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Implementation of Restructuring
of the
Romanian Power Sector

Assessment of the
Brasov Electricity
Distribution Subsidiary

Prepared for

USAID



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1.1 OBJECTIVE

The objective of the Assessment and Analysis of the Electrical¹ Distribution Subsidiary at Brasov (Brasov²) is to establish a basis for the development and sustainability of commercially viable distribution companies in Romania

Brasov is one of 42 distribution subsidiaries throughout Romania, one for each of Romania's 42 counties³. With the restructuring of RENEL, decreed on July 3rd, 1998⁴, it is expected that these distribution entities will be combined into one or more distribution companies. Brasov was selected by the management of RENEL to be the subject of this pilot commercialization/pre-privatization project under the operating assumption that it would succeed as the central unit of a restructured distribution company. Therefore, this analysis of Brasov is intended to provide guidelines for transforming the distribution subsidiaries in Romania, either individually or in combinations, to that of a privately owned and operated business entity.

This analysis was conducted for the United States Agency for International Development (USAID) by Bechtel Consulting and its subcontractor, Arthur Andersen, between June and November 1998. This effort supports USAID Strategic Objective 1.5, "A More Economically Sustainable and Environmentally Sound Energy Sector" by contributing to the accomplishment of Intermediate Result 2, "A Competitive Electric Power System Established."

1.2 CONCLUSIONS AND RECOMMENDATIONS

The Assessment and Analysis of Brasov includes three main subtasks:

- Financial assessment
- Management assessment
- Customer service assessment

Each of these subtasks is the subject of a separate section in this report. The conclusions and recommendations drawn from each of those subtasks is summarized below.

¹ Electrica is the successor of the Romanian Electric Authority, "RENEL." Throughout this report, RENEL refers to the company that was in existence prior to the decree of 3 July 1998.

² "Brasov," which is also the name of a city and of a county in Romania, when used alone in this report refers to the Electrica Distribution Subsidiary at Brasov after 3 July 1998 and to the RENEL Transmission and Distribution Subsidiary at Brasov prior to 3 July 1998.

³ Statistics on Brasov are set forth in Appendix B.

⁴ See Section 1.3 "Restructuring of the Romanian Power Sector" for a description of the power sector's structure following the decree of 3 July 1998.

1 2 1 Financial Assessment (See Section 2)

1 2 1 1 Objective of Financial Assessment

The objective of this subtask was to establish an analytical basis for evaluating Brasov and its component business enterprises and functions. As expected, Brasov has in place one or more accounting systems that reasonably served its needs as a subsidiary of RENEL. However, it was necessary to determine whether those systems could accurately and independently provide management and investors with reliable information on which to base commercial business decisions. The assessment of Brasov's extant accounting systems was the starting point for this subtask. Accountants from Arthur Andersen in Bucharest, proficient with Romanian as well as international accounting standards (IAS), worked with the Accounting Department at Brasov to create a set of financial statements and, in that process, conducted a comprehensive assessment of Brasov's accounting capabilities.

1 2 1 2 Summary of Principal Conclusions and Recommendations from the Financial Assessment

Brasov already has in place an accrual based system in accordance with Romanian accounting standards (RAS). However, there are significant differences between the RAS statements as drafted by Brasov and statements in accordance with IAS. Some of the most significant are in the following areas:

- Representation of cost information
- Unbilled revenue adjustment
- Lack of hyperinflationary treatment
- Lack of economic meaning for plant, property and equipment
- Generally longer depreciable lives in RAS than in IAS
- Ownership of land
- Inconsistent application of the prudence principle

For the purpose of drafting financial statements in accordance with IAS, Brasov Distribution will have to

- Perform an independent revaluation of the fixed assets, including definition of technically relevant lifetimes
- Train personnel in issuing IAS financial statements. Training in hyperinflationary accounting is a special area of concern
- Clarify the major issues related to land ownership
- Introduce conservative guidelines for the creation of doubtful receivables provisions

To better manage available resources, management should put systems in place to

- Achieve significant improvement in cash management, including cash disbursement approval

- Identify activities that do not add value and should be divested. This is a prerequisite for management to eliminate, or at least reduce, performance gaps described in the benchmarking section.

Assuming that Brasov could be the center of a would-be distribution company, Brasov distribution management should

- Focus on the financial statements consolidation procedures, by introducing a procedures manual
- Introduce a specialized controller, focused on ensuring that branches adhere to consistent procedures and comply with the procedures manual
- Decide what procedures should be kept at headquarters and what procedures should be decentralized

1 2 2 Management Assessment (See Section 3)

1 2 2 1 Objective of Management Assessment

The objective of this subtask was to help prepare the Brasov distribution unit, as an example of distribution units in Romania, for commercial operation and eventual privatization in a competitive, market environment. Work completed as part of this subtask is organized into the following three areas:

- Organizational issues
- Human resources development
- Training

1 2 2 2 Summary of Principal Conclusions and Recommendations from the Management Assessment

Organizational Issues

Management will need to develop broader, more commercially-focused managerial skills for Brasov to be run competitively. In addition, management

- Should look to “best practices” at commercially viable utilities around the world in setting policy objectives (including “right sizing”)
- Will need to focus close attention on the needs of its customers and foster a spirit of competitiveness throughout the distribution unit
- Should establish an economic and financial analyses function to support least-cost purchasing and supply acquisition
- Should establish a financial management group to raise capital and manage major expenditures and investments
- Should address the need to consolidate functions as distribution subsidiaries are combined into one unit

- Should continue to focus on its core strength – the efficient management of an electric utility

Human Resources Development

- Final staffing levels of the Brasov distribution company will depend, in part, on the form of the final restructuring, the responsibilities transferred from CONEL to the individual distribution companies, and decisions by the newly formed regulatory entity
- Options for downsizing – including early retirements, shorter workweeks, layoffs, and attrition – should be developed to accommodate both the company's needs in a competitive environment as well as social concerns
- Downsizing policies should include programs for retraining, counseling, and meaningful assistance in finding other jobs. Such employee assistance programs will minimize adverse employee morale that could affect the attitude of the remaining workers towards the restructuring
- Development of the downsizing program must be coordinated with representatives of all affected parties

Training

- Brasov's training program – now focused almost entirely on technical issues – must begin to develop commercial management skills throughout the company
- A training course for upper management should be developed and delivered as soon as practicable. The course should give a broad overview on a range of topics, such as contemporary management techniques, leadership in a changing environment, organizational structures, business vision, financial structures, and time-value of money
- A more specialized training program should be developed and delivered for the next layer of managers. The training program should include courses on (a) human resource management and development, (b) management of an electric distribution company in a competitive environment, (c) tariffs and cost of service methodologies, (d) billing and collection techniques, (e) customer relations, (f) economic evaluation techniques, (g) dealing with financial institutions, (h) bid solicitation and evaluation, (i) negotiating power purchase agreements and related contracts, (j) project financing, and (k) demand-side management
- An IAS training program related to the management of an electric utility should be delivered in the near future. It should cover (a) financial accounting, (b) management accounting, and (c) how to relate existing Romanian accounting standards to IAS
- The CONEL Training Center has training facilities in Bucharest, including computer facilities. Private Romanian companies also are available to provide training in modern management and accounting concepts. Romanian instructors could be integrated with foreign instructors to provide an effective training-of-trainers program

1 2 3 Customer Service Assessment (See Section 4)

1 2 3 1 Objective of Customer Service Assessment

The objective of this subtask was to identify ways by which Brasov's interactions with its customers can be improved toward the goal of being a successful service provider in a competitive environment. In general this assessment derives from the analyses conducted under the financial and management assessments. Under this subtask, lessons learned – i.e., how management can organize itself to be more successful in a competitive environment – are now assessed with respect to Brasov's ability to realize revenue from its customers. This subtask will, therefore, assess the issue of accounts receivable and address the ways by which customer service systems can ensure complete and timely collections.

1 2 3 2 Summary of Principal Conclusions and Recommendations from the Customer Service Assessment

- Consider methods to decrease the metering, invoicing, and cash collection cycle for small consumers and household customers. The possibility of issuing meter readers with portable computers and printers, so that invoices can be immediately issued to the customer, should be investigated as this would facilitate the immediate payment of that period's energy consumption.
- Undertake a statistical analysis of old meters to measure the average variance of recorded versus actual consumption and build-in this average error in the tariff charged to consumers.
- Develop integrated computerized databases to include
 - Customer contract information
 - Customer contacts (i.e., information requested, verbal / written complaints)
 - Customer metering and invoice history
 - Faults
 - Complaints specific to meters
- Develop procedures to integrate these databases with the operations at the customer service centers. These databases should be available to, and assessable from, each of the Customer Service Centers.
- Formalize procedures to deal with customer information requests and verbal complaints in a consistent manner, one that demonstrates high standards of service and concern.
- Establish fault notification and fault repair services (low-voltage and medium-voltage) on a 24-hour basis at each Customer Service Center.
- Ensure that Customer Service Centers, including the Cash Collection Centers, are open at times that are convenient to the customer. In practice, this will mean opening times beyond the standard office hours of 7 AM to 3 PM, so as to allow customers to visit Customer Service Centers before or after work.

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- Evaluate service delivery, including
 - Determining areas of service delivery that should be monitored
 - Developing procedures to quantify service delivery
 - Setting targets for service delivery
 - Monitoring actual service delivery against the targets
- Introduce demand-side management initiatives for small consumers and household customers. Such initiatives may include
 - Leaflets available at Customer Service Centers or delivered by meter readers
 - Advice available from the Customer Service Centers or meter readers
 - Showrooms displaying the latest developments in demand-side management
 - Onsite energy audits

1.3 RESTRUCTURING OF THE ROMANIAN POWER SECTOR

Prior to its restructuring, the Romanian Electricity Authority (RENEL) was a vertically integrated electricity and heat generation, transmission and distribution company. It was created in November 1990 to succeed the Ministry of Electricity, and in 1996 and 1997, produced 97% and 98% of Romania's electricity and 60% of its district heating. It is still wholly owned by the state.

The GOR has enacted the interim restructuring plan for RENEL (Ordinances 364 and 365). The ordinances require separation of the generation, transmission, and distribution functions but provide little clarification on the future roles and responsibilities of the new business entities. The ordinances took effect 60 days after the July 3, 1998 publication date. The interim organizational structure for major power sector entities is briefly discussed below.

1.3.1 CONEL

The core activity of CONEL will be operation of the national transmission and dispatch system. As part of the GOR restructuring plan, the transmission activities of the RENEL transmission and distribution group (GTDEE) will become the responsibility of CONEL. Specifically, CONEL will control the transmission network that consists of 220, 400, and 450 kV lines. Transmission network activities will be carried out by eight main units, including five regional dispatching centers and three new transmission centers. These eight transmission and dispatch centers will be established as affiliates without legal status.

1.3.2 Electrica, S.A.

The distribution activities of GTDEE will be carried out by Electrica. The new subsidiary will consist of 42 regional distribution units (41 counties plus Bucharest) responsible for the operation of low- and medium-voltage lines (110 kV and below). Historically, the 110 kV lines

were considered to be part of the transmission system. However, GTDEE recently transferred the operational control of the 110 kV lines from the transmission to the distribution units.

1.3.3 Termoelectrica, S.A.

Under the new organizational structure, the RENEL Group for Generation of Electrical and Thermal Energy (GPEET) will be separated into two new subsidiaries, one of which, Termoelectrica, will be established as a separate business unit responsible for the operation of 24 thermal electric power plants.

1.3.4 Hidroelectrica, S.A.

The portion of GPEET responsible for the operation of hydroelectric power plants will be established as a subsidiary called Hidroelectrica, organized into 10 units comprising numerous hydroelectric power plants.

Each of the newly restructured entities described above will have an administrative board. An individual may not serve on more than two administration boards at the same time.

2.1 OVERVIEW AND SUMMARY

This section presents a review of Brasov's financial management systems and offers specific recommendations for improvement that can be applied to Brasov as well as to other distribution companies. The implicit assumption of this analysis is that Brasov would become the central management entity of a post-restructured distribution company. This company could be the consolidation of other existing distribution subsidiaries. This is a working assumption and does not necessarily represent CONEL's plans for restructuring.

The main targets for the financial assessment of Brasov were the following:

- Drafting a detailed and fully annotated flow-chart that will design an internationally acceptable methodology for a basic accrual system of accounting by Brasov transmission and distribution branch.

Brasov does have a basic accrual system in place. We provide a list of recommendations for procedures to be implemented for the branch to be able to produce IAS statements.

- Drafting pro-forma unaudited IAS financial statements for the financial years 1996 and 1997.

We drafted pro-forma IAS financial statements for the branch (please see Appendix A). However, because of the limitations in the information available, the pro-forma statements are only partially in compliance with IAS.

- An analysis supporting cost of service calculation.

We also performed an extensive analysis of the cost of service (understood as the cost of transmission and distribution for the electricity supplied by the branch to its consumers). Because of the limitations in the information available, we were not able to calculate a meaningful cost of service. However, in order to put the Brasov T&D branch in a commercial context, we performed a benchmark analysis based on publicly available and Arthur Andersen internally-generated efficiency data from other electricity companies.

- An evaluation of Brasov's main fixed assets to the extent that such an evaluation can be developed from the analysis of the existing data. While it is understood that a full asset evaluation cannot be provided in the framework of this contract, we are requested to provide recommendations for conducting an internationally recognized evaluation.

We discussed with Brasov T&D personnel the possibilities to group core fixed assets into technically homogeneous categories as a starting point for an independent valuation. We jointly developed a reporting schedule for these fixed assets. The results of the work done by Brasov T&D are expected by the end of September.

2.2 COST OF SALES ANALYSIS

2.2.1 The Consolidation Process Within RENEL

The purpose of this section is to build a foundation for understanding the cost allocation procedures within RENEL.

2.2.1.1 *RENEL Structure*

As of the date of this report (June 15, 1998), RENEL is still organized as a vertically integrated monopoly with "groups" as the key organizational element.¹ There are three main groups, as follows:

- The generation group (GPEET) consolidates the trial balances for 36 branches. The generation branches are generally defined around bigger power plants.
- The transmission and distribution group (GTDEE) consolidates the trial balances for 42 branches, including Brasov. The transmission & distribution (T&D) branches are county based.
- The nuclear group (GEN) mission focused. Contains the nuclear power plant in Cernavoda, the nuclear fuel plant in Pitesti and the heavy water plant in Turn Severin, as well as two research institutes.

Alongside these three groups, the middle management level in the organization also includes a Development and Rehabilitation Group (in charge of managing the foreign loans from international financing organizations) as well as some other divisions of lesser importance.

The branches issue trial balances in accordance with the Romanian accounting legislation. Romanian accounting is in principle accrual-based but it lacks many of the features of a full-fledged accrual-based accounting system (see the chapter on proposed improvements in accounting procedures to support the drafting of IAS financial statements).

The branch trial balances are (as already mentioned above) semi-consolidated at group level. The semi-consolidated trial balances of the groups are consolidated into a final trial balance by the RENEL Executive (the top of the organization in charge with strategic management, relationships with fiscal authorities, management of cash, some of the foreign loans and, generally, resource allocation).

2.2.1.2 *Record of Internal Transactions*

For consolidation purposes the internal transfers are recorded as follows:

- The generation branch "sells" the electricity produced to GPEET and records revenue and an intercompany (I/C) receivable.

¹ In September 1998, RENEL was restructured and renamed as CONEL.

- GPEET resells the power to GTDEE. GPEET records an I/C payable to the generation branch and an I/C receivable from GTDEE.
- GTDEE resells the power to the T&D branch. GTDEE records a receivable from the T&D branch and a payable to GPEET.
- The T&D branch sells the electricity to the consumers and invoices them at the tariffs specified by the center. The tariff covers the cost of generation, transportation and distribution plus a profit margin. The T&D branch records as revenue the difference between total invoiced and the value of the power "sold" by GTDEE. The value of the power purchased from GTDEE is recorded only as an I/C payable and not as a cost item.

2.2.2 Cost Allocation Within RENEL

According to the estimated electricity demand, the National Electricity Dispatcher (advised by GPEET) issues the annual electricity production plan. The planned production is split between generation plants (thermal, nuclear, and hydro) based on several criteria:

- Production capacities
- Electricity demand of different regions
- Repair schedules of generation plants, etc.

Every month, the generation (including nuclear) and T&D branches submit their costs to the Executive. The T&D branches also submit their sales in the month. Profit/loss is distributed between generation (including nuclear) and T&D groups based on their total costs.

The revenues of a generation branch are calculated as the costs of the branch plus the profit/loss margin agreed centrally. This allocation of the "revenue" also includes a discretionary component, which was explained as follows:

- Some branches are allocated more revenue to make them more attractive to financial institutions and facilitate access to short term bank loans when the company faces overall cash shortages.
- Some branches are supposed to undergo repairs or are compelled to suspend operations because there are cheaper sources available (e.g., hydropower). As a result, to match annual revenues to expenses, these branches are allocated more revenues in those months they are working, to offset limited or no revenues during months when repairs are performed. GPEET believes it is unfair for these branches to show a loss since it is not their fault if their operations are suspended or they undergo repairs.

The profit allocated to GTDEE is allocated to T&D branches based on their sales. GTDEE deducts the costs reported by each T&D branch and the profit allocated and arrives at a cost of the energy purchased from the system to be booked by T&D branches. The T&D branch records the cost of the energy received from the grid as a payable to GTDEE. As a result of this procedure, the cost of the electricity purchased from the grid is commercially meaningless. It is a mere accounting figure that offers no information about the cost of transmission or generation.

2.2.3 Segregation of Generation, Transmission, and Distribution Costs

Calculating the cost of service for the electricity delivered by Brasov T&D to its clients would require it to

- Identify the amount of electricity received from specific plants
- Calculate the transmission costs for each route between every specific generation plant and the Brasov T&D network
- Add the transmission and distribution costs for Brasov T&D itself

Based on our understanding of the internal cost accounting procedures, T&D branches do not keep records for the energy transited from a specific source. As a result, identifying the amount of energy coming from specific plants does not appear to be possible.

Even if the amount of electricity coming from specific sources could be identified, the lack or doubtful quality of the data would hamper computation of the transmission cost for each transit route. Starting with October 1997, the T&D branches have to segregate distribution and transmission activities on the statements submitted to GTDEE. Currently, each T&D branch sends three monthly trial balances to the Distribution Group:

- General trial balance
- Transmission trial balance
- Distribution trial balance

For the initial separation of activities, fixed asset value and depreciation expenses related to distribution and transportation were estimated. For the remaining balance sheet positions and for the P&L, Brasov T&D used estimated percentages of transmission and distribution in total branch activity. As a result, 10% of the branch trial balance was considered transmission and the remaining 90% as distribution balance sheet and P&L accounts. For the items where this allocation key was used, the transmission trial balance includes accounts that are related only to the distribution activity (e.g., A/R for the electricity sold) and vice-versa.

This arbitrary procedure was systematically used up to the current date by Brasov T&D. We have no reason to exclude its use by other T&D branches. Consequently, even if the amount of electricity from a specific source could be identified, computing the transmission cost for each route transited would be impossible.

From this point forward, separation of transmission and distribution costs for each T&D branch could be based on the cost accounting headings suggested by the Coopers & Lybrand report (see below). However, this information could only be used for computing the cost of service if it were detailed for each electricity source.

Even if it were technically and economically possible to segregate transmission and distribution costs for each source, the resulting cost of service would still be doubtful since the calculated transmission cost would be merely an accounting cost, having little to do with the cost

of service that would presumably be obtained under a competitive system. Under a competitive, profit-oriented system, the profit rate in generation and transmission (which ultimately means the price of electricity generated and the transmission fee) would have to remunerate investors at levels comparable to companies operating under similar conditions.

For the purposes of the IAS financial statements, we reclassified the payable to the distribution group (calculated by GTDEE based on the procedure explained above) as a cost. We adjusted the revenue with the same amount.

2.2.4 Fixed Versus Variable Costs

Given the specific activity of Brasov T&D, there are two major variable costs that can be distinguished:

- Total transmission costs, which vary in relation to electricity sales
- Invoicing-related costs, which vary in relation to the number of customers

As indicated above, the cost of transmission from the source to the border of Brasov T&D cannot be calculated for the time being, so the evolution of this variable is not predictable. Even if this cost could be calculated, once RENEL is divided into several entities and each operates as a commercial enterprise, the track record for transmission costs would probably be of little use as an indicator of future trends.

Invoicing-related costs could have been calculated only if the structure of the cost accounting system allowed it. Until 1997, the branch had a section-focused cost accounting system, which did not allow separation of invoicing-related costs. The following sections were used as cost centers:

- Superstructure
- Distribution
- High voltage
- Repairs and maintenance
- Hydro power plants
- Electricity supply
- EDP
- Transportation (three sections)
- Design
- Canteen

Coopers & Lybrand supplied RENEL, as part of their restructuring contract, a list of activities to be used for configuring the cost accounting system. This list of activities was used to reconfigure the cost accounting system beginning in March 1998. For each category of consumer (large,

small, household), this list provides the information needed to determine what variable costs are related to expansion of the client base for the following activities

- Contract administration
- Invoicing
- Receivables monitoring
- Consumer notification, limitation, and disconnection
- New connections
- Meter maintenance

As a result, beginning with 1998 it should be possible to identify the variable costs related to the expansion of the customer base

2 2 5 Losses in the Transmission and Distribution Network

Losses in the network are not explicitly shown as expenses. They hit the IAS P&L via the cost of the energy purchased from the grid. The overall loss in the Brasov network is determined as a difference between the total electricity received in branch T&D system (from the grid, IPPs, own production, net imports from neighboring T&D branches) and the total consumption in the distribution network (client consumption, self consumption, generating plant consumption, etc.) Total consumption is calculated as the total invoiced in the period.

This is current practice in electricity companies. For the purpose of projecting cost of service, network losses are to be treated as a distinct item. Losses in the Brasov T&D network are monitored distinctly for transmission and distribution, as follows:

- Meters installed at the county border and at the link with the distribution network monitor the losses in the transmission network. The difference between these two measurements, over a fixed period (month), represents the losses related to the transmission activity of the Brasov T&D branch.
- The losses related to the distribution activity are determined as a difference between the overall losses and the losses recorded in Brasov transportation network.

