and those of their subsidiaries. Such parties must also be able to construct direct lines to serve their own needs.

Member States must create appropriate and efficient mechanisms for regulation, control, and transparency so as to avoid any abuse of dominant position.

Implications Access to the transmission and distribution systems must be provided to customers consuming at least 25% of the annual energy consumption. Access may be provided on the basis of published cost-reflective tariffs, or on negotiations also related to the costs of providing the service.

Since some transactions may use the distribution system, the tariffs for use will probably be based on the costs of operating, maintaining, and developing the network. In this case the costs associated with the commercial aspects of the distribution function (selling, billing, etc.) would not be included. This implies that separate accounts for these two functions should be established.

C 8 CHAPTER VIII FINAL PROVISIONS

Several Articles provide that the requirements of the Directive need not be followed in limited circumstances, including emergencies, pre-existing commitments, and for small isolated systems (Macedonia does not qualify as a small isolated system).

Member States must bring into force laws, regulations, and administrative procedures necessary to comply with the Directive no later than 19 February 1999. The Directive came into force in February, 1997, 20 days after its publication in the Official Journal.

C 9 SUMMARY OF IMPLICATIONS REGARDING POWER SECTOR STRUCTURE

General

- The power sector must be designed to achieve a competitive market in electricity
- In general, its procedures must be objective, transparent, and non-discriminatory
- Regardless of public service obligations imposed on undertakings, there must be effective competition for at least the eligible customers

Specific

- Access to the transmission and distribution systems must be provided to customers consuming at least 25% of the annual energy consumption (This fraction will grow to perhaps 35-40% by 2005)
- Access may be provided on the basis of published cost-reflective tariffs, or by negotiations, which must also be related to the costs of providing the service
- There must be a transmission system operator independent at least in management terms from generation and distribution
- This ISO is also responsible for dispatch of generation
- The ISO must use objective, non-discriminatory published criteria for the dispatch of generation
- There must be an authorization procedure for new generators, and there may also be a tendering procedure. A vertically integrated entity's generation must not be favored in either event

- There must be separate accounting for the generation, transmission, and distribution functions
- In the distribution function, separate accounts should be established for 1) the costs of operating, maintaining, and developing the network, and 2) the costs associated with the commercial aspects of the distribution function (selling, billing, etc)

The following document is a copy of Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity

62

*(Published in the Official Journal Only the published text is authentic
OJ L 27, 30 01 1997, p 20)*

Directive 96/92/EC
of the European Parliament and of the Council of 19 December 1996
concerning common rules for the internal market in electricity

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 57 (2), Article 66 and Article 100a thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the Economic and Social Committee (2),

Acting in accordance with the procedure laid down in Article 189b of the Treaty (3),

(1) Whereas it is important to adopt measures to ensure the smooth running of the internal market, whereas the internal market is to comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured,

(2) Whereas the completion of a competitive electricity market is an important step towards completion of the internal energy market,

(3) Whereas the provisions of this Directive should not affect the full application of the Treaty, in particular the provisions concerning the internal market and competition,

(4) Whereas establishment of the internal market in electricity is particularly important in order to increase efficiency in the production, transmission and distribution of this product, while reinforcing security of supply and the competitiveness of the European economy and respecting environmental protection,

(5) Whereas the internal market in electricity needs to be established gradually, in order to enable the industry to adjust in a flexible and ordered manner to its new environment and to take account of the different ways in which electricity systems are organized at present,

(6) Whereas the establishment of the internal market in the electricity sector must favour the interconnection and interoperability of systems,

(7) Whereas Council Directive 90/547/EEC of 29 October 1990 on the transit of electricity through transmission grids (4) and Council Directive 90/377/EEC of 29 June 1990

concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users (5), provide for a first phase for the completion of the internal market in electricity,

(8) Whereas it is now necessary to take further measures with a view to establishing the internal market in electricity,

(9) Whereas, in the internal market, electricity undertakings must be able to operate, without prejudice to compliance with public service obligations, with a view to achieving a competitive market in electricity,

(10) Whereas Member States, because of the structural differences in the Member States, currently have different systems for regulating the electricity sector,

(11) Whereas, in accordance with the principle of subsidiarity, general principles providing for a framework must be established at Community level, but their detailed implementation should be left to Member States, thus allowing each Member State to choose the regime which corresponds best to its particular situation,

