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Regulatory Assistance - Czech Republic

USAID Eastern Europe Regional Energy Efficiency Project

Regulatory Reform and Energy Sector Restructuring in Central and Eastern Europe and the Baltics

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Regulatory Reform and Energy Sector Restructuring in Central and Eastern Europe and the Baltics

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REGULATORY ASSISTANCE - CZECH REPUBLIC
USAID Regulatory Reform and Energy Sector Restructuring in
Central and Eastern Europe and the Baltics

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I Executive Summary

Proposed assistance by USAID to the Czech Republic energy sector was accepted in May 1995 by Deputy Minister Milan Cerny of the Ministry of Industry and Trade Deputy Minister Cerny wanted Ministry personnel to understand in quite some detail the U S regulatory system He requested that the assistance commence with a workshop which would include participants from throughout the energy sector, both Ministry and energy industry personnel, probably some sixty to seventy people The workshop would be followed by meetings of smaller working groups and would include a training seminar in the United States The workshop was ultimately scheduled for October 1995 and detailed planning and preparation commenced in late August This workshop/seminar was considered quite successful by the Ministry personnel and the industry participants Following the seminar Ministry personnel summarized their views from the seminar and that summary was used as a basis for Bechtel's development of a four-task specific work program for the USAID team to follow in providing assistance to the Ministry of Industry and Trade This report covers Task 1 of that work program, Revenue Requirements Determination and Cost Analysis

From December 1995 through June 1996 several Working Group and two Steering Committee meetings were held A number of items were developed for use in those meetings and selected items are included as part of this final document In summary, the objectives of Task 1 were met and the identified deliverables for the most part were furnished to Ministry personnel in draft form in July Comments on the draft deliverables were received from the Ministry in October Most importantly, Ministry personnel understand the details of the U S cost of service rate making methodology and have computer software to make computations on their own, and they have done so

The final consultant deliverable, under Task 1, is to prepare a summary of subsequent training needs Certain needs are addressed in the last section of this report A summary will depend to a great extent on specific Ministry requests/needs following the study tour to the United States The memorandum on future steps will be developed by Arthur Andersen and Bechtel, as appropriate, following the study tour and Ministry input/comments/requests/needs

II Introduction

Scope and Time Frame This report covers Task 1, Revenue Requirements Determination and Cost Analysis, of the work program for Regulatory Assistance to the Czech Republic Work began on this USAID assistance in May 1995 following a meeting with representatives of USAID and Bechtel with Deputy Minister Milan Cerny of the Ministry of Industry and Trade During the USAID/Bechtel visit Arthur Andersen was requested to begin initial planning and preparation for a workshop/seminar to be held in the early fall

During the summer, working with Ministry personnel, a tentive seminar plan was developed In late August and early September two representatives from Arhur Andersen in the United States and one Bechtel representative spent two weeks in Prague interviewing Ministry and energy industry personnel and developing specific objectives, topics and background information for the workshop

October 1995 Workshop The workshop, held on 10 and 11 October, was attended by approximately 70 Ministry and energy industry personnel plus certain other interested parties such as educators Deputy Minister Cerny's workshop objective was to have a presentation of United States utility industry regulatory systems and principles and to begin a dialog between Ministry and energy industry personnel as to how the U S utility regulatory experience could be of use and benefit in the Czech Republic Deputy Minister Cerny's objective was to learn from U S experiences to try to avoid some of the mistakes made in the U S and to determine aspects of the U S system that might have application in the Czech Republic

Ministry Summary and USAID Work Plan Following the seminar Ministry of Industry and Trade personnel developed a "Summary of the Seminar on Regulation and Suggested Further Cooperation between the Ministry of Industry and Trade and USAID" which was reviewed and discussed in a meeting on 13 October This summary was used by Bechtel in developing the specific regulatory assistance work program

A copy of both the seminar summary prepared by Ministry personnel and the regulatory assistance work program covering Task 1 are included in the next section of this report

Meetings of Working Group and Steering Committee Deputy Minister Cerny proposed that in order to appropriately involved Ministry and energy industry personnel in the USAID assistance program that two separate groups be established The first group would be a small working group consisting primarily of representatives from the Ministry of Industry and Trade who would meet with Arthur Andersen, and periodically Bechtel, representatives Participation by the Ministry of Finance in the working group meetings was also anticipated A separate steering committee which would consist of senior representatives from the Ministry of Industry and Trade and the Ministry of Finance plus representatives from the energy industry would be established to help the Ministries in achieving their goals for the energy sector One function of the Steering Committee would be to be informed of the USAID assistance by representatives from the Working Group

Working Group representatives met quite frequently between December 1995 and June 1996 Agendas were prepared, in most cases by Jan Pisko of USAID, for each Working Group meeting Minutes of the meetings were also maintained, initially by Mr Pisko but subsequently by Ministry of Industry and Trade personnel

In general the Working Group meetings were designed to enable Ministry personnel to ask additional questions and obtain more information/background on the U S utility rate-making system A number of documents were produced by Arthur Andersen representatives as part of the working group process Certain key documents have been included in section

IV of this report A substantial amount of additional information and documents were provided to Ministry personnel, some of the documents were quite voluminous and are not necessary to include in this report in order to make it a complete document Comments on the documents included in section IV are provided in that section

Consultant Deliverables The consultant deliverables, as specified in Task 1 of the work program (see section III), are included in section V Drafts of four of the five memoranda included in section V were provided to Ministry personnel in July The memorandum covering regulated and non-regulated utility activities was furnished to the Ministry following the receipt in September of a paper prepared by Mr Antos summarizing Ministry concerns with respect to regulated and non-regulated activities A copy of Mr Antos summary is attached to the regulated and non-regulated utility activities memorandum

A final deliverable, defining training modules and recommendations on future steps will be prepared jointly by Arthur Andersen and Bechtel following the study tour to the United States That memorandum will be issued separately from this report

Structure of Report The next three sections of the report are designed to provide the context and background for the USAID assistance as well as providing the deliverables specified in the work program It is particularly important to note in section III that the term "cost analysis" was used by Ministry personnel several times in their summary of the seminar and that term was then incorporated in the work program developed by Bechtel The term was discussed a number of times at Working Group meetings, however, it was never defined The importance of "cost analysis" and various other terms is illustrated in sections IV , V , and VI

Section IV contains an introduction covering why the particular documents included in that section were selected, from among many others, to be included as part of the final report

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III Ministry Summary and USAID Work Plan (Task 1)

A copy of the "Summary of the Seminar on Regulation and Suggested Further Cooperation between the Ministry of Industry and Trade and USAID", translated from the Ministry-prepared outline discussed on 13 October 1995, and the section of the Regulatory Assistance Work Plan covering Task 1 follow

Summary of the Seminar on Regulation and Suggested Further Cooperation between the Ministry of Industry and Trade and USAID

1 The seminar fulfilled the determined objective which was to inform representatives of the Czech energy sector of the principles and experience of regulation in the U S A illustrated by concrete examples Certain recommendations were provided regarding the need to establish accurate performance of regulation as practiced in countries with market economy The following recommendations resulted from the lectures and from the discussions between participants of the seminar

a) To put emphasis on clear and detailed legislative aspects of the regulatory process It seems that it would be advisable in the future to propose an independent Act on Regulation which would determine the procedures to be followed by the regulation body in the following areas

* pricing (return on capital, tariff structure prices/prices structure)
* authorization/licensing (conditions for granting adjustments and revocation of licenses state policy, exclusive rights revocation procedures)
* principles of investment analysis methodology
* principles of regulation for customer services

b) For the countries with transforming economy it is necessary at the early stage to take the following steps when making decisions with respect to a suitable type of regulation

* to establish a suitable information system including a database
* to separate non-regulated activities in the information system
* to perform accurate cost analysis
* to take into consideration the level of necessary investments needed for replacement of equipment and for other desirable development of regulation and the level of inflation

c) To provide suitable environment for the performance of the regulating body i e

* technical knowledge and experience of the regulator and its personnel

* to establish suitable procedures for the regulator including the method of appeal against a decision and the method by which the public will be informed

* possible financial contribution of the companies for functioning of the regulator

2 A number of problems was noted some of which have already been resolved or are being resolved in the U S and which are similar to the problems currently experienced in the CR. A detailed of these issues would contribute to achieving the desired level of regulation in CR. The following areas are in question

a) Behavior of regulated companies in a standard market economy

b) Pricing and assessment of the rate of return on capital

c) Regulated and non-regulated activities cost analysis including external services for utility

d) Achievements and failures of cost-based regulation and current changes in regulation in the U S regulation issues

e) Specific issues regarding regulation in electricity and gas sector

f) Needs with respects to legislation

3 The assistance of U S experts could be utilized in the two following areas

a) Regulatory study tour of Czech regulators in the U S which could take place at the beginning of the second quarter of 1996 The trip would focus on consultations and detailed analysis of practical examples of topics described in paragraphs 2 b) to e) The trip would be for six persons Based on the approval of the U S party the Czech party would prepare a detailed list of topics

b) Advisory activities of U S experts in CR with focus on topics 2 a) f) These activities could start following the study tour in the U S during the third quarter of 996

Prague 12 October 1995

REGULATORY ASSISTANCE - CZECH REPUBLIC

USAID Regulatorv Reform and Energy Sector Restructurıng ın Central and Eastern Europe and the Baltıcs

Draft Date December 21, 1995

Indıcator Promulgatıon of energy standards polıcıes and legislatıon that support (a) regulatory development and (b) market development conducıve to prıvatızatıon of the energy ındustrv

Workplan Objectıve The purpose of thıs effort ıs to follow up the Czech Regulatory Semınar, whıch ınformed representatıves of the Czech energv sector of the prınciples and experıence of regulatıon ın the USA, wıth specıfic advıce regardıng effectıve regulatorv structures and procedures

Overall Approach The Consultant's team wıll work closely wıth the Mınıstrv of Industrv and Trade ın developıng a capabılıtv to ımplement Act 222 and, as a long-term goal to structure a sound regulatory agencv for the Energy Sector ın the Czech Republıc USAID wıll need to commıt fınancıal and human resources ın the form of experts ın the fıeld of energv regulatıon and the Mınıstrv wıll need to correspondınglv commıt ıts personnel and demonstrate ıts plans to enhance theır own capabılıtv A Steerıng Committee chaıred bv Deputy Mınıster of Industry and Trade Mr Cernv, would be a suıtable bodv for coordınatıon of all related actıvıtıes The Committee wıll revıew ınıtıal workplans and assess progress of work Mr Howard Menaker, Bechtel, wıll act as the Task Manager for the assıstance

Workplan The specıfic tasks to be addressed ın thıs project are set out below

Task 1 - Revenue Requırement Determınatıon and Cost Analvsıs

Tımıng December 1995 - Februarv 1996

Background As the Czech Republıc transforms ıts economy and works to ımplement Act 222 the Energy Law ıt ıs necessarv to outlıne necessarv steps toward the creatıon of economıc regulatıon of ıts energy sector Especıally relevant to regulatıon ıs the determınatıon of revenue requırements and the abılıtv to perform cost analvsıs In thıs Task the Consultant wıll assıst the Mınıstry of Industrv and Trade and the Mınıstrv of Fınance ın the devıelopment of procedures bv whıch thev can determıne revenue levels and perform appropnate cost analvsıs In thıs assıstance the Consultant wıll also analyze achıevements and faılures of cost-based regulatıon and current changes ın regulatıon ın the U S

Kev Actıvıtıes

1 Revıew work prevıouslv undertaken bv or performed for the Mınıstrv of Industry and Trade and the Mınıstrv of Fınance regardıng revenue requırements and cost analvsıs

2 Consult wıth Mınıstrv ot Industrv and Trade personnel regardıng the most useful and beneficıal tvpes ot revenue requırement and cost analvsıs

3 Revıew the capabılıtv of energv companıes to submıt revenue and cost ınformatıon to the Mınıstrv of Industrv and Trade by meetıng wıth and revıewıng ınformatıon from at least three companıes

4 Consultants will be available on a regular basis to consult with Ministry personnel on revenue and cost procedures and methodologies

5 Work with Ministry staff to perform at least three complete revenue and cost analyses

Consultant Deliverables

1 Develop a memorandum outlining the procedures to determine complete revenue requirement and cost analyses, including treatment of operating and maintenance expenses, depreciation, required level of plant investments and cost of capital The memorandum will also offer advice regarding the establishment of a database and information management systems

2 Prepare a memorandum setting forth guidance on the separation of regulated and non-regulated activities of a utility, including external services

3 Prepare a report setting forth alternative methods of determining rate of return on capital

4 Prepare guidance on the impact of inflation on revenue requirements and cost analysis

5 Prepare a memorandum on the impact on revenue requirements and cost analysis of future investments for replacements and future additions to plant and equipment

6 Define training modules to enhance capabilities of the Ministry for performing cost analysis and revenue requirements assessment

7 Prepare summary report at the end of assistance recommending future steps for the Ministry and industry in effective cost analysis

Ministry Outputs

1 The development of procedures and schedules to calculate revenue requirements and perform cost analysis

2 Identify scope and implementation measures for a training program for Czech energy companies in revenue determination and cost accounting and analysis

IV Key Documents Resulting from/used for Working Group and Steering Committee Meetings

Introduction and Context The documents which follow have been selected to be included in this report because of their particular significance to the process of transferring knowledge about the U S utility regulatory system to Ministry personnel In addition to these documents, substantial additional material was provided Reference to some of that material, which is not necessary to be included herein to make this report a complete document, is made from the memoranda included in section V In addition, Ministry personnel have been provided with software developed by Arthur Andersen to enable them to make revenue requirement calculations following the U S cost of service methodology which is illustrated in the first memorandum in section V Ministry personnel have been using the program and are able to make the appropriate computations

Framework for Regulation of the Electricity Industry 8 January 1996 Discussion Document This document was developed following Working Group meetings and discussions in December 1995 when it became quite clear that Ministry personnel were asking regulatory questions from a background and perception substantially different from the U S utility regulatory system Substantial work had been done for the Ministry over a number of preceding months by the Czech consulting firm EuroEnergy which was following regulatory principles used in the United Kingdom The 8 January 1996 discussion document was developed to help the Ministry personnel understand significant differences in U S and U K regulatory principles, and to help in their thought process of establishing appropriate principles for the Czech Republic It was not a document designed to be subsequently completed by the consultants It remains an important worksheet for Ministry personnel to continue to consider as the regulatory system in the Czech Republic evolves

24 January 1996 Letter Regarding Objectives of U S Utility Regulation This letter was developed to pull together and summarize key points/thoughts resulting from December and January Working Group and other meetings One of the major points in the letter was for Ministry personnel to try to develop a definition and a clear understanding of what they were looking for when they used term "cost analysis" This still remains a priority In September 1996 EuroEnergy performed a "cost analysis' of CEZ for the Ministry of Industry and Trade Neither the contract for that work nor the output of the work has been furnished to the USAID team (Ministry personnel in an October Working Group meeting, however, requested that the team make a comparison of EuroEnergy's methodology with the U S revenue requirements and cost of service methodology) The "cost analysis" work performed by EuroEnergy was used by the Ministry of Finance to establish a "transfer price' for electricity sales by CEZ to the eight electric distribution companies As pointed out in the 24 January letter, the term cost analysis has ment different things at different times to different individuals -- it still does, and remains a term (or possibly a concept) that should be more clearly defined by the Ministry

