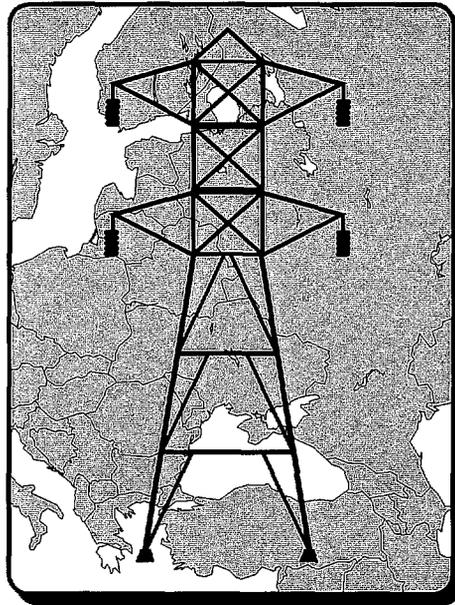


**Central and Eastern Europe Regional
Energy Efficiency Project
EUR-0030-C-00-2053-00**



**Energy Pricing, Energy Efficiency, and
Energy Sector Restructuring Component**

Final Report
December 1996

Volume VI

Prepared for:
U.S. Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy, and Urban Development
Energy and Infrastructure Division

Prepared by:
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**CENTRAL AND EASTERN EUROPE
REGIONAL ENERGY EFFICIENCY PROJECT
EUR-0030-C-00-2053-00**

**Energy Pricing, Energy Efficiency, and
Energy Sector Restructuring Component
CEM Training Program**

Task Completion Memorandum

Prepared for:

U.S. Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy,
and Urban Development
Energy and Infrastructure Division

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December 1996

CENTRAL AND EASTERN EUROPE REGIONAL ENERGY EFFICIENCY PROJECT

Task Completion Memorandum

CEM Training Program

Summary Task Description

The Eastern Europe Energy Efficiency Market Development (EEMD) task is designed to serve as a catalyst to assist private East European firms to develop a market for energy efficiency services, and to develop their capability to serve this market. In support of this effort, a training program was developed which would provide training in energy efficiency for private sector engineers on market-oriented business subjects (such as management, accounting, economics and finance), energy audit techniques, hands-on use of energy efficiency monitoring equipment, performance contracting, project management, industrial management, quality, maintenance and optimization, marketing and management for energy efficiency service companies, and a certification examination (Certified Energy Manager by Association of Energy Engineers, AEE).

Specific Goals and Objectives

The general goal and objective of the project will be to serve as a catalyst to accelerate the development of a market for an energy efficiency industry in Eastern Europe, and to assist firms in the private sector to develop their capability to serve this market.

The specific objectives of the project are:

1. Foster the development and capability of private firms to provide energy efficiency services, equipment, and financing to industrial clients;
2. Assess the climate for investments in energy efficiency projects, and provide advice, studies, and seminars to promote increased private investment in energy efficiency;
3. Improve energy efficiency in specific pilot sites (especially industrial enterprises), through provision of energy audits and energy-saving equipment;

4. Expand U.S. technical and commercial ties through linkages between energy efficiency associations, engineering and energy service companies, and equipment suppliers.

Expected Outputs

The program was structured with the following expected outputs:

1. Development of a training selection criteria in Hungary, Bulgaria, and Romania
2. Selection of approximately 15 attendees per country
3. Development of a training program that would concentrate on three functional areas:
 - ▶ Energy efficiency technologies
 - ▶ Business operations and development
 - ▶ Quality assurance
4. AEE CEM certification

Deliverables

The following deliverables were identified:

1. Selection criteria
2. Training program design
3. Training program implementation
4. CEM certification examination
5. Trip reports
6. Training report

Results and Next Steps

The results of the program were positive and all program objectives and deliverables were met. The following summarizes the key results:

Training and Promotional Program

The training and promotional program was conducted over a twelve month period and consisted of three phases:

Phase I Selection - A selection criteria was developed for potential private sector energy service companies and an invitational campaign conducted through the local media,

government energy agencies, utilities, Universities, and other professional technical organizations. Over one hundred and fifty companies were evaluated and a final selection of 43 companies was made. The primary criteria for selection centered on:

- Potential for market development and provision of essential services
- Company and staff experience
- Resources and capabilities

Phase II Training - A training program was developed and designed to suit the needs of energy service companies. The program had four main elements:

- ▶ Business/Management Training:
 - Principles of Running a Small Business
 - Accounting/Finance
 - Marketing/Client Relations
 - Negotiating Techniques
 - Staffing/Human Resource Development
 - Management by Objectives
 - Legal Issues/Contracting
- ▶ Technical Training
 - Thermal Energy Efficiency
 - Project Management
 - Performance Contracting
- ▶ Motorola University:
 - Quality System Initiation
 - Organizational Mapping & Analysis
 - Total Productive Maintenance
- ▶ Association of Energy Engineers:
 - CEM Review Course

Phase III Certification - The participating energy service companies were administered the AEE Certified Energy Manager examination, all passed and were awarded the certification.

This concluded the training program. As for next steps: additional CEM certification programs and continued professional development (technical and business) would aid all the participants in the program and the local AEE chapter.

**CENTRAL AND EASTERN EUROPE
REGIONAL ENERGY EFFICIENCY PROJECT
EUR-0030-C-00-2053-00**

**Energy Pricing, Energy Efficiency, and
Energy Sector Restructuring Component**

**Certified Energy Manager
Summary Training Report**

Prepared for:

U.S. Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy,
and Urban Development
Energy and Infrastructure Division

Prepared by:

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EXECUTIVE SUMMARY

The Energy Efficiency Market Development (EEMD) task is designed to serve as a catalyst to assist private East European energy service companies to develop a market for energy efficiency services, and to develop their capability to serve this market. Under this task, a training program was designed for private sector energy engineers and managers on market-oriented business subjects (such as management, accounting, economics and finance), energy audit techniques, hands-on use of energy efficiency monitoring equipment, performance contracting, project management, industrial management, quality, maintenance and optimization, marketing and management for energy efficiency service companies, and a certification examination (Certified Energy Manager by Association of Energy Engineers, AEE).

The certified energy manager (CEM) training program, under the PEER project, was begun in March 1993, and conducted over the next five months. The program was structured around four modules:

1. Business Management - Principles of operating a private consulting business.
2. Technical - Technical energy courses.
3. Quality Management - Principles of quality management in production operations.
4. CEM Certification - AEE certification course in energy management.