There are two main categories of losses: technical and commercial (or non-technical losses). Technical losses are recorded in both transportation and distribution, they are directly proportional to cable quality and inversely proportional to the voltage. Commercial losses are present only in the distribution network. The main causes of commercial losses are:

- Losses related to energy consumption but not recorded or mis-recorded by the company billing system
- Fraud (e.g., illegal connection to the distribution network)

According to international experts, 4 to 5% represents a reasonable cumulative loss figure for the distribution network. The maximum internationally acceptable level of losses in the distribution

network is 10%. Currently, the company is unable to segregate commercial and technical losses in the distribution network.

The Brasov branch losses on the distribution network for 1997 varied between 4% and 17%, with an annual average of 11% (see table below)

Activity	Losses in 1996 (MWh)	Losses in 1997 (MWh)	Percentage Losses in 1996	Percentage Losses in 1997
Transmission	62239	43045	3.41	1.84
Distribution	208906	189797	11.36	11.00
Total	273141	234839	20.10	20.99

According to branch management, losses for RENEL's T&D branches range from 4% to 25%, therefore, Brasov T&D is at an average level. The Brasov branch management claims that losses are mainly of a technical nature.

Meter reading procedures, especially in the case of households, distort the correlation between sales and commercial losses. The average interval between two meter readings for households is around 70 days. A meter read at the end of May refers to consumption in May, April and ten days of March. The invoice for this period is issued by the branch and the revenue recorded a few days before the next meter reading (i.e., roughly at the beginning of August).

Due to this calculation procedure, monthly figures for commercial loss do not correlate with sales in the month (higher sales should result in lower loss percentages and not vice versa), although for longer periods the distortions compensate and the reported losses become meaningful.

A forecasted decrease in electricity consumption for 1998 over 1997 should produce increased loss percentages.

2.2.6 Losses Due to Old Meters

A special type of commercial loss is the loss that results from the use of old meters. Technical staff report that, in the vast majority of cases where a meter is out of order because of its age, it records lower electricity consumption. This increases RENEL's commercial losses. This type of commercial loss should also be considered for the purpose of projecting the cost of sales.

Until April 1997, the normal usage life for meters was 5 years for mono-phase and 3 years for tri-phase electricity. Starting with April, 1997, based on a government decision, the usage periods increased, on average, from 5 to 10 years and from 3 to 5 years, respectively. According to technical personnel, the increase in the useful life was not based on a technical evaluation of meter performance.

Ninety percent of the meters for Brasov T&D's big consumers are in the normal usage period. In the last period, state-of-the-art electronic meters were installed, with a low error rate. Unfortunately, these meters could not be used at their real value because the additional

equipment required in the measurement process (reduction equipment, transformers) is still old, with a large margin of error that distorts the final result of meter reading

Technical personnel confirm that 40% of small consumers and households have meters that are over the normal usage period (taking into account the longer lifetimes introduced in 1997) This situation is due to the high number of household consumers and the relatively small number of branch personnel in-charge of meter replacements According to technical personnel, by the end of the year, the percentage of meters exceeding the new (longer) fiscal lifetime will rise to 80 or 90%

2.2.7 Cost of Support Services Provided by Other RENEL Entities

Some of the support activities needed by the Brasov T&D branch are provided by other RENEL entities, as follows

- The Distribution Group (GTDEE)
 - Handles large procurement contracts
 - Provides the branches with specific operating and financial reporting methodologies
 - Handles the settlement with GPEET and GEN (i.e., the generation side)
 - Assures logistics, communications, and supervision between T&D branches
- The Group for Development and Rehabilitation (GDR) and the Group for Studies, Research, and Engineering provides
 - Procurement assistance
 - Administration of the credit lines received from international financial institutions
 - Technical assistance for pre-investments and investments studies
 - Technical assistance for implementation of development and restructuring programs
- The National Electricity Dispatcher provides services such as
 - Programming the electricity production plan for the next year (together with the Generation Group), based on estimated electricity demand using several criteria production capacities, regional electricity demand, generating plant repair schedules, etc
 - Supervising the National Energy System for conformity with the normal range of technical parameters

All these support services impact only the consolidated RENEL P&L and have no impact at the branch level Assuming Brasov T&D becomes an independent company, some of these support services will need to be either developed internally or purchased externally and their cost recognized as an operating cost

At present, there is no meaningful cost data allowing us to separate the cost of all these support activities by T&D branch. In practice, starting with 1998, GTDEE recharges its costs to T&D branches using branch monthly sales as the allocation key. As a result, this cost component is not meaningful from a business viewpoint.

2.2.8 Cost of Development Tax

This tax is attached as a fixed item per MWh in the electricity tariff applied to business consumers (there is no development tax applied to households). The development tax collected is accumulated in a development fund dedicated to investment projects in the electrical energy system. RENEL acts as a tax collector for the government. As a result, the collection of this tax should not be booked in the P&L but only in the balance sheet.

However, the Ministry of Finance imposed an accounting treatment where the branch records the development tax segment in the tariff as a receivable and in income and in the same time it records an equivalent cost, as well as the corresponding liability. Thus, the second highest cost item in the P&L of the branch is the development tax.

Both expenses and revenues for the T&D branch have to be eliminated with the amount equivalent to the development tax. This amounts to 38 billion lei in 1997 and approximately 15 billion ROL in 1996.

This overstatement of revenues and expenditures due to the development tax should disappear after the corporatization of the company and the autonomous accumulation and management of investment resources.

2.2.9 Cost of financing the Value Added Tax and the profit tax

The Value Added Tax is paid based on the invoiced sales. For the time being, the VAT is paid via one single point – the RENEL Executive. Information about the VAT payable is aggregated at the top of RENEL and the cost of financing the cash needed to pay before the actual collection appears explicitly only in the books of the headquarters.

Once the activity will be decentralized, this cost of finance shall probably also appear explicitly in the books of Brasov T&D. The major difficulty related to a preliminary calculation of the financial cost of VAT is determining what is the value actually added by the Brasov branch. As already mentioned, the lack of segregation between generation, transmission, and distribution results in the administrative allocation of the most important cost components.

We have performed, however, a preliminary calculation of the cost of finance for VAT for 1997, based on the following assumptions:

- We considered as value added the equivalent of Brasov T&D operating costs (excluding the cost of the energy purchased from the grid)
- We considered that Brasov T&D has to finance only 30 days of gap between the monthly payment of the VAT and the 60 days in average for receivables collection.

- We considered a 40% annual interest rate

Based on these assumptions, the cost of financing the gap between the VAT payment and receivables collection is about 2.5 billion ROL for 1997

As far as the financial cost of profit tax is concerned, the variables involved in a preliminary computation are highly unreliable, because of the already described administrative allocation of costs. As a result, we decided the uncertainty is too high to make any reasonable assumption and did not perform such a computation

2.2.10 Financial Cost of Development Tax Paid in Advance

The development tax has to be transferred to the government when the invoices it relates to are collected. As a result, as long as the receivables have a debit balance (i.e., there are receivables left to be collected), the Brasov T&D branch must record a liability for development tax due the government and the account shows a credit balance

However, Brasov T&D repeatedly shows a debit balance for this liability account, indicating it lends money to the government. We calculated the financial cost using the following approach

- Calculate the number of days outstanding for trade receivables
- Allow for tax liability turnover. Since the payment of the development tax to the government is linked to actual collections, we assumed that the turnover of development tax liability (as number of days) is equal to the turnover of trade receivables
- Calculate a predictive credit balance for the development tax liability, based on the credit movements in the development tax liability account and turnover of the trade payables
- Calculate the difference between the actual balance and the predicted balance
- Apply a compounded interest rate calculation to these differences to calculate their financing cost

For the latter calculation we used the following assumptions

- This payment in advance resulted in an excess cash outflow that under normal conditions should have been procured from a bank. Accordingly, we calculated costs using the monthly interest rates for loans extended by commercial banks
- We ignored the fact that no development tax is charged to the invoices for households

Based on our calculation, we concluded that the financial cost for the amounts transferred to the Ministry of Industry in advance amounts to at least 9 billion ROL for 1997 and 2.5 billion ROL for 1996

This cost does not show up in the books of Brasov T&D. Even more surprisingly, in spite of its position vis-a-vis its suppliers, Brasov T&D pays its own suppliers (generation not included) very fast: the average turnover of trade payables is around 36 days in 1996 and slightly over 15 days in 1997. The explanation we see is mainly the fact that the main supplier for this

distribution business is RENEL itself. As a result, the financial cost is pushed upstream towards the generation business and the cash shortage only becomes obvious at the top of the company. Thus, the financial cost of the development tax paid in advance becomes indirectly part of the cost of service, via RENEL overheads. This behavior will not be possible once the distribution business is commercialized and such financial costs will have to show up in the books explicitly, although commercialization and privatization of the electricity industry will probably make this government-controlled development tax disappear.

2.2.11 Potential Impact of Restructuring

Under any scenario, the restructuring of RENEL leads to a significant decline in employment levels (see also Section 2.3, Benchmarking Analysis). Redundancy payments will result in a significant cost for the company that will have to be passed into the cost of service.

Per the collective labor contract, if the labor contract is terminated for reasons that are not the responsibility of the employee, RENEL has to pay a redundancy benefit in relation to seniority in the company, as follows:

- 6 months to 5 years: 2 months gross salary
- 5 to 10- years: 3 months gross salary
- 10 to 20 years: 4 months gross salary
- Over 20 years: 5 months gross salary

An employee cannot be made redundant if he has less than 3 years before retirement (or less than 5 years if he has been with RENEL more than 20 years). There are some exceptions to the rule.

We cannot perform a tentative calculation of total redundancy payments, since no clear redundancy plan was announced for RENEL. The table below presents the number of persons for each personnel category (as specified by the collective labor contract) as a starting point for predictive calculations on the potential cost of restructuring.

Period Spent in RENEL	Months of Gross Salary to be Paid	Number of Persons per Category	Total Gross Salaries per Category (Million ROL)	Average Salary per Person per Category (Million ROL)
6 months to 5 years	2	238	337	1.4
5 to 10 years	3	490	780	1.6
10 to 20 years	4	240	466	1.9
Over 20 years	5	354	756	2.1

When redundancy plans for the would-be distribution companies become clear, provision for redundancy costs should be made in a conservative fashion. Two factors should be taken into account:

- Predicted percentage of redundancies

- Redundancy cost for personnel that must be replaced due to lack of profit-oriented business qualifications

One way to reduce redundancy payments would be to spin-off, as distinct companies, activities such as maintenance and repairs, construction, transportation etc

2 2 12 Cost of Doubtful Accounts

For the purposes of calculating the cost of a provision for doubtful receivables, we selected the first 26 client companies, which account for over 81% of total trade receivables. For these 26 companies we asked the company to provide an aging schedule, structured as shown in the table below

Aging intervals for receivables	0-30	31-90	91-180	181-365	over 365 days	Total
Percentages of provisioning	0%	10%	30%	50%	100%	
1996	20,957,848	4,622,203	2,832,330	1,165,341	99,029	29,676,751
Provision	-	462,220	849,699	582,671	99,029	1,993,619
% Receivables in aging category	71%	16%	10%	4%	0%	
1997	57,091,456	12,959,402	14,661,719	3,728,175	452,295	88,893,047
Provision	-	1,295,940	4,398,516	1,864,088	452,295	8,010,838
% Receivables in aging category	64%	15%	16%	4%	1%	

We calculated a 1,993 million ROL provision for doubtful receivables as of December 31, 1996, supplemented by 6,127 million ROL in 1997, to reach an 8,010 million ROL provision as of December 31, 1997

Brasov T&D has a certain number of clients that cannot legally be disconnected. The most important of these clients are the Railroad Company, the Brasov Water Company and the Brasov District Heating Company, which cover over 80% of the balance for the non-disconnectable clients. We performed a distinct analysis of these three companies to see whether there is any contradiction with our overall analysis. The computation table follows

1996	0-30 days	31-90 days	91-180 days	181-365 days	over 365 days	Total Balance December 31, 1996 (Million ROL)
Railroad Company	3948	1808				5757
Brasov Water Company	1092	1174	934	778		3979
Brasov District Heating Company	383	410	1609	140		2543
Percentage in each aging category						

1996	0-30 days	31-90 days	91-180 days	181-365 days	over 365 days	Total Balance December 31, 1996 (Million ROL)
All 26 companies	71%	16%	10%	4%	0%	
Railroad Company	69%	31%	0%	0%	0%	
Brasov Water Company	27%	30%	23%	20%	0%	
Brasov District Heating Company	15%	16%	63%	6%	0%	
Railroad Company	10310	29				10339
Brasov Water Company	2507	943	308	591	256	4605
Brasov District Heating Company	1252	609	1744	2325		5930
Percentage in each aging category						
All 26 companies	64%	15%	16%	4%	1%	
Railroad Company	100%	0%	0%	0%	0%	
Brasov Water Company	54%	20%	7%	13%	6%	
Brasov District Heating Company	21%	10%	29%	39%	0%	

The analysis shows that the payment performance of the Railroad Company is better than for the total sample in both 1996 and 1997, while the water and district heating companies perform worse than the sample. The Brasov Water Company improved its payment performance in 1997 while the Brasov District Heating Company did the reverse. The analysis suggests that only the District Heating Company could be considered to have a high risk of non-collection. The receivables from the District Heating Company are however far smaller than the provision we calculated. As a result, we consider the provision to be reasonable.

We investigated whether there are cases when there are clients that cannot be disconnected for technical reasons. Based on our experience, there are cases where late paying industrial companies cannot be disconnected because there is no separate connection for them. Such situations appear mainly where large companies split into smaller units. However, the marketing manager of the branch stated there are no such cases in the area.

2.2.13 Financial Cost of Late Payments

Under the present structure, the T&D branches collect the money and transfer it to the center, so that any type of financial cost only shows up at the top of RENEL. One type of financial cost is the cost of financing the receivables from slow-paying clients. For the time being this cost does not directly impact the cost of service for Brasov T&D. It only hits the RENEL consolidated P&L and is passed into the electricity tariff. If Brasov T&D becomes an autonomous business, this financial cost will become visible.

There are internal RENEL procedures to pass this financial cost to the slow-paying clients. A 0.2% penalty is charged per day of delay. The penalty invoice is issued and the revenues from penalty recorded only when the base invoice is paid, to avoid the negative cash effect from recording the revenue immediately (which would trigger VAT payable long before the penalty invoice is actually collected). The penalty is calculated at the value of the payment. Therefore, if an invoice is partially paid, the penalty is calculated only for the portion paid and a penalty invoice is issued. The invoices have to be paid within 10 calendar days by big consumers and within 5 working days (i.e., in practice, 7 calendar days) in the case of small consumers. The computation of the penalty is simple, not compounded. If the payment of the penalty is delayed, further penalties for late-paid penalties cannot be charged.

The procedure described above shows that the accounting treatment of the revenues from the late payment penalties could be considered accrual-based, as the company is recording unrealizable receivables, which would need to be reserved. We estimated the amount of late payment penalties as if the accounting treatment grossed-up the receivables and reserve balances.

- We calculated, for every invoice issued to a list of 26 big consumers, the number of days that exceed the days allowed for payment.
- We applied a 7.2% (i.e., 0.2% per day penalty non-compounded) annual interest rate to the amounts overdue, for the days they have been overdue.

This computation could only be calculated for 1997, since the invoice databases for 1996 were partly lost.

The Brasov T&D branch provided us with the database of all 1997 invoices issued to the 26 big companies and the details of their collection, including the dates of partial payments, as well as invoices issued for late payment penalties.

Per the trial balance, the amount of revenues from late payments invoiced amounted to 7,620 million ROL. The revenues from late payment penalties in the year are distorted by the fact that penalties are invoiced at the moment the base invoice is paid. The 1997 revenues from penalties are overestimated, with the 1996 portion of the penalties calculated in 1997 for invoices issued in 1996 and underestimated with the 1997 portion of the penalties calculated in 1998 for invoices issued in 1997. Because the database provided to us maintained no relationship between the penalty invoiced and the date of the base invoice it refers to, we were unable to properly adjust the 7,620 million ROL 1997 revenues from penalties (as per trial balance at December 31, 1997) and produce a realistic cutoff for these revenues.

We performed (by using the database of base invoices issued in 1997) a predictive calculation of the late payment penalties that should have been invoiced in 1997. We used the same calculation procedure as Brasov T&D with one single difference: we used compounded rates to calculate the penalty, while Brasov T&D calculated the penalty by using simple rates. As a result, our calculation underestimated the value of cumulated penalties, given that the target annual penalty rate is the same (7.2%).

Based on our calculation, revenues from late payment penalties invoiced in 1997 should have amounted to almost 24 billion ROL, as compared to the 7,620 million ROL as per the December 31st trial balance. Even if we assume that the 8,068 million ROL invoiced as penalties between January 1-April 30, 1998 accounted only for base invoices dating back to 1997 and even if we added them to the 7,620 million ROL recorded in the trial balance, the difference would still be about 9 billion ROL. This difference could be explained by a discretionary invoicing of late payment penalties (i.e., for big clients, penalties are a matter of negotiation in order to increase collectibility of the base invoice).

However, the chief accountant and the officers in the EDP division insist that late payment penalties are treated uniformly, without any discretionary involvement from management.

2.3 BENCHMARK ANALYSIS

Given the scarcity of information available to determine a reliable cost of service, a comparative analysis of the financial performance of Brasov T&D as a separate company is not possible. Nevertheless, we tried to use other parameters to place Brasov T&D in a commercial context and evaluate its performance.

This was done based on publicly available data as well as data generated internally by Arthur Andersen. For obvious reasons, in the case of internally generated data, we did not indicate the name of the companies Brasov T&D was benchmarked against.

For the following reasons, we focused our benchmark analysis on electricity companies from Spain and Portugal (especially in the case of internally-generated data):

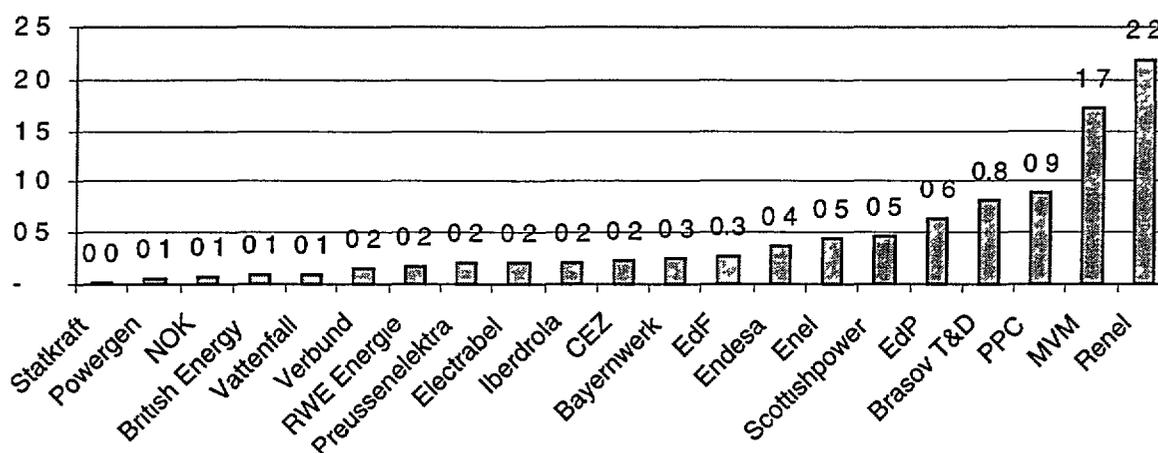
- The electricity industry in these countries involved integrated monopolies similar to Romania's and was opened to competition relatively recently (early 1980s for Spain and late 1980s to early 1990s for Portugal)
- Before restructuring, the efficiency of the Spanish and Portuguese electricity companies was low by West European standards
- The Spanish and Portuguese electricity companies were state-owned and had similar difficulties adjusting to commercial operation
- In spite of adverse conditions, the Spanish and Portuguese electricity companies made impressive efficiency gains after restructuring, commercialization, and privatization, suggesting that the Romanian electricity industry may achieve similar results

2.3.1 GWh Sold per Employee

To benchmark the performance of the Brasov T&D branch against other electricity companies for this parameter, we used the 1997 Power Companies Yearbook published by the Financial Times. The data for the companies against which Brasov was benchmarked is for 1996, while the data for RENEL is for 1995. For Brasov itself, we used GWh sold and average number of employees for 1996.

We selected European electricity companies from the companies presented in the yearbook. The selected companies do not have identical structures, they range from companies having distribution with relatively little generation to companies that are vertically integrated (such as Electricité de France, ENEL in Italy or Electricidade de Portugal). Some of the firms have diversified into other industries, such as water distribution, telecommunications, waste management, or cable TV.

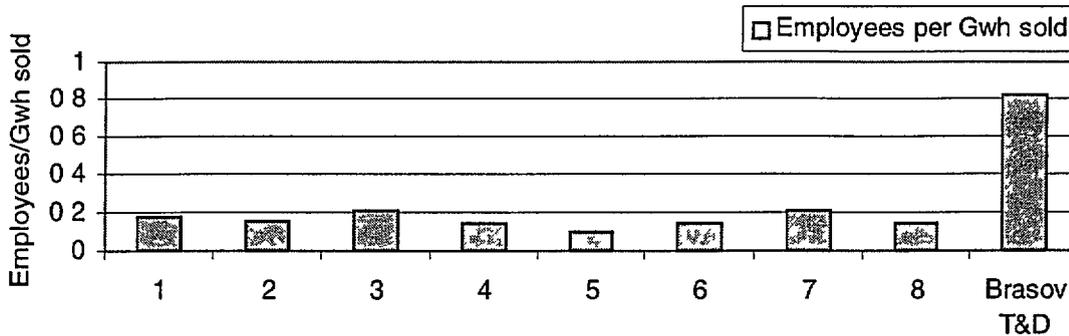
Number employees per GWh sold



In the group analyzed, with 2.2 employees per GWh sold, RENEL has by far the lowest performance. It is followed by MVM (a Hungarian company that retained most of the staff that could not be transferred to the privatized electricity companies, making it a special case) and PPC, the Greek vertically-integrated electrical utility that uses only 0.89 employees per GWh sold. Other vertically integrated companies that are more relevant for a benchmarking analysis are Electricidade de Portugal (EdP), with 0.63 employees per MWh sold, and the Italian ENEL with 0.46 employees per GWh sold. ENEL is a very useful point of reference because its generation is derived from classic plants, due to closure of Italy's nuclear plants following a referendum. The giant Electricité de France, which was used as a model for configuring present-day RENEL, uses only 0.26 employees per GWh sold, however, most of its energy is generated from nuclear power plants. Most of the other companies have diversified into other industries, as a result, the number of employees per GWh sold is significantly lower.