19 Februarv 1996 Summary of Questions for the Ministry The 19 February letter was a summary of questions for the Ministrv extracted from the 24 Januarv letter to help them focus on identifiable items/issues Many of those questions still should be addressed/answered bv the Ministry

12 March 1996 Response to 21 February Steering Committee Request The first (of two) Steering Committee meetings was held on 21 February Deputv Minister Cerny chaired the meeting One of the key meeting points was that the Steering Committee needed to develop regulatorv goals and to define regulatorv terms At year end 1996, those remain objectives yet to be accomplished

Handouts used at May 1996 Steering Committee Meeting The second (and final in 1996) Steering Committee meeting was held in Mav The meeting was chaired by the new Deputv Minister, Miroslav Tvrznik, who replaced Deputv Minister Cerny who had resigned shortlv after the Februarv Steering Committee meeting Deputy Minister Tvrznik in his initial remarks stressed the need for and importance of defining terms, a follow up to the Februarv Steering Committee meeting conclusions (While Ministrv personnel informed the USAID team that terms were being defined, the Team was never furnished with a final, or even a draft, copv of terms and definitions)

A presentation was made by the USAID team on details of revenue requirement calculations Specific numbers for one gas distribution companv and one electric distribution companv were used to illustrate the principles The three handouts included in this section were also discussed Those handouts were particularlv important at the time of the Mav meeting, and remain just as important at the end of the vear 1996

The two major points addressed in the first handout relate to revenue requirements (covered in the presentation to the Committee) and tariff structure The work performed bv EuroEnergv for the Ministrv in the fall of 1996 to establish a "transfer price" from CEZ to the distributions companies was, to great extent, based on revenue requirement determination principles used by U S utilitv regulators As a consultant to the Ministrv, a representative of EuroEnergy participated in the first several Working Group meetings during late 1995 and early 1996 and became familiar with the U S svstem The second point addressing rate structure, or tariff structure, will be covered bv Bechtel in a tariff workshop during earlv 1997

The second handout illustrates, under the assumptions stated therein and from calculations made bv the software provided by the USAID team to the Ministrv, deficiencies in electric revenue levels (based on the stated assumptions)

The final handout illustrates a major economic problem with the electricity tariff structure in the Czech Republic the very low level of residential rates compared to industrial and commercial rates The problem is well known and has been discussed publicly by both Ministry of Industry and Trade and Ministry of Finance personnel throughout, particularly in the last half of, the year 1996 Decisions in this area have social and political as well as economic considerations, and the issues and concerns are reasonably well known at the Ministry

FRAMEWORK FOR REGULATION OF THE ELECTRICITY INDUSTRY
8 JANUARY 1996 DISCUSSION DOCUMENT

US	UK	CR
Industry Structure		
In general the framework items in this section apply to U S investor owned, vertically integrated utilities	The framework herein is based on OFFER's (Office of Electricity Regulation) August 1994 Proposals for Distribution Price Control (Generation, transmission, distribution and supply are all considered separately by OFFER)	A single G&T company (with 80% of the country's generating capacity) and eight distribution companies
Regulatory Goal		
Regulation is a substitute for competition and should allow a utility to recover all allowable operating costs and have the opportunity to earn a fair rate of return The regulatory process should balance the interests of customers and investors	Strengthening incentives to companies to increase efficiency and reduce costs and to pass on benefits to customers by low prices, while recognising that sufficient revenue must be raised to maintain an adequate quality of service, to finance required new investment and to allow an appropriate return for the shareholders ' (Page V of Aug 94 Proposal)	
Components of Revenue Requirements		
Operating costs + return on investment (rate base x rate of return)	Operating costs (cash), capital investment and remuneration of shareholders (Page 39)	
Form of Regulatory Control (Regulation)		
Profits (rate of return)	Prices (price cap, RPI -X) (the control over which is expected to give better incentives to greater efficiency than profit regulation) (Page 17)	
Period of Regulatory Review		
Varies - When utilities file rate cases (one to several years) or as required by State Commission (e g , every two years)	Every five years (X factor is reset, plus other adjustments might be made) (Page 25)	
Correction Factor		
None No "retroactive ratemaking'	Overcharges/undercharges + interest returned/carried over in following year (Page 21)	
Valuation of Assets		
Original cost rate base (includes utility plant, working capital allowance, material and supplies plus other factors)	Flotation (date of privatization) value x 50% + net investment since flotation (Which, on average, are around 90% of current cost asset value for the 12 distribution companies) (Page 69)	

Cost of (Equity) Capital		
Various methods used, but in 1995 after tax RoE would be about 12 5%	7% pre tax (considering that the risk-free rate of return is between 3 and 4%) Also, 'The remuneration of shareholders includes consideration of how to finance capital expenditure, as well as what remuneration to existing capital would be appropriate' (Page 64)	
Investments (Future Capital Expenditures)		
Provided by the investor (Recovered from the customer through depreciation over the useful lives of the assets)	In general, provided by customers in the year of investment expenditure (However, in some cases 'It would not necessarily be appropriate to require customers to pay for the whole of the capital investment programme within each period' (Page vii)	
Capital Structure		
Generally 35 40% common equity, 10 15% preferred stock, 50-55% long term debt (30 years)	Not discussed, as such, however, "There is no reason why a business should expect to finance all its capital expenditure out of current revenues Companies should expect to operate efficiently with respect to financing as well as other activities Some increase in borrowing would often be appropriate No balance sheet projection showed excessive gearing to preclude this' (Page ix)	
Depreciation		
Depreciation is the expiration, or consumption of the service life, capacity or usefulness of property which should be charged to consumers as a cost of the service they receive in order to reimburse those supplying the capital used to purchase the related assets	Not addressed (Analysis of operating costs was of cash outlays) (But, see page 74)	Source of funds, along with net income, for current investments
Operating costs		
Cost of utility ("regulated) activities, which include depreciation and income taxes	Cash outlays of utility activities, assuming efficient management (Page 40)	
Operating efficiency		
Historically commissions generally assumed efficient operations, but in the 1970's management efficiency and performance became significant issues	The regulation monitors and evaluates management efficiency (Pages 50 53)	

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24 January 1996

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Ing Josef Antoš
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110 15 Praha 1

Dear Messrs Antoš, Fousek and Šponer

After reflecting on topics discussed in a meeting yesterday afternoon with Mr Šponer, and in the meetings in Mr Fousek's office on 8 and 19 January, I thought it might be useful to summarize a few thoughts, particularly our discussions with respect to objectives, including objectives of U S utility regulation and of the USAID assistance to the Ministry

I believe that the overall objective of Mr Černy with respect to the USAID assistance was to understand the U S utility regulatory system and determine how certain aspects of that system might be applied in the Czech Republic In our discussions on 8 and 19 January, I expressed my view/opinion that objectives should be established for the significant activities and processes undertaken by the Ministry and by USAID After my discussion yesterday with Mr Šponer, I believe that would be useful to comment more on objectives, and definitions, and use illustrations from U S regulatory principles One item that I believe needs a clear definition by the Ministry is the term "cost analysis" After much discussion of this topic on 8 January, and my explanations of the U S (utility cost of service) revenue requirements computation and the U S utility management audit process, it seemed to be the conclusion that "Cost Analysis" = "Revenue Requirements' After further discussion at that meeting, when discussing "cost analysis" work to be performed at ČEZ, cost analysis then meant something (very) different from (a) revenue requirements (calculation) Various steps of an analysis process were described, but the term certainly could no longer be defined as revenue requirements It was agreed in the meeting that a clear objective of cost analysis for ČEZ needed to be established, and that input from the Ministry of Finance was necessary It is very important for the USAID team to have a clear understanding of the Ministry's definition of cost analysis and the objectives of a cost analysis

One further point on cost analysis, before I move to U S regulatory policy and objectives, that is important to the USAID team is the need to understand how the cost analysis of the electric distribution companies performed by EuroEnergy has been utilized Is the EuroEnergy cost analysis work precisely what the Ministry wants and needs? Mr Šponer yesterday seemed to be looking for something different for gas than what was done for electricity I hope that some examples and illustrations of the U S regulatory process and objectives will be helpful to the Ministry in defining cost analysis and the objectives of such an analysis

In describing U S regulatory principles I have used the book The Regulation of Public Utilities by Charles F Phillips, Jr The book, just over 1000 pages, provides guidance, not rules, principles, not solutions, objectives, not mechanics or magic answers The book condenses a century of evolution of U S utility regulation into that 1000 pages This letter is obviously much more condensed It is also important to understand that this century of U S regulation of utilities (a term I understand does not actually translate into Czech) has been a period of constant change In fact, the U S regulatory system is currently undergoing significant, and quite possibly radical, change As economics change, so must regulation The system of regulation that will be developed in the Czech Republic must also be flexible and changeable (if it is to be "successful" -- criteria that probably also should be defined)

There are some very fundamental concepts that are important to understanding the U S utility regulatory system Understanding those concepts helps with defining terms, which, as I have stated, I believe is an important starting point in the Czech Republic It should also be noted that there is not a single theory of utility regulation in the United States, however, I believe it would be fair to say that the "public interest theory" is perhaps the most fundamental With respect to that theory, Phillips has to say "The public interest theory of regulation -- the oldest and one that is more often implied than articulated -- holds that regulation is undertaken to protect the consumer from the abuses of market imperfections (or, more broadly, is established for 'public interest-related objectives') Regulating thus is viewed as the law's substitute for competition, with its basic goal being to seek 'economic' objectives "

With regard to the scope of regulation, "Regulation, as it has developed in the United States, is concerned with rates, service, safety and, to a growing extent, the efficiency of management In most of the industries under consideration, rate regulation has occupied much of the commissions' time and has been the subject of continuous controversy Rate regulation has two aspects control of the rate level (earnings) and control of the rate structure (prices) As to the rate level, public utilities are entitled to cover all allowable operating costs and to have the opportunity to earn a 'fair' rate of return Collectively, these items comprise a company's total revenue requirements As to the rate structure, public utilities are permitted to establish rates that, at a minimum, will cover their revenue requirements Such rates must be 'just and reasonable, ' with no 'undue discrimination '

The U S utility regulatory process establishes revenue levels (the revenue requirement) and price levels (the rate structure) The objectives of regulation (briefly stated--the substitute for competition) and the definition of revenue requirements (rate base x allowed rate of return + utility operating costs) are well defined and understood by those involved in or with the U S utility regulatory system As the Czech Republic begins to develop its regulatory process, definitions of terms and objectives of activities are fundamental building blocks in that development process The concepts supporting various U S regulatory terms and principles are in most cases not at all simple There are also sometimes conflicting goals and objectives I believe that developing an understanding of the fundamental building blocks

supporting the U S utility regulatory system will be of great help in developing the fundamental building blocks that will ultimately support the Czech regulatory system Because the concept of determining revenue requirements is so fundamental to the U S system, a few expanded comments (from Phillips) may prove helpful "The basic standard of rate regulation is the revenue-requirement standard, often referred to as the rate base-rate of return standard Simply stated, a regulated firm must be permitted to set rates that will both cover operating costs and provide an opportunity to earn a reasonable rate of return on the property devoted to the business This return must enable the utility to maintain its financial credit as well as to attract whatever capital may be required in the future for replacements, expansion and technological innovation, and it must be comparable to that earned by other businesses with corresponding risks

"There are two aspects of rate regulation (1) the rate level or determination of a utility's general level of rates and (2) the rate structure or determination of specific rates and the relationships between rates In the words of the Supreme Court

> The establishment of a rate for a regulated industry often involves two steps of different character, one of which may appropriately precede the other The first is the adjustment of a general revenue level to the demands of a fair return The second is the adjustment of a rate schedule conforming to that level, so as to eliminate discriminations and unfairness from its details "

I have one more reflection which precedes our meeting of 8 January, but was a topic of discussion at that meeting, which relates to difficulties I was having in understanding the context of certain questions and/or requests by the Ministry After being furnished by EuroEnergy with a copy of the British Office of Electricity Regulation August 1994 Proposals for Distribution Price Control covering the U K 's electricity distribution companies, I realized that principles used in the British regulatory system seem to be influencing the Czech regulatory thought process The British system of regulation is, of course, quite new, basically it is five years old It (at least the August 1994 Proposal) is also vastly different from the U S system Attached to this letter is a more complete copy of the draft comparison I made of regulatory policy followed in the U S and the U K which was discussed in our 8 January meeting I have filled in only two columns for the Czech Republic, and I will leave it to the three of you to determine how useful such a comparison might be in thinking through definitions, goals and objectives of regulation in the Czech Republic One note I filled in depreciation under the Czech Republic column because the view I have heard of the role of depreciation is very fundamentally different from the U S regulatory system

Comparing the columns for the U S and U K system on the attached summary leads me to one final overall thought The job of the Ministry of Industry and Trade to develop a regulatory system for the Czech Republic utility industry is a significant, complex and challenging task (I am personally pleased that I can be a part of a team supported by USAID to be of assistance to the Ministry in its regulatory development task) Speaking

from a personal stand-point, I am certain that if I were a Czech (new) regulator with the task the three of you have, I would certainly be pleased to receive all the help I could possibly get I would also want the best processes that had been proven to work in other countries which I would try to adopt to my country Unfortunately, the U S utility regulatory system provides few (perhaps none) specific analytical technics that one could transplant and utilize immediately in the Czech Republic (or any other country) The U S utility regulatory system does, however, have a great many principles, concepts and objectives that I believe can be very valuable in establishing some of the principles, concepts and objectives for utility regulation in the Czech Republic Processes to accomplish the objectives would then follow Perhaps the lack of detailed analytical procedures and methodologies is best described by one final quote from Phillips, as it relates to " the problems and nature of commission control of operating expenses One conclusion stands out Few of the commissions have formulated rules or established standards to govern expenditures, but supervision of expenses has been vigorous in rate-making proceedings " Stated another way, in the context of the work the Ministry would like to perform, U S regulatory commissions have neither defined cost analysis nor established standards for such an analysis, but they do subject utility costs to extensive review

I hope my reflections as summarized above will be useful With regard to details and mechanics, last week on Wednesday EuroEnergy furnished me with copies of the 1994 financial statements for the eight electric distribution companies This will be the base information to perform a revenue requirements computation for one or more of the distribution companies, although I may need some additional information on long-term debt I have access to all such information for ČEZ, and can make a ČEZ revenue requirements computation I will need the 1994 financial statements for a gas company, I suspect Vychodočeska plynarenska a s in Hradec Kralove That should be the base information to help us get started with the revenue requirements computations and other support activities to the Ministry

Yours sincerely,

H Kendall Hobbs

Attachment
SK

cc Jan Pisko, USAID, Prague
Jacquie DeRosa, USAID, Washington
Howard Menaker, Bechtel, Maryland
Len Kujawa, Diana DePinto, Arthur Andersen, Atlanta

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19 February 1996

Ing Josef Antoš
Ing Zdeněk Fousek
Ministry of Industry and Trade
Na Františku 32
110 15 Praha 1

Dear Messrs Antoš and Fousek

Josef and I have completed a computation of revenue requirements, using the U S utility cost of service methodology, for each of the eight electric distribution companies and for ČEZ As we review the revenue requirement calculations at an upcoming working group meeting, I thought it might be useful to summarize questions that are contained throughout my 24 January letter to you that was discussed at our last working group meeting on 8 February Hopefully extracting and listing questions from the 24 January letter will facilitate discussion and consideration of important matters to the Ministry as well as next steps in the USAID assistance to the Ministry

For convenience and context, I have numbered the questions below to correspond with a marked copy of the 24 January letter

1) Do I have Mr Černy's correct overall objective for the USAID assistance? Are there other objectives? As a related point, which we discussed at our 8 February meeting, what did Mr Černy mean by his reference to the regulatory model being considered as a "soft model" in the meeting in September 1995 with the United States Secretary of Energy?