(12) Whereas, whatever the nature of the prevailing market organization, access to the system must be open in accordance with this Directive and must lead to equivalent economic results in the States and hence to a directly comparable level of opening-up of markets and to a directly comparable degree of access to electricity markets,

(13) Whereas for some Member States the imposition of public service obligations may be necessary to ensure security of supply and consumer and environmental protection, which, in their view, free competition, left to itself, cannot necessarily guarantee,

(14) Whereas long-term planning may be one means of carrying out those public service obligations,

(15) Whereas the Treaty lays down specific rules with regard to restrictions on the free movement of goods and on competition,

(16) Whereas Article 90 (1) of the Treaty, in particular, obliges the Member States to respect these rules with regard to public undertakings and undertakings which have been granted special or exclusive rights,

(17) Whereas Article 90 (2) of the Treaty subjects undertakings entrusted with the operation of services of general economic interest to these rules, under specific conditions,

(18) Whereas the implementation of this Directive will have an impact on the activities of such undertakings,

(19) Whereas the Member States, when imposing public service obligations on the undertakings of the electricity sector, must therefore respect the relevant rules of the Treaty as interpreted by the Court of Justice,

(20) Whereas, in establishing the internal market in electricity, full account should be taken of the Community objective of economic and social cohesion, particularly in sectors such as the infrastructures, national or intra-Community, which are used for the transmission of electricity,

(21) Whereas Decision No 1254/96/EC of the European Parliament and of the Council of 5 June 1996 laying down a series of guidelines for trans-European energy networks (6) has contributed to the development of integrated infrastructures for the transmission of electricity,

(22) Whereas it is therefore necessary to establish common rules for the production of electricity and the operation of electricity transmission and distribution systems,

(23) Whereas there are two systems which may be applied for opening up the production market, an authorization procedure or a tendering procedure, and these must operate in accordance with objective, transparent and non-discriminatory criteria,

(24) Whereas the position of autoproducers and independent producers needs to be taken into consideration within this framework,

(25) Whereas each transmission system must be subject to central management and control in order to ensure the security, reliability and efficiency of the system in the interests of producers and their customers, whereas a transmission system operator should therefore be designated and entrusted with the operation, maintenance, and, if necessary, development of the system, whereas the transmission system operator must behave in an objective, transparent and non-discriminatory manner,

(26) Whereas the technical rules for the operation of transmission systems and direct lines must be transparent and must ensure interoperability,

(27) Whereas objective and non-discriminatory criteria must be established for the dispatching of power stations,

(28) Whereas, for reasons of environmental protection, priority may be given to the production of electricity from renewable sources,

(29) Whereas, at the distribution level, customers located in a given area may be granted supply rights and a manager must be designated to manage, maintain and, if necessary, develop each distribution system,

(30) Whereas, in order to ensure transparency and non-discrimination, the transmission function of vertically integrated undertakings should be operated independently from the other activities,

(31) Whereas a single buyer must operate separately from the generation and distribution activities of vertically integrated undertakings, whereas the flow of information between the single buyer activities and these generation and distribution activities needs to be restricted,

(32) Whereas the accounts of all integrated electricity undertakings should provide for maximum transparency, in particular to identify possible abuses of a dominant position, consisting for example in abnormally high or low tariffs or in discriminatory practices relating to equivalent transactions, whereas, to this end, the accounts must be separate for each activity,

(33) Whereas it is also necessary to provide for access by the competent authorities to the internal accounts of undertakings with due regard for confidentiality,

(34) Whereas, owing to the diversity of structures and the special characteristics of systems in Member States, there should be different options for system access operating in accordance with objective, transparent and non-discriminatory criteria,

(35) Whereas provision should be made for authorizing the construction and use of direct lines,

(36) Whereas provision must be made for safeguards and dispute settlement procedures,

(37) Whereas any abuse of a dominant position or any predatory behaviour should be avoided,

(38) Whereas, as some Member States are liable to experience special difficulties in adjusting their systems, provision should be made for recourse to transitional regimes or derogations, especially for the operation of small isolated systems,

(39) Whereas this Directive constitutes a further phase of liberalization, whereas, once it has been put into effect, some obstacles to trade in electricity between Member States will nevertheless remain in place, whereas, therefore, proposals for improving the operation of the internal market in electricity may be made in the light of experience, whereas the Commission should therefore report to the Council and the European Parliament on the application of this Directive,

HAVE ADOPTED THIS DIRECTIVE

CHAPTER I

Scope and definitions

Article 1

This Directive establishes common rules for the generation, transmission and distribution of electricity. It lays down the rules relating to the organization and functioning of the electricity sector, access to the market, the criteria and procedures applicable to calls for tender and the granting of authorizations and the operation of systems.