After Brasov T&D is introduced into the chart (using 1996 figures for personnel and quantities sold), it is clear that the only companies using more employees per GWh sold are the Hungarian MVM and the Greek PPC. All other companies in the sample use far fewer employees. Brasov T&D would have to cut employment by about 30% to reach the level of EdP, the next highest-ranking company. However, EdP is a vertically-integrated company, having a significant number of people employed in generation and executive management.

Employees per Gwh sold in eight Spanish companies as compared to Brasov T&D

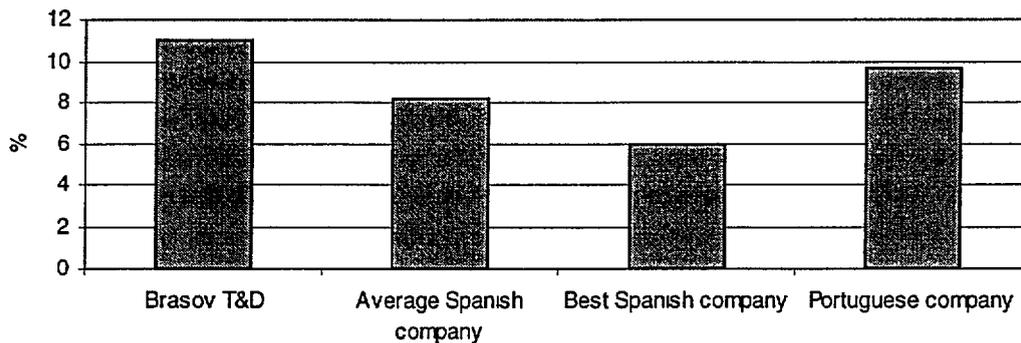


We repeated the same analysis, using as benchmarks eight Spanish electricity companies. The data for the Spanish companies dates back to 1994. Brasov T&D has more than four times the number of employees per GWh sold than the lowest performing Spanish company. Moreover, some of the Spanish companies also have generation activities. This analysis suggests that a commercial distribution operation could result in significant downsizing and outsourcing of many of internally performed services.

2.3.2 Network Losses

With respect to network losses, Brasov T&D ranks among RENEL's best performing branches. However, if Brasov is commercialized, investors and bankers will thoroughly scrutinize its distribution activities in comparison with other distribution companies. For reference, the chart below illustrates network loss performance for selected Spanish and Portuguese companies.

Energy losses (%)



Note that Brasov T&D is relatively close to the performance of the Portuguese company used for our analysis but its losses are almost double those of the best-performing Spanish company.

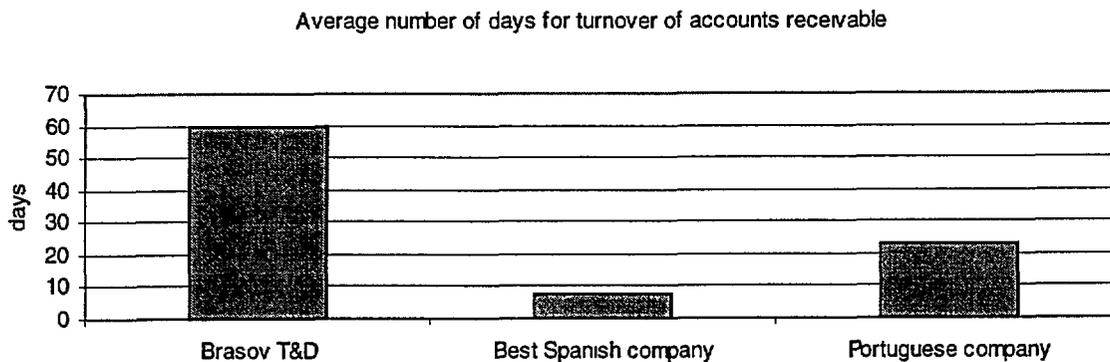
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2.3.3 Collection Performance

We analyzed the Brasov branch's collection performance in comparison with RENEL's other T&D branches. The table below shows the top 10 performers plus Brasov, which ranks 22nd.

TOP 10 T&D BRANCHES PLUS BRASOV, BASED ON RECEIVABLES TURNOVER	
Branch	Turnover (Days)
Slatina	24
Rm Vilcea	25
Pitesti	26
Tg Jiu	28
Baia Mare	30
Zalau	35
Sf Gheorghe	37
Vaslui	37
Ploiesti	38
Satu Mare	38
Brasov	61

We also analyzed the performance of Brasov T&D in comparison with other companies (please see chart below).

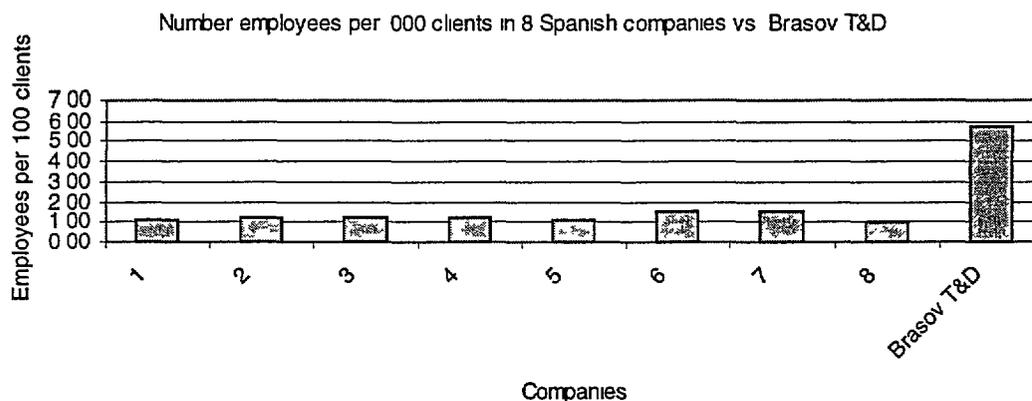


The performance of the Portuguese company used for the benchmark analysis is in line with the collection performance of RENEL's best four T&D branches. Nevertheless, the average RENEL facility underperforms relative to its peer group.

Although Brasov T&D is overstaffed based on the quantity of energy sold, we analyzed its collection performance relative to the number of clients served. As the chart below demonstrates, Brasov T&D has four times the number of employees per thousand clients than the lowest.

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performer in a group of eight Spanish companies, underscoring the suggestion that personnel shortages should not be an issue



That leaves only two factors to explain the performance gap

- Quality of the client portfolio
- Quality of collection management

Although the Romanian economy underperforms relative to the Spanish and Portuguese economies (resulting in a lower quality client portfolio), the apparent correlation between the quality of collection management and the quality of cash management (see Section 2.3.4, Cash Management), suggests that collection management is a factor in the performance gap

2.3.4 Cash Management

The manner in which the development tax is paid is a good indication of the quality of cash management. We therefore recomputed the predictive balance of the development tax due government for all branches (please refer to Section 2.2.9, Financial Cost of Development Tax Paid in Advance)

The table below demonstrates that although it ranks as a second-tier collection performer, Brasov T&D ranks first in excess development tax paid, with Bucharest T&D a distant second. Moreover, only two of the branches listed in the top ten best collection performers (Baia Mare and Ploiesti) can be found on the list of the top ten development tax payers. This appears to indicate a correlation between relatively better collection performance and tighter cash management. In a commercial environment, Brasov T&D would need to improve its management of cash and trade receivables significantly.

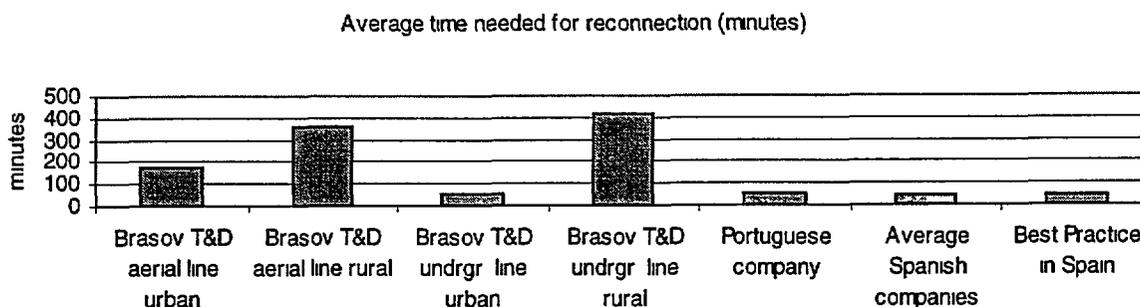
RANKING OF T&D BRANCHES BY EXCESS AMOUNT OF DEVELOPMENT TAX PAID	
Branch	(Million ROL)
Brasov	25,561

Bucuresti	11,526
Oradea	8,604
Ploiesti	8,595
Tirgoviste	7,678
Giurgiu	5,889
Alexandria	5,503
Baia Mare	4,845
Buzau	4,709
Timisoara	3,606

On a consolidated basis, the development tax paid in advance is not a significant issue for a company the size of RENEL, since the excess development tax paid (per our calculation) is only 24 billion ROL as of December 31, 1997. However, the fact that the excess development tax payment is not made by branches ranking better in collections but instead by branches with poor collection performance indicates that loose cash management could be a weakness of the organization on a wider scale.

2.3.5 Reconnection Time After Damage to the Network

The company could not provide a computation of the average reconnection time, however, we were given an estimate of the average reconnection time for aerial lines and underground lines following damage in urban and rural areas. The chart below shows that the reconnection time for urban underground lines and aerial lines is closer to Spanish and Portuguese companies, while performance in rural areas is significantly worse, resulting in lost revenues and customer dissatisfaction.



Despite limited rural area revenues, this situation might change with the development of small- and medium-sized rural companies.

2.3.6 Other Factors Ensuring Revenue Security and Growth

We have internally generated data for Spanish and Portuguese electricity companies covering the average time needed for making new connections and resolving complaints. Unfortunately, Brasov T&D could not generate similar information for further benchmark analysis. Having this

type of information available in the near future would help improve Brasov T&D's relationships with its client base

2.4 PROPOSED IMPROVEMENTS IN ACCOUNTING PROCEDURES

As previously discussed, the branch already has an accrual-based system in place that operates in accordance with RAS. However, there are significant differences between the RAS statements as drafted by the branch and statements produced in accordance with IAS. Some of the most significant differences are

- **Accuracy of cost information** As mentioned earlier, the cost of energy purchased from the grid, which is the major cost item, has no economic meaning because of RENEL's cost allocation procedures, which have no real connection with the cost of generation and transmission
- **Unbilled revenue adjustment** The branch uses the billed revenue method to account for the revenues attached to a specific financial year. Due to invoicing procedures, the unbilled revenue adjustment is significant and would require development of a specific methodology for its calculation to allow Brasov T&D to secure the proper revenue cutoff
- **Lack of hyperinflationary treatment** Romania meets the requirements specified by IAS 29 for the application of hyperinflationary accounting. However, Romanian tax authorities do not allow application of hyperinflationary accounting. As a result, current costs and taxable revenues are seriously distorted and historic values lose their economic meaning. Fixed assets, which represented 80% and 56% of Brasov T&D's total assets in 1996 and 1997 respectively, would be the most distorted
- **Lack of economic meaning for plant, property, and equipment** Fixed assets should be carried at cost or at fair value, in accordance with IAS 16. Brasov T&D does not comply with this requirement
- **Generally longer depreciable lives in RAS than in IAS**
- **Ownership of land** RENEL does not own the land on which some of its equipment is installed, and current financial statements do not take into account any future liability that may arise as a result of this fact
- **Inconsistent application of the prudence principal** Until very recently, these provisions were optional. As a result, since they were non-deductible, most accountants did not calculate them. Moreover, to increase taxable profits, the tax authorities introduced exotic tax instruments such as the "utilization degree²"

² The utilization degree basically connected the amount of deductible depreciation cost to the level of sales (calculated in real terms) as compared to a reference year. In RENEL's case, the reference year was 1990. After 1990, the slump in sales was dramatic. As a result, notwithstanding the erosion of the depreciation cost in real terms, RENEL was only allowed to pass on its costs at a fraction of the statutory depreciation cost.

Based on the problems encountered in the process of drafting IAS statements, as summarized above, we believe that Brasov T&D should adapt its information systems using the methodology described below

2 4 1 Property, Plant, and Equipment

2 4 1 1 Accounting for Gross Value of Property, Plant, and Equipment

Under IAS, fixed assets should be carried either at cost or at a revalued amount. Such revaluations are usually based on a combination of depreciated replacement cost and market value. In addition, IAS 29, "Financial Reporting in Hyperinflationary Economies," requires that such historical costs or revalued amounts be adjusted for the effects of hyperinflation.

In accordance with GOR requirements, tangible fixed assets at Brasov T&D have been revalued twice through December 31, 1997 and are stated at neither historical cost nor fair value as is required by IAS 16, "Accounting for Fixed Assets."

According to IAS 16, when any item of property, plant, and equipment is revalued, the entire class of property, plant and equipment to which the asset belongs should be revalued at fair value at the date of revaluation. Ordinarily, this fair value should be determined by an appraisal undertaken by professionally qualified valuers. Brasov T&D did not fulfill this latter requirement, since no external or professional work was done to assess fair value, understood as market value or depreciated replacement cost of the assets revalued.

Brasov T&D's property, plant, and equipment has not been restated according to IAS 29, which requires that hyperinflationary accounting be applied to the primary financial statements of any enterprise that reports in the currency of a hyperinflationary economy.

According to IAS 29, most non-monetary items are carried at cost or cost less depreciation. Hence, they are expressed in amounts current at their date of acquisition. Each item's restated cost (or cost less depreciation), is determined by applying the change (from the acquisition date to the balance sheet date) in a general price index to the item's historical cost and accumulated depreciation. Thus, property, plant, and equipment must be restated from the purchase date or from the date that Brasov T&D's fixed assets were revalued. The restated amount of an item of property, plant, or equipment is then reduced when it exceeds the amount recoverable from the item's future use (defined as net realizable value and determined once again by an appraisal normally undertaken by professionally qualified valuers). Because the revaluations performed by Brasov T&D are not acceptable under IAS criteria, restatement of the financial statements under hyperinflationary economic conditions should have been computed using the price index from the date of acquisition, and then compared to the previously defined market value. Brasov T&D was not able to prepare or get all the information needed to fulfill these requirements.

2 4 1 2 Accounting for Depreciation

Under IAS, the depreciable amount of an item of property, plant, and equipment should be allocated on a systematic basis over its useful life. The depreciation method used should reflect

the pattern in which the asset's economic benefits are consumed by the enterprise. The depreciation should be recognized as an expense. Any change in the lifetimes has to be applied uniformly to all fixed assets in a given category.

Brasov T&D property, plant, and equipment is depreciated using the straight-line method over a composite rate of the previous and current statutory life for each asset class. Law 15 of 1994 revised the depreciation lives on January 1, 1994, and the company uses a composite rate based on a formula determined by the Ministry of Finance. As a result of RENEL's statutory policy, both useful lives and current depreciation expense cannot be accepted under IAS as reasonable because

- Useful lives are not representative of economic and technical lives
- Different lifetimes are used for similar fixed assets
- Annual depreciation expense is partly booked in off-balance accounts. For the IAS financial statements, off-balance sheet depreciation was fully adjusted.

2.4.1.3 Accounting for Capitalization of Interest

Under IAS, the cost of an item of property, plant, and equipment comprises its purchase price, including import duties and non-refundable purchase taxes, and any directly attributable costs of bringing the asset to working condition for its intended use. Any trade discounts and rebates are deducted in arriving at the purchase price. Additionally, IAS 23 permits capitalization of borrowing costs that are directly attributable to the acquisition, construction, or production of a qualifying asset as an allowed alternative treatment to the preferred approach of expensing borrowing costs.

2.4.1.4 Realizability of Property, Plant, and Equipment

Under IAS, the carrying amount of an item or a group of identical items of property, plant, and equipment should be reviewed periodically to assess whether the recoverable amount has declined below the carrying amount. When such a decline has occurred, the carrying amount should be reduced to the recoverable amount, which is similar to fair value. Fair value can be defined as the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction. The recoverable amount can be defined as the amount which the company expects to recover from the future use of an asset, including its residual value on disposal.

The cost or revalued amount of an item of property, plant, and equipment is normally recovered on a systematic basis over the useful life of the asset. This is not the situation with Brasov T&D because, as discussed earlier, depreciation is not recorded in accordance with accepted economic or technical criteria. At Brasov, useful lives do not appear to fit what experience shows to be reasonable lives for electric utility facilities, reevaluations were not performed according to market value criteria, and hyperinflationary accounting was not implemented. Finally, a writedown may also be necessary when an item of property, plant, and equipment has remained idle for a considerable period either prior to putting it into use or during its useful life.

Management has noted almost 2 billion ROL worth of installations that are unusable and were proposed – but not approved – for disposal. Also, two hydro power plants with a carrying value of an approximately 300 million ROL, started before 1989, were abandoned, because they were no longer needed.

2.4.1.5 Recommendations

Given Brasov T&D's commercialization goals, we strongly recommend that it (or the distribution company that incorporates Brasov's distribution) adopt the first of the two following alternative recommendations.

Alternative Recommendation 1

Brasov T&D should hire a professionally qualified valuation firm to perform an appraisal of all of its facilities, on an installation-by-installation basis, and record the necessary adjustments to present the assets at their fair value. The appraisal firm should also estimate the expected remaining life of facilities and base its conclusions on various scenarios for energy prices, evolution of electric and heating demand, etc. This analysis should include construction-in-progress, idle assets, future investments to maintain operations, cost of fuels, and rates of return on investments.

If this procedure were properly performed, all five IAS exceptions would be corrected.

Having received a valuation of the assets from a qualified appraisal firm, Brasov T&D should seek government approval to record the valuation in the statutory accounts so as to set electric and heating rates on a more realistic economic basis (to the extent that rates were set on a contractual basis). This will allow Brasov T&D to recover the cost of these assets through its rates, which does not now occur. In addition, the change to economic rates is essential if the government wishes to further the privatization process, as prospective investors will demand a reasonable rate of recovery for their investments. Basing the rates on professional appraisals that investors can rely on may give the government the incentive to return the distribution businesses to an economic-based accounting system in compliance with IAS.

Alternative Recommendation 2

This alternative would partially resolve the issues described above, as follows:

- **Re-evaluation**

Starting from the administrative re-evaluations performed in accordance with Romanian accounting regulations, ensure that revalued figures do not exceed fair value and record the required reserve. If Brasov T&D does not get an external appraisal for its fixed assets for the purposes of drafting IAS financial statements, auditors would still qualify property, plant, and equipment and the related revaluation surplus.

- **Hyperinflationary accounting**

We recommend that Brasov T&D prepare the necessary information to present the 1997

financial statements in accordance with IAS 29 for hyperinflationary accounting. The following are some considerations regarding this issue:

- The restated cost, or cost less depreciation of fixed assets, is determined by applying to the historical cost and accumulated depreciation the change in a publicly available general price index from the date of acquisition to the balance sheet date.
- Detailed records of the acquisition dates of items of property, plant, and equipment may not be available or capable of estimation. IAS would allow (in these rare circumstances and if needed just for the first application of this rule) an independent professional assessment of the value of the items as the basis for their restatement. In the absence of an external appraisal for its fixed assets, Brasov T&D/the distribution company will be forced to prepare a detailed record of the acquisition date and amount of each of its fixed assets.
- The gain or loss in the net monetary position should be included in net profit/loss and separately disclosed.
- The final step would be to ensure that the new figures do not exceed the amount recoverable from the item's future use (including sale and other disposal), so as to record a reserve, if required. However, without an external appraisal for fixed assets, an auditor would still qualify fixed assets at Brasov T&D, as well as the gain or loss recorded after hyperinflationary accounting. However, if fixed assets and equity were converted into hyperinflationary accounting, an auditor would then be able to convert all other items of the balance sheet and the income statement in accordance with hyperinflationary accounting, and the concern over the lack of hyperinflationary accounting could be eliminated.
- **Accounting for depreciation**
We recommend that Brasov T&D recompute its accumulated depreciation according to the historical roll-forward method for fixed assets and remaining useful facility life. This can be prepared by the Engineering Department of the branch in the event an external appraisal is not obtained. Because statutory regulations differ from IAS, the company may need to keep track of this information in off-balance sheet accounts by major fixed asset categories. We would still recommend that Brasov T&D/the distribution company, with the permission of the government, record the new depreciation figures either as accumulated depreciation or as a specific reserve in order to include the depreciation in the rates as described above.
- **Accounting for capitalization of interest**
We recommend that Brasov T&D recompute all prior capitalization of interest consistently, so that all subsidiaries capitalize interest using the same criteria and the premises described below (we also point out that under IAS, the preferred approach is to expense borrowing costs, so the company might also consider removing all previously recorded capitalized interest and discontinue further capitalization).

- Brasov T&D should capitalize only those borrowing costs that are directly attributable to the acquisition, construction or production of an asset
- Such borrowing costs are only to be capitalized as part of the cost of the asset when it is probable that they will result in future economic benefits to Brasov T&D and the costs can be measured reliably
- The borrowing costs that are directly attributable to the acquisition, construction, or production of a qualifying asset are those borrowing costs that would have been avoided if the expenditure of the qualifying asset had not been made
- Capitalization of borrowing costs should be suspended during extended periods in which active development is interrupted
- Capitalization of borrowing costs should cease when substantially all the activities necessary to prepare the qualifying asset for its use or sale are complete
- The carrying amount or the expected ultimate cost of the qualifying asset cannot exceed its recoverable amount or net realizable value. In the absence of an external appraisal for its fixed assets or construction-in-progress assets, auditors would qualify the auditors' report related to the recoverability of property, plant, and equipment

2.4.1.6 Title to Land

The local government owns some of the land on which the company's facilities are located. RENEL inherited this situation because of its former status as part of the GOR. The land that is used but not owned by the RENEL entities is recorded off the books. The state obtained the land through expropriation, nationalization, or transfers from other state-owned companies.

In view of the impending reorganization, land ownership will become a critical issue, especially for T&D branches, which have the electricity lines and transformers spread throughout the country.