2) Is there general agreement, or disagreement, that objectives should be established (probably for the year 1996) by the Ministry?

3) Has the objective(s) of a cost analysis for ČEZ been established?

4) Has input from the Ministry of Finance regarding the ČEZ cost analysis been obtained?

5) Has the term "cost analysis been defined? Are the objectives of a cost analysis clear? (Is the definition and objective the same, or different, for the electric distribution companies and for ČEZ?)

6) How has the cost analysis of the electric distribution companies performed by EuroEnergy been utilized?

7) Is the EuroEnergy cost analysis work what the Ministry wants and needs?

8) Are there any differences in the requirements for the gas industry compared to what was done by EuroEnergy for the electric distribution companies?

9) Is there general agreement, or disagreement, that the system of regulation for the Czech Republic should be flexible and changeable?

10) Should criteria for success be defined or determined?

11) In our meeting on 8 February Mr Antoš indicated that in the Czech Republic there was no current concept of a "public interest" objective, rather the objectives were political Should economic objectives for utility regulation in the Czech Republic be developed

12) What are the objectives in the Czech Republic for determining appropriate revenue levels ("revenue requirements") for the electric and gas utilities?

13) What consideration has been given by either the Ministry of Industry and Trade or the Ministry of Finance regarding an appropriate rate of return to be earned by the electric and gas utility companies

14) What comparisons have been made with the costs to serve residential, commercial and industrial companies with the existing tariffs for those customer groups?

15) How useful will it be to try to develop regulatory guidelines in the Czech Republic, using as an informatin source U S and U K policies, procedures and objectives?

I hope this format is useful to the working group as it continues developing regulatory procedures for the Czech Republic

Sincerely,

Ken Hobbs

H Kendall Hobbs

SK

Attachment (pages 1, 2 and 3 of 24 Januarv letter)

cc with attachment: Jan Pisko, USAID, Prague
Jacquie DeRosa, USAID, Washington
Howard Menaker, Bechtel, Marvland
Len Kujawa, Diana DePinto, Arthur Andersen, Atlanta

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24 January 1996

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Ing Josef Antoš
Ing Zbyněk Fousek
Ing Vít Šponer
Ministry of Industry and Trade
Na Františku 32
110 15 Praha 1

Dear Messrs Antoš, Fousek and Šponer

After reflecting on topics discussed in a meeting yesterday afternoon with Mr Šponer, and in the meetings in Mr Fousek's office on 8 and 19 January, I thought it might be useful to summarize a few thoughts, particularly our discussions with respect to objectives, including objectives of U S utility regulation and of the USAID assistance to the Ministry

1) I believe that the overall objective of Mr Černy with respect to the USAID assistance was to understand the U S utility regulatory system and determine how certain aspects of that system might be applied in the Czech Republic In our discussions on 8 and 19 January, I
2) expressed my view/opinion that objectives should be established for the significant activities and processes undertaken by the Ministry and by USAID After my discussion yesterday with Mr Šponer, I believe that would be useful to comment more on objectives, and definitions, and use illustrations from U S regulatory principles One item that I believe needs a clear definition by the Ministry is the term "cost analysis" After much discussion of this topic on 8 January, and my explanations of the U S (utility cost of service) revenue requirements computation and the U S utility management audit process, it seemed to be the conclusion that "Cost Analysis" = "Revenue Requirements' After further discussion at that meeting, when discussing "cost analysis" work to be performed at ČEZ, cost analysis then meant something (very) different from (a) revenue requirements (calculation) Various steps of an analysis process were described, but the term certainly could no longer be defined as revenue requirements It was agreed in the meeting that a clear objective of cost
3) analysis for ČEZ needed to be established, and that input from the Ministry of Finance was 4)
necessary It is very important for the USAID team to have a clear understanding of the
5) Ministry's definition of cost analysis and the objectives of a cost analysis

One further point on cost analysis, before I move to U S regulatory policy and objectives,
6) that is important to the USAID team is the need to understand how the cost analysis of the electric distribution companies performed by EuroEnergy has been utilized Is the
7) EuroEnergy cost analysis work precisely what the Ministry wants and needs? Mr Šponer
8) yesterday seemed to be looking for something different for gas than what was done for electricity I hope that some examples and illustrations of the U S regulatory process and objectives will be helpful to the Ministry in defining cost analysis and the objectives of such an analysis

In describing U S regulatory principles I have used the book The Regulation of Public Utilities by Charles F Phillips, Jr The book, just over 1000 pages, provides guidance, not rules, principles, not solutions, objectives, not mechanics or magic answers The book condenses a century of evolution of U S utility regulation into that 1000 pages This letter is obviously much more condensed It is also important to understand that this century of U S regulation of utilities (a term I understand does not actually translate into Czech) has been a period of constant change In fact, the U S regulatory system is currently undergoing significant, and quite possibly radical, change As economics change, so must regulation The system of regulation that will be developed in the Czech Republic must also be flexible and changeable (if it is to be "successful" -- criteria that probably also should be defined)

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10>

There are some very fundamental concepts that are important to understanding the U S utility regulatory system Understanding those concepts helps with defining terms, which, as I have stated, I believe is an important starting point in the Czech Republic It should also be noted that there is not a single theory of utility regulation in the United States, however, I believe it would be fair to say that the "public interest theory" is perhaps the most fundamental With respect to that theory, Phillips has to say "The public interest theory of regulation -- the oldest and one that is more often implied than articulated -- holds that regulation is undertaken to protect the consumer from the abuses of market imperfections (or, more broadly, is established for 'public interest-related objectives') Regulating thus is viewed as the law's substitute for competition, with its basic goal being to seek economic' objectives "

11>

With regard to the scope of regulation, "Regulation, as it has developed in the United States, is concerned with rates, service, safety and, to a growing extent, the efficiency of management In most of the industries under consideration, rate regulation has occupied much of the commissions' time and has been the subject of continuous controversy Rate regulation has two aspects control of the rate level (earnings) and control of the rate structure (prices) As to the rate level, public utilities are entitled to cover all allowable operating costs and to have the opportunity to earn a 'fair' rate of return Collectively, these items comprise a company's total revenue requirements As to the rate structure, public utilities are permitted to establish rates that, at a minimum, will cover their revenue requirements Such rates must be 'just and reasonable,' with no undue discrimination "

12>

The U S utility regulatory process establishes revenue levels (the revenue requirement) and price levels (the rate structure) The objectives of regulation (briefly stated--the substitute for competition) and the definition of revenue requirements (rate base x allowed rate of return + utility operating costs) are well defined and understood by those involved in or with the U S utility regulatory system As the Czech Republic begins to develop its regulatory process, definitions of terms and objectives of activities are fundamental building blocks in that development process The concepts supporting various U S regulatory terms and principles are in most cases not at all simple There are also sometimes conflicting goals and objectives I believe that developing an understanding of the fundamental building blocks

supporting the U S utility regulatory system will be of great help in developing the fundamental building blocks that will ultimately support the Czech regulatory system Because the concept of determining revenue requirements is so fundamental to the U S system, a few expanded comments (from Phillips) may prove helpful "The basic standard of rate regulation is the revenue-requirement standard, often referred to as the rate base-rate of return standard Simply stated, a regulated firm must be permitted to set rates that will both cover operating costs and provide an opportunity to earn a reasonable rate of return on the property devoted to the business This return must enable the utility to maintain its financial credit as well as to attract whatever capital may be required in the future for replacements, expansion and technological innovation, and it must be comparable to that earned by other businesses with corresponding risks

"There are two aspects of rate regulation (1) the rate level or determination of a utility's general level of rates and (2) the rate structure or determination of specific rates and the relationships between rates In the words of the Supreme Court

> The establishment of a rate for a regulated industry often involves two steps of different character, one of which may appropriately precede the other The first is the
13> adjustment of a general revenue level to the demands of a fair return The second is the adjustment of a rate schedule conforming to that level, so as to eliminate
14> discriminations and unfairness from its details "

I have one more reflection which precedes our meeting of 8 January, but was a topic of discussion at that meeting, which relates to difficulties I was having in understanding the context of certain questions and/or requests by the Ministry After being furnished by EuroEnergy with a copy of the British Office of Electricity Regulation August 1994 Proposals for Distribution Price Control covering the U K 's electricity distribution companies, I realized that principles used in the British regulatory system seem to be influencing the Czech regulatory thought process The British system of regulation is, of course, quite new, basically it is five years old It (at least the August 1994 Proposal) is also vastly different from the U S system Attached to this letter is a more complete copy of the draft comparison I made of regulatory policy followed in the U S and the U K which was discussed in our 8 January meeting I have filled in only two columns for the Czech
15> Republic, and I will leave it to the three of you to determine how useful such a comparison might be in thinking through definitions, goals and objectives of regulation in the Czech Republic One note, I filled in depreciation under the Czech Republic column because the view I have heard of the role of depreciation is very fundamentally different from the U S regulatory system

Comparing the columns for the U S and U K system on the attached summary leads me to one final overall thought The job of the Ministry of Industry and Trade to develop a regulatory system for the Czech Republic utility industry is a significant, complex and challenging task (I am personally pleased that I can be a part of a team supported by USAID to be of assistance to the Ministry in its regulatory development task) Speaking

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12 March 1996

Ing. Zdeněk Fousek
Ministry of Industry and Trade
Na Františku 32
110 15 Praha 1

Dear Mr. Fousek,

Pursuant to our discussion yesterday, in response to the request at the 21 February Steering Committee meeting for 1) views on regulatory goals and 2) definition of terms, summarized below is an initial listing of terms that I believe need defining and concept/activities that should have objectives

Most of the following terms should be defined in an economic sense first, and then perhaps from a legal perspective

- Monopoly
- Market power
- Franchise (this would be more of a legal than an economic definition)
- Utility
- Non utility (non regulated) activities
- Cost of service
- Cost of capital
- Depreciation
- Cost analysis

Most of the following items are concepts or activities that should have clear or defined objectives. The first item, public interest, is probably more of a term that needs to be defined, but it is also an important concept in considering the goals and objectives of regulation, therefore, I have included it in this section

- Public interest
- Obligations of utilities
- Rights of utilities
- Regulation (goals of, or objectives of)
- Cost analysis (I believe this is both a term that needs a definition and a concept/activity that requires an objective)
- Rate/tariff design
- Central dispatch (this is an extremely important function and, therefore, one I believe needs very clear goals and or objectives)

The above are only initials thoughts I will reverse/expand this list after discussions with Howard Menaker of Bechtel and representatives of law firms from the USAID/Bechtel team following our meetings next week on 18 and 19 March

Sincerely,

H Kendall Hobbs

cc Jan Pisko, Bob Posner USAID, Prague
Jacquie DeRosa USAID, Washington
Howard Menaker Bechtel, Maryland
Len Kujawa, Diana DePinto Arthur Andersen, Atlanta

Selected U S Regulatory Principles from
The Regulation of Public Utilities
by Charles F Phillips, Jr

There are some very fundamental concepts that are important to understanding the U S utility regulatory system It should also be noted that there is not a single theory of utility regulation in the United States, however, it probably would be fair to say that the "public interest theory" is perhaps the most fundamental With respect to that theory, Phillips has to say "The public interest theory of regulation -- the oldest and one that is more often implied than articulated -- holds that regulation is undertaken to protect the consumer from the abuses of market imperfections (or, more broadly, is established for 'public interest-related objectives') Regulating thus is viewed as the law's substitute for competition, with its basic goal being to seek 'economic' objectives "

With regard to the scope of regulation, "Regulation, as it has developed in the United States, is concerned with rates, service, safety and, to a growing extent, the efficiency of management In most of the industries under consideration, rate regulation has occupied much of the commissions' time and has been the subject of continuous controversy Rate regulation has two aspects control of the rate level (earnings) and control of the rate structure (prices) As to the rate level, public utilities are entitled to cover all allowable operating costs and to have the opportunity to earn a 'fair' rate of return Collectively, these items comprise a company's total revenue requirements As to the rate structure, public utilities are permitted to establish rates that, at a minimum, will cover their revenue requirements Such rates must be 'just and reasonable,' with no 'undue' discrimination "

The U S utility regulatory process establishes revenue levels (the revenue requirement) and price levels (the rate structure) The objectives of regulation (briefly stated--the substitute for competition) and the definition of revenue requirements (rate base x allowed rate of return + utility operating costs) are well defined and understood by those involved in or with the U S utility regulatory system With respect to the determination of revenue levels, Phillips states

"The basic standard of rate regulation is the revenue-requirement standard, often rererred to as the rate base-rate of return standard Simply stated, a regulated firm must be permitted to set rates that will both cover operating costs and provide an opportunity to earn a reasonable rate of return on the property devoted to the business This return must enable the utility to maintain its financial credit as well as to attract whatever capital may be required in the future for replacements, expansion and technological innovation, and it must be comparable to that earned by other businesses with corresponding risks

"There are two aspects of rate regulation (1) the rate level or determination of a utility's general level of rates and (2) the rate structure or determination of specific rates and the relationships between rates In the words of the Supreme Court

> The establishment of a rate for a regulated industry often involves two steps of different character, one of which may appropriately precede the other The first is the adjustment of a general revenue level to the demands of a fair return The second is the adjustment of a rate schedule conforming to that level, so as to eliminate discriminations and unfairness from its details "

Czech Republic Electric Industry 1994 Revenue

Company		Revenue - Th Kc		
		Historical	Economic	
			Company	Allocated
PRE		6 279 741	6 892 479	7,957 019
STE		7,647 377	8 162 426	9 458 806
JCE		4 372 777	4 779 729	5 521 001
ZCE		4 953 994	5 263 891	6 103 690
SCE		7 941,191	9 009,219	10 355 407
VCE		7 348 675	7 619,412	8 865 156
SME		12,804 406	13,129 017	15 299 615
JME		10 425 616	10,906 018	12,673 365
CEZ	Incremental (Note 3)	-	10 471 867	-
		61 773 777	76 234 058	76 234 058

<Note>

1) Historical revenues for the eight distribution companies are taken from their 31 December 1994 financial statements

2) Economic revenue levels are calculated based on the U S cost of services methodology (calculated and explained elsewhere in detail)

3) CEZ revenue for 1994 totaled 48 566 969 Th Kc and is reflected in the historical revenue amounts of the distribution companies' revenues to cover their purchased power costs CEZ's required 1994 economic revenue level is 59 038,836 Th Kc an incremental level of 10 471 867 Th Kc above the historical level

4) The allocation of the CEZ incremental economic level revenue requirement in made based on the percentage of historical revenue levels by distribution company

Electricity Industry Rates - 1994

In its response to the request at the 21 February Steering Committee meeting for goals of regulation, the Ministry of Finance has stated

- With respect to the period from 1997 to 1999, " the main objective of the regulatory process will be to adjust energy prices for households so that the prices reflect economically justified costs and so that cross subsidies of households from higher prices applied to other customers are eliminated "
- "Increase maximum prices for households annually not more than by 15% in average (will be adjusted based on the results of cost analysis) "