Article 2

For the purposes of this Directive 1 'generation` shall mean the production of electricity,

2 'producer` shall mean a natural or legal person generating electricity,

3 'autoproducer` shall mean a natural or legal person generating electricity essentially for his own use,

4 'independent producer` shall mean (a) a producer who does not carry out electricity transmission or distribution functions in the territory covered by the system where he is established, (b) in Member States in which vertically integrated undertakings do not exist and where a tendering procedure is used, a producer corresponding to the definition of point (a), who may not be exclusively subject to the economic precedence of the interconnected system,

5 'transmission` shall mean the transport of electricity on the high-voltage interconnected system with a view to its delivery to final customers or to distributors,

6 'distribution` shall mean the transport of electricity on medium-voltage and low-voltage distribution systems with a view to its delivery to customers,

7 'customers` shall mean wholesale or final customers of electricity and distribution companies,

8 'wholesale customers` shall mean any natural or legal persons, if the Member States recognize their existence, who purchase or sell electricity and who do not carry out transmission, generation or distribution functions inside or outside the system where they are established,

9 'final customer` shall mean a customer buying electricity for his own use,

10 'interconnectors` shall mean equipment used to link electricity systems,

11 'interconnected system` shall mean a number of transmission and distribution systems linked together by means of one or more interconnectors,

12 'direct line` shall mean an electricity line complementary to the interconnected system,

13 'economic precedence` shall mean the ranking of sources of electricity supply in accordance with economic criteria,

14 'ancillary services` shall mean all services necessary for the operation of a transmission or distribution system,

15 'system user` shall mean any natural or legal person supplying to, or being supplied by, a transmission or distribution system,

- 16 'supply' shall mean the delivery and/or sale of electricity to customers,
- 17 'integrated electricity undertaking' shall mean a vertically or horizontally integrated undertaking,
- 18 'vertically integrated undertaking' shall mean an undertaking performing two or more of the functions of generation, transmission and distribution of electricity,
- 19 'horizontally integrated undertaking' shall mean an undertaking performing at least one of the functions of generation for sale, or transmission or distribution of electricity, and another non-electricity activity,
- 20 'tendering procedure' shall mean the procedure through which planned additional requirements and replacement capacity are covered by supplies from new or existing generating capacity,
- 21 'long-term planning' shall mean the planning of the need for investment in generation and transmission capacity on a long-term basis, with a view to meeting the demand for electricity of the system and securing supplies to customers,
- 22 'single buyer' shall mean any legal person who, within the system where he is established, is responsible for the unified management of the transmission system and/or for centralized electricity purchasing and selling,
- 23 'small isolated system' shall mean any system with consumption of less than 2500 GWh in the year 1996, where less than 5 % of annual consumption is obtained through interconnection with other systems

CHAPTER II

General rules for the organization of the sector

Article 3

1 Member States shall ensure, on the basis of their institutional organization and with due regard for the principle of subsidiarity, that, without prejudice to paragraph 2, electricity undertakings are operated in accordance with the principles of this Directive, with a view to achieving a competitive market in electricity, and shall not discriminate between these undertakings as regards either rights or obligations. The two approaches to system access referred to in Articles 17 and 18 must lead to equivalent economic results and hence to a directly comparable level of opening-up of markets and to a directly comparable degree of access to electricity markets

2 Having full regard to the relevant provisions of the Treaty, in particular Article 90, Member States may impose on undertakings operating in the electricity sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies and to environmental protection. Such obligations

must be clearly defined, transparent, non-discriminatory and verifiable, they, and any revision thereof, shall be published and notified to the Commission by Member States without delay As a means of carrying out the abovementioned public service obligations, Member States which so wish may introduce the implementation of long-term planning