A total of 43 private energy consultants participated: 11 in Hungary, and 16 in each of Romania and Bulgaria. The program met all the defined objectives based on the following indicators:

1. Attendance was very high throughout the entire program, averaging 90%.
2. The course attendees gave high marks on their evaluation, averaging approximately 4.6 on a scale of 5.0.
3. All the participants passed the AEE certification exam.
4. A complete set of textbooks, reference materials, US manufacturer catalogs, and software was distributed to all participants.
5. A follow-up survey indicated that all active participants had significantly increased their business contracts, revenues, and staffing.

1.0 DESCRIPTION

This project builds upon the results of the 1991 USAID Emergency Energy Project, in which energy management programs were carried out in various industrial enterprises in Hungary, Bulgaria and Romania. In the 1991 project, the primary objective was to achieve short-term, low-cost energy savings by working directly with domestic East European industry to implement demonstration projects and methodologies. In the Energy Efficiency Market Development (EEMD) project, the effort will be extended to include greater attention to management and organizational issues, and primary responsibility for the work will shift to multiple domestic East European private sector enterprises to foster the domestic market for energy services.

The general objective of the EEMD project will be to serve as a catalyst to accelerate the development of a market for an energy efficiency industry in Eastern Europe, and to assist firms in the private sector to develop their capability to serve this market.

The specific objectives of the EEMD project are:

1. Foster the development and capability of private firms to provide energy efficiency services, equipment, and financing to industrial clients;
2. Assess the climate for investments in energy efficiency projects, and provide advice, studies, and seminars to promote increased private investment in energy efficiency;
3. Improve energy efficiency in specific pilot sites (especially industrial enterprises), through provision of energy audits and energy-saving equipment;
4. Expand East European-U.S. technical and commercial ties through linkages between energy efficiency associations, engineering and energy service companies, and equipment suppliers.

The CEM training program was initiated in February 1993 as a part of this program. It was developed to provide essential skills for the participating energy managers to foster viable enterprises in the emerging energy services sector.

Training Modules:

There are four modules to the program:

- Business and Management Training - Courses were conducted in the basic principles of running a small business, marketing, accounting, legal issues, customer relations, planning, and organization. The courses were developed in conjunction with US and local Universities.

- Technical - The technical courses concentrated on specific energy related technologies, project management training, and performance contracting.
- Quality - The Motorola University course in Total Quality Management was presented in three separate sessions.
- CEM Certification - The Association of Energy Engineers presented a review course on energy management principles, and conducted an examination for attendees to become certified as energy managers.

Figure 1. summarizes the courses that were conducted in each country and the affiliated organizations.

Format and Schedule:

The courses consisted of a series of lectures, usually no more than two days at any one time, in order not to disrupt the normal business activities of the CEMs. The venue was usually a local conference facility with suitable audio visual and translation facilities.

The courses were schedules over a five month period beginning in March 1993 and concluding in July of 1993. Figure 2. illustrates the schedule of courses per country.

Participants:

The participating CEMs ranged in size and capabilities from small, one or two person start-up firms, to larger well established firms. There was a wide variation among participants in education, experience, and capabilities. A complete list of participating CEMs is contained in Section 5.0, the total number of participants were:

Hungary	11
Bulgaria	16
Romania	16
Total	43

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Figure 1. Summary of ESCO Training Courses

COURSE MODULE	HUNGARY	BULGARIA	ROMANIA
Kick-Off Meeting & Introduction to Energy Service Companies	Kick-off meeting and first training session (Keith)	Kick-off meeting and first training session (Keith)	Kick-off meeting and first training session (Ellis)
Business/Management	International Management Centre - IMC <ul style="list-style-type: none"> - Principles of Running a Small Business - Accounting/Finance - Marketing/Client Relations - Negotiating Techniques - Staffing/Human Resource Development - Management by Objectives - Legal Issues/Contracting 	University of Delaware/Sophia <ul style="list-style-type: none"> - Principles of Running a Small Business - Accounting/Finance - Marketing/Client Relations - Negotiating Techniques - Staffing/Human Resource Development - Management by Objectives - Legal Issues/Contracting 	University of Washington/Small Business Development Center of Bucharest/ABA <ul style="list-style-type: none"> - Principles of Running a Small Business - Accounting/Finance - Marketing/Client Relations - Negotiating Techniques - Staffing/Human Resource Development - Management by Objectives - Legal Issues/Contracting
Technical	Thermal Energy Efficiency (Tunnah) Project Management (Maal) Performance Contracting (Hansen)	Thermal Energy Efficiency (Tunnah) Project Management (Maal) Performance Contracting (Hansen)	Thermal Energy Efficiency (Cancelled) Project Management (Maal) Performance Contracting (Hansen)
Quality Management	Motorola University: <ul style="list-style-type: none"> - Quality System Initiation - Organizational Mapping & Analysis - Total Productive Maintenance 	Motorola University: <ul style="list-style-type: none"> - Quality System Initiation - Organizational Mapping & Analysis - Total Productive Maintenance 	Motorola University: <ul style="list-style-type: none"> - Quality System Initiation - Organizational Mapping & Analysis - Total Productive Maintenance
CEM Certification	Association of Energy Engineers: <ul style="list-style-type: none"> - CEM Review Course - CEM Examination 	Association of Energy Engineers: <ul style="list-style-type: none"> - CEM Review Course - CEM Examination 	Association of Energy Engineers: <ul style="list-style-type: none"> - CEM Review Course - CEM Examination

Notes:

1. The course in Thermal Energy Efficiency was cancelled in Romania due to severe weather.

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Figure 2. CEM 1993 Training Program Schedule

COURSE MODULE	FEBRUARY				MARCH				APRIL				MAY				JUNE				JULY			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Kick-Off Meeting & Introduction		■	■	■																				
Hungary: - Business/Management - Technical - Quality Management - CEM Certification						■	■		■	■	■	■	■	■	■	■		■	■	■				■
Bulgaria: - Business/Management - Technical - Quality Management - CEM Certification						■	■		■	■	■	■	■	■	■	■			■	■				■
Romania: - Business/Management - Technical - Quality Management - CEM Certification					■	■	■	■	■	■			■	■	■	■			■	■				■

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Books and Materials:

The course participants were supplied with textbooks, reference manuals, software, US manufacturer product literature and specifications, and suitable course handout materials. For each country, a course notebook was developed and distributed.