The above objective of the Ministry of Finance is quite appropriate, however, increasing residential rates by annually 15% through the year 1999 will not achieve the objective Such adjustments over the next three-year period will not be adequate to reflect the fact that residential rates should be substantially higher than rates for industrial customers Without further (significant) adjustments, there will be substantial cross subsidies remaining in 1999

The following summary illustrates an approximate, reasonable realignment of rates in the Czech Republic to more accurately reflect (historic average) costs to serve the respective customer classes Substantial work would be required to establish rates based on actual costs, however, the following should be reasonably indicative of a rate structure that would be required to have "economic" (those that reflect actual costs) rate levels Until electricity prices more accurately reflect costs, it will be extremely difficult to economically/rationally resolve questions/issues relating to energy imports or third party access to the transmission grid

Electricity Industry Rate Structure 1994

	C R	U S A		C R Rate/KWh	
Customer Class	Kc/KWh	c/KWh	Ratio	Average	Economic (col 3x4)
Residential	0 9	8 85	1 23	1 6	1 96
Commercial	2 2	7 92	1 10	1 6	1 75
Industrial	1 8	4 90	0 68	1 6	1 09
Average	1 6	7 22	1 00	1 6	1 60

Notes

1) The 1994 C R rates (Kc/KWh) above are taken from the Prazska energetika 1994 English version annual report for use as representative average rates for the eight distribution companies

2) The Economic rate structure (Kc/KWh) calculation is based on the U S A Rate Structure Ratio and Czech Republic Historic Rate Structure The structure is more reflective of the costs to serve the different customer classes however rate levels are below economic costs

V Consultant Deliverables (from USAID Work Program)

Computation of Required Revenue

Return on Equity

Regulated and Non-Regulated Utility Activities

Investments for Additions to and Replacements of Utility Plant

Considerations for Dealing with the Effects of Inflation

COMPUTATION OF REQUIRED REVENUE

Background

During our activities with the Working Group over the early months of 1996, the general procedures followed by U S utilities and their regulators have been reviewed discussed and illustrated Working with 1994 year-end financial information, the only data available to the Ministry of Industry and Trade in early 1996, revenue requirement (RR) calculations were made for CEZ and the eight electric and the eight gas distribution companies

This more detailed analysis, computation and illustration uses the 1994 and 1995 historical financial statements of one of the eight electric distribution companies, Pražska energetika, a s (PRE), to document for the Ministry the fundamental considerations and steps to compute a utility's RR under the U S cost of service process

Using the program previously provided to the Ministry, and the explanations herein, Ministry personnel should be able to understand the U S system for calculating RR, as applied in the Czech Republic, and the RR components including

- Rate base
- Rate of return
- Allowable operating expenses
- Required revenue

Overview

The above items are the components of the RR formula, that is, rate base times the rate of return is equal to the return (or operating income), and the return plus allowable operating expenses is equal to the required revenue (or cost of service)

These elements represent fundamental considerations in U S the rate-making process and in assessing the impact of rate-making on a U S regulated company's accounting procedures For decision making a U S utility company must consider the impact of these elements, staying aware of its commission's previous practices with respect to them

It is important to understand that the PRE example does not attempt to cover the variety or complexity of the circumstances that are encountered in U S rate-case proceedings The PRE illustration herein is **specifically designed to be brief** so that fundamental theory is not obscured

Two other basic and fundamental concepts are important -- and particularly so as this methodology is applied in the Czech Republic The first is that the process is designed to establish, using historical data as a starting point revenue levels for a future period (the period(s) that new rates will be in effect) The second is that this process is designed to provide a (adequate) return on invested capital This is a most important point and is fundamental if the ultimate goal of the Czech government is to enable the Czech Republic utility industry to be financed by private capital

The balance sheets of PRE and the related income statements, as of December 31, 1994 and 1995 are provided at the end of this section

"Operating income" on Line 29 of PRE's Income Statement has increased slightly from 1994 to 1995 "Operating income" represents a company's **return** and must be sufficient to cover interest payments and -- for U S investor owned utilities or Czech utilities if privatized -- provide a fair return on equity devoted to utility operations It is this amount, when considered as a percentage of the rate base, that indicates the actual rate of return earned by the company during the period

The actual return earned by PRE in 1995 was 7 17 %(net income divided by average shareholders' equity) If this return is viewed by potential investors as being inadequate, PRE will find it difficult to attract equity funds

In preparing for a rate case, a U S utility company must develop a **test period** that is representative of its cost of service under **normal conditions** It should be free from unusual seasonal variation or other influences which would cause distortion of a normal period **Pro forma adjustments** are made when the test year expenses or revenues are not representative of costs expected during the period the new rates will be in effect Such pro forma adjustments may be necessitated by abnormal weather during the test period, by **known changes** in labor contracts, local tax assessments or rates, tax laws or other changes in costs The test period usually is based on a recent historical twelve-month period However, due to the time lag between recognizing the need for changes in rates and the final decisions, and due to high inflation, some commissions are permitting the use of a test period that is projected at least partially into the future All of these U S concepts and principles would be applicable in the Czech Republic

The PRE example uses 1995 as its "test" year Therefore, the income statement for the year ended December 31, 1995, and the related balance sheet, will provide the basis for determining the normal cost of service

The first step in determining the revenue requirement is the computation of the required return, that is operating income In order to determine the required return, both the rate base and the rate of return must be determined

Rate Base

Rate base as defined, in general terms, in the U S is the property that is used and useful in serving the public The return allowed on the rate base must be the cost of servicing the debt, plus an amount which allows a fair return to the equity holders' investment in plant and working capital In Appendix II is the company's computation of rate base Each of the amounts on Lines comes from the balance sheet on Appendix I

Construction Work in Progress (CWIP), as shown on the balance sheet, has usually been excluded from rate base by most U S state utility commissions because it represents plant not currently in service The utility is currently paying the carrying costs of the investment in CWIP and records such investment and carrying costs as CWIP until the projects therein are completed and allowable in rate base This capitalized carrying cost represents a future claim for recovery in rates

A number of U S commissions (including the Federal Energy Regulatory Commission {FERC}) do allow utility companies to include (at least a portion of) CWIP in rate base Including CWIP in rate base provides a "cash" return when needed most and helps prevent "rate shock"--the phenomenon that occurs to customer bills when the total cost of a new plant is included all at once in rate base

The argument against including CWIP in the rate base is usually that the property is not currently providing service to customers and therefore the return (or cost of financing) should not be charged to current customers When construction is completed and the additional plant is placed in service, it will then produce additional revenues which will maintain the rate of return on the increased rate base This assumption is not always true, however Many construction projects are undertaken to replace existing property, to **improve** service or to improve the environment but do not necessarily increase the revenue-producing capacity of the utility To help provide revenues for required construction programs, it would be quite appropriate to include CWIP in rate base in the Czech Republic

A very significant point in the definition of rate base is the **timing** and **method** of valuation used As for timing, the rate base used is generally either an average for the test period or an end-of-test-period rate base As stated earlier, in the U S the test period may be either an historical period, a period that is part historical and part projected, or a period that is fully projected When an end-of-period rate base is used, allowable operating expenses and actual revenues are sometimes adjusted to an end-of-test period level to reflect increases during the year

Use of end-of-test period rate base reduces the "regulatory lag" between the time the figures used in the rate case are recorded on the books and the time revenues based on these results are collected Furthermore, use of end-of-test period rate base, without adjusting test period revenues and expenses to an end-of-period level, is considered by many U S utility commissions as an imprecise procedure for compensating the utility for the effects of "attrition" Attrition is the continual increase in plant costs and operating expenses, which prevents a utility from earning its allowed rate of return The PRE example uses a projected mid-point rate base as a means of offsetting, to some extent, the impact of attrition

As to the methods of valuation, the methods used are generally either **original cost** or some version of **fair value** In this example, PRE's original cost rate base is used, based on Czech accounting law which does not provide for asset revaluations

For U S utilities original cost is defined as the cost of property when first devoted to public service If property is later sold to another utility at higher than original cost, the excess over original cost paid by the acquiring company is usually excluded from rate base This exclusion is designed to prevent customers from being charged higher rates merely because the ownership of the utility's property changes hands

Fair value has no precise definition, but it would ordinarily give recognition to current price levels and may also adjust the investment estimate to reflect potential improvements in a more efficient configuration of generation, transmission and distribution plant Engineering appraisals, reproduction cost studies, price-level indices and other studies provide the basis for the determination Often, commissions will give partial recognition to current costs by weighting a portion of the rate base for current cost and then computing the remaining amount at original cost Such a process could be used in the Czech Republic as the current replacement of most utility property significantly exceeds its value as reflected in the Companies financial statements If used higher plant costs would be used for RR calculations, the actual accounting records would not be changed

The major component of rate base is the net plant (financed by investors -- in the U S), but rate base usually includes an allowance for working capital as well This is intended to provide for the investment in the funds needed to operate the business between the time expenses are paid and the time customers pay their bills In other words, in addition to the investment in plant, funds are also needed to pay for day-to-day expenses incurred prior to the receipt of cash from customers for service rendered to them One procedure for computing this lag is referred to as a lead-lag study Another method, the "balance sheet approach," utilizes current assets minus current liabilities as a measure of determining a working capital allowance Under this approach, the average of a number of month-end balance sheets will be used to derive the allowance The use of a reasonable formula has been common in many rate cases The FERC and a number of state commissions use a formula based on operating expenses, exclusive of depreciation and taxes, that would be incurred during 45 days--one-eighth of a year

The investment in required stocks of materials and supplies is also included in working capital The amount included could be the balance at the end of the test period, a simple average of beginning and ending balances, an average of monthly balances or the balance at some specific point in time In the PRE case, the amount included is the balance at the end of the test period

As shown on Line 8, on the next page, PRE's rate base at 31 December, 1995 is 5,013,715 th Kc and for establishing future RR is 5,356,065 th Kc using the projected 1996 average plant balance

PRE, a s

COMPUTATION OF RATE BASE

31 DECEMBER 1995

'000 Kc

Line No				
	RATE BASE			
1	Plant		8,938,912	
2	Less-Accumulated depreciation		(4,044,916)	
3	Net plant			4,893,996
	WORKING CAPITAL			
	Annual operation and maintenance expense-			
4	Operation/salaries and wages	302,110		
5	Other operating expense	233,535		
		535,645		
6	45 days (1/8 of year)	÷ 8	66,956	
7	Stock at the end of the test period (materials and supplies)		52,763	119,719
8	Rate Base 31 December 1995			5,013,715
9	One half of 1995 actual plant additions -- to project a mid-year rate base for 1996			342,350
10	Rate base 1996 Average (Projected)			5,356,065

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Rate of Return

The next step in determining a U S utility company's revenue requirements is calculating a fair rate of return (cost of capital) to apply to the rate base This step recognizes that investors (bond and equity holders) require a "return" on funds invested in the utility The financing as obtained was used to construct facilities necessary to provide utility service (i e , rate base) Thus, by multiplying rate base by rate of return, the necessary total return is produced--one that will be sufficient to pay interest to the bondholders and provide a fair equity return to the common stockholders In most cases, the cost of capital is by far the principal factor considered when determining rate of return This concept is of particular importance in the Czech Republic and, therefore, a separate paper on rate of return considerations has been developed Cost of capital includes

- Interest on a company's existing debt capital, commonly referred to as its embedded cost These are generally the stated rate on given borrowings
- The cost of equity capital
- Funds from ratepayers (customers), if any

These represent the costs associated with the sources of funds used to finance a utility's property, plant and equipment Utilities are capital intensive and generally generate a smaller portion of total construction needs internally than most industries due to the following

- High capital requirements in relation to revenues
- In the U S higher dividend payout ratios and thus smaller amount of equity retained
- Lower rates of return earned on equity

As a result, utilities require a larger amount of outside financing

The first step in determining the rate of return for a U S utility company is the computation of the embedded cost of debt As PRE has no significant long-term debt, this step (for 1995/1994) is not required

For purposes of this example, PRE's cost of equity capital is assumed to be 15% (Reference should be made to the separate report for cost of equity capital considerations)

The determination of the cost of equity capital is an area in which judgment plays an important role U S court precedents generally state that the return on equity must be set at an amount that will attract capital, maintain the financial integrity of the company, and be comparable to similar-risk companies The following are three of

the most common factors considered in arriving at the rate of return to be allowed on equity

- The rates of return on equity granted by the regulatory commission with jurisdiction or by other commissions in recent rate cases
- The debt and equity ratios of the utility's capital structure
- The results of studies using discounted cash-flow techniques, earnings/price ratios, and capital asset pricing models (CAPMs)

The regulatory commission may also consider the quality of service rendered by the company, the efficiency of the company's management, attrition, or other factors

The method of valuing rate base, as discussed earlier, may also influence the rate of return If a fair value rate base is allowed, a lower rate of return may be allowed as well

Again, reference should be made to the report covering cost of equity capital for additional information

Allowable Operating Expense

After determining the return required, the next step is to compute allowable operating expense

PRE's income statements for the years ended December 31, 1995 and 1994, and the related balance sheets, will provide the basis for determining the normal cost of service It is important to understand that the pro forma adjustments below do not represent projections or forecasts by PRE The amounts have been determined - by Arthur Andersen - based on a review and comparison of PRE's 1995 and 1994 financial statements The amounts and the specific adjustments illustrate the U S cost of service methodology Under the U S process, the utility company (PRE in this example) would be responsible for developing all of the financial information (being illustrated herein) and adjustments and submitting it to the regulator (the Ministry of Industry and Trade in the Czech Republic) Adjustments, made by either the utility or the regulator are made on two grounds (1) to reflect ordinary circumstances, and (2) to remove expenditures that are contrary to the Commission's policy or in general are not the responsibility of customers The following (seven) adjustments illustrate/reflect "ordinary circumstances", as any other adjustments work exactly the same way

The first pro forma adjustment below in the amount of 210,686 th Kc represents an expected 15% residential rate increase to be effective from mid 1996 As the last electricity price increase was for residential customers in mid 1995, the pro forma 1996 electricity price increase is calculated for 12 months

The second pro forma adjustment reflects an increase in purchased electricity cost The increase of 1% represents the actual difference between purchased electricity costs in 1994 and 1995

The third pro forma adjustment reflects an increase in maintenance costs resulting from an expected 1996 inflation rate of 9% The volume of maintenance services in 1996 is assumed to be at same level as in 1995

The fourth pro forma adjustment reflects an increase in payroll costs resulting from an expected monthly salary increase based on the actual 1995 percentage increase and a similar decrease in the number of employees in the year 1995 compared to 1994 The salary increase between 1994 and 1995 was 18% (1994 average salary was 9,670 Kc/month, 1995 average salary was 11,406 Kc/month) The number of employees decreased from 1,523 in 1994 to 1,499 in 1995 and, therefore, the same decrease of employees, 24, is used for 1996

The fifth pro forma adjustment reflects increased depreciation expense resulting from plant and equipment additions The additional depreciation expense is calculated on all plant and equipment additions in 1995 using the 1995 composite depreciation expense rate of 5 87% The composite depreciation rate is calculated based on the average 1995 balances divided into the year's depreciation expense Property, plant and equipment additions for 1996 are projected to be at the same level as 1995

The sixth pro forma adjustment reflects a decrease in other expenses to reduce the 1995 level of the bad debt provision to a more normal amount The bad debt provision in 1994 amounted to 76,663 th Kc and in 1995 to 140,359 th Kc The increase in 1995 reflects bad debts related to prior years provided for in 1995 after a change in the tax law