Status of RENEL-Occupied Land

RENEL's land rights are protected by Law 18/1990, which prohibits returning land containing energy facilities to the original owners. In most cases, land used by the T&D branches is not recorded (tabulated) in the land register (cartea funciara) as being used by RENEL. This situation is due mainly to lack of documentation, legal support, and the minimal importance previously attached to this issue. Land used by T&D branches can be grouped into the following categories:

- Housing
- Administrative buildings
- Special construction (transformation points and stations)
- Transmission cable pillars

In addition to the land effectively used by branches, potential conflicts with the owners of the land affected by the distribution cable network should be considered. Land crossed by an electric cable cannot be used for construction (except for a flat building). This restriction could be considered as limiting property rights. Therefore, especially in urban areas or in relatively expensive tourist areas, investments for underground transmission cables should be considered in certain cases.

The status of land records in the register (cartea funciara) for Brasov T&D is as follows:

- Houses – 5 out of 5
- Administrative buildings – 5 out of 10
- Special construction
 - Transformation stations – 18 out of 42
 - Transformation points – 4 out of 1,800
 - Micro-hydro power plants – 7 out of 68 plots of land
 - Cable-supporting pylons – 7 out of 30,000

Recommendation on Land Status

We recommend that Brasov T&D resolve the land status issue, with the help of the central and local governments, either by acquiring legal title to these properties and their use by changing the current property law or by negotiating with local municipalities to secure indefinite use of the sites. Although at the moment this issue does not seem urgent and no liabilities or significant payments are projected, operating with this type of uncertainty may become an obstacle for Brasov T&D.

Moreover, Brasov T&D (and the successor distribution company) will need to realistically assess its chances of winning potential litigation contesting ownership of certain plots of land.

2.4.2 Unbilled Revenue

2.4.2.1 Current Billing Procedure

At year-end, Brasov T&D will have supplied, but not yet billed, power to customers. It is impractical to invoice all customers on the last day of the period for all consumption in the period. Normally, billings are issued as follows:

- **Big consumers** – The meters are read once a month and invoices issued twice a month. At the end of the current month an invoice is issued for the estimated consumption for the next month. At the beginning of the next month, after the meters were read, another invoice is drafted for the difference between the actual consumption and the estimated consumption invoiced at the end of the previous month.
- **Small consumers** – They are divided in two groups: monthly reading at the end of the month and reading of meters every 2 months on an ongoing basis. Every invoice contains

half of the estimated consumption for the following period plus the difference between actual and invoiced for the preceding period

- **Households** Household meters are read every 2 months. The meter readings are entered into so called “reading books” where a certain number of streets with detailed addresses are listed. The invoice is brought for payment to the consumer by RENEL reading officers, when the meter is read for the subsequent 2-months period

2.4.2.2 Primary Billing Issue

The primary issue is that all the expenses of the service have been recognized, but all the revenues have not. IAS requires revenues to be recognized when a service is rendered and an accrual should be made to account for the electricity supplied but not yet billed to customers. RENEL’s billing method is not acceptable under IAS because it does not comply with the accrual principle of matching revenues and expenses.

2.4.2.3 Recommendation on Billing Procedures

For the purpose of drafting IAS financial statements, we recommend that Brasov T&D calculate unbilled energy using one of the methods suggested below. We can work with management to implement a more sophisticated and accurate procedure for determining unbilled revenue should Brasov T&D (or the successor distribution company) see the need for more accurate estimation.

- **Subsequent to year-end** Analysis of energy billing in the next year to determine the power supplied but not billed in the previous year. This method estimates the value of unbilled energy after a certain period has elapsed in the following year (up to 2 months for big and small consumers and up to 4 months for households). Two assumptions must be valid to use this method: (1) consumption follows a linear distribution and (2) consumption by group is the same in each period.

This method is the most accurate method of accruing unbilled revenue presented. It takes all customers in a specific category and accrues all amounts for billing periods that have ended but that have not yet been billed (as well as billing periods that overlapped year-end). An accrual is made for the pro rata portion of the consumption through year-end as compared to the amount billed for the entire billing period. This calculation would have to be done separately for big consumers, small consumers, and households for each billing period.

- **Calculation on the basis of power received from the grid** This method of calculating unbilled revenue takes the total amount of power received by Brasov T&D from the branch, reduces it by the amount consumed internally or lost in the system, and arrives at the total amount of power provided to customers. The amount of power billed in the current period related to the current year consumption is deducted to arrive at the unbilled revenue to be accrued. This calculation is depicted as follows:

+ Total net purchases
+ Own production

$$\begin{array}{r}
 + \text{ Received from network system} \\
 - \text{ Power transmitted} \\
 \hline
 = \text{ Power sold} \\
 - \text{ Consumed by the branch} \\
 - \text{ Losses in the system} \\
 \hline
 = (a) \text{ Power consumption by customers in the year}
 \end{array}$$

Consequently, *unbilled energy* = (a) *less power billed in the current year*

- **Extrapolation of power consumption** This third method is the simplest to calculate, however it is the least accurate method. It is calculated by determining the average period not billed and multiplying it by the amount of consumption calculated on the above power-received-from-grid basis, represented as *unbilled revenue = average period not billed x power consumption*

2 4 3 Accounts Receivable

2 4 3 1 Historic Reserves

For statutory statements, Romanian companies only record a provision for uncollectable receivables when there is a court decision initiating bankruptcy of a customer. Brasov T&D is no exception. Under IAS, Brasov T&D should record a provision based on a specific review of large receivables and a general review of smaller receivables. According to our review of accounts receivable, a reserve of 1,993 million ROL was recorded in the IAS statements as of December 31, 1996 and 8,010 million ROL in the IAS statements as of December 31, 1997.

2 4 3 2 Recommendation for Future Reserves

We recommend that Brasov T&D establish the necessary procedures to begin recording required reserves during 1998 in preparation for IAS financial statements.

We believe that management should use its knowledge of customers and the collectability of receivables to record a reserve that reduces receivables to the amount that will likely be collected. This reserve figure should be updated every 3 months to increase the accuracy of budget comparisons, facilitate forecasting, and ensure consistency of externally reported information.

The procedures for the treatment of receivables should be uniform for all the branches of the future distribution company. Therefore, development of such procedures by Brasov T&D should be coordinated with the headquarters of the future distribution entity (in the event that its headquarters are not in Brasov). We also recommend that management supervise and review application of the new procedures in the branches to ensure proper and consistent implementation.

2 5 PROPOSED ACTIONS REGARDING IAS FINANCIAL STATEMENTS

2 5 1 General Framework

On July 3, 1998, the ordinance creating the National Electricity Company, the National Company Nuclearelectrica SA, and the Regie Autonome for Nuclear Activities □ through reorganization of the Electricity Regie Autonome RENEL □ was published in the Official Gazette

The National Electricity Company has a holding structure It is the owner of three other joint-stock companies

- Hidroelectrica SA – comprising all hydropower generation capacities
- Termoelectrica SA – comprising all thermal power generation capacities
- Electrica SA – comprising the distribution activities

The ordinance also lays the groundwork for creation of a grid company, in charge of dispatching and high-voltage transmission, by providing for the equity that is to be transferred to the grid entity This will allow the distribution activity to become a transparent transmission cost in its books

Though not stated in the ordinance, we understand that Electrica SA, the distribution company, will be split into several smaller distribution companies³ that will be privatized at a later date Our subsequent recommendations are based on the assumption that the Brasov distribution branch will become the headquarters for one of the distribution companies

2 5 2 Redesigning the Branch-Center Relationship

Based our experience with RENEL, a large part of the distortions are due to inconsistencies in accounting treatment by the various branches The main accounting and internal control weakness within RENEL is related to consolidation issues and lack of uniformity between branch accounting policies In addition, it also has been noted that the controls at many locations are weak These inconsistencies and weaknesses, which affect almost all accounts, are a detriment to developing IAS statements

Some examples of inconsistent accounts are trade receivables (doubtful accounts), stock evaluation (valuation methods), fixed assets (capitalization of costs and revaluations), accounts payable (guarantees from household consumers □ not updated in all branches, which mean a loss in financial position for the company), equity (capital accounts), and cash (guarantees from warehouse managers)

It is reasonable to assume that the problems encountered with respect to the consolidated financial statements for RENEL as a whole will be replicated to a large extent in the would-be distribution company based in Brasov, diminishing the representativity of the consolidated

³ Restructuring the Power Sector in Romania – paper presented by Aureliu Lecca president of RENEL, at the Energy Seminar held in Prague on 10 July 1998

financial statements. Moreover, the current system, where the same activities are replicated at the level of each branch, is very labor-intensive. The reduction of labor cost will definitely be a key segment of any cost-cutting strategy to be implemented after commercialization. Cost efficiency and misstatement control are the focus of the recommendations below.

The ideal cure to misstatements and labor-intensive procedures would be to concentrate accounting procedures at headquarters. The most advanced companies use a system where entries are made at the plant level, contributing data to one global trial balance. Regardless of where the journal entry is made it hits the same trial balance. This is a global system (SAP is an example). Where entries should be made (centrally or locally) is still undecided, although most companies with a global system have decentralized accounting.

Under such a system consistent accounting treatment of a specific item is ensured to a large extent by the very routines of the system. Any change in the structure of the accounts has to be approved centrally. However, a procedures manual is essential, to ensure consistent accounting treatment between branches. Such a system would result in

- Real-time booking
- Elimination of reconciliation procedures at the branch level
- Reduction in accounting personnel because data-entries would be made at the transaction point
- Lower operating costs
- Employment of less expensive and less skilled data-processing personnel
- Centrally implemented procedures to generate data for IAS financial statements
- Concentration of higher qualified personnel at headquarters. This will ensure that the procedures for generating data for the IAS statements are properly developed, and uniformly implemented and adhered to throughout the organization. The same highly skilled professionals would also be in charge of drafting the IAS statements. The current system requires the presence of highly qualified accounting personnel at each branch, which is a waste of resources. A global system would eliminate the need to deploy highly qualified personnel to the branches.

However, this system requires

- High upfront investment, including training of all personnel involved in any type of data-entry having any relationship to accounting
- A consolidation manual that incorporates standard accounting treatments for specific items to avoid conflicting interpretations
- Highly qualified internal controllers in charge of improving and ensuring uniformity of procedures throughout the organization

It is clear a global system should be the target of the newly created distribution company for the medium and long term

For the near future, improvements to the current system (where trial balances are done locally and transmitted electronically to headquarters for consolidation) are a more reasonable target, especially considering that the restructuring process is already disruptive enough

An additional solution aiming at cutting costs would be to have all of the documentation sent to Brasov headquarters to be input by accountants. Trial balances could be maintained for each plant to assess its profitability. There would be cost savings from a reduction in personnel, systems, and administration and increased costs due to the need to ship all documents (with potentially high losses from lost documentation)

2.5.3 Internal Controller

A priority for the short term should be mainly improving the consistency of procedures throughout the organization by the introduction of a specialized controller. He should have responsibility over all subsidiaries' accounting processes and on the consolidation process itself, including

- **Inter-company accounts** Should be balanced on a monthly basis, with all differences reconciled and instructions issued on corrective procedures. There is no apparent justification for unbalanced accounts if a detailed follow up is established. All inter-company transactions should be recorded only in inter-company accounts
- **Accounting policies** The controller should review accounting procedures to detect the effects of newly introduced procedures on the financial statements
- **Uniformity of procedures** The controller should specifically focus on the detection of non-uniformity in accounting processes or valuation methods at different subsidiaries and take the required steps to ensure uniformity
- **Consolidation** Controller should take responsibility in consolidating processes, including
 - Elimination of all inter-company accounts
 - Elimination of all internally generated revenues and incomes
 - Uniformity of all accounting policies before consolidation (e.g., if a subsidiary is using LIFO while the Company has adopted weighted average, LIFO inventories should be first valued at weighted average and then consolidated). Under IAS, the valuation methodology for various categories of inventories should be applied consistently
- **Internal control in subsidiaries** As already mentioned, weaknesses in internal controls at many accounting centers were detected during our audit fieldwork. Many of the weaknesses and inconsistencies undermine management's ability to understand actual costs and revenues, which is a publicly stated goal. In many cases existing internal control

is focused on immaterial items and loses sight of serious flaws in internal controls. Current internal controls have no materiality concept and its major focus seems to be on asset misappropriation. No matter how legitimate this concern may be, if internal procedures are weak the damages to the organization by well-intended persons might be much more important than potential losses produced by intended asset misappropriation.

At an early stage following its creation, the distribution company based in Brasov should seek professional advice to properly design and implement the internal controller function.

2.5.4 Management and Controller Training

As previously suggested, and discussed in greater detail below, a future distribution company with headquarters in Brasov will need to rapidly assimilate the key concepts for drafting IAS financial statements. This target is achievable by training and on-the-job work with the external auditors of the company. This training does not need to be extended to all levels of accounting, but it should include management of the accounting and financial divisions, as well as top management. Adapting the internal information systems to produce the data for IAS statements requires time, effort, and money and top management must understand and be convinced of the need to allocate these resources to that effort.

The controllers are the key participants in IAS training. We believe that hiring controllers from outside the company would expedite improvements in procedures, since these individuals would not be hindered by predetermined views or established connections within the company.

In addition to proper IAS training, accounting and finance management, as well as top management, should be trained to understand the time-value of money and be able to quantify it. This suggestion is based on the significant losses we believe the company incurs due to the advance payment of development tax and what appears to be discretionary management of late payment penalties. The new distribution company will no longer be able to cushion its losses by spreading them throughout a vertically integrated entity like RENEL, and the cost of loose financial management will show up very clearly in its books.

An understanding of costing must be developed very rapidly, and the instruments to measure costs must be present in all existing or future divisions of the distribution company.

2.6 OTHER PROPOSED IMPROVEMENTS IN PROCEDURES

2.6.1 Develop Instruments to Decide on Outsourcing

Once RENEL is dismantled, some of the services provided by GTDEE, RENEL Executive, and other top-level divisions in RENEL will have to be outsourced or replicated within the successor-companies. Management will need instruments to fully understand the cost implications of such decisions.

Management will need to analyze its outsourcing options. Maintenance and repairs is probably a prime target, as it is very labor-intensive. Spinning-off this activity as an independent

commercial company and putting it on an equal footing with other service providers would result in significant cost reductions for the newly created distribution company. Moreover, as previously discussed, spinning-off some internal services could avoid payment of significant redundancy benefits.

The cost accounting system proposed by Coopers & Lybrand and already implemented by Brasov T&D could be a good start. However, the system would have to be updated to incorporate the new activities undertaken by the would-be Brasov distribution company.

2.6.2 Revenue Enhancing and Cost-Cutting Measures

As a first step, the Brasov distribution company should adjust its consumer tariffs by statistically analyzing old meters to measure the variance in average recorded consumption versus actual consumption.

The company should also adopt a plan to routinely update guarantees from household consumers to reduce the financial cost of household receivables. In addition, Brasov distribution should expand the self-reading system for households to reduce the 2-month gap between reading meters and invoicing and collecting bills.

Meter reading is a very labor-intensive activity. Brasov T&D could reduce labor costs significantly by installing radio-equipped meters, the signals from which could be read by specially equipped vehicles.

2.7 FIXED ASSETS

2.7.1 Preparation of Schedules for Segregating Fixed Assets into Homogeneous Groups

As a starting point for any valuation effort, Arthur Andersen asked the branch to provide schedules of fixed assets grouped in homogeneous categories. We only focused on the core fixed assets, which are directly connected to existing operations – namely, transmission and distribution lines and transformers. After discussions with branch technical personnel, we arrived at the following homogeneous groups for which schedules had to be prepared by the branch:

- Aerial lines
 - High and medium voltage – number of km of line for
 - Each cable diameter class
 - Degree of wear and tear
 - Low voltage – number of km of line for
 - Each diameter of cable
 - Constructive technology – classic or modernized
 - Degree of wear and tear
- Underground lines – same structure as the aerial lines
- Transformers

- High-voltage (from 400 kV to 110 kV) and medium voltage (from 110 kV to low voltage), classified according to power circulated
- Low voltage – there are two types
 - Aerial – classified according to the power circulated and degree of wear and tear
 - Walled – classified according to
 - ◆ Power circulated
 - ◆ Interrupters used either old technology or new
 - ◆ For new interrupters, specify number (from 1 to 8)

We also asked the branch staff to estimate the replacement effort that might reasonably be expected during the next 3 years, assuming sufficient resources were available. Classifying the number of interrupters is important because their cost exceeds that of transformers. Information systems are not now in place to provide this information.

3.1 OBJECTIVE

The objective of this subtask was to help prepare the Brasov distribution unit, as a model for Romanian distribution units, to operate commercially in a competitive market environment, with a view to eventually privatizing the unit. Work completed as part of this subtask is organized into the following three areas:

- **Organizational issues** – a comprehensive assessment of Brasov’s management organization, its structure and functions, intended to meet the needs of a distribution company in a competitive environment
- **Human resource development** – an analysis of human resource policies and procedures to facilitate the right-sizing of company staff to achieve greater efficiency and competitiveness
- **Training** – an analysis of Brasov’s training and retraining needs, along with an action plan for implementing training recommendations

3.2 ORGANIZATIONAL ISSUES

3.2.1 Analysis

Figure 3-1 shows Brasov’s organizational structure as a transmission and distribution subsidiary prior to the September 1998 restructuring. At that time, Brasov had a hierarchical organizational structure with four main functional departments: Finance, Marketing, Energy and Commercial Operations, and Operations, Maintenance, and Development. The directors of each of these departments report to the Brasov’s General Director; other direct reports are the heads of the Legal, Human Resources, Civil Protection, Computer, and Labor Safety departments. The General Director at Brasov reported to the President of RENEL in Bucharest.

At the time, the company’s functions were appropriate, given its role as a unit of the government authority (RENEL) responsible for administering and providing electrical service to the county of Brasov. However, this situation is now changing, as Brasov becomes accountable, as a cost/profit center, for more market-focused and commercially-viable operations, and, as is likely, Brasov becomes part of a larger distribution company through the consolidation of one or more adjacent distribution subsidiaries. The character of that larger company, with its different mix of customers, and a service territory that will may span two or more county boundaries, will dictate changes to the existing organizational structure that cannot be foreseen with any certainty at this time.

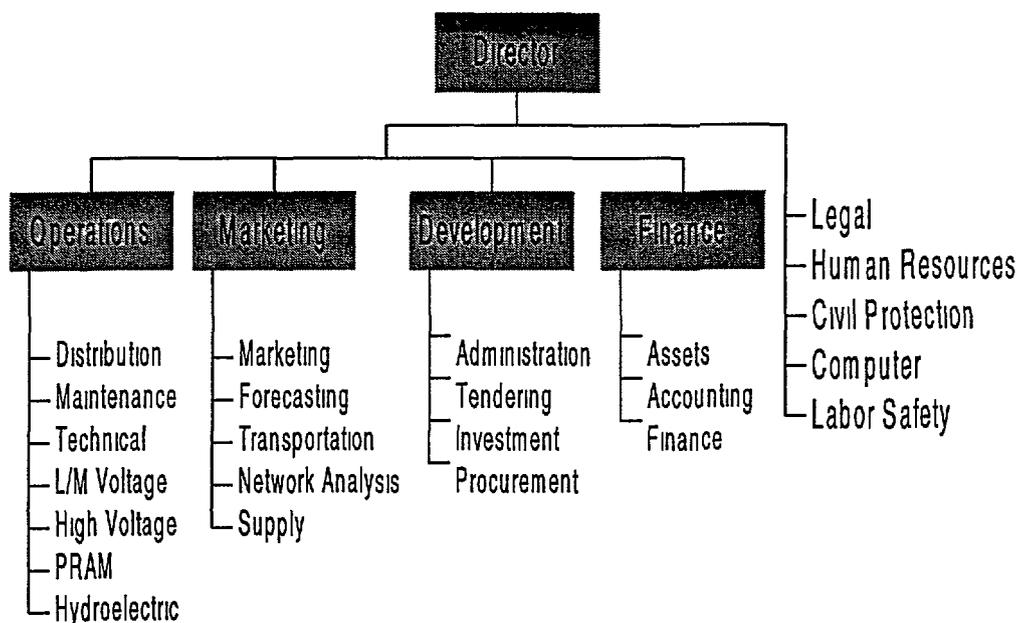


Figure 3-1 RENEL's Brasov Transmission and Distribution Subsidiary Pre- September 1998

Figure 3-2 shows Brasov's organizational structure as a distribution subsidiary of Electrica in October 1998 (i.e., immediately following the restructuring of RENEL). A hierarchical organizational structure remains in place, with four restructured functional groups: Finance-Assets, Operations-Maintenance-Development, Commercial Operations, and a fourth group focused on technical operations under the supervision of a Chief Engineer. Three deputy directors and the chief engineer are variously responsible for these groups; they report directly to Brasov's Director. Other direct reports are the heads of the Legal, Human Resources, Civil Protection, and Computer departments along with the newly-created functions of Public Relations and Financial Operations Control. The Director of Brasov reports to the General Director of Electrica in Bucharest.