2.0 OBJECTIVES

The objective of the training program was twofold:

- *To provide the participants with the essential skills and tools necessary to establish and run a successful private consulting practice.* The majority of participants came from state run institutions or companies, and are new to the entrepreneurial aspects of establishing and operating a private consulting practice. This course module was designed to expose the participants to business principles and provide the motivation for overcoming the barriers to establishing a private business.
- *To enhance the technical capabilities of the participants and strengthen their energy related skills so that they can service the emerging energy service sector.* A series of course modules: technical, quality management, and AEE certification, were conducted to accomplish this objective.

These objectives support the broader objective of the USAID Regional Energy Efficiency Program in Eastern Europe by strengthening and developing private sector energy service companies to promote energy efficiency throughout the economies of their respective countries.

3.0 ACCOMPLISHMENTS

The ultimate accomplishment of the training program will be measured by the success of the CEMs in establishing their business, and the role of this training program in supporting their efforts. The training program itself accomplished the following:

- All the training courses were conducted as planned.
- All books and materials have been distributed.
- Participation by the CEMs was excellent, with about 90% average attendance.
- All the participating CEMs passed the AEE Certification Examination.
- All CEMs are actively marketing their services and generating business leads.

4.0 COURSE EVALUATION

4.1 Summary:

At the conclusion of the training program, an evaluation was done by course participants, and the results are presented here. Additionally, two years after the training program was concluded, another evaluation was done of a selected number of CEMs and the results are also presented in the following section.

All of the participants felt the program was very worthwhile, introduced valuable new concepts, and achieved a good blend of theoretical information and practical applications. The courses were well attended and the printed materials, textbooks, and software tools well received.

Perhaps the ultimate indicator of performance and interest was that all participants successfully passed the Certified Energy Manager (CEM) examination administered by AEE.

4.2 Hungary:

The courses in Hungary were well attended and received positive responses from the participants, in summary:

Evaluation Results				
Course	Attendance	Content	Instructor	Text
Business Management	89%	3.67	4.17	4.33
Technical	78%	3.83	4.5	4.33
Quality Management	89%	4.5	4.5	4.67
CEM Certification	83%	4.25	4.5	4.5

The generally high ratings (maximum of 5.0) illustrate general satisfaction with the course content, instructors, and textbooks and materials. The detailed evaluation sheets are contained in the appendix. Some of the comments pertaining to the evaluation are as follows:

- Financial management, marketing, and development of a business plan were cited as the most important business courses.
- Few comments were received on the technical courses, but monitoring, software, and practical applications of technology were mentioned as the primary benefit from the courses.

- Quality management (Motorola Course) received the highest ratings of all, with problem analysis, defect analysis, and six sigma quality control as the most interesting.
- The AEE CEM course also received high marks, with energy auditing and performance contracting cited as the key topics.

4.3 Bulgaria:

The courses in Bulgaria were the most well attended and received the highest evaluations:

Evaluation Results				
Course	Attendance	Content	Instructor	Text
Business Management	91%	4.38	4.38	4.62
Technical	92%	4.77	4.69	4.77
Quality management	87%	4.38	4.77	4.85
CEM Certification	100%	4.92	5.00	5.00

These high ratings (maximum 5.0) illustrate general satisfaction with the course content, instructors, and textbook materials. The detailed evaluation sheets are contained in the appendix. Some of the comments pertaining to the evaluation are the following:

- The lecturers were well prepared and printed materials were very useful to the participants.
- The software was based on US models and although useful in concept, could not be transferred into everyday practice.
- There was a good balance between the theoretical information presented, and the practical applications of technical energy services.
- The Motorola Quality Management course was of particular interest since many of the concepts were new to Bulgaria, and access to such information is very limited.

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4.4 Romania:

The courses in Romania were also well attended and received positive responses from the participants, in summary:

Evaluation Results				
Course	Attendance	Content	Instructor	Text
Business Management	98%	4.44	4.75	4.56
Technical	85%	4.38	4.88	4.69
Quality Management	79%	4.38	4.81	4.63
CEM Certification	95%	4.88	4.94	4.94

The high ratings (maximum of 5.0) illustrate general satisfaction with the course content, instructors, and textbooks and materials. The detailed evaluation sheets are contained in the appendix. Some of the comments pertaining to the evaluation are as follows:

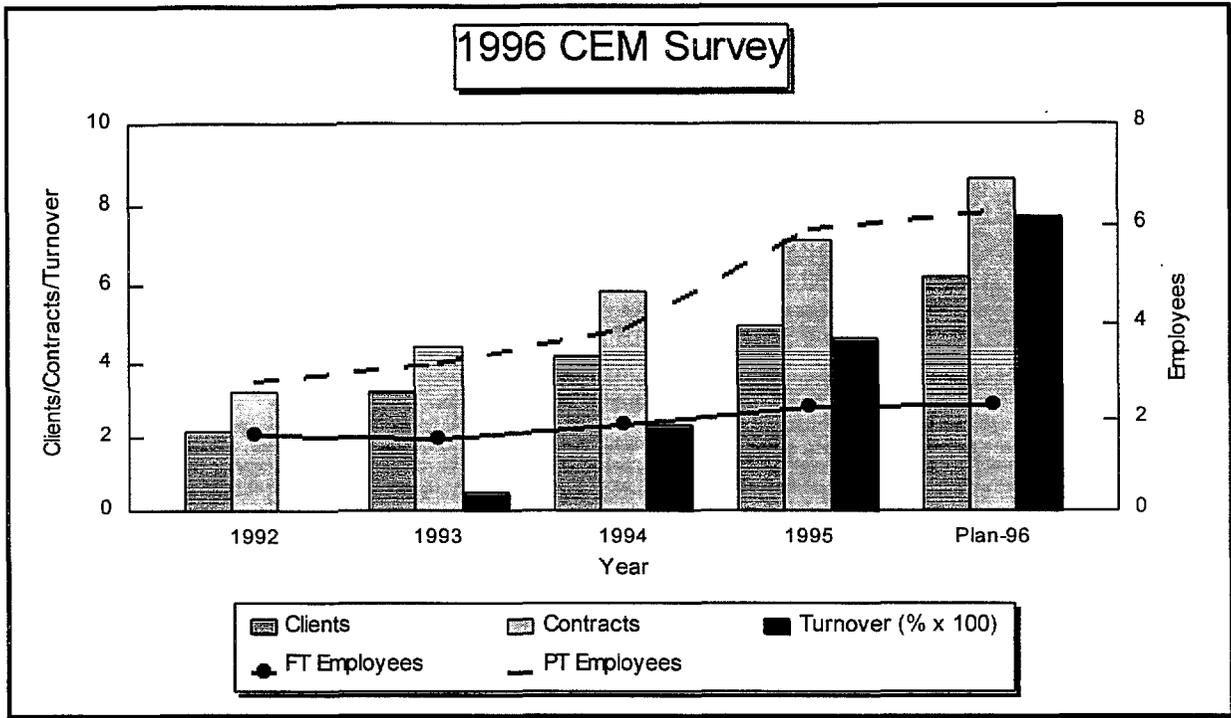
- Financial management, negotiations, accounting and contracts were the most valuable business courses. Additional courses that would be helpful are: international business, banking, planning, and new business start-up.
- Additional technical courses were requested in the following areas: EMS design, computer aided energy management, electrical protection systems.
- Quality management was probably the most difficult concept for the participants, and additional course work was cited as necessary.
- The AEE course was received very well and all participants remarked that this was the most familiar subject to them. A wide range of additional technical courses was requested, along with more intensive training in energy management.