The seventh pro forma adjustment reduces income tax expense in 1995 to the level it will be in 1996 reflecting the income tax rate decrease between the years 1995 and 1996 from 41% to 39%

The effect of these "known changes" (a U S utility description, or term, -- indicating, in concept, that the utility company and the commission have a reasonable basis for making the pro forma adjustments) in costs, as shown on Line 11 on page 14, is to increase "Operating income " from 359,634 th Kc to 469,514 th Kc Operating income is the company's **return** The "As Adjusted" operating income yields a higher rate of return than earned in 1995, but not high enough to cover PRE's (estimated) cost of capital of 15%

In addition to pro forma adjustments, regulatory commissions routinely disallow those expenditures that are either contrary to commission policy or are expenditures for which customers are not required to compensate the utility For example, historically commissions have not permitted utilities to incur advertising expenditures For other types of disallowed outlays, the commissions have generally concluded that they are the responsibility of stockholders and not customers The disallowed expenditures include outlays for

- charitable contributions,
- political contributions, and
- advertising

Whenever the operating expenses include such outlays, the allowable expenses are reduced by the disallowed expenditures

PRE, a s

PRO FORMA ADJUSTMENTS TO COST OF SERVICE

		'000 Kc
(1)		
To reflect expected residential tariff increase in 1996-		
Average residential electricity price in 1995 (Kc/MWh)	954 00	
Expected residential tariff increase in 1996	15%	
Average residential electricity price in 1996 (Kc/MWh)	1,097 10	
Actual residential electricity sales (MWh) in 1996	1,472,300	
Projected residential revenue		1,615,260
Actual 1995 residential revenue		1,404,574
Increase in 1996 electricity sale		210,686
(2)		
To reflect increase of electricity purchased in 1996 -		
Actual 1995 purchased electricity cost		5,190,949
Expected purchased electricity cost increase		1%
Increase in 1996 purchased electricity cost		51,909
(3)		
To reflect increase cost of services in 1996 -		
Services in 1995		233,535
Expected inflation in 1996		9%
Cost of services increase in 1996		21,018
(4)		
To reflect increased payroll cost-		
Average salary in 1995 (Kc/month)	11,406	
Expected percentage increase in 1996	18%	
Expected average salary in 1996 (Kc/month)	13,459	
Estimated employees in 1996	1,475	
Expected payroll cost in 1996		238,226
Payroll cost in 1995		205,171
Payroll cost increase in 1996		33,055

(5)

To reflect increased depreciation expense in 1996 resulting from plant and equipment additions -

Plant and equipment additions in 1995	684,700	
Composite depreciation rate	5 87%	
Additional depreciation expense for 1996		40,184

(6)

To reduce the 1995 level of uncollectable accounts expense to eliminate the effect of prior year bad debts provided for in 1995

Effect in 1996		(31,848)

(7)

To reflect income tax percentage decrease

Income tax expense in 1995		276,986
Income tax rate in 1995	41%	
Income tax rate in 1996	39%	
Effect in 1996 (4 88% decrease)		(13,512)

4

PRE, a s

DETERMINATION OF ADDITIONAL INCOME TAXES

	'000 Kc
Rate base	5,356,065
Rate return	15%
Required return (Operating income)	803,410
Less Return as adjusted	469,514
Additional revenue	333,896
Income tax requirement (see below)	213,475
Total additional revenues required	547,371
Income tax calculation	
Additional revenue	333,896
Tax rate(61 %) reciprocal	61%
Gross revenue requirement	547,371
Tax rate 39%	39%
Income tax effect	213,475

Required Revenue

The objective of a U S utility rate case is to determine the revenue required to provide a fair return on rate base after meeting allowable operating expenses All of the data necessary for such a determination for PRE for 1996 revenue levels have now been illustrated

Line 1 shows the return required This is the return on rate base that shows the operating income as adjusted on a pro forma basis for expected 1996 price and cost changes Subtracting Line 2 from Line 1 results in an operating income deficiency of 333,896 th Kc The collection of additional revenues will generate additional taxable income, which will generate additional income taxes So, the additional revenue required must be increased

Operating income deficiency must also be collected to cover these additional income taxes and this is shown on Line 4

When the additional requirement on Line 5 is added to the actual revenues of the company in 1995, the total revenue requirement is the result. This is shown on Line 7

PRE, a s

COMPUTATION OF REVENUE REQUIREMENT
'000 Kc

Line No		
1	Return required (rate base x rate of return)	803,410
2	Less Operating income, as adjusted	469,514
3	Operating income deficiency (Line 1 - Line 2)	333,896
4	Additional income taxes required	213,475
5	Total additional revenue required to produce desired return (Line 3 + Line 4)	547,371
6	As adjusted revenue for test year	7,061,091
7	Revenue requirement	7,608,462

PRE, a s

STATEMENT OF INCOME
U S COST OF SERVICES FORMAT
YEAR ENDED DECEMBER 31, 1995
TOGETHER WITH PRO FORMA ADJUSTMENTS

'000 Kc

Line No		Actual	Pro Forma Adjustments: Debit	Pro Forma Adjustments: Credit	As Adjusted	Additional Revenue Requirement	Pro Forma With Rate Increase
		(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)	(Col 6)
1	OPERATING REVENUES	6,850,405	-	210,686	7,061,091	547,371	7,608,462
	OPERATING EXPENSES						
3	Purchased and Interchange power	5,190,949	51,909	-	5,242,858		5,242,858
4	Maintenance	233,535	21,018	-	254,553		254,553
6	Personnel	302,110	33,055	-	335,165		335,165
7	Depreciation	429,165	40,184	-	469,349		469,349
8	Other	58,026	-	31,848	26,178		26,178
9	Income taxes	276,986	-	13,512	263,474	213,475	476,949
10	Total operating expenses	6,490,771	146,166	45,360	6,591,578	213,475	6,805,052
11	Operating income	359,634	146,166	256,046	469,514	333,896	803,410
12	RATE BASE	5,013,715	342,350	-	5,356,065	-	5,356,065
13	RATE OF RETURN	7 17%			8 77%		15 00%

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Czech Statutory Financial Statement Forms
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BALANCE SHEET LONG FORM

			LINE	Current year			Prior year
				Gross	Provisions	Net	Net
		TOTAL ASSETS	**1**	**12 420 515**	**4,200 737**	**8 219 778**	**6 938 028**
A		**STOCK SUBSCRIPTIONS RECEIVABLE**	**2**	**0**	**0**	**0**	**0**
B		**INTANGIBLE AND TANGIBLE ASSETS AND INVESTMENTS**	**3**	**9,123 769**	**4 060 063**	**5 063 706**	**4 379,026**
B I		Intangible assets	4	161 004	15 147	145 857	56 221
B I	1	Expenses of foundation and organization	5			0	
	2	Research and development	6			0	
	3	Software	7	54 430	15 147	39 283	9 685
	4	Patents rights and royalties	8			0	
	5	Small and other intangibles	9			0	
	6	Intangibles in progress	10	102 553		102 553	41 612
	7	Advances for intangibles	11	4 021		4 021	4 924
B II		Tangible assets	12	8 938 912	4 044 916	4 893 996	4 321 705
B II	1	Land	13	261 372		261 372	251 551
	2	Buildings halls and constructions	14	5 540 609	2 535 742	3 004 867	2 866 954
	3	Separate movable items and groups of movable items	15	2 030 282	1 007 144	1 023 138	796 569
	4	Permanent growth	16			0	
	5	Livestock	17			0	
	6	Other tangible assets	18	502 203	502 030	173	74 123
	7	Tangibles in progress	19	318 966		318 966	160 858
	8	Advances for tangibles	20	285 480		285 480	171 650
	9	Adjustment to purchased property	21			0	
B III		Financial investment	22	23 853	0	23 853	1 100
B III	1	Majority shareholdings and participating interests (shareholdings > 50%)	23	19 300		19 300	0
	2	Substantial shareholdings and participating interests (shareholdings of 20% - 50%)	24			0	
	3	Other securities and deposits	25	4 553		4 553	1 100
	4	Intergroup loans	26			0	
	5	Other loans and financial investments	27			0	
C		**CURRENT ASSETS**	**28**	**1,274 931**	**140,674**	**1,134 257**	**856,933**
C I		Inventory	29	53 078	315	52 763	66 554
C I	1	Materials	30	44 435	315	44 120	47 246
	2	Work in progress and semi finished production	31	289		289	18 695
	3	Finished products	32			0	
	4	Livestock	33			0	
	5	Goods	34	6 956		6 956	26
	6	Advances granted	35	1 398		1 398	587
C II		Long term receivables	36	1 295	0	1 295	848
C II	1	Trade and other receivables	37	1 295		1 295	848
	2	Receivables from partners and associations	38			0	
	3	Receivables from related companies (shareholdings >50%)	39			0	
	4	Receivables from related companies (shareholdings of 20% 50%)	40			0	
	5	Other receivables	41			0	

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BALANCE SHEET LONG FORM

			LINE	Current year			Prior year
				Gross	Provisions	Net	Net
C III		Short term receivables	42	294 736	140 359	154 377	291 029
C III	1	Trade receivables	43	226 437	140 359	86 078	252 914
	2	Receivables from partners and associations	44	150		150	0
	3	Receivables from social security	45			0	0
	4	Receivables from taxes and subsidies	46	64 091		64 091	35 370
	5	Deferred tax assets	47			0	0
	6	Receivables from related companies (shareholdings > 50%)	48			0	
	7	Receivables from related companies (shareholdings of 20% - 50%	49			0	
	8	Other receivables	50	4 058		4 058	2 745
C IV		Financial accounts	51	925 822	0	925 822	498 502
C IV	1	Cash	52	1 861		1 861	1 509
	2	Bank accounts	53	53 307		53 307	135 452
	3	Short term financial assets	54	870 654		870 654	361 541
D		**OTHER ASSETS**	**55**	**2 021 815**	**0**	**2 021 815**	**1 702,069**
D I		Temporary accounts of assets	56	12 441	0	12 441	2 057
D I	1	Prepaid expenses	57	12 300		12 300	1 993
	2	Unbilled revenue	58			0	
	3	Exchange rate variances loss (debit)	59	141		141	64
D II		Contingencies - gain	60	2 009 374		2 009 374	1 700 012
		Control number	999	47 672 686	16 802 948	30 869 738	26 052 100

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BALANCE SHEET - LONG FORM

			LINE	Current year	Prior year
		TOTAL CAPITAL & LIABILITIES	**61**	**8 219 703**	**6 938 029**
A		**CAPITAL**	**62**	**5 603 766**	**5,123 427**
A	I	Basic capital	63	3 853 965	3 853 965
A	I 1	Basic capital	64	3 869 443	3 869 443
	2	Own shares	65	(15 478)	(15 478)
A	II	Capital funds	66	469 161	431 250
A	II 1	Share premium (agio)	67		
	2	Other capital funds	68	469 161	431 250
	3	Revaluation of assets	69		
	4	Revaluation of capital participation	70		
A	III	Funds created from profit	71	469 364	452 411
A	III 1	Legal reserve fund	72	445 072	425 782
	2	Indivisible fund	73		
	3	Statutory and other funds	74	24 292	26 629
A	IV	Retained earnings	75	356 767	0
	IV 1	Retained earnings of previous years	76	356 767	
	2	Retained losses of previous years	77		
A	V	Profit and loss of current accounting period	78	454 509	385 801
B		**LIABILITIES**	**79**	**2,483 588**	**1,806,544**
B	I	Reserves	80	14 407	11 844
B	I 1	Legal reserves (i e tax deductible)	81		5 915
	2	Reserves for exchange rate losses	82	141	64
	3	Other reserves	83	14 266	5 865
B	II	Long term liabilities	84	26 135	27 137
B	II 1	Long term payables to related companies (shareholdings > 50%)	85		
	2	Long-term payables to related companies (shareholdings of > 20%-5	86		
	3	Long term deposits received	87		
	4	Bonds payable	88		
	5	Long term notes payable	89		
	6	Rent and other long term payables	90	26 135	27 137
B	III	Short term liabilities	91	1 628 416	1 717 914
B	III 1	Trade payables	92	1 563 536	1 687 257
	2	Payables to partners and associations	93		
	3	Payables to employees	94	5 011	7 561
	4	Social security payable	95	7 895	10 486
	5	Taxes payable	96	51 954	11 765
	6	Deferred taxes	97		
	7	Payables to related companies (shareholdings > 50%)	98		
	8	Payables to related companies (shareholdings of 20% - 50%)	99		
	9	Other payables	100	20	845

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BALANCE SHEET LONG FORM

			LINE	Current year	Prior year
B	IV	Bank loans and short term notes	101	814 630	49 649
B	IV 1	Long term bank loans	102	15 938	49 640
	2	Short term bank loans	103	798 692	9
	3	Short term notes	104		
C		**OTHER LIABILITIES TEMPORARY ACCOUNTS OF LIABILITIE**	**105**	**132 349**	**8,058**
C	I	Accruals	106	120 645	334
C	I 1	Accruals	107	202	
	2	Deferred income	108	120 275	275
	3	Exchange rate variances gain (credit)	109	168	59
C	II	Contingencies - loss	110	11 704	7 724
		CONTROL NUMBER	999	32 412,599	27 358 591

Sent out on	Signature of accounting unit s statutory body	Person responsible for accounting (name signature)	Person respon sible for financial statements (name signature) tel ext

PROFIT AND LOSS STATEMENT - LONG FORM

			LINE	Current year	Prior year
I		Revenues from goods sold	1	5 119	145
A		Cost of goods sold	2	4 802	145
+		**Gross margin**	**3**	**317**	**0**
II		Operation	4	6 927 683	6 367 427
II	1	Revenues from finished products and services	5	6 850 405	6 279 741
	2	Changes in inventory	6	(18 406)	6 996
	3	Capitalization (of own work)	7	95 684	80 690
B		Consumption from operation	8	5 424 484	4 943 281
B	1	Consumption of material and energy	9	5 190 949	4 731 564
B	2	Services	10	233 535	211 717
+		**Value added**	**11**	**1 503,516**	**1,424,146**
C		Personnel expenses	12	302 110	253 708
C	1	Wages and salaries and earnings of partners and coop members	13	205 668	177 161
C	2	Bonuses to members of executive bodies of companies and coop	14	1 110	285
C	3	Social insurance and other expenses	15	75 125	62 693
C	4	Statutory social expenses	16	20 207	13 569
D		Taxes and fees	17	8 561	4 350
E		Amortization of intangibles and depreciation of tangibles	18	429 165	410 342
III		Revenues from intangible and tangible assets and material sold	19	49 333	22 668
F		Net book value of intangibles tangibles and material sold	20	43 111	18 274
IV		Reversal of reserves and prepaid expenses	21	10	315
G		Creation of reserves and prepaid expenses	22		5 915
V		Reversal of provisions	23		
H		Creation of provisions	24	58 096	76 663
VI		Other operational revenues	25	26 369	14 960
I		Other operational expenses	26	23 970	7 212
VII		Transfer of operational revenues	27		
J		Transfer of operational expenses	28		
*		**Net operating results**	**29**	**714 215**	**685 625**
VII		Revenues from sales of securities and deposits	30	1 609 597	
K		Sold securities and deposits	31	1 598 456	
IX		Revenues from financial investments	32	0	0
IX	1	Revenues from securities and deposits in companies in the group	33		
	2	Revenues from other investment securities and deposits	34		
	3	Revenues from other financial investments	35		
X		Revenues from short term financial assets	36	32 771	
XI		Reversal of financial reserves	37		
L		Creation of financial reserves	38	77	64
XII		Reversal of provisions	39		
M		Creation of provisions	40		
XIII		Interest revenues	41	1 319	8 974
N		Interest expenses	42	20 863	3 797
XIV		Other financial revenues	43	271	338
O		Other financial expenses	44	2 568	6 428