This restructuring presents several important opportunities for Brasov to sharpen its focus on customer service and management information systems. We have the following observations:

- Recognizing the importance of information management, the Computer department, along with newly-created functions to monitor financial and technical operations, are direct-reports to the Director. The question arises whether these areas will grow in importance to the extent that a special deputy director should be responsible for them. Nonetheless, director-level oversight of these essential functions, during this initial period, is a commendable focus.
- The position of Marketing Director has been eliminated, but its functions are now combined into a Sales-Maintenance-Development group under one Deputy Director. This group includes a strategic development function to ensure the proper economic and financial analysis of new projects. The group also has a functional relationship with the

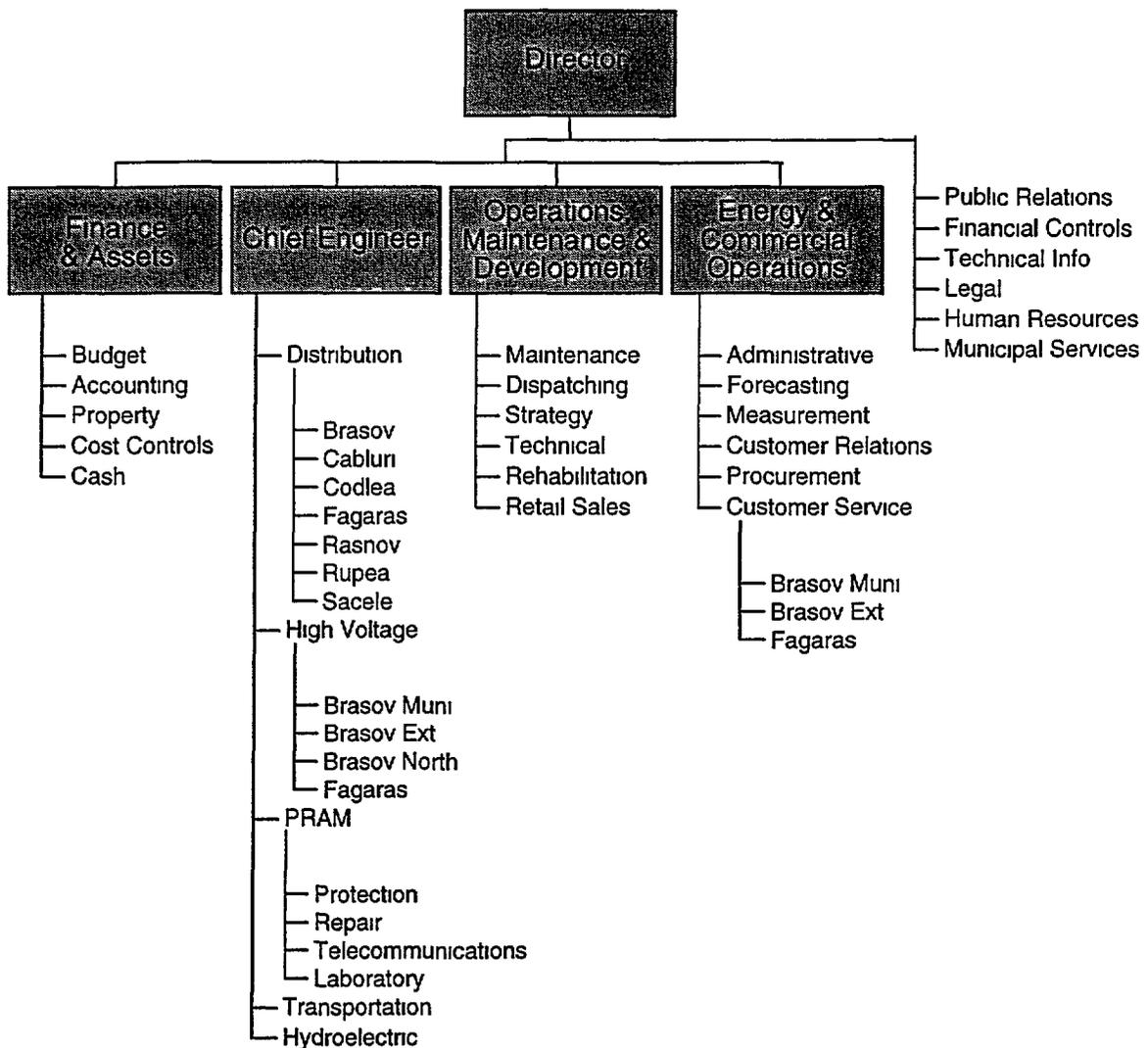


Figure 3-2 Electrica's Brasov Distribution Subsidiary After September 1998

newly-created position of Chief Engineer. If properly maintained, this functional relationship can ensure that intelligence on customer service needs, as well as good business practices, is integrated into Brasov's strategic planning and developmental process.

- The position of Chief Engineer has been established as a direct report to the Director of Brasov. The Chief Engineer is responsible for the technical operation of the subsidiary through supervision of three key organizational groupings: distribution, high-voltage, and PRAM, which, among other functions, operates a telecommunications center controlling the transmission of electronic information between areas of the service territory and the central dispatch center in Brasov. The Chief Engineer is also responsible for the transportation section and Brasov's small hydroelectric generating plants.

- The financial group now includes important cost center accounting processes. The use of this group's financial performance monitoring systems, along with accounting recommendations presented in Section 2 of this report, should ensure that Brasov's management will have the tools to make financially responsible business decisions.
- Elements of the former marketing group have been restructured within a Commercial Operations group having two important new functions: market forecasting and customer service. The separation of commercial from purely technical operations marks a sharpening of focus on customer needs from the vantage point of commercial viability.

Figure 3-3 presents Brasov's proposed structure on January 1, 1999. The principal change is that by 1999, the Chief Engineer will have direct supervision of each distribution and high voltage service center as well as the individual functions within the current PRAM group.

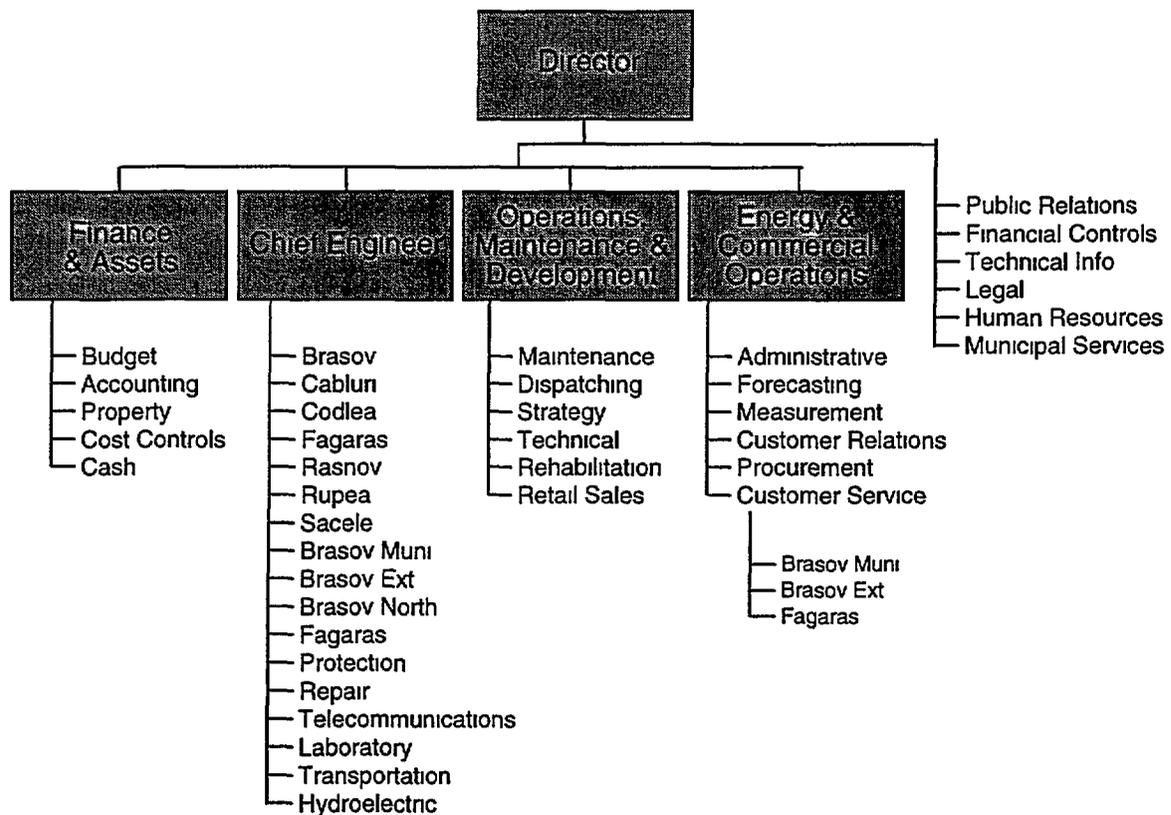


Figure 3-3 Electrica's Brasov Distribution Subsidiary Proposed for January 1999

The intent is to eliminate a layer of management and bring deputy-director-level attention closer to the customer. This intention is highly commendable, however, it must be noted that the change will increase the number of direct reports to the Chief Engineer from 5 to 17. This may prove unmanageable, and consideration should be given to retaining the current structure while giving managers sufficient delegation of authority so that customer service goals can be met.

3.2.2 Recommendations

The following recommendations are aimed at improving Brasov's management organization to enhance its commercial viability in a competitive market

- 1 **Management will need to develop broader, more commercially-focused managerial skills for Brasov to be run competitively** Brasov's management and staff do not have extensive commercial experience outside the field of utility management and technical operations. For the existing management team, this presents an important career challenge. Attention must be turned at once to focused managerial training, so that those with the important experience of running Brasov from a technical point of view can take leadership positions in a management team that must be customer-focused and commercially viable. Brasov's training program – which is now focused almost entirely on technical issues – must begin to develop the skills of commercial management throughout the company.
- 2 **Brasov's management should look to "best practices" at commercially-viable utilities around the world in setting policy objectives (including "right-sizing")** Brasov compares well with other Romanian utilities in many important performance measurement areas. Yet, not unlike the other CONEL subsidiaries, performance indicators such as staffing are significantly higher at Brasov than at comparably-sized utilities in competitive markets around the world. Adopting international best practices should be one of Brasov's chief near-term targets.
- 3 **Brasov's management is rightly focusing its attention and management organizational structure on anticipating the needs of its customers and fostering a spirit of competitiveness throughout the distribution unit** Brasov's management recognizes that, throughout the company, there needs to be an evolution of attitude from that of a service-administrator to that of a competitor who seeks to provide service to customers. Marketing and customer functions already exist and many steps are being taken to move management decisions closer to the customer. These actions are necessary if Brasov is to become a viable commercial entity in a competitive environment. The goal of anticipating as well as satisfying customer needs must become the primary motivation behind work at all levels throughout the company.
- 4 **An economic and financial analysis function is needed to support strategic decision making** Achieving the objective of offering competitive services to customers will require that management's decisions be supported by rigorous economic analyses of costs, prices, market trends, and alternatives. The newly-created economic analysis function is needed and its development should be supported.
- 5 **A financial management group needs to be established to raise capital and manage major expenditures and investments** With separation from central planning a control, there will also be a rapidly growing need for the distribution entity to raise capital and manage its own investments. A financial management group is needed within the finance department for this purpose and should be supported.

- 6 Combining one or more distribution subsidiaries will require consolidation of management functions** Combining existing CONEL distribution units into new commercially viable business entities would help achieve target sector objectives, including the eventual privatization of electric power sector assets. It is unlikely, however, that the level of management detail present at Brasov will be required at each of the subsidiaries once they are consolidated into a single business unit. Although it will be important to maintain sufficient access to the customer base – for example, maintaining or even expanding the number of customer service centers to meet the local needs of customers – senior and most mid-level managerial functions will need to be centralized for the sake of cost-efficiency.
- 7 Management should continue to focus on its core strength: the efficient management of an electric utility** Brasov's management and staff are forward-looking professionals who, in the main, are eager to enjoy the benefits of restructuring. In the numerous interviews that were conducted at various levels of the company, the common theme was an interest in gaining autonomy from central planning and control and, in that process, better utilizing corporate resources in a more commercial manner. Ideas expressed about the future course of Brasov's success include a broad range of ventures that would expand Brasov's commercial base into new lines of business. While this expression of entrepreneurial interest is commendable, unrelated business ventures, however promising, are at this stage peripheral to establishing Brasov as a viable commercial entity. Attention should not be diverted from the commercialization of the existing business.

3.3 HUMAN RESOURCES AND DEVELOPMENT PROGRAM

3.3.1 Staffing Levels

Before Brasov was split into separate distribution and transmission companies, the distribution company consisted of approximately 1,300 employees. Of these, 81 were transferred to the transmission entity and 47 were transferred to other CONEL/Electrica units, leaving a complement of approximately 1,200 employees at the time of restructuring. Table 3-1 shows the distribution of employees by job classification on January 1, 1997 and 1998.

Table 3-1		1997	1998
Employees by Job Category			
Directors / Managers / Engineers		308	308
Foreman		39	39
Workers		984	995
TOTAL		1,331	1,342

As noted earlier (see Section 2), these levels are significantly higher than those at comparable utilities throughout Europe. Reasons for the high staffing levels possibly include a wider range of services performed at Brasov than at the comparable utilities. Nonetheless, it must be observed that Brasov will need to compete with those other utilities and their lower cost structures. This will likely require various downsizing measures, as described below. Table

illustrates staff turnover during 1997, and Table 3-3 indicates the educational/skills levels of Brasov's employees as of January 1, 1998

Table 3-2 Staff Turnover		1997
New Hires		98
- Voluntary Resignations		(53)
- Terminations		(4)
- Retirements		(30)
Net Additions to Work Force		11

Table 3-3 Employee Educational and Skill Levels		1998
University Graduates		183
High School Graduates / Vocational qualification		154
Skilled workers		971
Unskilled workers		25
Other		9
TOTAL		1,342

3 3 2 Personnel Policies

3 3 2 1 Labor Relations

All personnel policies are determined pursuant to the labor contract entered into between RENEL (with Brasov as a signatory) and the two labor unions. The first contract was negotiated in 1991, and it has been renegotiated on an annual basis. Despite these renegotiations, the contract has remained virtually unchanged over the past 7 years. The contract addresses a wide range of issues relating to management and labor, including hiring and firing policies, salaries, conduct by employees, annual leave, holidays, and other such topics.

With the restructuring of RENEL, the status of the contract and the rights of the labor unions is a topic of dispute between management and labor. Labor units have led national demonstrations against the reform and a legal action is pending in an attempt to stop the disintegration of RENEL. The outcome of this action is uncertain, however, it is clear that there must be a constructive involvement of the labor union in any decisions involving further restructuring at Brasov.

3 3 2 2 Hiring Policies

As noted above, all employee/employer relationships are controlled by the contract. Two hiring policies are used, depending on the level of the position. For lower level workers, the availability of such positions is made available through public postings and notices such as the newspaper.

Positions for higher level managers (e.g., chemical engineer, economist, etc.), follow a more rigorous process. Notice of the position is published in various forums. Fifteen days after publication of the notice, an exam is administered to determine the number of qualified candidates. An examination board reviews the exam results to make a final selection of the candidates. As discussed more fully below, all employees, including new employees, are required to undergo psychological testing and a medical exam before the hiring process is completed.

3.3.2.3 Employee Benefit Packages

The labor contract specifies the benefit packages available to employees. Such benefits include bonuses, holiday premiums, annual leave, maternity leave, sick leave, and disability.

Employees are eligible for up to 17 categories of bonuses. Besides performance, bonuses are available for the type of work that is performed. For example, bonuses are available for dangerous jobs such as climbing poles used for high-voltage wires. Employees performing jobs involving use of toxic chemicals are also eligible for bonuses.

Holiday premiums include extra pay for working on holidays such as Christmas, Easter, and similar holidays. Annual leave varies, depending on seniority with the company. Employees are eligible for between 21 and 28 days annual leave (workdays). Employees with severe work conditions may be eligible for extended annual leave.

Maternity leave provides recent mothers with 2 years paid leave after having a baby. Sick leave depends on seniority. Employees receive between 65% and 100% of their salary, depending on seniority, up to 180 days. After 180 days, the company benefits expire and the employee must resign if he does not return to work. However, if the employee is able to work, but not able to work in his previous job, the company will make an effort to place the employee according to his capabilities. Other than for these circumstances, the company has no obligation to hire the handicapped.

Health insurance is provided by the state, so the company does not provide health insurance plans for its employees. However, a general practitioner is available at the company. Presumably, his purpose is more to certify the acceptable medical condition of the employee for particular job responsibilities than to provide medical services.

Brasov is one of the most industrial regions in Romania, which has led to a shortage of housing. To help managers find housing, the company built about 200 apartments on company premises, which are available for sale or lease. To date, about 135 apartments have been sold to managers, the rest will be rented to employees.

3.3.2.4 Downsizing Policies

Restructuring can and often does result in a more efficient work force by eliminating job duplication, merging job responsibilities into fewer departments, and streamlining the workforce. With the restructuring of the company, many job positions will be eliminated or changed, and

new job descriptions will be developed. Downsizing can be achieved by employee layoffs, forced retirement, early retirement buyouts, or shorter workweeks, etc.

At Brasov, the labor contract provides specific procedures for reducing the workforce through employee layoffs or earlier-than-normal retirement. Outright dismissal is used in very limited circumstances, such as extremely poor conduct. Under the labor contract, a dismissed employee is given 20 days notice of termination and is also given a severance package of between 3 and 8 month's salary, depending on seniority with the company.

For layoffs, the company determines which employees should be asked to resign based on a number of factors set forth in the labor contract, including quality of work, educational levels, sources of income other than wages, and additional considerations.

In general, outplacement programs are designed to assist displaced employees by providing job-hunting help, limited training to develop new skills, and counseling. The company does not have an outplacement program in place, and the lack of such a program will create a hardship for employees who are displaced due to restructuring.

3.3.2.5 Recommendations for Right-Sizing the Company

Right-sizing the company for market conditions is imperative to improve the efficiency of the company's operations. The statistical evidence suggests that a distribution company like Brasov will be overstaffed in comparison to other companies that operate in a competitive market environment. For example, the Financial Analysis (Section 2) notes that Brasov's staffing levels are approximately 30% higher than levels at Electricidade de Portugal (0.63 employees per MWh sold).

Right-sizing – or in this case, downsizing – the company can be achieved in several ways. As previously stated, options include early retirements, layoffs, reductions through attrition, shorter workweeks, etc. The existing collective labor contract addresses a number of these issues and may limit the company's ability to implement any of these downsizing options. Indeed, we were told that the labor unions have initiated litigation under that collective agreement. Whatever form the final program for downsizing takes, it should be carefully reviewed by management, labor leaders, and all affected parties.

As noted in Section 2 of this report, the collective labor contract requires RENEL to provide a severance package for employees that are terminated for reasons other than performance. The payment is based on seniority, as summarized below:

Length of Service	Severance Package
• 6 months to 5 years	2 months gross salary
• 5 to 10 years	3 months gross salary
• 10 to 20 years	4 months gross salary
• Over 20 years	5 months gross salary

Reducing staffing levels by this method will need to be balanced against other options. Reduction by attrition is one option, but its effectiveness is uncertain given existing economic conditions in Romania. However, a combination of these approaches, possibly along with shorter workhours for some employees, may produce the appropriate number of reductions.

In any event, a successful downsizing program needs to achieve not only its reduced staff level objectives, but must also address employee morale. Poorly implemented downsizing programs can adversely affect the attitude of the remaining employees, creating a sense of negativism towards the restructuring and uncertainty about their own future with the company. Therefore, the final program should demonstrate consideration for displaced employees and attempt to smooth their transition.

Employee assistance programs should provide retraining, counseling and job placement support.

Retraining Programs

Retraining programs can assist in relocating employees by giving them new job skills that are required in other markets. For example, we were told that Bell Helicopter is building a new plant near Brasov, a retraining program could build on employee skills in the electric utility sector and redirect those skills to a different industry, such as aviation.

Counseling Programs

Counseling programs allow employees to discuss their situation with an experienced professional to help them deal with emotional stress, financial pressures, perceptions of self-worth and success, etc. In particular, such sessions can help employees look favorably on developing new opportunities, and understand the strengths they have to offer in other work environments.

Placement Programs

Company placement programs can actively offer displaced employees access to information about job opportunities. Placement officers should gather information about job opportunities and coordinate dissemination of that information. Moreover, it is possible that as other electric companies restructure, those companies will develop job opportunities. For example, during our interviews at Brasov, we encountered a perceived need for additional managers and lawyers to help with restructuring.¹ Thus, placement efforts should focus on opportunities not only outside the utility sector, but also within that sector.

¹ We were told that more lawyers would be needed to negotiate an increased number of contracts that would follow restructuring. The use of outside law firms is not widespread in Romania, and most lawyers are hired as company employees.

3 4 TRAINING

3 4 1 Introduction

Assessing Brasov's existing training program and ensuring that it is effective is crucial to a successful transition during restructuring. An effective training program promotes several important objectives:

- Ensures that employees know how to perform their new jobs
- Creates a sense of confidence in employees that in turn supports the transition
- Establishes required competence so that important corporate functions are performed correctly
- Reaffirms to employees that the transition is actually occurring and requires new approaches that are supported by the company

Our review sought to determine whether the existing training programs are effective, and whether any new training programs are required to support the transition. This review included a review of training programs available to Brasov from the CONEL Training Center, training programs provided by outside commercial establishments, and a review of existing and potential training sites. We focused on training programs on management, economic analysis, accounting, and other related topics dealing with managing a company in a competitive and commercial environment.

3 4 1 1 Existing Training Programs

Basically, the Brasov Distribution Company has at least two training program providers available: the CONEL Training Center, with headquarters in Bucharest, and outside private contractors such as the Center for Open Distance Education (CODECS).

CONEL Training Center

Traditionally, the CONEL Training Center has provided most of the training for employees. The Training Center headquarters include classroom, lodging, and computer training facilities and modern computer equipment/software for simulation of electric equipment, etc. The classrooms have blackboards, large-screen TVs, and other instructional equipment. Lighting and heating is good, and air conditioning will be installed by next summer.

Other training facilities are located outside of Bucharest, such as those in Brasov. A tour of the Brasov facilities revealed typical classroom arrangements, with desks, blackboards, etc., as well as a number of older simulators and other pieces of equipment used for training in maintenance, repair, and other technical operations. Traditionally, most technical training was conducted in field training centers, and management training was conducted in Bucharest.

Once a year, the CONEL Training Center distributes a catalogue of courses available to supervisors (managers recommend employees for appropriate courses). The catalogue includes approximately 126 courses, listing course objectives, intended participants, course summaries,

course levels (introductory, intermediate, and advanced), minimum and maximum enrollments, and course duration and dates. Most of the courses are designed to train technicians, engineers, and workers. Only one section of the catalogue lists courses on management (11 courses), as follows:

- Management for Managers
- Management for Human Resource Directors
- Management of Audits
- Management of Investments
- Management for Promoting Workers
- Management of Supplying Customer Services
- Operating a Company in a Market Environment
- Basic Course in Accounting
- Basic Financial Management
- Operating Cost and Profit Centers
- Basic Economic Concepts

Although some of the course titles sound appropriate, it was not possible to evaluate actual content, or whether courses encompass modern economic and management concepts.

The CONEL Training Center also offers other services such as text translations, printing, audiovisual support, etc.

Outside Training Program Providers

Brasov sends some employees to outside training organizations, but such training is extremely limited because it is expensive. However, it was generally felt that outside training programs were well organized and provided information on modern management and economic concepts.