5.0 ENERGY MANAGER FOLLOW-UP SURVEY

In 1996 a follow-up survey was completed in Hungary, Bulgaria, and Romania for those CEMs who had actively developed energy efficiency projects following the 1993 training program. The results of this survey illustrate a significant increase in business (number of clients, contracts and revenues), and staffing, and are presented as follows:

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The average level of business activity among participating CEMs has shown the following growth for the period 1992 through 1996 (planned):



Notes:

1. Average of CEMs surveyed in Hungary, Bulgaria, and Romania
2. Turnover is illustrated in % x 100 annual increase due to varying currencies and exchange rates

In addition to the general level of increasing business activity, we can observe that:

- The number of contracts per client has increased, indicating repeat and multiple assignments for the same client
- Turnover per number of contracts increases significantly
- Full time staff remains relatively constant but the use of part time staff increases significantly

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APPENDIX

- List of Participating CEMs
 - Hungary
 - Bulgaria
 - Romania

- List of Textbooks and Materials

Hungary Participant List

1. **Miklos Gellert, Gellert Innovation Engineering Company** - Mr. Gellert is the director of his own consulting firm located in Pecs, Hungary. He has an MSc in Mechanical Engineering and 15 years of experience in management consulting.
2. **Albin Zsebik, Jomuti Kft.** - Mr. Zsebik has PhD in Mechanical Engineering. He has been a professor at the Technical University of Budapest for the past 22 years where he completed studies on energy conservation, with an emphasis on district heating. He is also the manager of Jomuti, a privately-held technical consulting company.
3. **Laszlo Soos, EPOS-VPI** - Mr. Soos has 17 years of experience as a design engineer. Mr. Soos obtained an MSc in electrical engineering.
4. **Peter Macskassy, Comptech Ltd.** - Mr. Macskassy is the managing director and one of the founders of Comptech, a privately-held engineering and trade consulting company. He is a founding member of the Hungarian Society for Energy. Mr. Macskassy received his MSc in telecommunication engineering and doctorate in computer science. He worked for the Electronics Research Group of the Hungarian Academy of Sciences for 13 years and was the head of the measurement and process control group of the Budapest District Heating Company from 1985-1989.
5. **Tibor Nagy, Control MTI** - Mr. Nagy has an MSc in Electrical Engineering. He has been an energy consultant for two years. His work includes auditing energy production and distribution systems (i.e., Tungstram Light Source Plant).
6. **Sandor Haragos, Energomedia** - Mr. Haragos is an energy consultant with 12 years of experience. His projects include numerous energy loss surveys at industrial companies, energy conservation projects financed by third parties, and technology transfer. He has an MSc in Mechanical Engineering.
7. **Gyorgy Viragh, Kontravill** - Mr. Viragh has 8 years of experience as a design engineer. He is the director of Kontravill, a privately-held company with projects relating to heat storage efficiency in buildings, underground and above surface steam and hot water pipelines, and industrial technologies and high power electrical systems. He has a BSc in Electrical Engineering.
8. **Imre Majoros, BME** - Mr. Majoros is an assistant professor at the university with 15 years of professional experience. He has an MSc in Electrical Engineering.
9. **Gyorgy Sz Toth, Mr. Toth** has 30 years of experience as an energy consultant. He obtained an MSc in Mechanical Engineering.
10. **Mihaly Szaniszló, Mr. Szaniszló** is the head of a private consulting company. He has an MSc in Electrical Engineering and 20 years of experience.
11. **Tibor Bartha, Mr. Bartha** manages his own consulting firm. He has an MSc in Electrical Engineering and 15 years of professional experience.

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Bulgaria Participant List

1. **Nikola Borislavov Stankov, Independent Consultant - Mr.** Stankov has an MSc in Mechanical Engineering. He has worked for the Thermal Power Engineering Department at Sofia Technical University for 17 years and is currently working as an independent consultant. His projects include boiler optimization, heat energy audits in industrial plants, and waste heat utilization.

2. **Georgi Rampov Ivanov, Rampov & Son Company - Mr.** Ivanov has an MSc in Engineering and 23 years of professional experience. His previous positions include professor of Power energetics at the Technical University. His consulting experience includes projects related to heat and electric energy pricing.

3. **Nikolai Michailov Pavlov, Gazoterm Ltd. - Mr.** Pavlov has a BSc in Engineering. His consulting experience includes industrial management. He has 12 years of professional experience at the Fuels and Combustion Technology Department at Sofia Technical University.

4. **Nikola Kaloyanov, Energy Save - Mr.** Kaloyanov has a PhD in Engineering. He lectured at Sofia Technical University for 10 years on heat exchange systems. His consulting experience includes energy conservation in buildings, analyses of combined systems and heat exchange systems.

5. **Jordan Petkov Katzarov, Risk Engineering Ltd. - Mr.** Katzarov has an MSc in Thermoenergetics and a PhD in Applied Mathematics. He has 15 years of experience at the Bulgarian Energy Research and Design Institute and 3 years of experience at the Bulgarian Academy of Science. He is currently a partner at Risk Engineering, a firm specializing in upgrading power and industrial cogeneration power plants and steam-gas combined cycle power distillation plants.

6. **Janos Zhelev, Rendd G. Ltd. Varna. - Mr.** Zhelev has a PhD in Engineering with 13 years of professional experience. He worked for the

Institute of Chemical Engineers in the area of combustion and utilization of oil wastes. He has participated in projects that developed energy saving methods in the chemical and ceramics industries.

7. **Deian Iordanov, Argus 91 - Mr.** Iordanov was a faculty member of Sofia Technical University's Energy-Mechanical Department from 1979-1984. In 1984 he formed Argus 91, a consulting firm with experience in project design and maintenance of industrial thermal energy systems.