3 Member States may decide not to apply the provisions of Articles 5, 6, 17, 18 and 21 insofar as the application of these provisions would obstruct the performance, in law or in fact, of the obligations imposed on electricity undertakings in the general economic interest and insofar as the development of trade would not be affected to such an extent as would be contrary to the interests of the Community The interests of the Community include, inter alia, competition with regard to eligible customers in accordance with this Directive and Article 90 of the Treaty

CHAPTER III

Generation

Article 4

For the construction of new generating capacity, Member States may choose between an authorization procedure and/or a tendering procedure Authorization and tendering must be conducted in accordance with objective, transparent and non-discriminatory criteria

Article 5

1 Where they opt for the authorization procedure, Member States shall lay down the criteria for the grant of authorizations for the construction of generating capacity in their territory These criteria may relate to

- (a) the safety and security of the electricity system, installations and associated equipment,
- (b) protection of the environment,
- (c) land use and siting,
- (d) use of public ground,
- (e) energy efficiency,
- (f) the nature of the primary sources,
- (g) characteristics particular to the applicant, such as technical, economic and financial capabilities,
- (h) the provisions of Article 3

2 The detailed criteria and procedures shall be made public

3 Applicants shall be informed of the reasons, which must be objective and non-discriminatory, for any refusal to grant an authorization, the reasons must be well founded and duly substantiated, they shall be forwarded to the Commission for information Appeal procedures must be made available to the applicant

Article 6

1 Where they opt for the tendering procedure, Member States or any competent body designated by the Member State concerned shall draw up an inventory of new means of production, including replacement capacity, on the basis of the regular estimate referred to in paragraph 2 The inventory shall take account of the need for interconnection of systems The requisite capacity shall be allocated by means of a tendering procedure in accordance with the procedure laid down in this Article

2 The transmission system operator or any other competent authority designated by the Member State concerned shall draw up and publish under State supervision, at least every two years, a regular estimate of the generating and transmission capacity which is likely to be connected to the system, of the need for interconnectors with other systems, of potential transmission capacity and of the demand for electricity The estimate shall cover a period defined by each Member State

3 Details of the tendering procedure for means of production shall be published in the Official Journal of the European Communities at least six months prior to the closing date for tenders The tender specifications shall be made available to any interested undertaking established in the territory of a Member State so that it has sufficient time in which to submit a tender The tender specifications shall contain a detailed description of the contract specifications and of the procedure to be followed by all tenderers and an exhaustive list of criteria governing the selection of tenderers and the award of the contract These specifications may also relate to the fields referred to in Articles 5 (1)

4 In invitations to tender for the requisite generating capacity, consideration must also be given to electricity supply offers with long-term guarantees from existing generating units, provided that additional requirements can be met in this way

5 Member States shall designate an authority or a public body or a private body independent of electricity generation, transmission and distribution activities to be responsible for the organization, monitoring and control of the tendering procedure This authority or body shall take all necessary steps to ensure confidentiality of the information contained in the tenders

6 However, it must be possible for autoproducers and independent producers to obtain authorization, on the basis of objective, transparent and non-discriminatory criteria as laid down in Articles 4 and 5, in Member States which have opted for the tendering procedure

CHAPTER IV

Transmission system operation

Article 7

- 1 Member States shall designate or shall require undertakings which own transmission systems to designate, for a period of time to be determined by Member States having regard to considerations of efficiency and economic balance, a system operator to be responsible for operating, ensuring the maintenance of, and, if necessary, developing the transmission system in a given area and its interconnectors with other systems, in order to guarantee security of supply
- 2 Member States shall ensure that technical rules establishing the minimum technical design and operational requirements for the connection to the system of generating installations, distribution systems, directly connected consumers' equipment, interconnector circuits and direct lines are developed and published. These requirements shall ensure the interoperability of systems and shall be objective and non-discriminatory. They shall be notified to the Commission in accordance with Article 8 of Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations (7)
- 3 The system operator shall be responsible for managing energy flows on the system, taking into account exchanges with other interconnected systems. To that end, the system operator shall be responsible for ensuring a secure, reliable and efficient electricity system and, in that context, for ensuring the availability of all necessary ancillary services
- 4 The system operator shall provide to the operator of any other system with which its system is interconnected sufficient information to ensure the secure and efficient operation, coordinated development and interoperability of the interconnected system
- 5 The system operator shall not discriminate between system users or classes of system users, particularly in favour of its subsidiaries or shareholders
- 6 Unless the transmission system is already independent from generation and distribution activities, the system operator shall be independent at least in management terms from other activities not relating to the transmission system