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PROFIT AND LOSS STATEMENT LONG FORM

		LINE	Current year	Prior year
XV	Transfer of financial revenues	45		
P	Transfer of financial expenses	46		
*	**Net result from financial activities**	**47**	**21 994**	**(977)**
R	Income taxes on normal activity	48	276 986	292 489
R 1	due	49	276 986	292 489
R 2	deferred	50		
**	**Net result after taxes from normal activities**	**52**	**459 223**	**392,159**
XVI	Extraordinary revenues	53	3 142	1 726
S	Extraordinary expenses	54	11 132	12 687
T	Income tax on extraordinary activity	55	(3 276)	(4 603)
T 1	- due	56	(3 276)	(4 603)
T 2	- deferred	57		
*	**Net result from extraordinary activities**	**58**	**(4,714)**	**(6 358)**
U	Income distribution to partners	59		
***	**Net income (net loss) for the accounting period**	**60**	**454,509**	**385 801**
	Result of operations before tax	**61**	**728 219**	**673 687**
	CONTROL NUMBER	99	33 661 985	27 853 690

Sent out on	Signature of accounting unit s statutory body	Person responsible for accounting (name signature)	Person respon-sible for financial statements (name signature) tel ext

Summary

The important items in preparing for and conducting a rate case in the U S , or a revenue requirements determination in the Czech Republic, are as follows

- In the U S , the company and the commission determine the cost of service, the rate base and the rate of return (The utility files the data and it is examined, scrutinized and adjusted by the commission)

- In the Czech Republic, the company and/or the Ministry of Industry and Trade make such determinations

- Pro forma adjustments are not mechanically derived from company financial statements or operation plans The adjustments must be sensitively prepared using all available information to reach as reasonable as possible level of revenues and expenses for the future period when new rates will go into effect

- Rate of return is applied to rate base to produce the estimated required operating income (or return)

- Knowing the level of operating income desired, by adding the operating expenses (including income taxes) to this amount produces the amount of revenue needed

- In the U S , this procedure determines revenue levels In the Czech Republic, such information could/should be supplied to the Ministry of Finance which will actually determine revenue levels based on its pricing policies

- The PRE examples shows possible changes in revenue requirements from 1995 to 1996 The amounts are suitable for a presentation of revenue requirement calculations under U S cost of service methodology but, as the pro forma amounts have not been provided or reviewed by PRE, the illustration is that only - an <u>illustration</u> - it is not an "actual" company revenue requirement determination

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RETURN ON EQUITY

During the transition in the Czech Republic from a planned to a market economy and from government ownership of utilities to (more) private ownership (should this be the case), determining an appropriate equity return will be even more difficult than in the U S In accordance with the objectives of this assistance project, U S goals, objectives, principles will be provided, with commentary for consideration in the Czech Republic, to assist the Ministry in determining reasonable equity returns for Czech utilities

If the ultimate goal of the Czech government is that (the majority portion of) the Czech utility industry be financed by private capital, Czech utility regulators should clearly understand the objectives of investors (the providers of private capital) A U S Supreme Court justice summarized that view well

> "From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business These include service on the debt and dividends on the stock By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital"

At a minimum, a public utility must be afforded the opportunity not only of assuring its financial integrity so that it can maintain its credit standing and attract additional capital as needed, but also of achieving earnings comparable to those of other companies having corresponding risks

Determining an appropriate rate of return on equity capital is one of the most difficult and judgemental areas in a U S utility rate case There is no exact or scientific formula These are, however, many principles and objectives to guide the judgment of the utility companies and their regulators in establishing a fair and reasonable return

For regulatory purposes, the rate of return is the amount of money earned by a public utility, over and above operating costs, expressed as a percentage of the rate base The rate of return includes interest on long-term debt, dividends on preferred stock and earnings on common stock (including surplus or retained earnings) In other words the return is that money earned from operations which is available for distribution among the various classes of contributors of money capital

According to the U S Supreme Court, a fair rate of return involved two elements - a return on invested capital and a return for risk In one very significant case before the Court (in 1923) the Court elaborated on these principles and, presented factors to consider in determining a fair rate of return

> "What annual rate will constitute just compensation depends upon many circumstances and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at

> the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties, but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally "

It is very important to understand, particularly in the Czech Republic, that return requirements change over time The Court has also said

> "What is a fair return cannot be settled by invoking decisions of this Court made years ago based upon conditions radically different from those which prevail today The problem is one to be tested primarily by present day conditions What will constitute a fair return in a given case is not capable of exact mathematical demonstration "

Because no formula approach can replace the judgment required to determine a fair rate of return, it is worth expanding on the introductory quote in this section Balancing investor and customer interests is one of (if not) the primary responsibilities of a utility regulator In that regard, the Court has stated

> "The rate-making process under the (Natural Gas) Act, i e , the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business These include service on the debt and dividends on the stock By that standard the return to equity owners should be commensurate with returns on investments in other enterprises having corresponding risks That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital The conditions under which more of less might be allowed are not important here Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint "

Other important U S principles, that should also be considered in the Czech Republic include

- No single rate of return is always fair Rather, a fair return varies with investment opportunities, the location of a utility, the nature of the business and general economic conditions
- Because of differences in risk, a fair rate of return also will vary by industry or company
- Public utilities are not guaranteed a fair rate of return The U S Supreme Court has stated "The due process clause of the Fourteenth Amendment (of the U S Constitution)

safeguards against the taking of private property, or the compelling of its use, for the service of the service of the public without just compensation But it does not assure to public utilities the right under all circumstances to have a return upon the value of the property so used " Public utilities, in other words, are protected against arbitrary action of commissions, but not from normal "business hazards" or from the operation of "economic forces "

- Confiscation of property must be avoided, no one rate can be considered fair at all times and regulation does not guarantee a fair return

- A necessary prerequisite for profitable operations is efficient and economical management

- The concept of a fair rate of return represents a "zone of reasonableness " One U S state commission has stated "There is a range of reasonableness within which earnings may properly fluctuate and still be deemed just and reasonable and not excessive or extortionate It is bounded at one level by investor interest against confiscation and the need for averting any threat to the security for the capital embarked upon the enterprise At the other level it is bounded by consumer interest against excessive and unreasonable charges for service " It is, therefore, the task of U S utility regulations, as it will be in the Czech Republic, to translate these various generalizations into quantitative terms

Prior to discussing the approach to estimating a fair rate of return on equity, it is important to embed the discussion in the context of the calculation of the overall rate of return The rate of return is nearly synonymous with the weighted average cost of capital (WACC) from financial texts The WACC represents the average cost or return necessary on each dollar of invested capital to keep investors whole for their contributions of equity or their willingness to lend money to the utility As a formula, the WACC is

Cost of Debt ⊗ Debt Proportion of Financial Capital ⊕ Cost of Equity ⊗ Equity Proportion of Financial Capital

Generally, commissions use historical values of debt and equity to measure the debt and equity proportions of financial capital In countries where accounting data are widely available and relied upon, the data are taken from the liabilities side of the balance sheet Using the debt proportion as an example, the calculation of the weight for debt is

(Long term liabilities plus short term debt/Total capital where

Total Capital = Long term liabilities ⊕ short term debt ⊕ Shareholder equity and retained earnings

The cost of debt is generally restricted to the embeded cost, reflecting an historical average of the different debt series The number is usually defined as

[Total Interest Payments – Long term liabilities ⊕ short term debt

Before considering actual methodologies that U S Commissions utilize to establish a rate of return on equity, it must be emphasized that any rate by itself is meaningless unless considered in connection with a commission's entire order, that is, with the type of rate base and test year employed, with the inclusion or exclusion of construction work in progress (CWIP), and so forth To illustrate It is obvious that a 10 percent rate of return, say, on an original cost rate base of $100 million that excludes CWIP is far different from an 8 5 percent

rate of return on a reproduction cost or fair value rate base of $150 million (or an original cost rate base of $150 million that includes CWIP) The value of utility assets in the Czech Republic will also be an important factor in considering fair return of equity

The return on equity is a portion of a utility company's overall "cost of capital" The term "cost of capital" may be defined as the annual percentage that a utility must receive to maintain its credit, to pay a return to the owners of the enterprise and to ensure the attraction of capital in amounts adequate to meet future needs Mathematically, the cost of capital is the composite of the cost of the several classes of capital used by a utility - debt, preferred stock and common stock - weighted on the basis of an appropriate capital structure The next few paragraphs describe methodologies U S regulators use to determine the cost of equity capital, problems/difficulties with those methods and considerations as to how the methods might be applied in the Czech Republic

Discounted Cash Flow Approach In the U S in recent years the Discounted Cash Flow Model, or what is commonly called the DCF method, has become the most popular technique of estimating the cost of equity, and it is generally accepted by most commissions

The DCF method is derived from valuation theory, and rests on the premise that the market price of a stock is the present value of the future benefits of holding a stock They are, quite simply, the dividends paid and the proceeds from the ultimate sale of the stock Since dollars/crowns to be received in the future are not worth as much as dollars/crowns received today, the cash flows must be discounted back to the present at the investor's required rate of return

Obviously one can get any expected return on equity one wants simply by picking a particular growth rate This is where most of the controversy arises among cost of capital witnesses

The DCF estimate of the cost of equity for a particular utility is sensitive to the assumptions regarding the necessary data inputs As a result the DCF approach is frequently extended to groups of comparable companies, usually, but not always, utilities The practical problem with such an application is in the comparability of the group or groups of companies

While popular in the U S , there are application problems there and with a still developing stock market in the Czech Republic it is far too early to apply this methodology in this country

Risk Premium Approach The risk premium approach is probably the second most popular approach in the U S to estimating the cost of equity A variation of the risk premium is possibly the most logical methodology for the Czech Republic Basically, the theory suggests that the required rate of return is higher for riskier securities than less risky securities Accordingly, the equity of a company has a higher required or expected return than its debt The differential between the cost of equity and debt is the required premium for enticing investors to accept the greater risk associated with equity

Conventional wisdom states that equity is more risky than debt because the equity holder stands last in line as a claimant on the earnings of a corporation The current cost of debt is sometimes calculated as an average of long-term debt yields of a broad-based group of comparable risk firms Alternatively, is may be calculated based on the company's own current cost of long-term debt Frequently, the risk premium added to the bond yield is

derived from the historical differential between equity and debt One often cited study calculated the annual differentials from 1929 through the mid-1970s and has been updated annually Between 1929 and 1983, the (arithmetic) means in percentage terms were as follows common stock 11 8, long-term corporate bonds 4 4, long-term gonvenment bonds 3 7, United States Treasury bills 3 2, and inflation 3 1 The (arithmetic) mean differential between common stocks and long-term corporate bonds is approximately 7 4 percent over the very long term Therefore, if the company's current cost of debt, however measured, is say 9 percent, the cost of equity capital would be 16 4 percent (9 0 percent + 7 4 percent) While there does not exist in the Czech Republic the market history that the U S has, clearly the cost of equity for Czech utilities should exceed the cost of their long-term debt -- by several percentage points Use in the Czech Republic of this method under current utility industry and general economic conditions could potentially result in revenue levels that would meet the return objectives outlined in the first portion of this section

Capital Asset Pricing Model In its basic form the capital asset pricing model, or CAPM, asserts that an investor expects a return on a stock that could be realized on a risk-free investment plus a risk premium that is proportional to the stock's market risk, beta, and market risk In recent years the CAPM has been the subject of significant criticism for both theoretical and practical problems A study in 1978 concluded that CAMP "is inaccurate, incomplete, and unreliable as measure of a firm's equity cost of capital"

Arbitrage Pricing Model The Arbitrage Pricing Model or APT is an extension of the Capital Asset Pricing Model The basic notion behind the APT is that more than simply the return on the market adjusted by a fixed sensitivity factor, beta, underlies the cost of equity If the other factors can be quantified, then perhaps a better estimate of the cost of equity is possible The APT allows for the possibility that utility stocks may have differential sensitivity to certain economic factors relative to the stock market, however, in the U S the APT is not really used in utility rate cases

Comparable Earnings Approach The basis of the comparable earnings is taken from two major U S Supreme Court cases (Bluefield and Hope) and economist's concept of opportunity cost In recent years, however, the traditional application of this method of estimating the cost of equity has been challenged

The major problem in applying the comparable earnings approach is the difficulty in determining what companies are comparable to the utility in question If the comparable earnings test is applied in the traditional manner limited to utilities, it frequently is challenged on the basis of circularity The return on book equity of utilities is itself influenced by the regulatory process, setting the allowed return of a particular utility on the basis of the earned returns of other utilities makes that return dependent on regulatory action The return set for one utility becomes a part of the return set for another utility, and so on Essentially, this circumvents the market forces which regulation is attempting insofar as possible to replicate

Earnings to Price Ratio Method In the 1960 in the U S, the earnings to price ratio was one method of estimating the cost of equity which enjoyed some acceptability Today, it has virtually disappeared form rate of return testimony, primarily because the earnings to price ratio may provide a totally unreliable estimate of the cost of equity as it simply misspecifies the DCF by incorrectly estimating the expected growth rate

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REGULATED AND NON-REGULATED UTILITY ACTIVITIES

Background and Overview

Step No 2 of Task 1 of the USAID work program states that the USAID consultant will "Prepare a memorandum setting forth guidance on the separation of regulated and non-regulated activities of a utility, including external services"

The subject of regulated and non-regulated utility activities was a topic raised at the October 1995 USAID workshop and has been a discussion topic in a number of the Working Group meetings subsequent to the October workshop Material illustrating non-regulated activities and practices followed in the U S has been distributed to and discussed with Ministry personnel at various Working Group meetings The material consisted largely of copies of pages from U S utility annual reports, both management commentary and footnotes to financial statements, describing the scope and nature of various non-utility/non-regulated activities After a Working Group discussion in May which followed an outline entitled "Views Often Followed by U S Regulatory Commissions for Non-utility Activities" Ministry personnel stated (because of continuing concerns with the current state of the Czech legal environment and energy legislation), that they would prepare a written summary of their concerns with respect to regulated and non-regulated activities A copy of the summary, furnished by Mr Antos at the end of August 1996, is attached The key point to be gleaned from the Ministry review is summarized succintly in the final conclusion from the three-page attachment "The current status of the legislation is not good and has no logic"

Besides the job of the Ministry being difficult because of legislation that "is not good and has no logic", trying to learn from the US utility industry experience is complicated because the immediate past and current Czech Republic economic infrastructure and development is so fundamentally different from that in the U S -- particularly in the energy sector While there are many complexities in the evolution since 1989 from a planned to a market economy in the Czech Republic, one fundamental activity has been the breakup, dismantling, restructuring, and/or privatization of large state-owned enterprises and, indeed, the country's entire industrial and commercial infrastructure This activity is consistent with one of the macroeconomic goals of the Czech government to develop a competitive market economy Throughout much of the world the energy industry, and in particular the electricity industry in countries such as the UK and the U S, has been and is undergoing significant change and restructuring While many U S electricity companies are outsourcing a number of activities and are perhaps considering vertical disaggregation, they are also entering into mergers as the industry moves toward a more competitive environment U S electricity companies, in general, are looking to add new businesses and activities to their operations, rather than eliminating activities as is the case in many of the former planned economies of Central Europe Such expansion of activities is also an effort by U S electricity companies to be more dynamic and profitable enterprises in an increasingly competitive market environment