8. **Lubomir Spassov, Vigoz Ltd. - Mr.** Spassov's firm, Vigoz, works in the area of electrical motors and control equipment, temperature-controlled processes, and the design and operations of automatic control systems. He taught classes for 13 years in electrical and automation equipment at the Higher Air Force School.

9. **Stefan H. Hristov, EEI, Ltd. - Mr.** Hristov has an MSc in Thermal and Nuclear Power Engineering. He has 7 years of work experience as a steam turbine and boiler operator, consulting in gas emissions and steam boiler investigations and as an engineer in South Africa focusing on combustion kinetics, gas emissions and boiler investigations.

10. **Boris Petkov, Ivel Ltd. - Mr.** Petkov has an MSc in Engineering. He has free lance experience in HVAC and control systems. He started Ivel Ltd. in 1990 and has worked on the reconstruction of central heating systems, heat waste utilization and energy efficiency audits of industrial steam systems.

11. **Dimitar Baev, Dimitar Baev Consulting - Mr.** Baev has a PhD in Engineering. Mr. Baev has 25 years of professional experience. He was the Chief of the Production Management Department in Sofia's Central Institute of Complex Automation, and two years as director of the Development and Technological Center. He currently manages his own consulting firm which specializes in process and operations control systems, energy efficiency audits and analyses and marketing in the industrial sector.

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12. **Jordan Lazarov, Lazener Co.** - Mr. Lazarov is the president of Lazaner Company, a consulting firm experienced in industrial energy systems. He has completed energy savings projects in the food and chemical manufacturing facilities. He has 15 years of experience including positions at the Institute of Industrial Heat Power Engineering and Institute of Chemical Engineering at the Bulgarian Academy of Sciences. Mr. Lazarov has a PhD in Engineering.

13. **Mrs. Strugarova, Ecotechproduct**

14. **Christian Spassov, Ecotechproduct** - Christian Spassov is the president of Ecotechproduct, a privately-held company specializing in no/lost cost energy investment and middle term investment. Mr. Spassov has 20 years of professional experience, including 4 years as an assistant professor in mass heat transfer and 12 years as the Department Chief of the Thermal Solar Energy at the New Energy Sources Institute.

15. **Jolian Marinov Ivanov, Jolly** - Mr. Ivanov has a PhD in Cybernetics and Robotics. He worked for several years at the Robot & Control Systems Research Center on the problems of control and optimization of technological process. He has also identified investments opportunities and privatization projects for the Ministry of Industry and Trade. Mr. Ivanov started Jolly, which focuses on management and applications of innovation processes and technologies in industry.

16. **Dimitar Shivkov, Sofia Technical University** - Mr. Shivkov has a PhD in Engineering and has been a professor at Sofia Technical University for 16 years. He has completed consulting assignments for systems engineering, process control and operations for plants in the chemical, biotechnological and plastics industries.

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Romania Participant List

1. **Mihail Zdravcu, ARCON SRL** - Mr. Zdravcu is the manager of this consulting firm which is experienced in electrical engineering, energetics, HVAC, power generators, and boiler automation. Mr. Zdravcu has extensive experience in the refinery industry. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers. Mr. Zdravcu is President of the Bucharest chapter of the Association of Energy Engineers.
2. **Vasile Grasin and Georgeta Padureanu, ECO-ERG TECHNOLOGIE SERVICE** - Mr. Grasin and Ms. Padureanu are co-managers of ECO-ERG. Prior to founding ECO-ERG, Mr. Grasin and Ms. Padureanu worked for an energy studies institute and performed measurements, testing, energy audits, and thermal balances. Mr. Grasin is an electrical engineer, with extensive experience in refrigeration. Ms. Padureanu's background is in physics and chemical engineering. They have both received the Energy Manager Certification (CEM) of the Association of Energy Engineers. Mr. Grasin is President of the Cluj-Napoca chapter of the Association of Energy Engineers.
3. **Florin Mihailescu, CAMIGO SRL** - Mr. Mihailescu is the manager and partner of his own consulting firm, CAMIGO. His firm specializes in the design and installation of boiler systems and automation. He is a thermal design engineer who formerly worked for the Research and Development Institute. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
4. **Simona Pirvu, AUTOMATIZARI ORION SRL** - Ms. Pirvu is associate manager for AUTOMATIZARI ORION. This company works on design and installation of automation systems for boilers, thermo-power stations, and industrial equipment. Ms. Pirvu has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
5. **Haralambie Pavel, INVEST PROJECT SRL** - Mr. Pavel is the manager of a consulting firm, INVEST PROJECT, which focuses primarily on consulting and design for the wood industry. Mr. Pavel has 15 years of experience at the National Institute of Research Development. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
6. **Paul Zara, B.I.T.** - Mr. Zara is the manager of a 4-person consulting firm. He was formerly employed by the Energy Research Institute, where he concentrated on energy savings, energy policy and energy balances in industry. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
7. **Constantin Manolescu, EC-ENERG SRL** - Mr. Manolescu is the manager of EC-ENERG SRL, which is a consulting company focusing on small boiler rehabilitation. Mr. Manolescu studied polytechnic energetics.
8. **Marian Manu, PROBELECTRO SRL** - Mr. Manu is the manager of Probelectro, a consulting firm of 4 electrical engineers with particular expertise in the measurements and testing of electrical systems. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
9. **Ion Bota, ENERGOCHIM SRL** - ENERGOCHIM is a consulting firm experienced in designing industrial energy systems, water treatment stations, steam systems, and studies for energy optimization. Mr. Bota's is the firm's manager. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.
10. **Adrian Radoi, BEST SRL** - Mr. Radoi was a graduate student at Polytechnical Faculty of Energetics. He is employed by BEST SRL which is comprised of 4 staff members who work primarily on analyses of energy consumption systems. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.

24

11. Petru Rotilenau, CONSEL Ltd. Engineering SRL - Mr.
Rotilenau is the manager of CONSEL, which is a company comprised of 60 engineers, technicians and economists who work on engineering design, construction, electrical and thermal systems. Mr. Rotilenau has an MSc in Electrical and Thermal Engineering. One of his employees, Mr. Burtan Mircea has received the Energy Manager Certification (CEM) from AEE.

12. Dorin Moraru, ELECTRON TD SRL - Mr. Moraru is an
electrical engineer and manager of Electron. Electron is involved in electrical testing and measurements projects. Mr. Moraru has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.

13. Radu Simionescu, PROJECT INT'L SRL - PROJECT INT'L
is a private company that works with district heating piping and small boilers. Mr. Simionescu is the company manager, with a degree in energetics. One of his employees, Mr. George Stoican, has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.