Article 8

- 1 The transmission system operator shall be responsible for dispatching the generating installations in its area and for determining the use of interconnectors with other systems
- 2 Without prejudice to the supply of electricity on the basis of contractual obligations, including those which derive from the tendering specifications, the dispatching of generating installations and the use of interconnectors shall be determined on the basis of criteria which may be approved by the Member State and which must be objective, published and applied in a non-discriminatory manner which ensures the proper functioning of the internal market in electricity. They shall take into account the economic precedence of electricity from available generating installations of interconnector transfers and the technical constraints on the system

3 A Member State may require the system operator, when dispatching generating installations, to give priority to generating installations using renewable energy sources or waste or producing combined heat and power

4 A Member State may, for reasons of security of supply, direct that priority be given to the dispatch of generating installations using indigenous primary energy fuel sources, to an extent not exceeding in any calendar year 15 % of the overall primary energy necessary to produce the electricity consumed in the Member State concerned

Article 9

The transmission system operator must preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business

CHAPTER V

Distribution system operation

Article 10

1 Member States may impose on distribution companies an obligation to supply customers located in a given area. The tariff for such supplies may be regulated, for instance to ensure equal treatment of the customers concerned

2 Member States shall designate or shall require undertakings which own or are responsible for distribution systems to designate a system operator to be responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system in a given area and its interconnectors with other systems

3 Member States shall ensure that the system operator acts in accordance with Articles 11 and 12

Article 11

1 The distribution system operator shall maintain a secure, reliable and efficient electricity distribution system in its area, with due regard for the environment

2 In any event, it must not discriminate between system users or classes of system users, particularly in favour of its subsidiaries or shareholders

3 A Member state may require the distribution system operator, when dispatching generating installations, to give priority to generating installations using renewable energy sources or waste or producing combined heat and power

Article 12

The distribution system operator must preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business

CHAPTER VI (Note – original showed Chapter IV by mistake)

Unbundling and transparency of accounts

Article 13

Member States or any competent authority they designate as well as the dispute settlement authorities referred to in Article 20 (3) shall have right of access to the accounts of generation, transmission or distribution undertakings which they need to consult in carrying out their checks

Article 14

1 Member States shall take the necessary steps to ensure that the accounts of electricity undertakings are kept in accordance with paragraphs 2 to 5

2 Electricity undertakings, whatever their system of ownership or legal form, shall draw up, submit to audit and publish their annual accounts in accordance with the rules of national law concerning the annual accounts of limited liability companies adopted pursuant to the fourth Council Directive 78/660/EEC of 25 July 1978 based on Article 54 (3) (g) of the Treaty on the annual accounts of certain types of companies (8) Undertakings which are not legally obliged to publish their annual accounts shall keep a copy of these at the disposal of the public in their head office

3 Integrated electricity undertakings shall, in their internal accounting, keep separate accounts for their generation, transmission and distribution activities, and, where appropriate, consolidated accounts for other, non-electricity activities, as they would be required to do if the activities in question were carried out by separate undertakings, with a view to avoiding discrimination, cross-subsidization and distortion of competition They shall include a balance sheet and a profit and loss account for each activity in notes to their accounts

4 Undertakings shall specify in notes to the annual accounts the rules for the allocation of assets and liabilities and expenditure and income which they follow in drawing up the separate accounts referred to in paragraph 3 These rules may be amended only in exceptional cases Such amendments must be mentioned in the notes and must be duly substantiated

5 The annual accounts shall indicate in notes any transaction of a certain size conducted with affiliated undertakings, within the meaning of Article 41 of the seventh Council Directive 83/349/EEC of 13 June 1983 based on Article 54 (3) (g) of the Treaty on consolidated accounts (9), or with associated undertakings, within the meaning of Article 33 (1) thereof, or, with undertakings which belong to the same shareholders

Article 15

1 Member States which designate as a single buyer a vertically integrated electricity undertaking or part of a vertically integrated electricity undertaking shall lay down provisions requiring the single buyer to operate separately from the generation and distribution activities of the integrated undertaking

2 Member States shall ensure that there is no flow of information between the single buyer activities of vertically integrated electricity undertakings and their generation and distribution activities, except for the information necessary to conduct the single buyer responsibilities

CHAPTER VII

Organization of access to the system

Article 16

For the organization of access to the system, Member States may choose between the procedures referred to in Article 17 and/or in Article 18 Both sets of procedure shall operate in accordance with objective, transparent and non-discriminatory criteria.