One outside provider is CODECS, a Romanian corporation founded in 1993 that provides training to companies doing business in Romania. CODECS was founded by 25 students who completed a management course offered by The Open University from England. CODECS has its headquarters in Bucharest, and has approximately 12 offices throughout Romania, including Brasov. CODECS now offers several certificate programs, such as a Professional Certificate in Management, a Professional Diploma in Management, and a Master of Business Administration. Most courses are self-taught over a period of 6 months, using manuals designed for programmed self-instruction. This allows full-time employees to remain on the job while they study at night and on the weekends. Students meet with mentors about once a month to discuss topics, ask questions, and relate the material to their job responsibilities. To complete the course, students are required to apply what they have learned in the course to a particular problem at their

worksite and take a final exam. Generally, mentors and instructors are former CODECS students. Some of the courses offered by CODECS are

- The Effective Manager
- Managing Customer and Client Relations
- Accounting for Managers
- Managing Development and Change
- Managing Resources for the Market

Higher level courses required for an MBA are

- Creative Management
- Corporate Financial Strategy
- The International Enterprise

CODECS also offers short courses in a number of areas, including management, marketing, and financial management. The courses are offered in either a classroom environment or a distance education system.

As with the CONEL Training Center, it was not possible to determine the content and quality of the courses, (i.e., whether the courses included modern management and economic concepts). However, unlike CONEL, the courses cover more general concepts and are not specifically related to the energy sector. CODECS has trained some RENEL employees. Other typical clients of CODECS include foreign companies doing business in Romania, such as Coca-Cola, Pepsi, Henkel, and DHL.

CODECS has produced training materials in conjunction with other organizations. For example, it has developed self-teaching training manuals and a 1-year course for the fishing industry, based on funding from the British Know How Fund.

3.4.1.2 Proposed Training Programs

Training Objectives

A successful restructuring transition requires a training program capable of retraining employees in a number of new areas. Objectives of such a training program include

- Building the necessary skills to operate the company in a competitive environment
- Ensuring implementation of proper management techniques and organizational structures to encourage optimal use of resources (including the workforce itself)
- Building employee confidence in themselves and in the success of the restructured company

The restructuring process is currently under way, and training in some topics is more urgent than others. The more urgent topics relate to management, international accounting standards and their relationship to Romanian accounting standards, tariffs and rate methodologies, human resource management and development, and billing and collection procedures. As restructuring progresses, other topics will take on increased importance: bid solicitation and evaluation, contract negotiation, power purchase agreements, project finance, and economic evaluation techniques.

The proposed training program might include a series of seminars (2 to 3 days in duration) as well as longer training courses (1 to 2 weeks). Study tours to the United States could be designed so that participants can observe commercial utilities in operation and speak directly with utility managers.²

Proposed Training Topics

Suggestions for longer training courses (some of which can be adapted to seminars) include the following:

- **General management of electric distribution companies** Provides upper management with an overview of important topics, such as organizational structure, development and execution of a business vision, management techniques, financial structure of a private enterprise, international accounting concepts, tariffs, and economic evaluation techniques. *Participants* top-level management (general directors, directors)
- **Leadership in a changing environment.** Teaches directors, HR managers, and managers how to lead their organization through the difficult changes that occur during corporate restructuring. Focuses on individual leadership skills, theories of change in management, and skills needed to motivate staff to embrace new approaches and techniques. *Participants* senior- and mid-level managers, HRD managers
- **Human resource management and development programs** Teaches HR managers how to (1) use workforce, performance, and salary review procedures, (2) develop and use incentive mechanisms, (3) design and establish workforce training programs (with an additional focus on adult learning and motivation), (4) perform workforce planning and strategic planning, (5) manage the interview and selection process, (6) improve productivity, and (7) employ total quality management techniques effectively. *Participants* human resource managers
- **Organizing and staffing electric utilities** Demonstrates how to structure and staff an organization to divide the workload appropriately and facilitate efficient workflows, while simultaneously allowing a utility to fulfill its strategic plan. *Participants* mid- and high-level executives with management responsibility, human resource managers

¹ Half-day workshops also could be designed, but such workshops are usually too short to cover enough in-depth information to be useful.

- **Financial accounting for electric utilities** Teaches international accounting techniques and their relationship to Romanian accounting practices to help participants create financial assessments for external evaluation *Participants* financial managers and chief accountants
- **Management accounting for electric utilities** Teaches international accounting techniques and their relationship to Romanian accounting practices, allowing participants to assess daily operating cash flow needs, manage debt financing, and raise capital from other sources *Participants* financial managers and chief accountants
- **Tariffs and cost of service methodologies** Provides understanding of methodologies for setting rates, based on cost and other policy considerations, including time-of-day rates, customer class rates, and related issues Covers cost of service concepts (so that companies understand their costs and manage resources accordingly), revenue requirements, marginal distribution costs, and peak-load pricing options *Participants* accountants, financial managers, and managers of rate departments
- **Billing and collection methodologies** Covers billing procedures, bill design, meter reading, collection procedures (invoices, self-assessment, prepayment), service cutoffs, cutoff notices, theft-of-service abatement, reconnection procedures, customer relations, metering equipment protection, and billing and collection department operations *Participants* managers of billing and collection departments
- **Economic evaluation techniques** Demonstrates use of the “time value of money” concept to evaluate different economic options (e.g., repair *versus* replace, investment decisions, uncertainty and risk analysis, payback calculations, borrowed money impacts, etc *Participants* high- and mid-level operations managers, financial managers

The need for other training topics should be evaluated as restructuring evolves Some suggested topics that should be addressed are summarized below

- **Bid preparation, solicitation, and evaluation** Covers how to determine system needs through planning criteria and costs, define evaluation criteria, prepare bids to solicit appropriate information for evaluation, develop RFP contents, evaluate bids, and score price and non-price criteria *Participants* operations managers
- **Contract negotiations and private power project financing** Covers power project contract negotiations, standard contract provisions, risk considerations, lender considerations in evaluating contracts for financing, financial projections, risk analysis, financial source reviews, and public/private partnerships (BT, BOT, BLT, BOOT) *Participants* upper management, financial managers, lawyers
- **Demand-side management** Covers end-use efficiency programs, data collection, economic analysis, managing demand-side management activities, energy service companies, and program monitoring *Participants* marketing managers, especially those serving large industrial users

4.1 OVERVIEW AND SUMMARY

The efficiency and effectiveness of the company's interactions with its customers is of primary importance to its future success. Customer interactions may occur in a number of ways, those considered are

- Customer service standards
- Electricity losses
- Demand-side management (DSM)
- Billing practices and collections

This report examines each of these areas and offers recommendations for improving the services offered. The work undertaken in the execution of this subtask includes

- Interviews conducted at Brasov's main office
- Site visits to the Brasov customer service centers in the city of Brasov, in the area known as "Exterior Brasov" and at the regional centers of Fagaras and Rupea
- Assimilating other data collected in the execution of this project

4.1.1 Effects of Changes on Customer Services

Recent changes associated with the restructuring of RENEL are likely to impact the functionality and resources of a number of departments within the Brasov. However, as of September 1998, the extent of these impacts is uncertain as changes are still being implemented. However, the kinds of changes being made are likely to have only minimal impact on customer service departments (primarily the marketing and operations groups).

4.2 CUSTOMER SERVICE STANDARDS

4.2.1 Introduction

Customer service standards are formal procedures through which the distribution company interacts with its clients. This section looks at the company's customer service standards, and how the company meets these standards and interacts with customers.

4.2.1.1 Providing Customer Services

Customer services are provided through the distribution company's customer service centers¹. These customer service centers are located in the following locations:

- Brasov

¹ The customer service centres at Brasov, Sacele, Risnov, Codlea, Fagaras, and Rupea were visited during the field visit in September 1998.

- Exterior Brasov (includes centers in Sacele, Predeal, Prejmer, Risnov, Codlea, and Feldiora)
- Fagaras (includes centers in Fagaras and Victoria)
- Rupea

Customer service centers are staffed with operations staff involved with scheduled maintenance and fault repairs, and marketing staff responsible for metering, delivering invoices, collecting cash, handling public relations, and contracting for new business

4 2 1 2 Defining the Scope of Customer Services

For the purposes of this report , customer services (examined in the following sections) include procedures related to

- Repairing faults
- Collecting cash at customer service centers
- Providing information to customers
- Handling customer complaints
- Contracting for new business
- Disconnecting service

4 2 1 2 1 Repairing Faults

Faults in the medium- and low-voltage electricity networks are Brasov's responsibility The exact procedure depends on which network the fault occurs in

- **Low-voltage network faults** When reported to the customer service center, this type of fault is manually recorded in a disturbance fault ledger When repaired the ledger is updated with details of the fault and how it was repaired At month-end, a summarized report is prepared detailing faults by cause for the month
- **Medium-voltage network faults** This type of fault is manually recorded in an incident fault ledger On completion of the repair
 - The incident ledger is updated with details of the fault and how it was repaired
 - A shift ledger is completed, recording actions taken and changes to the network
 - An incident report is completed in duplicate, one copy is for the customer service center, the other is for the Brasov operations department

Monthly meetings are held to discuss medium-voltage network faults² and to analyze the incident reports After the meetings, the Brasov computer department enters the incident reports

² If time permits, low-voltage faults may be discussed

and forwards the data to RENEL in Bucharest. This computerized fault data is analyzed annually by equipment type, cause, efficiency of repair etc.

Targets No targets are set for repair times to either the low- or medium-voltage networks. As shown in Figure 4-1, Arthur Andersen was given average reconnection times for repairs to damaged above-ground and underground lines (both urban and rural).

	Above-ground	Underground
Rural	Between 300 – 400 minutes	Between 400 – 500 minutes
Urban	Between 100 – 200 minutes	Between 0 – 100 minutes

Figure 4-1 Average Reconnection Times

These reconnection times are significantly longer than the reconnection times recorded for Portuguese and Spanish distribution companies.

Data Collected from Customer Service Centers Customer service centers were visited during the September 1998 field trip to examine fault repair policies. The data collected shows wide disparities between customer service centers, as illustrated in Figure 4-2 and summarized below.

- Some service centers operate on a 24 hour basis, others do not.
- The number of faults recorded varies between the customer service centers³.
- Average reconnection times differ⁴.

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Hours when faults can be reported	24 hours	7am to 11pm Mon to Fri (A)	24 hours	7am to 11pm Mon to Fri (A)	7am to 11pm Mon to Fri (A)	24 hours
Hours when faults are repaired	24 hours	7am to 11pm	24 hours	7am to 11pm	LV 7am to 3pm MV 24 hrs	24 hours except LV individual faults
Compliance with procedure	Yes	Yes	Yes	Yes	Yes	Yes
Faults per week	100	6	10	70	6	21
Average time to reconnect	35m	30m	LV <1day MV <2hrs	Fault <24hr	Up to 3 hrs	MV <2hrs LV <24hrs

Figure 4-2 Fault Repair Data

³ Data should not be seen as accurate – these were estimates based on the experience of the interviewee.

⁴ Data should not be seen as accurate – these were estimates based on the experience of the interviewee.

4.2.1.2.2 Collecting Cash

Invoices not settled with the meter reader are settled at the customer service centers. Small consumers and household consumers not in when the meter reader visits, or unable to pay the meter reader, are left a note detailing the amount owed and the address of the customer service center. To settle the invoice, the customer visits the customer service center and pays the cashier.

Targets There are no targets relating to cash collections at the customer service centers.

Data Collected from Customer Service Centers Customer service centers were visited during the September 1998 field trip to examine the cash collection offices. Data obtained is shown in Figure 4-3.

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Opening hours for cash collection office	Mo to Fri 8:30 - 12:30 Mo, Th 2:00 to 5:30	We 2:00 to 5pm Th 1pm to 4pm	Mo 9:30 to 1:30pm Tu, We 11 to 5pm	Tu 1:00 to 5pm	We 4:00 to 6:00pm Fri 4:00 to 6:00pm	Mo to Fri 7:30 to 2:30
Number of cashiers	7	2 We, 3 Th	2	3	3	1
Number of customers per week ⁵	9000	30	250	120	150	90
Cashiers accept payments for set areas only	Yes	Yes	No	No	No	No

Figure 4-3 Cash Collection Data

The limited opening hours of cash collection offices severely limits the times when customers can pay their electricity bills. There are further restrictions in Brasov and Codlea, where customers are required to make payments to specific cashiers.

The number of customers making payments at the Brasov customer service center is significantly higher than at the other customer service centers. This is probably due to its longer hours of service, larger householder customer base, and more accessible location.

4.2.1.2.3 Providing Information to Customers

Although customer queries are answered at customer service centers, there appears to be no procedure governing this service.

Targets There are no targets.

Data Collected from Customer Service Centers Customer service centers were visited during the September 1998 field trip to determine the number of questions being asked. Data collected is presented in Figure 4-4.

⁵ Data should not be seen as accurate – these were estimates based on the experience of the interviewee.

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Times in which questions can be asked	Mo to Fri 8 30 - 12 30 Mo, Th 2 00 to 5 30	Mo to Fri 7 00 – 3pm	Mo to Fri 7 30 to 2 30			
Questions answered by all or by employees with specific responsibility	2	All	2	All	1	2
Questions logged	No	No	No	No	No	No
Number of question per week ⁶	300	Up to 100	70	15	20	30

Figure 4-4 Information Provided to Customers

Questions can usually be answered during the standard office hours of 7 AM to 3 PM, except for Brasov and Rupea, where times are more restrictive. None of the cash collection centers log the questions being asked.

4.2.1.2.4 Handling Customer Complaints

Customers can make complaints at the customer service centers. Written complaints must be logged and answered within a defined period. Meter complaints are recorded in a ledger, and an electrician then makes a visit to replace the defective meter.

Targets There are no targets except for the time to reply to written complaints.

Data Collected from Customer Service Centers Customer service centers were visited during the September 1998 field trip to determine how many complaints were being made (see Figure 4-5).

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Times when complaints can be asked	Mo to Fri 8 30 12 30 Mo, Th 2-5 30pm	Mo to Fri 7 00-3pm	Mo to Fri 7 00-3pm	Mo to Fri 7 00 3pm	Mo to Fri 7 00 3pm	Mo to Fri 7 30-2 30
Employees responding to complaints	5	All	2	Foreman	Foreman	2
Procedure followed	Yes	Yes	Yes	Yes	Yes	Yes
Non-written complaints logged	No	No	No	No	No	No
Number of complaints a week	Meters 20 Other 1	6	Meters 10 Other 5	7	12	Meters 21 Other 1

Figure 4-5 Complaints

Complaints are of two types, metering complaints and general complaints.

⁶ Data should not be seen as accurate – these were estimates based on the experience of the interviewee.

- Metering complaints involve faulty meters and are recorded in a ledger. They usually result in an electrician replacing the customer's meter.
- General complaints are usually always verbal and are not recorded. Written general complaints are very rare.

4.2.1.2.5 Contracting for New Business

Customers requiring electricity services in excess of 10kW must contract directly with the head office in Brasov, customer service centers can make contracts for less than 10kW.

Customer contracts are of two types, the first being a new customer for an existing connection, the second is a new customer and a new connection. Due to current economic conditions in Romania, contracts involving new connections are very rare. There are procedures in place governing new customer activities.

Targets: None

Data Collected from Customer Service Centers: Customer service centers were visited during the September 1998 field trip to gather data on the number of new contracts being entered into (see Figure 4-6). Customers signing a new contract must visit the customer service center during the cash office opening hours as a license fee has to be paid.

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Hours during which contracts can be processed	Mo to Fr 8:30 - 12:30 Mo, Th 2:00 to 5:30	We 2:00 to 5pm Th 1pm to 4pm	We 9:30 to 1:30 p.m.	Tu 1:00 to 5pm	We 4:00 to 6:00pm Fr 4:00 to 6:00pm	Mo to Fr 7:30 to 2:30
Employees handling new business	5	3	1	2	1	3
Number of new contracts per week	50	15	5	10	8	22

Figure 4-6 New Business Data

4.2.1.2.6 Disconnecting Service

Contracts for households and small consumers must be terminated at the customer service center. Households and small consumers that have not paid their bills are cut off by the customer service center. All customers are required to terminate their contracts on moving. However, in practice, very few consumers actually terminate their contracts, most leave without informing the distribution company. The contract with the customer sets out the conditions under which the consumer will be cut off.

Targets: None

Data Collected from Customer Service Centers: Customer service centers were visited during the September 1998 field trip to gather data on the number of voluntary and involuntary disconnections the customer service centers processed (Figure 4-7).

	Brasov	Codlea	Fagaras	Rasnov	Sacele	Rupea
Number of voluntary disconnections per week	10	Very few	15	Very few	8	1
Number of involuntary disconnections per week						
• Households	300	100	40	20	30	11
• Small consumers	150	10	8	6	6	1

Figure 4-7 Disconnection Data

4 2 2 Recommendations for Improving Customer Service

There are several improvements that can be implemented to improve both the efficiency of customer service delivery and the quality of service delivery, as discussed below

4 2 2 1 Availability of Services

Customer services are only available at certain times, as summarized in Figure 4-8

Area to be Improved	Recommendations
Fault Reporting Not all customer service centers operate a 24-hour fault reporting service. Where a 24-hour service is not available, customers can leave messages on an answering machine, although electricity will not be reconnected until the next day.	A 24 hour fault reporting service should be maintained. Two alternatives are potentially available: <ul style="list-style-type: none"> • The creation of a centralized fault reporting service for the entire district of Brasov. All faults would be reported to this center, which would then notify the respective customer service center. The centralized fault reporting center would be open 24 hours a day. • Customer service centers not operating a 24 hours fault service should either operate this service, or divert calls to a customer service center which does operate on a 24 hour basis.
Fault Repairs Not all customer service centers operate a 24 hour fault repair service. Where 24 hour service is not available, the customer remains without electricity until the next day.	A 24 hour fault repair service should be maintained. Where the service is not currently available, a 24-hour service should be introduced.
Cash Collection Customer Service Centers, and especially the cash collection offices, have limited opening hours. This restricts the customers in obtaining services and paying invoices.	Customer service centers and cash collection offices should have opening hours convenient to the customer, not the distribution company. The customer service centers should be open outside the normal working hours to allow the customers to visit before or after work.

Figure 4-8 Recommendations on Availability of Services

4 2 2 2 Information and Complaint Procedures

There appear to be no uniform procedures on how to process information requests and verbal complaints (Figure 4-9)

Area to be Improved	Recommendations
Information Requests There appears to be no uniform procedure on how to process information requests. The process appears to be handled on an ad hoc basis.	A procedure should be developed and implemented at customer service centers to process information requests efficiently and competently.
Verbal Complaints There appears to be no uniform procedure on how to process verbal complaints. The process appears to be handled on an ad hoc basis.	A procedure should be developed and implemented at customer service centers to process verbal complaints efficiently and competently.

Figure 4-9 Recommendations on Information and Complaint Procedures

4.2.2.3 Need for Customer Information Databases

There appears to be very little electronic information recorded in respect to customers and contacts with customers (Figure 4-10)

Area to be Improved	Recommendations
Contract Information New household and small consumer contracts are not computerized. There is no access to the contract outside the customer service center, and immediate access to customer details is difficult.	A centralized computerized customer database should be developed that has the flexibility to record all the customer's details, including contractual information, billing information, customer contacts, written complaints etc. Any interactions with the customer, such as billings, queries and complaints, should be recorded on the database so as to maintain an up to-date customer file. With this information quickly accessible, a better, more informed service, can be provided.
Fault Information Information on low voltage and medium-voltage faults is initially recorded in manual ledgers. This information is initially unavailable outside the customer service center, and analysis is impossible without first computerizing the data.	A centralized computerized fault database should be developed to supersede the manual ledgers. Data should be cross referenced with the customer database where appropriate. The computerized fault database should be able to analyze all the fault data and be accessible to all those who require access.
Meter Complaints Complaints in respect to meters are recorded in manual ledgers. This information is unavailable outside the customer service center, and analysis is impossible without first computerizing the data.	A centralized computerized meter database should be developed to supersede the manual ledgers. Data should be cross referenced with the customer database where appropriate. The computerized meter database should be able to analyze all the fault data, and be accessible to all those who require access.
Information Request Processing Requests for information, and how these requests are processed, are not recorded. The company is therefore not in a position to analyze data to determine whether actions need to be taken.	Requests for information, and the steps taken to service the customer, should be recorded in the computerized customer database. The data should update the customers file, and also be separately available to be analyzed.
Verbal Complaint Processing Verbal complaints, and how these complaints were processed, are not recorded. The company is therefore not in a position to analyze data to determine whether actions need to be taken.	Verbal complaints, and the steps taken to satisfy the customer, should be recorded in the computerized customer database. The data should update the customer's file, and also be separately available to be analyzed.

Figure 4-10 Proposed Customer Information Databases

4.2.2.4 Customer Service Targets

Targets to monitor the quality of customer services are not set (Figure 4-11)

Area to be Improved	Recommendations
Customer Service Targets Targets are not set with respect to the number of complaints per thousand employees, targets in respect to the time it takes to reconnect a customer, etc	Performance indicators of service delivery should be identified. Procedures should be developed to collect the information required to quantify these performance indicators. Targets should be set. Procedures should be developed to analyze the performance indicators against the targets.

Figure 4-11 Customer Service Targets

4.3 ANALYSIS OF ELECTRICITY LOSSES

4.3.1 Introduction

Electricity losses in the Brasov network are determined to be the difference between total electricity received by the transmission and distribution system and total consumption, as calculated by total electricity invoiced.

These losses can be defined as either technical or commercial. Technical losses apply to both the transmission and distribution networks, and include transmission losses. Commercial losses apply to the distribution network only, and are the result of

- Losses related to unrecorded or incorrectly recorded energy consumption
- Fraud (illegal connections to, or appropriations from, the distribution network)

4.3.1.1 System Losses

Losses are monitored separately for the transmission and distribution networks. For 1996 and 1997, system losses were estimated by Arthur Andersen as shown in Figure 4-12.

Activity	Percentage Loss 1996	Percentage Loss 1997
Transmission	3.4	1.8
Distribution	11.3	11.0
Total	14.7	12.8

Figure 4-12 System Losses

System losses for distribution are approximately 11%. According to international experts, 4 to 5% represents a reasonable percentage for losses in a distribution network, with the maximum internationally acceptable level of losses being approximately 10%. The 11% loss for the distribution system cannot be further broken down by commercial or technical losses. However, Brasov management claims that the loss is mainly technical in nature.

4.3.1.2 Reducing Distribution Network Losses

Losses in the distribution network are as a result of both technical and commercial losses. Potential ways to reduce these losses include:

- **Technical loss reductions** These losses can be reduced by (1) upgrading obsolete, inefficient equipment (i.e., transformers and conductors), (2) upgrading the quality of distribution network cabling, and (3) monitoring the distribution network by installing real-time monitoring equipment to manage the system effectively.