As indicated in the attached summary from the Ministry, legislative advice has already been provided as part of the USAID support (Task 3) To try to best address non-legislative, but related concerns, based on the request of Ministry personnel to understand the U S utility regulatory system and on dialogs from earlier Working Group meetings, this memorandum covers the following

- General objectives of U S regulators concerning utility and non-utility activities
- U S accounting system to distinguish utility from non-utility activities
- Classification of activities between utility and non-utility
- Global energy company trends
- Energy industry restructuring in the Czech Republic
- Czech accounting system
- Conclusions

General Objectives of U S Regulators Concerning Utility and Non-utility Activities

In preparing for the May Working Group meeting in which one of the topics would be a discussion of general objectives of U S regulators concerning utility and non-utility activities, several recent rate orders issued by state commissions were reviewed One of the best reasoned and most concise (only 25 pages) was a December 30, 1994 order issued by the Maryland Public Service Commission
"In the Matter of the Investigation by the Commission on its own Motion into Allocation of Cost between Reguulated and Unregulated Business Activities of the Baltimore Gas and Electric Company in the Matter of the Complaint of the Small Business Coalition for Fair Utility Practices vs Baltimore Gs and Electric Company "

The conclusion by the hearing examiner, on page 24 of the order, states
"In conclusion, I find that the Commission exercises jurisdiction over the non-utility businesses of Baltimore Gas and Electric Company only to the extent necessary for the protection of regulated services Accordingly, I find that the Company need not seek prior review and approval by the Commission of non-utility services unless such services are of such a substantial extent that regulated operations may be affected However, the Company must inform the Commission of such activities, including the level of all such non-regulated operations, and the Commission may take action as necessary if it believes regulated operations will be affected by the specific activities engaged in or by the total level of such non-regulated activities

"In addition, I find that the goal of cost allocations between the regulated and unregulated operations must be to ensure that rates to ratepayers are just and reasonable and do not increase as a result of the unregulated operations The allocations must ensure that the non-regulated operations pay their full cost, which cost should be determined based upon fully distributed cost principles that include all direct and indirect costs, including overhead, for the activity Furthermore, for specific services provided from the utility to the subsidiary which could reasonably be marketed to the outside public, the market cost for such services shall be paid by the subsidiary or allocated to it "

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That 1994 Maryland Public Service Commission order was also a part of the source material used to develope the outline entitled " Views Often Followed by U S Regulatory Commissions for Non-utility Activities" discussed at the May Working Group meeting The points from that discussion outline are as follows

- Public utility services are limited to those services that a utility company provides under the privileges granted to it by the State
- Not all services engaged in by utility company are "public utility services" subject to the regulation of a Commission Utilities may engage in non-utility functions, and such activities are not under the general jurisdiction of the Commission
- Non-utility services are not the type of public utility services that a Commission must regulate to protect the public and are in fact not subject to a Commission's plenary power over a utility company's operations
- A Commission does have full powers to assure that rates charged for regulated services are not adversely affected by activities regarding unregulated services Therefore, a Commission may exert authority over a utility to the extent necessary to ensure that rates charged for regulated services are just and reasonable
- A Commission exercises jurisdiction over non-utility businesses only to the extent necessary for the protection of regulated services
- Allocations between regulated and unregulated businesses are within the proper authority of a Commission / Regulator
- The goal of cost allocations between the regulated and non-regulated operations must be to ensure that rates to ratepayers are just and reasonable and do not increase as a result of the unregulated operations
- Allocations must ensure that that regulated operations do not subsidize non-regulated operations The most frequently used test to prevent cross-subsidization is based upon fully distributed cost principles that include all direct and indirect costs, including overhead, for the activity
- For specific services provided from a utility to a subsidiary which could reasonably be marketed to the outside public, the market cost for such services should be paid by the subsidiary or allocated to it
- In general a utility need not seek prior review and approval by a Commission of non-utility services unless such services are of such a substantial extent that regulated operations may be affected Some Commissions, however, do require more extensive approvals to help ensure protection of regulated customers
- The investment in non-utility businesses is excluded from rate base in the utility rate making process and the operating results are excluded from utility operating income

US Accounting System to Distinguish Utility from Non-utility Activities

The US Federal Energy Regulatory Commission's Uniform System of Accounts makes if very simple to separate the investment in and the activities of non-utility/non-regulated businesses The investments are accounted for in separate accounts on the balance sheet and are excluded from rate base in the cost of service ratemaking methodology Similarly, revenue and expense accounts for non-utility activities/businesses are classified below operating income on the income statement

and, as a result, are excluded from the revenue requirements calculations covering regulated activities As several examples of U S utility financial statements have been previously provided to the Ministry personnel (and such examples are quite easy to obtain), no examples to be included as attachments to this document are considered necessary

Classification of Activities between Utility and Non-utility
Several Working Group discussions pertaining to utility and non-utility activities revolved around the nature, extent and number of non-utility activities in which a regulated utility might be engaged Again, examples of disclosures of non-utility activities from footnotes to annual financial statements in U S utility annual reports were reviewed and discussed The wide-reaching scope of non-utility activities makes them difficult to itemize, however, the following typifies the types of activities clearly considered to be non-utility

- insurance and other risk management services
- telecommunications
- security and other forms of household services
- utility services (generation, transmission and distribution) offered outside of the utility's franchised and regulated service territory
- energy marketing and brokering
- energy services (consulting, monitoring or otherwises assisting customers in managing their energy supplies as a "for-profit" business)

Following one discussion of non-utility, one of the Ministry personnel asked for a specific listing of all non-utility activities in which U S utilities are engaged -- the impracticality of which is hopefully demonstrated below

As the U S Electricity industry becomes more competitive as well as more global in its outlook, the core set of activities considered to be utility is being narrowed considerably If the United States chooses to follow the British and Argentine models of restructuring, all generation activities are likely to be considered as non-utility Along with generation, a number of support services are likely to be considered as non-utility For example, the servicing of generating stations, networks of wires, and customer premises appears to be heading in that direction in the strategic plans of many US-based utility companies

As a result of these trends, the nature and number of non-utility, or at least "non-state-regulated", activities continues to grow To try illustrate those dynamics, extracts from a 1996 publication by Cambridge Energy Research Associates(CERA) "The Global Energy Company of the 21st Century" are provided below The first illustration is from an article entitled "The Energy Company of the 21st Century" by Kenneth L Lay, Chairman and CEO, Enron Corp The second series of quotes is from an article entitled "The Electric Power Business Restructures" by William H Grigg, Chairman and CEO, Duke Power Company

Enron Corp

"While Enron was largely a domestic company in 1989, receiving less that five million dollars a year from its international business, last year we had over $200 million after-tax net income from international business, and we currently have a backlog of about $19 5 billion of projects under development

" deregulation and competition in the developed countries has radically changed the way many energy companies do business, putting premiums on low cost and on aggressive market behavior

" deregulation has also opened up whole new opportunities for long-term contracts, hedging, and financing that are responsive to market needs--that is, driven by real economic needs instead of regulatory or monopoly franchise needs For companies like Enron, this has created tremendous opportunities In 1995 our Enron Capital&Trade Resources group, which didn't even exist ten years ago, earned over $150 million dollars of after-tax net income We expect this number to double in the next five years "

Duke Power Company

"We also recognized several years ago that domestic growth in power demand in the Piedmont Carolinas could not sustain, over time, the kind of growth in earnings and dividends that we believe our investors expect -- even if we were to retain 100 percent of our market So, strategies were developed to broaden the services end of our business and to enter new markets Today, there are nine business units that make up Duke Power The regulated electric business is by far the largest, accounting for over 90percent of the company's net income But the others are growing faster Collectively, they contributed about $53 million to the bottom line in 1995 and their objective is to reach $100 million by 1998

"They include Duke Energy Corp , which has invested in privatized power projects in Argentina and Chile, in an inside-the-fence generating facility in Indonesia, and in cogeneration projects in New York and Virginia

Duke/Fluor Daniel, a join venture with Fluor, is in the business of designing, constructing, and operating fossil-fuel generating plants Initially focusing on domestic markets, it has recently undertaken a project in Indonesia

Duke Engineering and Services provides utility-related engineering services worldwide It currently has assignments in 25 countries and on every continent except Antarctica

DukeNet is in the communications business It leases fiber capacity and among other things is a partner will Bell South and others in providing personal communications services in the Charlotte, North Carolina, metropolitan trading area, a market with a population of over ten million

Duke/Louis Dreyfus, a partnership with Louis Dreyfus Electric, is in the power marketing and energy services business It was recently awarded a contract to become the power supplier for the city of Dover, Delaware In connection with that venture, open-access tariffs have been approved by the FERC along with authority to market 2,500 megawatts at market-based rates

All of these businesses are related to the core electric business and are designed to achieve a competitive advantage by capitalizing on Duke's traditional strengths "

Global Energy Company Trends

To help illustrate the global trend and direction of the energy industry and energy companies, which hopefully will provide some insight to the Czech energy regulators as they develop a vision of the evolution of the energy industry in the Czech Republic, one more quote has been taken from the CERA publication mentioned above The following (a vision for the future) is taken from the chapter "Introduction and Overview The Global Energy Company of the Future" by Joseph A Stanislaw, Managing Director, Cambridge Energy Research Associates

"Today's requirement is access to the final market, and that concept of final market needs to push each company's lateral thinking forward with respect to integration The new concept of vertical integration is totally different from the traditional definition It goes beyond an oil production company buying a refinery or a natural gas producer buying a transmission company The successful energy company will look beyond the confines of the industry to wherever the end user is to be found Natural gas companies are investing or making alliances in petrochemicals, energy companies are buying telecommunications firms, equipment manufacturers are doing joint ventures with oil companies, oil companies are buying power companies or entering the power industry and treating the power plant like a refinery, converting oil into a usable product--electricity This is where the new integration is leading us--to new final consumers and to the treatment and leverage of assets, previously viewed as costs, as new creative combinations "

Energy Industry Restructuring in the Czech Republic

Following the political changes in November 1989 in the former Czechoslovakia, there has been substantial industrial restructuring in many economic sectors With respect to the electricity sector, in mid 1990 distribution activities were separated from generation and transmission by the establishment of eight separate distribution companies Over the next of couple of years, most of the country's district heating operations were separated from electricity generation As of 1 January 1994, the gas distribution business in the Czech Republic was separated from transmission by the establishment of eight regional gas distribution joint stock companies

With respect to the entire industrial restructuring in the country, large state owned companies, in general, were broken up and non-core activities were separated or privatized Such non-core activities, of course, varied by enterprise but could have included hotels, flats, medical and educational facilities, that is, in general the infrastructure to support the existing planned economy rather than a market economy

Looking specifically at the electricity and gas industries, activities such as construction and maintenance were either separated/privatized or considered for separation or privatization A fundamental question which should be addressed by the government and by the management of utility companies is whether activities should be viewed from a legal or an economic prospective A legislative decision could be made that construction activities are "non-utility" or "non-regulated" and, therefore, should be separated/privatized The same could be done with respect to maintenance In either case, however, both construction and maintenance activities are required From an economic prospective, whether a utility should have a construction department or maintenance activity should depend on several factors,

one of which is the economic benefit of retaining such services inside the utility Those economic benefits are usually driven by three factors

- the anticipated utilization rate of the services,
- the extent to which such services can be procured readily and competitively from third parties, and
- consideration of the plight of laborers who might lose their jobs if the service were to be outsourced

For an electric distribution company, construction needs could possibly be most economically met by procuring required services in the market place This, however, may not be the most cost effective alternative for a large generating utility which needs to construct new capacity and extend transmission lines, having in-house capabilities may be more economical Similarly with maintenance, an economic assessment can be made as to whether it is less costly and more efficient to retain in-house maintenance capabilities, or if maintenance requirements are fairly limited, whether the less costly alternative would be to contract with an outside supplier

In the United States, decisions whether to engage in activities such as construction and maintenance or procure those services from outside suppliers would be a decision made by the management of the utility company The job of the U S regulator would be to determine -- if it was thought that there might be some problem or concern -- whether management was acting in a prudent and efficient manner It is not the job of a U S regulator to prescribe to the management the activities in which a company may or may not engage It is the role of the U S regulator to prohibit, through the rate-making process, excessive or imprudently incurred costs from being charged to ratepayers

Without further commentary in this section, reference is made to Mr Antos's August paper (attached) describing regulated and non-regulated activities in the Czech energy sector With the problem, as stated, that "the current status of the legislation is not good and has no logic", it does seem that legislation needs to be revised to focus on economic principles rather than legal form Advise and suggestions with respect to legal matters has been/is being provided under a separate task

Czech Accounting System

Electricity and gas utility companies in the Czech Republic follow the system of accounts prescribed by the Ministry of Finance That system provides flexibility to account for investments in, and the results of operations of, any activities deemed to be "non-utility or ' non-regulated" To the extent that Ministry personnel believe that additional, supplementary information is necessary, that information could be obtained by modifying (if necessary) the schedules to the Regulatory Decree issued in mid 1996 so that the Ministry could have a clear view of non-regulated activities

Conclusions

There seem to be a few basic steps for the Ministry of Industry and Trade to address in its consideration of "appropriate" regulated and non-regulated utility activities The starting point would be establishing an overall framework and objective similar to that of U S regulators "That rates to ratepayers are just and reasonable and do

not increase as a result of non-regulated operations" This framework would then guide the Ministry in its deliberations
The next step would seem to be to look at utility activities from an economic rather than a legal view point, and evaluate whether engaging in those activities results in the lowest cost to ratepayers and is consistent with the future path for the industry This is the obligation of management for U S utility, and it would seem logical that the management of the Czech utilities companies would have the same obligation It should be up to (the Czech) management to present convincing evidence to the (Czech) regulators that management has managed operations efficiently and economically Such an approach would seem to provide a more balanced prospective--concentrating less on trying to dismantle and restructure the industrial infrastructure left over from the planned economy--focusing more on how the government would like to see the Czech energy industry evolve, which should be helpful in deciding what activities should be "regulated" or "non-regulated"

In order to monitor any non-utility/non-regulated activities, the investments and the results of operation of any such activities should be accounted for separately in either the companies' basic accounts or in schedules required by the Regulatory Decree Some non-utility/non-regulated activities could possibly be performed through a separate entity, owned in whole or in part by the utility

Ultimately, as observed by Mr Antos (in the attachment), the energy legislation in the Czech republic must be addressed and appropriately modified

Attachment Regulated and non-regulated activities in the energy sector

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Cooperation with USAID

Regulated and non-regulated activities in the energy sector

Issue Why is it necessary to distinguish between regulated and noon-regulated activities?