14. Corneliu Dusan, ROBOMATIC - Mr. Dusan is the manager of
Robomatic, a privately-held, 50-person electrical engineering firm. His company specializes in electrical design. Mr. Dusan has received the Energy Manager Certification of the Association of Energy Engineers.

15. Mihai Alexandru, G.I.R. S.A. - Mr. Alexandru is an electrical
engineer with years of teaching and research experience at the Bucharest Polytechnical Institute. G.I.R. is a company of 30 full-time employees that specialize in the design of high voltage networks. Mr. Alexandru has received the Energy Manager Certification (CEM) of the Association of Energy Engineers.

16. Valentin Vasile Cristescu, ECO-VEL SRL - Mr. Cristescu is
the manager of ECO-VEL, a privately-held consulting company specializing in HVAC, energy recovery, air pollution abatement, and publishing management educational books. He has received the Energy Manager Certification (CEM) of the Association of Energy Engineers

5

TEXTBOOKS AND MATERIALS

The following textbooks and reference books were provided to each ESCO participating in the course:

<u>Course</u>	<u>Text/Reference</u>
Orientation	Handbook of Energy Audits, Thumann, AEE Publication Energy Management Handbook, Turner, AEE Publication
Course Notebook	A course notebook was designed to be a compendium of course and reference materials
Business Management	Marketing Consulting Services, Karlson, Crisp Publications Consulting for Success, Karlson, Crisp Publications Starting a New Business, Martin, Crisp Publications Legal Issues for Private Companies, UNDP
Thermal Energy Reduction	Energy Monitoring and Target Setting, Harris, British Press
Performance Contracting	Performance Contracting for Energy and Environmental Systems, Hansen, AEE Publication
Project Management	Total Engineering Project Management, Ritz, Mc Graw Hill
Technical	Efficient Boiler Operations Sourcebook, Payne, AEE Publication
Motorola	Organizational Mapping and Analysis - Database Course Procedures Additional Resources Utilizing the Six Steps to Six Sigma

The following reference material was provided to each ESCO participating in the course:

<u>Application</u>	<u>Reference</u>
Steam Systems	Armstrong steam systems selection and application guide Armstrong steam systems application software

High Efficiency Motors	General Electric high efficiency motor application and economic evaluation software/manuals
Lighting	Hubbell Energy Efficient Lighting - Applications and energy efficiency calculation guide.
Instrumentation	OMEGA Instruments Catalog Dwyer Instruments Catalog Cole-Palmer Instruments Catalog Transcat Instrumentation Catalog
Variable Speed Drives	Allen-Bradley application software and selection manual
Combustion Control	Bacharach Instruments Catalog
Ultrasonic Monitoring	UE Systems Catalog

David Keith

ENERGY EFFICIENCY FINANCING SEMINARS

ROMANIA, BULGARIA AND HUNGARY

MAY 1993

PREPARED BY:

**KIONA INTERNATIONAL, INC.
Annapolis, Maryland**

FOR:

**RCG/HAGLER, BAILLY, INC.
Arlington, Virginia**

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

EASTERN EUROPE REGIONAL ENERGY EFFICIENCY PROGRAM

May 1993

USAID EASTERN EUROPE REGIONAL ENERGY EFFICIENCY PROGRAM SEMINARS IN ENERGY EFFICIENCY FINANCING

The seminars, "The Money Side of Energy," were designed to more fully acquaint the participants with the financial aspects of energy efficiency. In particular, the seminars were structured to meet several financially related objectives, including how to:

- "Sell" the internal and external economic (as well as environmental) benefits of energy efficiency at the national level; and in the local community;
- Examine ways to leverage limited capital to meet greater energy efficiency opportunities;
- Identify financing options to put audit recommendations to work;
- Identify deterrents/barriers to energy efficiency and financing, particularly performance contracting, and how to overcome them.

Since all three countries are financially hard pressed, the focus of the seminars was on the use of future energy savings to meet facility, operational and production needs now. Seminar objectives, specifically related to performance contracting, included how to:

- Serve customer needs more effectively through performance contracting, and the explicit advantages to the customer and the ESCO in using this financing approach;
- Structure a performance contract, including particular services and financial considerations;
- Cost out a performance contract project;
- Market performance contracting; and
- Conduct effective performance contracting business practices.

A copy of the materials handed to the participants is presented in Appendix A. A copy of the visuals used is available on request. The handout and visual materials belong to Kiona, International, Inc., and were not prepared as "work made for hire" under the RCG/Hagler, Bailly, Inc. -- Kiona International, Inc. contract.

While many energy efficiency financing interests and concerns were similar in all three countries, there were differences in needs, concerns and responses. A brief summary of each seminar is presented on the following pages.

in US trade prompts fear with Japan

tened US-Japanese trade tension unexpectedly sharp rise in the US \$10.2bn in March, the biggest short-four years. More than half the deficit...

ank, Germany's biggest bank, ating profits rise by "a good 20 to first four months of 1993, but utive said it was unrealistic to expect ue throughout the year. Page 15

ges troops for Bosnia: Russia to have pledged troops to monitor rs, which Serbia's president Slobodan promised to seal to deprive Bosnian lies. Page 3

o for libel: Jacques Attali, president in Bank for Reconstruction and said he would sue for libel over (plagiarism and inaccuracy in his ut President Mitterrand. Page 3

spending cuts: Chancellor Helmut ed sharp public spending cuts as nk warned that government policies sponsible for last month's surge ply growth. Page 2

mens in Italy arrested: Giorgio airman and chief executive of linary of Siemens, German electronics resided in Milan on corruption charges, connection with an inquiry into to obtain telecoms contracts. Page 14

ges regional free trade blocs: Latin American countries should concentrate on regional trade groupings rather than pursue a continent-wide free trade zone, Uruguayan president Luis Alberto Lacalle (left) said in an interview with the FT. He praised Mercosur - a trade bloc made up of Uruguay, Argentina, Brazil - but cautioned against excessive "which is not a reality yet". Page 7

owing and hotels group, reported drop in first half pre-tax profits (in) as Holiday Inns were hit by the UK brewing business increased sions. Page 15

ulator sentenced: Japanese tor Mitsubishi Kotani was given suspended jail sentence for what t described as "naked manipulation" s. Page 4

Banking has received permission eral Reserve to underwrite and sell ids through its securities arm, becoming US commercial bank to be underwriting powers. Page 17

no hits exporters: Economic t the strong franc has made an umber of the clients of French export- ay their bills. Page 7

l local US telephone company, plans t 500,000 access lines in six cities, itilities, a diversified utilities group uectific, for \$1.1bn cash. Page 17