Article 17

1 In the case of negotiated access to the system, Member States shall take the necessary measures for electricity producers and, where Member States authorize their existence, supply undertakings and eligible customers either inside or outside the territory covered by the system to be able to negotiate access to the system so as to conclude supply contracts with each other on the basis of voluntary commercial agreements

2 Where an eligible customer is connected to the distribution system, access to the system must be the subject of negotiation with the relevant distribution system operator and, if necessary, with the transmission system operator concerned

3 To promote transparency and facilitate negotiations for access to the system, system operators must publish, in the first year following implementation of this Directive, an indicative range of prices for use of the transmission and distribution systems As far as possible, the indicative prices published for subsequent years should be based on the average price agreed in negotiations in the previous 12-month period

4 Member States may also opt for a regulated system of access procedure, giving eligible customers a right of access, on the basis of published tariffs for the use of transmission and distribution systems, that is at least equivalent, in terms of access to the system, to the other procedures for access referred to in this Chapter

5 The operator of the transmission or distribution system concerned may refuse access where he lacks the necessary capacity Duly substantiated reasons must be given for such refusal, in particular having regard to Article 3

Article 18

1 In the case of the single buyer procedure, Member States shall designate a legal person to be the single buyer within the territory covered by the system operator. Member States shall take the necessary measures for

(i) the publication of a non-discriminatory tariff for the use of the transmission and distribution system,

(ii) eligible customers to be free to conclude supply contracts to cover their own needs with producers and, where Member States authorize their existence, with supply undertakings outside the territory covered by the system,

(iii) eligible customers to be free to conclude supply contracts to cover their own needs with producers inside the territory covered by the system,

(iv) independent producers to negotiate access to the system with the transmission and distribution systems operators so as to conclude supply contracts with eligible customers outside the system, on the basis of a voluntary commercial agreement

2 The single buyer may be obliged to purchase the electricity contracted by an eligible customer from a producer inside or outside the territory covered by the system at a price which is equal to the sale price offered by the single buyer to eligible customers minus the price of the published tariff referred to in paragraph 1 (i)

3 If the purchase obligation under paragraph 2 is not imposed on the single buyer, Member States shall take the necessary measures to ensure that the supply contracts referred to in paragraph 1 (ii) and (iii) are implemented either via access to the system on the basis of the published tariff referred to in paragraph 1 (i) or via negotiated access to the system according to the conditions of Article 17. In the latter case, there would be no obligation for the single buyer to publish a non-discriminatory tariff for the use of the transmission and distribution system

4 The single buyer may refuse access to the system and may refuse to purchase electricity from eligible customers where he lacks the necessary transmission or distribution capacity. Duly substantiated reasons must be given for such refusal, in particular having regard to Article 3

Article 19

1 Member States shall take the necessary measures to ensure an opening of their electricity markets, so that contracts under the conditions stated in Articles 17 and 18 can be concluded at least up to a significant level, to be notified to the Commission on an annual basis

The share of the national market shall be calculated on the basis of the Community share of electricity consumed by final consumers consuming more than 40 GWh per year (on a consumption site basis and including autoproduction). The average Community share shall be

75

calculated by the Commission on the basis of information regularly provided to it by Member States. The Commission shall publish this average Community share defining the degree of market opening in the Official Journal of the European Communities before November each year, with all appropriate information clarifying the calculation.

2 The share of the national market referred to in paragraph 1 will be increased progressively over a period of six years. This increase will be calculated by reducing the Community consumption threshold of 40 GWh, referred to in paragraph 1 from 40 GWh to a level of 20 GWh annual electricity consumption three years after the entry into force of this Directive and to a level of 9 GWh annual electricity consumption six years after the entry into force of this Directive.