Thus, technical losses can be reduced through increased capital expenditure on modern, efficient equipment. The Brasov branch recognizes the need to upgrade its distribution network, however, owing to insufficient resources, this is long-term objective.

- **Commercial loss reductions** These losses can be reduced by:
 - *Replacing old meters* A significant proportion of the electricity meters⁷ are still in operation well beyond their technical lifespans. The technical department claims that, in most cases where a meter is out of order as a result of old age, recorded electricity is either reduced or zero. Replacing old electricity meters, especially for customers with higher electricity consumption, could reduce these commercial losses.
 - *Using more accurate meters* Commercial losses result from using meters with a low degree of accuracy. The technical department estimates that up to 2% of losses result from using such meters. Upgrading these meters with more accurate models, especially for those customers with higher electricity consumption, could reduce these losses.
 - *Reducing electricity thefts* Theft of electricity was insignificant when electricity prices were low. However, with the introduction of market reforms and increases in the price of electricity, the incidence of theft of electricity has increased. This has been made easier by the use of electricity metering equipment that was not designed to prevent fraud.

Meter readers currently report suspicious wiring, enabling electricians to visit customers to investigate. This practice should be continued. Additionally, meters should be upgraded to be more secure against fraud. This should help reduce electricity thefts.

4.3.1.3 Conclusions

Reducing technical and commercial losses of Brasov GTDEE will significantly increase invoiced revenues of the company. Significant room for improvement exists, as Brasov's distribution losses are approximately 11%, whereas the industry's acceptable loss levels are closer to 5%.

⁷ For all consumer classes (large company, small company, household)

Electricity losses are also covered in the Arthur Andersen report

4 4 ANALYSIS OF DEMAND-SIDE MANAGEMENT OPTIONS

4 4 1 Introduction

The Brasov distribution company can directly control the supply of electricity to its customers. Additionally, it can also influence the demand for electricity through electricity pricing policies and advice given to customers on how to best utilize electricity. The latter is called demand-side management (DSM).

Reducing overall electricity consumption through DSM techniques, or flattening the electricity load curve, is beneficial because it

- Frees generating capacity for other customers
- Better utilizes baseload electricity throughout the day
- Reduces the amount of peak-load electricity used

Therefore, DSM can be economically beneficial, not only for the distribution company, but also for the consumer if these benefits result in lower electricity prices.

4 4 2 DSM – Small Consumers and Households

As of September 1998, there were no DSM programs in operation for small consumers and households. Therefore, there are significant opportunities to influence the electricity consumption of these customers, as outlined below.

4 4 2 1 *Publicity Campaigns*

A leafleting campaign was in operation up to 2 years ago. In this campaign, a leaflet was produced offering customers advice on how to better utilize their electricity consumption. However, when all the leaflets were distributed, the campaign ended due to lack of funds for additional print-runs.

This leafleting campaign should be recommenced. The original leaflet should be reviewed and updated to reflect the latest in domestic and small consumer DSM techniques. They should be available at customer service centers and delivered directly to customers by meter readers.

4 4 2 2 *Advice*

The company's customer service centers have public relations assistants who answer customer questions. With appropriate training, and notification to the customer that the service is available, advice can be given to customers on appropriate DSM issues.

Staff training requirements should be determined and the appropriate training programs should be developed. The training programs should be targeted to those employees responsible for answering customer questions at customer service centers.

4 4 2 3 Showroom Displays

The Marketing department intends to open a showroom, creating opportunities for static displays demonstrating the potential benefits of DSM techniques

4 4 2 4 Onsite Energy Audits

Currently, no onsite energy audits of households or small consumers are conducted. However, an opportunity for onsite energy audits exists, as meter readers already visit these customers every month or every other month. Training requirements for meter readers should be determined and a training program developed. The meter readers would then be available to give onsite advice to customers on how to improve energy efficiency.

4 4 3 DSM – Large Consumers

DSM advice is already provided to large consumers, as discussed below.

4 4 3 1 Analysis of Load Curves

Large consumers prepare a 10-day electricity loading curve on a monthly basis. These are analyzed by the marketing department and then discussed with the client so as to determine ways of flattening the load. This is advantageous to the customer as those companies with flatter load curves have an average electricity price that is lower than those with more peaked load curves.

4 4 3 2 Site Visits

On request, engineers and electricians from the Brasov GTDEE subsidiary visit customer facilities and offer advice on energy usage.

4 4 3 3 Regular Customer Meetings

The Marketing department holds quarterly meetings with large customers to inform them of changes in electricity prices or regulations. Additional meetings are held on ways to reduce electricity consumption.

4 4 4 Summary

For large consumers, electricity consumption is a significant expense that the Marketing department believes is already well-controlled by most customers. However, the company does continue to offer a significant level of advice on how to reduce electricity consumption and on how to flatten electricity load curves.

For small consumers and households, no DSM advice is given. However, through a limited investment in leafleting, employee training, and a showroom, the company can offer these customers significant levels of advice on how to better manage their electricity consumption.

4 5 ANALYSIS OF BILLING PRACTICES AND COLLECTIONS

4 5 1 Introduction

Metering, billing and collections are important business processes, affecting the financial performance of the subsidiary and involving significant client contact

4 5 2 Metering, Billing, and Collections

Metering, billings and collections procedures vary depending on the type of customer

4 5 2 1 Large Consumers

Large consumers are those consumers with a requirement in excess of 100kW For these customers, meters are read monthly, with invoices being issued twice monthly as follows

- At the end of the month, a first invoice is issued for the contracted consumption for the following month
- At the beginning of the following month, after the meter has been read, a second invoice is issued for the difference between the actual consumption (as recorded by the meter readings) and the contracted consumption which was invoiced at the beginning of the previous month

These invoices are forwarded to the customer's bank for payment within 14 days Payments are then made directly to the distribution company's bank account

4 5 2 2 Small Consumers

Small consumers are those customers, other than households, with a requirement of less than 100kW Meters are read monthly for these customers As well as reading the meter, the meter reader also issues the previous month's invoice to the customer, who then either

- Pays the invoice immediately, giving the money to the meter reader
- Pays the invoice later (If the customer is not in, or does not pay immediately, the meter reader leaves a note detailing the amount to be paid, and the times at which payments can be made at the customer service center)

4 5 2 3 Household Customers

Meters of household customers are read every 2 months, at which time the meter reader also issues the previous month's invoice to the customer, the invoiced amount being calculated as the actual consumption as recorded by the previous meter reading The customer either

- Pays the invoice immediately, giving the money to the meter reader
- Pays the invoice later (If the customer is not in, or does not pay immediately, the meter reader leaves a note detailing the amount to be paid, and the times at which payments can be made at the customer service center)

4 5 3 Weaknesses and Recommendations

The weaknesses of the metering, billing and collections business processes, and the options available to the distribution company, are as follows

4 5 3 1 Large Consumers

Large consumers have their meters read monthly and are invoiced twice monthly, the first invoice being an advance payment of the contracted electricity and the second being an adjusted invoice. The system has the advantage that, as large consumers pay for their contracted electricity in advance, working capital is available immediately to pay for the electricity distributed.

A potential improvement would be automated meter reading of large consumer electricity consumption. This would reduce the delay in preparing the adjusted invoice as meter readers would no longer be required to make site visits. Additionally, another benefit of remote, real-time meter reading is that all electricity consumption could be monitored, thereby allowing a better allocation of electricity within the distribution network.

4 5 3 2 Small Consumers and Households

The weaknesses in the metering, billing and collections business processes for these customers are

- **Delays in invoicing** There is a significant delay in invoicing current period electricity consumption, as meter readings are the basis for invoicing actual electricity consumption in the following period. The invoice that is issued, charging for actual electricity consumed, is based on the previous meter reading. The consequences are that (1) for small consumers metered monthly, the invoice for actual electricity consumed relates to the period from 2 months to 1 month past, and (2) for households metered once every 2 months, the invoice for actual electricity consumed relates to the period from 4 to 2 months past.
- **Meter readers have responsibility for large quantities of cash** Meter readers collect significant amounts of cash from both the small consumers and households, creating a risk of theft by third parties and, because meter readers also read the meters, of fraud.

Solutions There are several potential options available to the distribution company

- **Immediate issuing of invoices through the use of portable computers** Meter readers are equipped with portable computers. As the meters are read, the readings are entered into the computer and an invoice printed using a portable printer. The invoice is then issued, and the cash collected.

The advantage of this approach is that delays in invoicing are eliminated. For small consumers, the invoice is calculated on the electricity consumed in the previous month, and for household consumers, the invoice is calculated on the electricity consumed in the

previous 2 months. However, this approach raises several issues that will need to be addressed

- *Regulations dictate invoice format* Regulations define the format of the invoice including size, which must be A4. Either an A4 printer will be required, which increases size of the computer equipment needed, or the regulations must be changed, allowing for invoices to be generated by smaller hand-held computers and printers
- *No division of duties* Under this proposed approach, the meter readers will have responsibility for both invoice preparation and collections. However, the potential threat of fraud through kickbacks (from under-reading customer meters) can be reduced through random meter audits
- *Posting of invoices* Under this approach, meter readers take readings and transmit data, either electronically or by fax, to the customer service centre responsible for generating invoices. Invoices are then printed and sent to the customer by post. Customers make payments either at a customer service center by post, or by using the banking system

The advantage of this approach is that delays in invoicing are eliminated. For small consumers, the invoice is calculated on the electricity consumed in the previous month, and for household consumers, the invoice is calculated on the electricity consumed in the previous 2 months. Another advantage is that meter readers are no longer responsible for cash collections, reducing the possibility of theft and fraud. However, several issues arise that will need to be addressed

- *Unreliability of postal system* The Marketing department considers the postal system to be insufficiently reliable to guarantee the delivery of invoices to the customer. Also, as few customers have bank accounts and access to checks, any payments sent by post will probably be in cash. Again, doubts remain as to the reliability of the postal system for payments submitted by post
- *Underdeveloped banking system* The banking system is underdeveloped when compared with Western Europe and the United States. There are very few banks outside central Brasov, and very few customers have bank accounts. Therefore, payment of invoices at banks is considered unrealistic for most customers at this time
- *More cashiers required* As payments are unlikely to be made via the banking system or by post, collections will need to be handled at customer service centers. It is likely that more cashiers will be needed to cope with the increased volume of payments made at the centers
- *Monthly household meter reading* Instead of household meters being read once every 2 months, household meters would be read monthly. This has the advantage of reducing the invoicing delay to 1 month. However, invoicing for small consumers and household customers would still be delayed for at least 1 month, and the number of meter readers would need to be increased significantly

4 5 4 Conclusions

Delays in invoicing of small consumers and households customers is the most significant weakness

However, as a result of the perceived inadequacies of the postal system, underdevelopment of the banking system, and the small percentage of customers who have bank accounts, the scope for change is limited. Of the options considered, having meter readers issue invoices using portable computers appears the most viable. This should be seriously considered.

This Appendix contains Romanian Electricity Authority Brasov Transmission and Distribution Branch financial statements prepared in accordance with international accounting standards as of December 31, 1997 and 1996, unaudited

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ROMANIAN ELECTRICITY AUTHORITY
BRASOV TRANSMISSION AND DISTRIBUTION BRANCH
BALANCE SHEETS
AS OF DECEMBER 31, 1997 AND 1996
UNAUDITED
Romanian lei in thousands

	Note	1997	1996
Assets			
Property plant & equipment	3		
Plant in service		205,020,237	202,433,205
Less Accumulated depreciation		(36,937,631)	(26,768,815)
		<u>168,082,606</u>	<u>175,664,390</u>
Construction work in progress		7,497,739	4,138,287
Total property, plant and equipment		<u>175,580,345</u>	<u>179,802,677</u>
Other noncurrent assets		<u>85,848</u>	<u>0</u>
Current assets			
Cash		2,665,853	660,970
Accounts receivables, net	4	121,003,574	40,596,489
Inventories, net	5	5,942,612	2,456,342
Unbilled revenues		(998)	(953)
Total current assets		<u>129,611,041</u>	<u>43,712,848</u>
Total assets		<u>305,277,234</u>	<u>223,515,525</u>
Liabilities and equity			
Owners' equity			
Capital		3,205,760	3,205,760
Accumulated deficit		(16,431,068)	(13,541,550)
Revaluation surplus		193,464,483	193,464,483
Total owners' equity	6	<u>180,239,175</u>	<u>183,128,693</u>
Other non-current liabilities		<u>368,108</u>	<u>284,816</u>
Long-term liabilities			
Customer deposits		1,395,063	1,017,367
Total long term liabilities		<u>1,395,063</u>	<u>1,017,367</u>
Current liabilities			
Accounts payable	7	116,328,487	14,992,475
Accrued liabilities	8	5,748,528	23,768,041
Other liabilities		1,197,873	324,133
Total current liabilities		<u>123,274,888</u>	<u>39,084,649</u>
Total liabilities and equity		<u>305,277,234</u>	<u>223,515,525</u>

The accompanying notes are an integral part of these financial statements

ROMANIAN ELECTRICITY AUTHORITY
BRASOV TRANSMISSION AND DISTRIBUTION BRANCH
STATEMENTS OF OPERATIONS
FOR THE YEAR ENDED DECEMBER 31, 1997
UNAUDITED
Romanian lei in thousands

	1997
Revenues	
Commercial and industrial revenue	430,442,631
Sales to railways	44,420,351
Residential revenue	27,360,211
Public streets lighting	5,416,005
Sales to public authorities	2,633,842
Other revenues	778,421
Total revenues	511,051,461
Operating expenses	
Purchased power	439,198,992
Materials and supplies	5,139,740
Salaries and wages	32,798,664
Repairs and maintenance	9,705,433
Depreciation and amortization	10,271,893
Taxes other than income	10,430,555
Other operation expenses	7,657,515
Total operating expenses	515,202,792
Operating income (loss)	(4,151,331)
Other income (expense)	
Disposal of property, net	803,366
Other, net	458,447
Total other income (expense)	1,261,813
Net loss before income taxes	(2,889,518)
Income taxes	-
Net Income	(2,889,518)

The accompanying notes are an integral part of these financial statements

ROMANIAN ELECTRICITY AUTHORITY
BRASOV TRANSMISSION AND DISTRIBUTION BRANCH
STATEMENT OF CASH FLOW
FOR THE YEARS ENDED DECEMBER 31, 1997
UNAUDITED
Romanian lei in thousands

	1997
Operating activities	
Net profit (loss)	(2,889,518)
Adjustments to reconcile net loss to net cash provided by operating activities	
Depreciation and amortization	10,271,893
Gain on disposal of fixed assets	(803,366)
Changes in current assets and liabilities	
Accounts receivable, net	(80,407,085)
Inventories, net	(3,486,270)
Unbilled revenues	45
Accounts payable	101,336,01
Accrued liabilities	2
Other current liabilities	(18,019,513)
	873,740
<i>Net cash provided by (used in) operating activities</i>	<i>6,875,937</i>
Investing activities	
Additions to property, plant and equipment	(6,182,398)
Additions to other assets	(87,304)
Guaranties received	83,293
Proceeds from fixed assets disposals	937,658
<i>Net cash used in investing activities</i>	<i>(5,248,751)</i>
Financing activities	
Proceeds from customer deposits	377,697
<i>Net cash provided by financing activities</i>	<i>377,697</i>
<i>Net increase (decrease) in cash</i>	<i>2,004,883</i>
Cash at beginning of year	660,970
• Cash at end of year	2,665,853

The accompanying notes are an integral part of these financial statements

ROMANIAN ELECTRICITY AUTHORITY
BRASOV TRANSMISSION AND DISTRIBUTION BRANCH
PRO FORMA STATEMENTS OF CHANGES IN OWNERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 1997 AND 1996
UNAUDITED
Romanian lei in thousands

	<u>Capital</u>	<u>Accumulated deficit</u>	<u>Revaluation Surplus</u>	<u>Total</u>
Balance at January 1, 1996	3,205,760	(6,072,007)	193,464,483	190,598,236
Net loss	-	(7,469,543)	-	(7,469,543)
Balance at December 31, 1996	<u>3,205,760</u>	<u>(13,541,550)</u>	<u>0</u>	183,128,693
Net loss	<u>-</u>	<u>(2,889,518)</u>	<u>-</u>	<u>(2,889,518)</u>
Balance at December 31, 1997	<u>3,205,760</u>	<u>(16,431,068)</u>	<u>0</u>	<u>180,239,175</u>

The accompanying notes are an integral part of these financial statements

A 1 ORGANIZATION AND OPERATIONS

BRASOV TRANSMISSION AND DISTRIBUTION ("The Company") is one of the 42 branches of the Electricity Distribution and Transmission Group of the Romanian Electricity Authority (RENEL). RENEL is a regie autonome established as a state owned public entity by a Governmental Act in November 1990 as the successor of the prior Ministry of Electricity, which was established in 1959. As of December 31, 1997, RENEL remains wholly owned by the State. The distribution and transmission (D&T) network is operated by these branches.

Retail electricity rates for RENEL are established by the Competition Protection Council under the direction of the Ministry of Finance. The branch relies upon RENEL to establish rates, approve budgets, provide capital for investment and many other tasks.

Rate increases approved by RENEL in 1996 and 1997 are as follows:

	<u>Electricity Rates</u>	
January 1 to July 1, 1996	80,600	42.4
July 2, 1996 to February 28, 1997	127,300	42.4
March 1, 1997 to November 1, 1997	365,000	50.0
November 2, 1997 -	385,075	50.0

Electricity rate increases approved in 1997 and 1996 have not been adequate to fully cover increases in the Company's costs. Due to a favorable mix of commercial and residential customers, the average rate per megawatt hour billed during 1997 was about 52 USD per megawatt.

Competition is expected to be introduced in at least the generation sector. In addition, certain activities, particularly generation and distribution, may ultimately be partially or fully privatized. It is not possible at this time to determine the effects of such restructuring, and accordingly it has not been considered in the preparation of the accompanying financial statements.

A 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

A 2.1 Basis of Accounting

FRE BRASOV maintains its books and records in accordance with accounting principles and practices mandated by the Romanian Government. The accompanying financial statements reflect certain adjustments and reclassifications not recorded in the accounting records of the Company in order to conform the Romanian statutory accounts to financial statements prepared in accordance with International Accounting Standards ("IAS") issued by the International Accounting Standards Committee.

A 2.2 Hyperinflationary Economy Accounting

IAS 29 ("Financial Reporting in Hyperinflationary Economies") requires that financial statements of enterprises that report in the currency of a hyperinflationary economy be stated in

terms of the measuring units current at the balance sheet date. IAS 29 indicates that reporting operating results and financial position in the local currency without restatement is not useful because the money loses purchasing power at such a rate that the comparison of amounts from transactions and other events that occurred at different times, even within the same accounting period, is misleading.

IAS 29 suggests that economies should be regarded as hyperinflationary if they meet certain criteria, one of which is if the cumulative inflation rate over a period of three years exceeds 100%. The general price inflation rates for the years ended December 31, 1997 and 1996, were 152% and 57%, respectively, and 404% over the three years ended December 31, 1997 and 224% over the three years ended December 31, 1996. Therefore, the provisions of IAS 29 would normally be required in the preparation of these financial statements.

As discussed later in this Note, property, plant and equipment in the accompanying financial statements have not been restated in accordance with IAS 16 ("Property, plant and equipment") and IAS 29. As property, plant and equipment represent approximately 51% and 80% of total assets as of December 31, 1997 and 1996, respectively, hyperinflationary accounting has not been applied to these financial statements.

A 2.3 Property, Plant and Equipment

In accordance with requirements of the Romanian Government, tangible property, plant and equipment have been revalued twice through December 31, 1997 and in the accompanying financial statements are stated at neither historical cost nor fair value as is required by IAS 16. IAS 16 permits the revaluation of property, plant and equipment to fair value by an appraisal of market value or if there is no evidence of market value, the assets can be valued at their depreciated replacement cost. The revaluations recorded by the company were primarily calculated as noted below by multiplying the net asset value by a multiplier determined by the Government. No professionally qualified valuers were engaged and the multiplier was not necessarily related to market value or depreciated replacement cost. In addition, such carrying values would need to be adjusted for the effects of hyperinflation (IAS 29) as discussed earlier in this Note. As the initial carrying values are not stated in accordance with IAS 16, the Company has not adjusted the carrying values of property, plant and equipment for the effects of hyperinflation. The adjustments required for restatement in accordance with IAS 16 and 29 are not readily determinable.

The first statutory revaluation came into effect on February 1, 1992 and revalued the property, plant and equipment using a combination of replacement cost, if determinable, and factors, which ranged from 1 to 14.3 times the assets' historical cost for assets purchased prior to that date. This revaluation did not change the historical accumulated depreciation.

The second statutory revaluation came into effect on October 1, 1994 and used factors by asset class which ranged from 1 to 15.1 times the assets' historical cost for assets purchased prior to that date, including the assets previously revalued. This revaluation did not change the historical accumulated depreciation.

Additions subsequent to the revaluations are recorded at cost, and include materials, labor and payroll related costs. The cost of maintenance, repairs, and replacement of minor items is charged to maintenance expense as incurred. Renewals and betterments are generally capitalized if the efficiency of the asset is increased and the financing for the renewal or betterment was primarily from external sources. If the renewal and betterment was internally financed, the costs may be expensed when incurred. Upon sale or retirement of property, plant and equipment, the cost and related accumulated depreciation are removed from the accounts. Any resulting gains or losses are included in the determination of net income.

Grants FRE Brasov, as a branch of RENEL's Distribution and Transmission company, receives grants from the Government of Romania. Prior to October 1994, RENEL collected, as a portion of a tariff, amounts from customers designated for development and RENEL invested these amounts in accordance with the investment program approved. In September 1994, the government decreed that amounts collected from customers for development are to be remitted to the government and each year the government would budget for a distribution to RENEL. Generally, the funds remitted to the government are returned to RENEL when expenditures on the designated projects are incurred. There is no requirement that the amounts collected have to be returned to RENEL and the amounts distributed to RENEL are restricted for investment in designated projects.

A 2.4 Depreciation

Property, plant and equipment is depreciated using the straight line method over a composite rate of the previous and current statutory lives for each asset class. The statutory depreciable lives were revised on January 1, 1994 by Law 15 of 1994, and the Company uses a composite rate based upon a formula as determined by the Ministry of Finance.