Group, UK healthcare and catering to move into continental Europe acquisition of the airport restaurant catering business of SAS Service 71.5bn (\$110m). Page 15

in violations: Political killings ug in Guatemala, despite the civilian s pledge to end them, Amnesty Interna- Page 6

ols Liggett: Edward Herrigan, the tobacco business at RJR Nabisco, s the cigarette industry as chairman' cutive of Liggett Group. Page 17

ivatisation battles: Fortis, an financial services group, and Belgian le de Banque are to battle for a stake -state-owned savings bank in the a four-year BF70bn (\$2bn) privatisa- ume. Page 15

MARKET INDICES		STERLING	
DAX	2819.7 (-27.5)	New York composite	1,537
FTSE 100	1,147.97 (-5.01)	London	1,541.5 (1,531.5)
US S&P 500	1,151.40 (-0.7%)	DM	2,502.5 (2,487.5)
Yield	345.96 (-0.41)	FF	8.44 (8,325)
10yr	435.41 (-0.41)	YF	170.25 (170.75)
BITIME RATES		DOLLAR	
3m	2%	New York composite	1,537
6m	3.03%	DM	1,828.5
1yr	10.1%	FF	5,474.5
3yr	7.01%	SF	1,470.5
MONEY		YEN	
3m	6.1%	Y	111.2
6m	6.1%	London	1,828.5 (1,824)
1yr	10.1%	DM	1,828.5 (1,824)
3yr	11.5%	FF	5,474.5 (5,474)
5yr	11.5%	SF	1,470.5 (1,470)
10yr	11.5%	Y	111.5 (111.5)
30yr	11.5%	S Index	64.3 (64.3)

Fringe group blamed for riot ■ growth package to boost economy

Danish tax rates cut as reward for treaty vote

By Hugh Carnegie and Hilary Barnes in Copenhagen and Lionel Barber in Brussels

THE DANISH government yesterday brushed aside violent demonstrations sparked by Tuesday's referendum result endorsing the European Community's Maastricht treaty, and as a reward for the Yes vote announced a programme to stimulate economic growth and employment.

The riots in an inner city district of Copenhagen left 11 demonstrators wounded by police gunfire and 26 policemen injured. They were said by officials to have been the worst peacetime disturbances in Denmark. The government blamed a small fringe group of militant squatters. Yesterday, the area returned quickly to normal, but local residents were braced in case of further disturbances last night. The government insisted the attacks did not represent the feelings of

- Rasmussen is quick to reward Danish voters
- EC must now make Maastricht treaty work
- Tensions ease in exchange rate mechanism
- Editorial Comment Page 13
- Major postpones ERM re-entry indefinitely Page 14

the vast majority of No voters. Mr Poul Nyrup Rasmussen, the Social Democratic prime minister, condemned the riots as an isolated incident and told parliament the government would slash marginal income tax rates to bring them closer into line with the rest of the EC. State investment plans to push up growth in gross domestic product from under 1 per cent this year to almost 3.5 per cent in 1994 would also be brought forward. At the same time, Denmark's central bank cut the official dis-



Plainclothes police draw pistols during Tuesday night's demonstration in Copenhagen

count rate to 8.25 per cent from 9.25 per cent and commercial banks announced similar reductions in their lending and deposit rates, which had been held artificially high because of uncertainty over the Maastricht vote. Business reaction was positive. The Copenhagen stock market, which had risen strongly in expectation of a Yes vote, put on a further 2.30 points to close at 303.85. The tax cuts are aimed at galvanising other EC member states to rally behind a beefed-up economic growth package ahead of next month's EC summit in Copenhagen. The Danish presidency of the EC, working with the European Commission, wants member states to consider fresh measures to stimulate growth, mainly through shifting to capital spending, making the labour market more flexible, and other fiscal incentives to create jobs. The growth package and the unemployment crisis in the EC are top of the agenda at a two-day meeting of EC finance

ministers in Kolding, Denmark, which starts tomorrow. In Brussels yesterday, Commission officials hailed the Danish endorsement of the Maastricht treaty in Tuesday's second referendum as giving a "psychological lift" to the Community after several months of drift. The positive vote has given new impetus to the Danish presidency. Danish officials vowed to press for agreement on issues such as a new trade liberalisation

Continued on Page 14

Saarstahl failure blamed on EC policy

By Ariane Genillard in Saarbrücken and Quentin Peel in Bonn

LEADERS of the German steel industry expressed indignation and bitterness yesterday at the failure of European steel restricting policies, in the wake of the collapse of Saarstahl, the French-owned steelmaker in the depressed German Saarland.

Thyssen, Germany's largest steel manufacturer, condemned the policy of allowing continuing state subsidies to ailing producers, and said the rest of the industry would be threatened if they were allowed to restructure their debts.

The steel manufacturers' federation lashed out at the failure of the European Community to curb production at Italy's state-owned Ilva and at CSI in Spain, where the companies' debt burdens far exceed those of Germany's private sector producers. The industry condemned the policy of interfering in free market competition to protect the weakest manufacturers.

The anger of industry leaders was matched by the bitterness of workers at the Saarstahl plant, who blamed Brussels, above all, for the loss of their jobs. Saarstahl filed for bankruptcy on Tuesday night after France's Usinor-Saeflor, which owns 70 per cent of the holding company, decided it could no longer transfer funds to cover estimated losses running at DM30m (\$18.6m) a month.

Hopes for an immediate rescue faded as both federal and Saarland authorities said no new subsidies were available. Since Saarstahl first went into difficulties in 1978, it has received some DM3.7bn in direct subsidies, soft loans and credit guarantees. "We are the victims of the European Community's inability to devise a coherent steel policy," said Mr Werner Prijs, an official of the works council at the plant, which employs 7,200 people. "We hope the European Commission

Agreement would help open up German utilities to overseas competition Anglo-US group in E German energy

By Judy Dempsey in Berlin

A UTILITIES consortium headed by British PowerGen and the US-based NRG, are close to completing a contract which will give them a 44 per cent share in generating power in Schkopau, eastern Germany. If completed, the deal could help to open up Germany's utilities to outside competition, officials from Vereinigte Energie AG (Veag), the east German utilities company, said yesterday. The contract involves Power-