3 Member States shall specify those customers inside their territory representing the shares as specified in paragraphs 1 and 2 which have the legal capacity to contract electricity in accordance with Articles 17 and 18, given that all final consumers consuming more than 100 GWh per year (on a consumption site basis and including autoproduction) must be included in the above category. Distribution companies, if not already specified as eligible customers under this paragraph, shall have the legal capacity to contract under the conditions of Articles 17 and 18 for the volume of electricity being consumed by their customers designated as eligible within their distribution system, in order to supply those customers.

4 Member States shall publish by 31 January each year the criteria for the definition of eligible customers which are able to conclude contracts under the conditions stated in Articles 17 and 18. This information, together with all other appropriate information to justify the fulfilment of market opening under paragraph 1, shall be sent to the Commission to be published in the Official Journal of the European Communities.

The Commission may request a Member State to modify its specifications, as mentioned in paragraph 3, if they create obstacles to the correct application of this Directive as regards the smooth functioning of the internal market in electricity. If the Member State concerned does not comply with this request within a period of three months, a final decision shall be taken in accordance with Procedure I of Article 2 of Council Decision 87/373/EEC of 13 July 1987 laying down the procedures for the exercise of implementing powers conferred on the Commission (10).

5 To avoid imbalance in the opening of electricity markets during the period referred to in Article 26

(a) contracts for the supply of electricity under the provisions of Articles 17 and 18 with an eligible customer in the system of another Member State shall not be prohibited if the customer is considered as eligible in both systems involved,

(b) in cases where transactions as described in subparagraph (a) are refused because of the customer being eligible only in one of the two systems, the Commission may oblige, taking into account the situation in the market and the common interest, the refusing party to execute the requested electricity supply at the request of the Member State where the eligible customer is located. In parallel with the procedure and the timetable provided for in Article

26, and not later than after half of the period provided for in that Article, the Commission shall review the application of subparagraph (b) of the first subparagraph on the basis of market developments taking into account the common interest. In the light of experience gained, the Commission shall evaluate this situation and report on possible imbalance in the opening of electricity markets with regard to this paragraph.

Article 20

1 Member States shall take the necessary measures to enable

(i) independent producers and autoproducers to negotiate access to the system so as to supply their own premises and subsidiaries in the same Member State or in another Member State by means of the interconnected system,

(ii) producers located outside the territory covered by the system to conclude a supply contract following a call for tender for new generating capacity, and to have access to the system to perform the contract

2 Member States shall ensure that the parties negotiate in good faith and that none of them abuses its negotiating position by preventing the successful outcome of negotiations

3 Member States shall designate a competent authority, which must be independent of the parties, to settle disputes relating to the contracts and negotiations in question. In particular, this authority must settle disputes concerning contracts, negotiations and refusal of access or refusal to purchase

4 In the event of cross-border disputes, the dispute settlement authority shall be the dispute settlement authority covering the system of the single buyer or the system operator which refuses use of, or access to, the system

5 Recourse to this authority shall be without prejudice to the exercise of rights of appeal under Community law

Article 21

1 Member States shall take measures under the procedures and rights referred to in Articles 17 and 18 to enable

- all electricity producers and electricity supply undertakings, where Member States authorize their existence, established within their territory to supply their own premises, subsidiaries and eligible customers through a direct line,

- any eligible customer within their territory to be supplied through a direct line by a producer and supply undertakings, where such suppliers are authorized by Member States

2 Member States shall lay down the criteria for the grant of authorizations for the construction of direct lines in their territory. These criteria must be objective and non-discriminatory.

3 The possibility of supplying electricity through a direct line as referred to in paragraph 1 shall not affect the possibility of contracting electricity in accordance with Articles 17 and 18.

4 Member States may make authorization to construct a direct line subject either to the refusal of system access on the basis, as appropriate, of Article 17 (5) or Article 18 (4) or to the opening of a dispute settlement procedure under Article 20.

5 Member States may refuse to authorize a direct line if the granting of such an authorization would obstruct the provisions of Article 3. Duly substantiated reasons must be given for such refusal.

Article 22

Member States shall create appropriate and efficient mechanisms for regulation, control and transparency so as to avoid any abuse of dominant position, in particular to the detriment of consumers, and any predatory behaviour. These mechanisms shall take account of the provisions of the Treaty, and in particular Article 86 thereof.