According to Romanian law, the depreciable lives in years used for property, plant and equipment, classified in accordance with Romanian Accounting Standards ("RAS") under the previous and current requirements, are as follows:

	Note	Previous	Current
Buildings	1	15-100	6-60
Special constructions	2	8-150	3-60
Machinery	3	5-50	3-20
Instruments and tools	4	5-30	5-20
Transportation	5	4-40	4-20
Office Equipment	6	4-25	3-15
Others			10

Notes

- 1 Depreciable life ("DL") depends on the type of the building. For administrative buildings the DL was 90 – 100 years under previous law and is 50 – 60 years under the new law.
- 2 For special constructions for transport of electricity the DL is 10 – 60 years under the previous law and 12 – 40 years under the new law. Hydro power plants have a DL of 60 – 120 years under the previous law and 50 years under the new law.

- 3 Machinery used by Brasov branch consisting of transformers and motors, have 10 – 40 years DL under the previous law and 8 – 20 years under the new law
- 4 Equipment for electric measurements and for process control has a 20 year DL under the previous law and 10 years under the new law Computers are depreciated over 8 years under the previous law and 6 years under the new law
- 5 Under the previous law some transportation categories were depreciated over number of kilometers Automobiles are depreciated over a period of 5 – 6 years under the new law
- 6 Copiers, phones, faxes are depreciated over 15 years under the previous law and 5 years under the new law

The average effective depreciation lives used for major classes of property, plant and equipment were as follows

	Average Depreciation Life (years)	
	1997	1996
Buildings	32	99
Special constructions	27	55
Machinery	10	26
Instruments and tools	10	20
Transportation	9	22
Others (including office equipment)	6	4

Overall, depreciation expense was equivalent to an average annual life of 20 years or 5% and 46 years or 2.18% in 1997 and 1996, respectively. Not included in the lives above or in the composite rate for 1996 is 14 billion lei of accumulated depreciation not recorded in the statutory accounts as instructed by the Ministry of Finance, but recorded in the accompanying financial statements. Including the 1996 portion of that 14 billion lei expense (5.7 billion lei), the overall effective DL for 1996 was 20 years representing a composite depreciation rate of 5% of the gross value.

According to IAS 16, the depreciable amount of an item of property, plant and equipment should be allocated to expense on a systematic basis over its useful life. The depreciation method used should reflect the pattern in which the asset's economic benefits are consumed by the enterprise. The depreciable lives utilized by the Company are not representative of the economic and technical life of the underlying assets. Although the Company cannot determine the amount of accumulated depreciation required in accordance with IAS, such amount would significantly exceed the 22.9 billion lei and 12.7 billion lei of accumulated depreciation as of December 31, 1997 and 1996, respectively, recorded in the accompanying financial statements.

Cash Cash includes cash in lei on hand and in current accounts with banks.

A 2.5 Inventories

Under IAS, a Company should generally select one inventory valuation method for each type of stock and use it consistently.

The FIFO (first input first output) is the official method of stock valuation used by the Company. The Company is not able to determine the impact of inconsistently using the valuation method. The most common departure from the FIFO method is the usage of other price category than it should. In most of the cases, the stock valuation is not starting with the first (oldest) input price but with the price category that fit the quantity requested.

Spare parts, materials and supplies are principally composed of transmission and distribution networks maintenance materials. Cost is determined based on actual invoiced costs. These materials and spare parts are recorded in inventory when purchased and then expensed or capitalized to plant, as appropriate, when installed.

A 2.6 Income Taxes

Current income taxes are provided on statutory income, as adjusted for certain items by tax legislation, at a rate of 38%. Losses have a three-year carry forward period.

A 2.7 Employee Benefits

Contributions are made by the Company to the Government's health, retirement benefit and unemployment schemes at the statutory rates in force during each year, based upon gross salary payments. The cost of these payments is charged to the income statement in the same period as the related salary cost.

The Company has no liability under Romanian law with respect to future pension costs for its employees.

A 3 PROPERTY, PLANT AND EQUIPMENT

The movements of property, plant and equipment from December 31, 1996 to December 31, 1997, are as follows, in thousands of lei:

Gross book value	1996	Additions	Retirements	1997
Buildings	13,504,782	1,960	396	13,506,346
Special installations	150,779,511	1,320,860	-	152,100,371
Machinery	35,599,667	53,230	238,982	35,413,915
Instruments and tools	904,734	361,638	-	1,266,372
Transportation	1,517,212	1,077,949	2,480	2,592,681
Other	127,299	13,262	9	140,552
	<u>202,433,205</u>	<u>2,828,899</u>	<u>241,867</u>	<u>205,020,237</u>
Accumulated depreciation	1996	Provision	Retirements	1997
Buildings	273,349	418,295	396	691,248
Special installations	8,465,945	5,687,027	-	14,152,971
Machinery	3,747,427	3,720,092	104,690	7,362,829
Instruments and tools	63,917	128,505	-	192,422
Transportation	137,468	297,220	2,480	432,209
Other	3,006	25,252	9	28,249

	<u>417,561,514</u>	<u>10,276,391</u>	<u>2,489</u>	<u>432,904,396</u>
IAS additional depreciation	<u>14,077,703</u>	<u>-</u>	<u>-</u>	<u>14,077,703</u>
	<u>26,768,815</u>	<u>10,276,391</u>	<u>107,575</u>	<u>36,937,631</u>
	<u>26,768,815</u>	<u>10,276,391</u>	<u>107,575</u>	<u>36,937,631</u>

The movements of property, plant and equipment from December 31, 1995 to December 31, 1996, are as follows, in thousands of lei

Gross book value	1995	Additions	Retirements	1996
Buildings	13,507,693	-	2,911	13,504,782
Special installations	150,362,946	418,195	1,630	150,779,511
Machinery	37,511,409	42,548	1,954,290	35,599,667
Instruments and tools	775,787	193,737	64,790	904,734
Transportation	1,257,997	264,601	5,386	1,517,212
Other	115,586	51,293	39,580	127,299
	<u>203,533,413</u>	<u>970,374</u>	<u>2,068,587</u>	<u>202,435,201</u>
Accumulated depreciation	1995	Provision	Retirements	1996
Buildings	139,948	136,312	2,911	273,349
Special installations	5,728,811	2,738,764	1,630	8,465,945
Machinery	2,651,158	1,395,143	298,874	3,747,427
Instruments and tools	83,992	44,715	64,790	63,917
Transportation	76,416	66,438	5,386	137,468
Other	11,003	31,583	39,580	3,006
	<u>8,693,323</u>	<u>4,412,955</u>	<u>413,171</u>	<u>12,693,108</u>
IAS additional depreciation	<u>8,368,998</u>	<u>5,708,705</u>	<u>-</u>	<u>14,077,703</u>
	<u>17,060,326</u>	<u>10,121,660</u>	<u>413,171</u>	<u>26,768,815</u>

As discussed in Note 2, the IAS additional depreciation in the tables above consists of accumulated depreciation not recorded in the statutory accounts as instructed by the Ministry of Finance, but recorded in the accompanying financial statements

The composition of construction in progress ("CIP") as of December 31, is as follows (in thousands of lei)

	1997	1996
New connections	563,200	213,300
Grid network maintenance	1,994,500	920,300
Micro hydro plants	414,300	414,300
Buildings	4,257,000	2,395,900
Others	268,739	194,487

7,497,7394,138,287

A significant portion of the CIP balance has been in construction for a number of years. Idle construction for facilities that may never become operational are estimated at 294 million lei. Due to the uncertainty regarding the future utilization of these assets, no write down of these assets has been recorded in the accompanying financial statements.

As discussed in Note 2, the Company has recorded two revaluations in accordance with RAS, which inflated the balances of all major classes of property, plant and equipment. The objective of the revaluations was to establish a more realistic view for the tangible property, plant and equipment of Romanian entities, considering the effects of inflation.

The increase in the property, plant and equipment accounts for the two revaluations performed, in thousands of lei, is shown below:

	<u>Carrying Value</u>	<u>Accumulated Depreciation</u>	<u>Net Value</u>
First revaluation	28,847,457	-	28,847,457
Second revaluation	164,617,026	-	164,617,026
Cumulative effect of Revaluations	<u>193,464,483</u>	<u>-</u>	<u>193,464,483</u>

A 4 ACCOUNTS RECEIVABLE

The composition of accounts receivable, as of December 31, respectively, is as follows (in thousands of lei):

	<u>1997</u>	<u>1996</u>
Trade receivables	128,695,771	42,502,281
Other receivables	318,639	87,827
Total receivables	129,014,410	42,590,108
Provision for doubtful accounts	<u>(8,010,836)</u>	<u>(1,993,619)</u>
Accounts receivables, net	<u>121,003,574</u>	<u>40,596,489</u>

A substantial portion of the accounts receivable balance was past due as of December 31, 1997 and 1996. Based on recorded sales amounts and the year-end gross receivable balances, there were 61 and 59 days of electricity sales in accounts receivable as of December 31, 1997 and 1996, respectively.

A provision for doubtful accounts is not deductible, and generally not recorded under RAS, unless the customer has been declared bankrupt in a court of law. IAS requires assets to be carried in the financial statements at an amount expected to be realized. An allowance for doubtful accounts has been recorded in the accompanying balance sheet to reduce accounts receivable to estimated net realizable value.

A 5 INVENTORIES

The composition of inventories in thousands of lei as of December 31, is as follows

	<u>1997</u>	<u>1996</u>
Plant materials and operating supplies	4,593,330	1,504,153
Merchandise	21,879	2,912
Other materials and supplies	<u>1,327,403</u>	<u>949,277</u>
Total inventories	<u>5,942,612</u>	<u>2,456,342</u>

A 6 OWNERS' EQUITY

The components of equity, in thousands of lei, as of December 31, are as follows

	<u>1997</u>	<u>1996</u>
Capital	3,205,760	3,205,760
Accumulated deficit	(16,431,068)	(13,541,550)
Revaluation surplus	<u>193,464,483</u>	<u>193,464,483</u>
Total	<u>180,239,175</u>	<u>183,128,693</u>

The capital account represents the net assets transferred upon reorganization from the Romanian Government to the Company on December 1, 1990. See Notes 2 and 3 for discussion of the revaluations of property, plant and equipment.

The effect on net income (loss) of differences in IAS and RAS is as follows (in thousands of lei)

	Note	<u>1997</u>	<u>1996</u>
Net income per RAS	d	3,245,806	1,888,197
Adjustments to RAS net income			
Provision for doubtful accounts	4	(6,017,217)	(1,993,619)
Customer connection		16,184	-
Capital loss on fixed assets disposals		(134,291)	(1,655,415)
RAS depreciation not recorded	3	-	(5,708,705)
Total adjustments to RAS net income		<u>(6,135,324)</u>	<u>(9,357,739)</u>
Net loss per IAS		<u>(2,889,518)</u>	<u>(7,469,543)</u>

A reconciliation of RAS capital accounts to IAS capital accounts is as follows (Certain RAS accounts were summarized in the following presentation), in millions of lei

	Note	<u>Capital</u>	<u>Retained Earnings</u>	<u>Revaluation Surplus</u>	<u>Total</u>
			<u>December 31, 1997</u>		
Balance per RAS		198,981,544	3,245,806	-	202,227,351

Reclassification of capital to revaluation surplus	3	(193,464,483)	-	193,464,483	-
Reclassification of items from capital to accumulated deficit		(2,311,301)	2,311,301	-	-
RAS depreciation not recorded	3	-	(14,077,703)	-	(14,077,703)
Provision for doubtful accounts	4	-	(8,010,836)	-	(8,010,836)
Dividends to parent company			1,889,071		1,889,071
Capital loss on fixed assets disposals		-	(1,789,707)	-	(1,789,707)
Balance per IAS		<u>3,205,760</u>	<u>(16,431,068)</u>	<u>193,464,483</u>	<u>180,239,175</u>
December 31, 1996					
Balance per RAS		198,967,234	1,888,197	-	200,855,431
Reclassification of capital to revaluation surplus	3	(193,464,483)	-	193,464,483	-
Reclassification of items from capital to retained earnings		(2,296,991)	2,296,991	-	-
RAS depreciation not recorded	3	-	(14,077,703)	-	(14,077,703)
Provision for doubtful accounts	4	-	(1,993,619)	-	(1,993,619)
Capital loss on fixed assets disposals		-	(1,655,416)	-	(1,655,415)
Balance per IAS		<u>3,205,760</u>	<u>(13,541,550)</u>	<u>193,464,483</u>	<u>183,128,694</u>

A 7 ACCOUNTS PAYABLE

The composition of accounts payable (including the payables to affiliates), in thousands of lei, is as follow

	<u>1997</u>	<u>1996</u>
Payables to affiliates for power purchased	113,909,422	11,941,665
Other suppliers	2,419,065	3,050,810
Total accounts payable	<u>116,328,487</u>	<u>14,992,475</u>

A 8 ACCRUED LIABILITIES

The composition of accrued liabilities, in thousands of lei, is as follows

	<u>1997</u>	<u>1996</u>
VAT payable to government	959,984	22,054,665
Accrued payroll	970,064	394,867
Other employee benefits	1,313,748	361,545
Other liabilities to government	441	914
Accrued taxes	2,504,291	956,050
Total accrued liabilities	<u>5,748,528</u>	<u>23,768,041</u>

A 9 INCOME TAXES

Under Romanian tax law, losses can be carried forward for three years. The Company has not recorded the RAS tax carry forward or the carry forward resulting from the deductible IAS adjustments as the generation of income in the next three years is dependent upon adequate electric power rate increases to be approved by the Ministry of Industry and Commerce and the Council for Competition, the likelihood of which cannot be predicted.

A 10 COMMITMENTS AND CONTINGENCIES***Year 2000***

The Year 2000 issue is the result of computer programs being written using two digits rather than four to define the applicable year. As the century date change occurs, date-sensitive systems may recognize the year 2000 as 1900, or not at all. This could potentially result in a major system failure or miscalculations of financial and operational information systems.

The Company presently utilizes software and related technologies throughout its businesses that may be affected by the date change in the year 2000. The Company believes that, with current "Year 2000" compatible software, modifications to existing software and converting to new software, the Year 2000 issue will not pose significant operational concerns for the Company's information systems. However, if such modifications and conversions are not completed on a timely basis, there is the potential that the Year 2000 issue may have an adverse impact on the performance of the information systems of the Company.

As of December 31, 1997, the Company has not assessed the impact of the Year 2000 issue on its operations, including the development of cost estimates for and the extent of programming changes required to address this issue. It is anticipated that these Year 2000 costs will likely result in an increase to Company expenses during 1998 and 1999.

Other

The Company is and may become a party to certain lawsuits or governmental actions before various courts and governmental agencies arising from the course of normal business and involving personal injury, environmental issues, profit and value added taxes, salary taxes, other taxes, rates and other matters.

The titles to the land on which certain constructions are located are held by the respective municipalities and Romanian law prevents the Company from obtaining these titles.

The impact upon the company from these and certain other matters cannot be estimated and may have a significant impact upon the Company's financial position or results of operations.

A 11 SUBSEQUENT EVENTS

On July 3, 1998 the Government of Romania issued Government Decision no. 35 that restructured RENEL into three separate companies: the National Electricity Company, the Nuclearelectrica SA and the Regie Autonome for Nuclear Activities. The National Electricity Company will be comprised of three subsidiaries: Hidroelectrica Company, Termoelectrica Company and Electrica Company. The Hidroelectrica Company will operate 10 hydroelectric plants. The Termoelectrica Company will operate 24 thermal electric plants. The Electrica Company will provide distribution services at 42 branches. The Nuclearelectrica SA will provide electric power through nuclear energy production and engage in nuclear fuel production. The Regie Autonome for Nuclear Activities will engage in heavy water production and related nuclear energy research and development.

This Appendix examines the characteristics of the Brasov subsidiary in respect to the other subsidiaries

B 1 CUSTOMERS

Brasov has approximately 228,000 customers, the majority of these being households. This is fewer than the other non-Bucharest Transmission and Distribution subsidiaries, but the difference is not significant. The division of these customers between large and small users, and between household, social and industrial customers, is approximately the same.

The Transmission and Distribution subsidiaries have more customers, on average, than the Distribution subsidiaries, although, because there are more distribution subsidiaries, the latter have, in total, more customers.

Subsidiary	Big Customers >100 KW	Small Customers <100 KW	Total large and small customers	Household customers	Social customers	Industrial and similar customers
Brasov	189	227,829	228,018	215,231	10,202	2,585
Average T&D subsidiary ¹	210	241,268	241,478	225,992	12,303	3,183
Average Distribution subsidiary ²	172	142,229	142,401	132,702	6,875	2,824
Total all customers	8,613	8,200,682	8,209,295	7,699,639	386,284	123,372

Table B-1 Number of Customers, by category

Brasov's customer base is comparable in both numbers and make-up to the other subsidiaries.

B 2 DISTRIBUTION NETWORK

B 2 1 Transmission Electric Lines

The Transmission and Distribution subsidiary at Brasov has less transmission line (861.5km) than the average (1,442km). Of this transmission line, there is significantly less 110KV line, and slightly more 400KV line. This results in Brasov having a higher proportion of the higher voltage 400KV line, which may be expected to affect the amount of electricity lost through transmission.

¹ Average excluding Bucharest [June 1998]

² Average excluding Bucharest [June 1998]

T&D Subsidiary	750 KV lines	400 KV lines	220 KV lines	110 KV lines	<110 KV lines	Total
Brasov	-	277	-	575	9	861
Average excluding Bucharest	9	233	205	985	7	1 439
Total all electric lines	154	4,392	3,562	17,716	279	26,103

Table B-2 Kilometres of Electric Lines

B 2 2 Transformer Substations

Brasov has fewer transformer stations than the average non-Bucharest Transmission and Distribution subsidiary, with a higher proportion of these transformer substations being of higher voltage. This is to be expected as Brasov has less transmission line than the other subsidiaries.

T&D Subsidiary	750 KV upper voltage	400 KV upper voltage	220 KV upper voltage	110 KV upper voltage	<110 KV upper voltage	Total
Brasov	-	2	-	39	-	41
Average excluding Bucharest	-	1	3	46	-	50
Total transformer substations	1	21	46	867	-	935

Table B-3 Number of Transformer Substations

B 2 3 Medium Voltage Distribution Network

Brasov has a shorter medium voltage distribution network than the average non-Bucharest Transmission and Distribution subsidiary. However, the proportion of underground cable (40%) is significantly higher than the average (23%).

The average non-Bucharest Transmission and Distribution subsidiary has a larger medium voltage distribution network, with a greater proportion being underground, than the average non-Bucharest Distribution company.

Subsidiary	Overhead 20KV	10KV	Ground 20KV	10KV	6KV	Total All
Brasov	1,648	28	485	-	631	631
Average T&D company	2,441	52	327	148	291	3,259
Average D company	2,008	11	238	2	83	2,342
Total all electric lines	40,211	843	5,639	2 370	4,667	53,730

Table B-4 Kilometres of Medium Voltage Distribution Network

Transformer Points

As to be expected Brasov has fewer transformer points with a higher proportion of these transformer points being of lower voltage, than the average non-Bucharest Transmission and Distribution subsidiary. This is a reflection of Brasov's smaller, lower voltage distribution network.

The average non-Bucharest Transmission and Distribution subsidiary has more transformer points than the average non-Bucharest Distribution subsidiary. Again, this is a reflection of the "average" medium voltage distribution networks.

Subsidiary	20KV	10KV	6KV	Total
Brasov	911	-	405	405
Average T&D company	1,622	101	207	1,930
Average D company	1,172	12	52	1,236
Total transformer points	55,791	5,086	4,607	65,484

Table B-5 Number of Transformer Points

B 2 4 Low Voltage Distribution Networks

Brasov has a shorter low voltage distribution network, with the network being proportionately more underground, than the average non-Bucharest Transmission and Distribution subsidiary.

The average non-Bucharest Transmission and Distribution subsidiary's low voltage network is longer and with a higher proportion of underground lines than that for the average distribution subsidiary.

Subsidiary	Overhead SC	Overhead DC/MC	Ground Lines	Total KM
Brasov	1,765	10	1,818	3,593
Average T&D company		50	1,333	1,383
Average Distribution company	2,531	26	575	3,132
Total low voltage line Kilometers	120,819	1,470	46,052	168,341

Table B-6 Kilometres of Low Voltage Distribution Network

B.2 5 Conclusion

RENEL's Transmission and Distribution subsidiary at Brasov is representative of the other non-Bucharest Transmission and Distribution subsidiaries. However firstly, the transmission grid is shorter than the average, with a greater proportion of higher voltage lines, and secondly, the medium and low voltage networks are also shorter than average, with a higher proportion being underground.

B 3 OPERATING AND FINANCIAL COMPARISONS

The following table shows operating statistics for the Brasov GTDEE subsidiary, for the 'average' GTDEE subsidiary and Brasov's ranking with the other Distribution and Transmission subsidiaries (between 1 and 42).

Operating or Financial Statistics For the year ending 1997	Brasov	Average	Rank
Electricity Sold MWhr	1,456,944	1,026,004	9
Electricity Sold Lei 000's	538,494,605	357,123,119	10
Proportion HV/MV/LV/(household %)	15/56/29/(16)	32/34/34/(18)	-
Price per MWhr (Lei) – High Voltage	344,826	322,727	13
Price per MWhr (Lei) – Medium Voltage	414,549	403,902	14
Price per MWhr (Lei) – Low Voltage	277,869	292,260	25
Price per MWhr (Lei) – Households	114,093	130,665	36
System Losses	11%	10.5%	22
Employees	1320	896	11
Transport and Distribution expenses Lei/MWhr	50,900	58,700	10
Material Expenses Lei/MWhr	20,772	30,579	8
Payroll Expenses Lei/MWhr	30,170	28,143	13

Table B-7 Operating and Financial Statistics

Brasov sells more electricity than the average, with a greater proportion being sold to medium voltage customers. The electricity tariffs are higher than average for the high and medium voltage customers, and less for the low voltage and household customers.

System losses are greater than the average.

Brasov appears relatively efficient. Although it employs more people than the average, which in part is related to the size of the operation, costs per MWhr for transport and distribution, and materials, are less than the average. Payroll expenses are more, but not significantly.

Therefore, as the Brasov subsidiary ranks neither consistently at the top or bottom of the rankings, it appears comparable with the other subsidiaries.