Entrepreneurial subjects, i e physical and legal entities may develop entrepreneurial activities in the energy sector only in the case that they posses a license for performing professional activity The Law No 222/1994 defines professional activity as the production and distribution of energy This implies that there are activities necessary for entrepreneurial activities, i e. business activities which are not, however, explicitly stated in the Law No 222/1994
On the other hand, holders of the state authorization as a whole are subject to regulations, as an entrepreneurial entity , which has some input and output, and book-keeping, and which is subject to auditing , concerning joint-stock companies, and to obligation to publish their data in the business journal
In the regulation decree, adopted on the basis of the law 222/1994, authorized and non-authorized activities ar distinguished, which correspond to the division into the regulated and the non-regulated activities
Pursuant to the annex of the regulation decree, revenues of the state authorization holder, which occurred in the corresponding year in connection with activities that are subject to authorization, i e revenues from energy sales, energy transmission, international delivery of energy etc, will be supervised Costs allocated to corresponding revenues represent a complex of authorized activities The expression "regulated activities" is to a certain extent misleading , because we must ask what the regulation consists in
The aim of the regulation , beside other, is to separate the costs of the activities, which are not conrected with production, distribution, purchase and sales , and which are connected with other performances and other entrepreneurial activities This cost division can be difficult in the case of overhead costs There is no regulation rule that would apply to this division, and a reasonable procedure applied by entrepreneurial entities will be recognized The approach to this question is also connected with the accounting and tax laws
On the basis of these facts, only these are activities considered authorized activities pursuant to § 11 of the Law No 222/1994 and the following regulation decree , which have revenues from energy sales, or services (transmission , delivery of energy)
With this viewpoint and this approach the imperfection of the law No 222/1994, which does not mention any commercial activity, and thus commercial activities can be considered separately as non-regulated activities, with no need for state authorization , pursuant to the law No 222/1994 on entrepreneurial activities in the energy sector, is reduced

The Ministry of Finance gives an answer to the question, as to what this division is good for, which requires the Ministry of Industry and Trade (MPO) to become a regulator for the division of costs into costs that are necessary for the authorized activity performance , and costs connected with other entrepreneurial activities The range of so allocated costs, has major importance in creating the price cost, which is subject to the Ministry of Finance supervision, including the control of cost-and-plus prices pursuant to the Price Law The assessment of price changes and price level will be ensured by the MPO pursuant to the § 11 of the Law No 222/1994 regarding the regulation

The Ministry of Finance requires for example also the division of costs and other economic data , in case of a joint production of heat and electroenergy The MEMORANDUM which USAID handed over within the bounds of the program in May 1996, also deals with these problems The Memorandum deals with commercial activity and with corresponding legislation, assesses legal regulations in the Czech Republic, and possibilities of influencing commercial activities , and compares the situation of marketeers and brokers under the legislative conditions in the Czech Republic with the conditions in the USA Conditions for these activities in the USA are determined by the FERC laws, which enable the approval of commercial transactions as well as prices According to the Memorandum, it would be necessary to amend the Law No 222/1994 and maybe also the Commercial Code and other connected provisions in the Czech Republic The Memorandum makes a complex assessment of the situation in the electroenergy market in the Czech Republic, proposes possibilities of indirect regulation by the way of dispatching regulations and applying competition among decisive " wholesalers". It is certainly a good idea, however, legislative framework is missing. No appropriate decrees have yet been issued, and also the role of the central dispatching, which is supposed to fulfil this function, has not been cleared up The Law No 222/1994 does no specify the role of the dispatching by appropriate rights and obligations Due to the fact that the restructuring together with regulation rules for the competition have not been completed, also this indirect regulation is limited Operation of brokers, i e "retail tradesmen" is not typical for the Czech market, and is limited by the dominant position of CEZ on one hand, and by the non-separation of the superior set transmission on the other The current state does not enable competition in the form of individual contracts between the electroenergy producers and grand-scale customers Despite the different character and interconnection with foreign markets in the Czech Republic, and in the USA, this Memorandum reveals the main problems in the legislation and the non-existing competition, and thus fulfilling one of the USAID decisive tasks determined by the program in the sphere of legislation or regulation

The above mentioned task, which has significant importance for the regulation and an eventual amendment or creation of the regulation law principles, could continue even after the central

dispatching had been established and dispatching regulations approved These rules analysis would make possible to define and to start works on the USAID recommendations concerning legislation changes

We suppose, that the solution of program tasks, concerning these questions, will continue, and that we will receive recommendation of the USAID solution We consider necessary, that appropriate regulation forms in connected spheres or conditions, when considering and suggesting of partial regulation procedures from the view of system solution, to be introduced For example the application of the method of required reverues is possible under the specified conditions, for instance in the price sphere

Conclusion

1 Authorized activities specified in the Act 222/1994 (production, trarsmission and distribution of energy) consist of a number of activities which are provided directly by energy companies or delivered by external suppliers (for example construction works, maintenance, repair works, etc) These activities are not considered as regulated ones by law and may be even provided to other companies

2 Businesses, authorized by the Act 222/1994, are allowed to undertake in other areas (according to the Commercial Law, production of other merchandises, etc.) which do not rank into energy sector It is necessary to account costs of these activities outside of production and distribution costs

3 The regulatory goal in this area is a match/allocation of costs of individual activities to output/reverues from energy sale, or to attribute a certain percentage of costs to output/reverues of transmission/transportation/distribution of energy, if this is a specific service

4) Energy trade must be considered as a part of the regulation in spite of the fact that the Act 222/1994 does not speak about it The reason is that without the trade there are no revenues Any ecoromic regulation has no sense outside this important activity

The current status of the legislation is not good and has no logic

Elaborated by Regulatory Department MPO Czech Republic
Ing Josef Artos

INVESTMENTS FOR ADDITIONS TO AND REPLACEMENTS OF UTILITY PLANT

U S utilities with a monopoly franchise and an obligation to serve must, as a requirement of their franchise obligation, invest in new or replacement plant in order to meet (current and/or future) customer demands for service, reliability and safety Cost-effective, prudently-incurred investments are added to a utility's rate base, on which a company is entitled to earn a return, when the facilities are considered to be "used and useful" The addition of the value of these facilities to the rate base generally is when the investment is placed into service, but often construction work in progress is included in rate base as construction is completed

Commissions review investments by utilities in one (or more) of four ways

- Certificates of Convenience and Necessity - before-the-fact (***ex ante***) reviews of projects, such as major renovations of existing generating stations, new generating stations, new transmission lines, or major improvements to distribution systems
- Integrated Resource Planning - ***ex ante*** reviews of entire power supply and energy or demand management plans
- Financial Reviews - ***ex ante*** assessments of the impact of changes in the financial structure of a utility, such as the issuance of stock or bonds
- Prudence Reviews - after-the-fact (***ex post***) reviews of projects, such as major renovations of existing generating stations, new generating stations, new transmission lines, or major improvements to distribution systems

The tests required for each of these differs substantially

Certificate of Convenience and Necessity

Generally, in these proceedings, the Commission tests the validity of major new investments by determining whether the new investment is necessary to

- improve the quality of service
- meet incremental customer demand, or
- reduce the cost of service

Service Improvement - For these types of requests, the Commissions review information comparing the existing quality of service with projections of quality levels after the project has been placed in service The evidence in these reviews rely heavily on engineering planning models and judgment

Meeting Incremental Demand - In these cases, Commissions assess the demand forecast and review the results of engineering planning models To the extent controversies arise, they areusually concerned with the assumptions underlying the demand forecast or the engineering and financial assessments of alternative technologies

Reducing Cost of Service - These requests have become less uncommon in the United States On rare occasions when they do arise, the focus is on the quality of the analysis

Integrated Resource Planning

In the last 10 years, the case-by-case review of certificates of convenience necessity have been supplemented or supplanted by Integrated Resource Planning (IPP) reviews

In these comprehensive proceedings, the company supports an all-encompassing plan that includes both power supply options and demand-side management opportunities The economic rationale behind the choices are the focus of debate The assumptions about the availability of alternative sources of supply and the extent to which demand-side alternatives can supplant supply-side options are questioned As is the case with Certificates of Convenience and Necessity, the forecast of demand and energy are also the focus of controversy

IRP is diminishing in importance in the competitive environment that is developing in the United States

Financial Reviews

In their financial reviews, the Commissions examine whether

- the interests of existing stockholders are protected from dilution,
- all stockholders are protected from excessive reliance on debt financing, and
- the investments are being undertaken to support unregulated activities

Interest of Existing Stockholders - The Commissions examine whether the expected increase in the investment is proportional to the expected increase in the profit flows Because utilities are subject to rate-of-return regulation, the test was only negative - precluding Commission approval -in rare instances when the utility behaved foolishly Otherwise, it was generally true that the utility investment was predicated on things that would cause profits and investment to rise proportionately

Excessive Reliance on Debt - The Commissions check for comparable levels of debt for other utilities which are similar to the one requesting the approval of financial investments

Necessity of Investment - The Commissions do not have a single approach Generally, in depth analysis of the pattern of investments and utility revenues are used to test whether or not funds have been invested in unregulated activities

Prudence Reviews

According to a long line of judicial decisions, a utility is entitled to earn a fair return on the prudently incurred investments that are used and useful in providing service to customers As a result of this doctrine, when major investments are completed, a company generally applies for an increase in allowed revenues The Commissions then test whether the investment meets two key criteria

- the expenditures were incurred prudently, and
- the project has a reasonable chance of being used in providing service to customers

To assess prudence, commissions question whether

- the technology embodied in the project is the most efficient one that was available at the time the plant was designed,
- a reasonable process was used to make the decision, and
- decisions to continue the project - made during periodic reviews in the midst of the construction period - were based on credible evidence and reasonable tests

The first two criteria are tested by reviewing the capital and operating costs (anticipated at the time the decision was made) to determine whether they are minimized by deploying the technology chosen by the utility Two particular techniques are applied in testing The most frequently used test deploys busbar models (a plant-focused approach) With these models, the analyst measures the expected total lifetime costs of the chosen technology and a number of viable alternatives Alternatively, some commissions rely on a system planning approach that simultaneously measures the busbar costs along with the expected utilization of the investment in the context of the system of facilities that is available to a utility

The third criterion relies on reviews of the actual studies against generally-accepted standards (such as reliable assumptions, a valid underlying analytical model and conclusions that match the results of the analysis) for conducting such studies

In reviewing used and useful, the Commission question whether

- the plant will be needed to meet demand or to displace less efficient facilities, and
- the expenditures on the plant have not been bloated either by inefficient construction practices or by artificially inflated costs for material

The test of the first question - needed to meet demand - generally includes a review of the impact of the investment on the utility's safety margins or expected reserves Under this test, the Commission reviews the operating margin with and without the investment To test the second question, the Commission conducts a detailed study of the utility's handling of the items on the critical path to completing the investment These reviews rely on engineering assessments to determine whether or not the utility achieved a reasonable level of efficiency

With the competitive market that is expected to arise in the United States, these tests have been exercised with less enthusiasm and frequency than in prior years

CONSIDERATIONS FOR DEALING WITH THE EFFECTS OF INFLATION

When annual rates of inflation are high, an inflation adjustment is necessary if rate-regulated public utilities are to be given an opportunity to earn their cost of capital and to attract new capital on reasonable terms

In the U S two arguments are commonly advanced in support of a policy of raising earnings during inflation The first is ethical Unless commissions allow an adjustment in relation to the current purchasing power of the dollar, there is an unfair expropriation of the real value of the utility's property and, hence, of the common stockholders' investment The second is economic Unless earnings are kept in line with those in other industries, public utilities will not be able to attract needed capital on reasonable and equitable terms

The 1970's was a period of (relatively) high inflation in the U S The U S utility industry in general suffered earnings erosions due to the effects of inflation, or "attrition" While many factors accounted for the deterioration of the utilities' financial health during that period, a major cause was attrition As explained by one state commission

> "Attrition" is the term frequently used to describe the eroding effects which increased costs caused by inflation have upon the rate of return of a utility, which must apply fixed rates for its services A regulated utility may encounter such increasing costs in securing additional capital (capital cost attrition), in adding new plant to service at incrementally higher per unit costs (rate base attrition), or in the operating expenses normally incurred to provide service (NOI attrition)

U S utility commissions use several methods to deal with the problem of attrition (inflation)

- They may modify or replace the historic or past test-year method by
  - adjusting historic test-year data for "known changes",
  - using a "year-end" rate base, rather than an "average" rate base, for the test period, or
  - using a fully "projected" or "forecast" test-year approach

- A separate allowance for attrition may be added
  - to the revenue requirement,
  - to the rate base valuation, or
  - to the rate of return (It should be noted that even where no separate attrition adjustment is made, the commissions have frequently stated that they take this factor - along with others - into account in determining a fair rate of return)

- Some commissions have adopted interim rate procedures, whereby rates are put into effect, subject to refund provisions, while the case is in progress Other have adopted annual review or "make-whole" proceedings, where the issues are usually confined to changes in expenses and capital cost, revenues and investment since the last review or proceeding

- A variety of indexing arrangements have been utilized Under one state commission's plan, for instance, there were automatic quarterly adjustment of one company's base rates to allow the utility an opportunity to earn between 13 5 and 14 5 percent on common equity

- Several other procedures have been adopted to reduce regulatory lag (and, hence, to minimize attrition) Greater use of prehearing conferences (to narrow the disputed issues) and settlement procedures, at the state level, the adoption of methods to speed the formal hearing process are but a few examples

In the Czech Republic, some form of indexation, or possibly an adjustment to rate base and/or depreciation expense could be considered to help offset the earnings erosion effects of inflation An index type of adjustment might include a factor for regulator-desired productivity/efficiency gains A plant or depreciation adjustment factor could be quite appropriate as current replacement costs are considerably in excess of historical average costs

VI Next Steps

USAID support to the energy sector of the Czech Republic is planned to include a tariff workshop/seminar conducted by Bechtel in 1997 The specific extent of further assistance should be determined based on the results of the U S study tour, specific requests by Ministry and energy industry personnel as well as the consideration of this report

As discussed in Mr Antos' attachment to the section on Regulated and Non-Regulated Utility Activities included in section V , a major consideration for the government and the Ministry is to develop a more comprehensive energy law This has been the subject of another task of USAID assistance, but progress in the area of "Revenue Requirements Determination and Cost Analysis" will progress slowly under the current energy legislation

A major economic issue with which the Ministry must deal is the imbalance in the tariff structure One of the major reasons for restructuring in the U S electricity sector is the demand by large industrial customers for more choice and lower rates Electricity pricing economics are seriously distorted in the Czech Republic and those distortions have implications in the area of energy use/efficiency and the costs of industrial outputs With electricity prices substantially below cost, residential customers are not encouraged to use electricity economically and efficiently Inappropriately high industrial electricity prices result in Czech industry being less competitive in the international sector and has negative implications for the country's trade deficit

The whole area of energy sector and regulatory goals and objectives raised during the two Steering Committee meetings in 1996 still should be a priority More work on selecting an appropriate revenue requirement calculation methodology and defining the term/concept "cost analysis" remains important

Finally, a lot of thought, and indeed comments in the energy law itself, has been devoted by Ministry personnel to the topic of competition In considering energy sector and regulatory goals, the question of competition seems to have a minimum of two facets Should the Ministry be looking at the Czech Republic in (relative) isolation when considering a competitive environment for the Czech electricity and gas industries, or should the view be what is the Czech Republic's most appropriate competitive electricity and gas environment/position in Europe, and potentially in the not too distant future as a member of the European Union? Viewing this issue from different perspectives could well lead to different goals, objectives, priorities, structures, etc