CHAPTER VIII

Final provisions

Article 23

In the event of a sudden crisis in the energy market and where the physical safety or security of persons, apparatus or installations or system integrity is threatened, a Member State may temporarily take the necessary safeguard measures. Such measures must cause the least possible disturbance in the functioning of the internal market and must not be wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.

The Member State concerned shall without delay notify these measures to the other Member States, and to the Commission, which may decide that the Member State concerned must amend or abolish such measures, insofar as they distort competition and adversely affect trade in a manner which is at variance with the common interest.

Article 24

1 Those Member States in which commitments or guarantees of operation given before the entry into force of this Directive may not be honoured on account of the provisions of this Directive may apply for a transitional regime which may be granted to them by the Commission, taking into account, amongst other things, the size of the system concerned, the level of interconnection of the system and the structure of its electricity industry. The Commission shall inform the Member States of those applications before it takes a decision,

taking into account respect for confidentiality This decision shall be published in the Official Journal of the European Communities

2 The transitional regime shall be of limited duration and shall be linked to expiry of the commitments or guarantees referred to in paragraph 1 The transitional regime may cover derogations from Chapter IV, VI and VII of this Directive Applications for a transitional regime must be notified to the Commission no later than one year after the entry into force of this Directive

3 Member States which can demonstrate, after the Directive has been brought into force, that there are substantial problems for the operation of their small isolated systems, may apply for derogations from the relevant provisions of Chapter IV, V, VI, VII, which may be granted to them by the Commission The latter shall inform the Member States of those applications prior to taking a decision, taking into account respect for confidentiality This decision shall be published in the Official Journal of the European Communities This paragraph shall also be applicable to Luxembourg

Article 25

1 The Commission shall submit a report to the Council and the European Parliament, before the end of the first year following entry into force of this Directive, on harmonization requirements which are not linked to the provisions of this Directive If necessary, the Commission shall attach to the report any harmonization proposals necessary for the effective operation of the internal market in electricity

2 The Council and the European Parliament shall give their views on such proposals within two years of their submission

Article 26

The Commission shall review the application of this Directive and submit a report on the experience gained on the functioning of the internal market in electricity and the implementation of the general rules mentioned in Article 3 in order to allow the European Parliament and the Council, in the light of experience gained, to consider, in due time, the possibility of a further opening of the market which would be effective nine years after the entry into force of the Directive taking into account the coexistence of systems referred to in Articles 17 and 18

Article 27

1 Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 19 February 1999 They shall forthwith inform the Commission thereof

2 Belgium, Greece and Ireland may, due to the specific technical characteristics of their electricity systems, have an additional period of respectively 1 year, 2 years and 1 year to apply the obligations ensuing from this Directive These Member States, when making use of this option, shall inform the Commission thereof

3 When Member States adopt these provisions, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

Article 28

This Directive shall enter into force on the 20th day following that of its publication in the Official Journal of the European Communities.

Article 29

This Directive is addressed to the Member States.

Done at Brussels, 19 December 1996.

For the European Parliament

The President K. HAENSCH

For the Council

The President S. BARRETT

(1) OJ No C 65, 14 3 1992, p 4 and OJ No C 123, 4 5 1994, p 1

(2) OJ No C 73, 15 3 1993, p 31

(3) Opinion of the European Parliament of 17 November 1993 (OJ No C 329, 6 12 1993, p 150) Council common position of 25 July 1996 (OJ No C 315, 24 10 1996, p 18) and Decision of the European Parliament of 11 December 1996 (not yet published in the Official Journal) Council Decision of 19 December 1996

(4) OJ No L 313, 13 11 1990, p 30 Directive as last amended by Commission Decision 95/162/EC (OJ No L 107, 12 5 1995, p 53)

(5) OJ No L 185, 17 7 1990, p 16 Directive as last amended by Commission Directive 93/87/EEC (OJ No L 277, 10 11 1993, p 32)

(6) OJ No L 161, 29 6 1996, p 147

(7) OJ No L 109, 26 4 1983, p 8 Directive as last amended by the 1994 Act of Accession

(8) OJ No L 222, 14 8 1978, p 11 Directive as last amended by the 1994 Act of Accession

(9) OJ No L 193, 18 7 1983, p 1 Directive as last amended by the 1994 Act of Accession

(10) OJ No L 197, 18 7 1987, p 33