Gen and NRG building a 400MW power station at Schkopau, near Leipzig. Until recently, Veag Kraftwerke Rühr (VKR) had planned to build a 900MW station at Schkopau. VKR is a 100 per cent subsidiary of PreussenElektra, which undertakes the electricity operations of Veag, the German energy-based conglomerate. The decision to allow PowerGen and NRG to negotiate a 44 per cent share at Schkopau follows lengthy negotiations between the Treuhander, the agency responsible for the priva-

tisation of eastern German industry, Veag, which controls 70 per cent of the region's energy production, and VKR. Veag is technically still under the Treuhander, but legally it is controlled by Germany's three giant utilities companies, and the five smaller ones, following a treaty signed in 1990. These include PreussenElektra, RWE Energie and Bayernwerk, western Germany's powerful utilities. Under the terms of the treaty, the Stromvertrag, eastern Germany's regional utilities are obliged to buy 70 per cent of their

power from Veag over the next 20 years as a means of underwriting large investments needed to modernise eastern Germany's energy sector. This treaty, however, has had the effect of making it difficult to introduce competition into the energy sector in the region. The consortium had earlier tried to seek a stake in generating power at Lippendorf. But the negotiations collapsed because PowerGen and NRG could not seek guarantees to gain access to the high voltage grid in order to sell its energy. The grid is controlled by Veag.

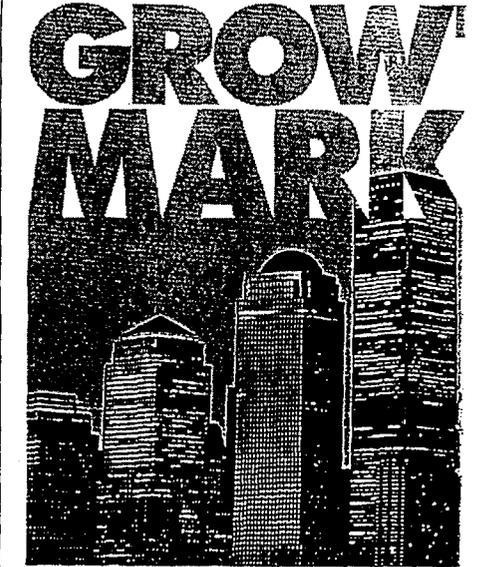
Technical insolvency at top Hungarian commercial banks

By Nicholas Denton in Budapest

HUNGARY'S two largest commercial banks are technically insolvent and require big injections of capital, according to a World Bank paper. The two banks, both state-owned, are Magyar Hitel Bank, heavily exposed to Hungary's troubled engineering industry, and Kereskedelmi Bank, main lender to the country's drought-stricken farms. They have inherited debts from the Communist period, and have suffered from bad debts caused by the three-year Hungarian recession and a collapse in industry's sales to former Comecon countries.

Magyar Hitel Bank has Ft24.6bn (\$390m) of loans classified as bad, doubtful or sub-standard, according to the study. Taking those loans into account, the bank has negative capital of Ft19bn, equivalent to 7.9 per cent of its risk-weighted assets. Kereskedelmi Bank has Ft26.3bn in classified loans, with negative capital of Ft13.7bn, 8.5 per cent of assets. "The report, a World Bank internal side-memoire obtained by the Financial Times, says: "At present, most of the banks are technically insolvent according to inter-

nationally accepted accounting standards." An infusion of Ft100bn (\$1.1bn) of new capital is required to bring the banking sector's capital up to 4 per cent of lending, the target the World Bank recommends. Half the new capital is needed for the two big banks. The plight of the banks came as little surprise to Budapest's close-knit financial community, which believes the two banks are "too big to fail" and will be rescued by the authorities. Mr Gyorgy Surany, managing director of Central-European International Bank, said: "A bank which enjoys the umbrella of the state cannot fail." Mr Istvan Szalkai, president of Hitel Bank, expected little market reaction, saying that the money market had already discounted the bank's loan losses by reducing credit limits. Central bankers at the National Bank of Hungary professed confidence that depositors, knowing the banks were liquid and would be recapitalised, would not panic. Under Hungarian accounting principles, less conservative than the World Bank's, the two banks still have positive capital.



Between 1982 and 1992, the dollar volume of stock Nasdaq Stock Market has increased by 958% - almost achieved by the other major US stock exchange. Last year, the Nasdaq Composite Index achieved... 30

ROMANIA

Energy Efficiency Financing Seminar May 18, 1993

Seventeen (17) people attended the seminar with more than two from several ESCOs. (The attendance list of those who signed the registration appears in Appendix B.)

The in-country contact, Mihai Maracineanu, had obviously promoted the seminar in advance very effectively and the participants came with considerable enthusiasm and readiness to learn. Throughout the day there was lively discussion about ways to adapt various ideas to Romanian political and business conditions.



Mahai provides the seminar participants information on future program activities.

Despite some obvious concerns, the individuals and the firms that have been selected represent a courageous group that appear to be undaunted. Clearly, the caliber of these people and the training they are receiving has combined to create effective energy efficiency "ambassadors."

The participants' biggest expressed concern was that the country presently may not have the political and financial stability to attract outside capital and/or JV ESCOs.

Four (4) of the participants did not speak sufficient English to easily understand the presentation, so a translator was necessary. Micheala did an excellent job. Others in the class would also restate my points with examples. The interaction and response was excellent.



Discussions at the break are always key to any successful seminar.

BULGARIA

Energy Efficiency Financing Seminar May 20, 1993

All eight (8) of those attending the seminar spoke good English, some attendees' English was excellent; so an interpreter was not needed. This certainly facilitated discussions and allowed us to cover the material in considerable depth. (An attendance list of those registered is presented in Appendix B.)

The rapport among participants, the in-country contact and the instructor was very good. Interest in energy efficiency financing was high. The enthusiastic support provided by the in-country contact, Nick Zikatanov, certainly helped to foster this attitude.



To commemorate the event, Nick took a picture of the group with the instructor. Missing from the picture was George Rampov Ivanov.

Members of the press were apparently urged to attend by the ministry (two showed up) and a picture caption appeared in the next day's paper. (A copy of the picture and caption are presented in Appendix C.)



Then, Nick got in the picture.

All the participants were very interested in the performance contracting concept and several seemed determined to make it work.

Concern was expressed that the high interest rates may force "cream skimming," which has the effect of narrowing the focus to short back items. Unfortunately, this limits the leveraging potential short payback items offer. This removes the big ticket items, which are so desperately needed by the customers and can help ESCO profitability.

After the seminar, Nick and three of the participants escorted the instructor from the Palace of Culture to the Sheraton, so they could visit more and continue to explore possibilities in Bulgaria.



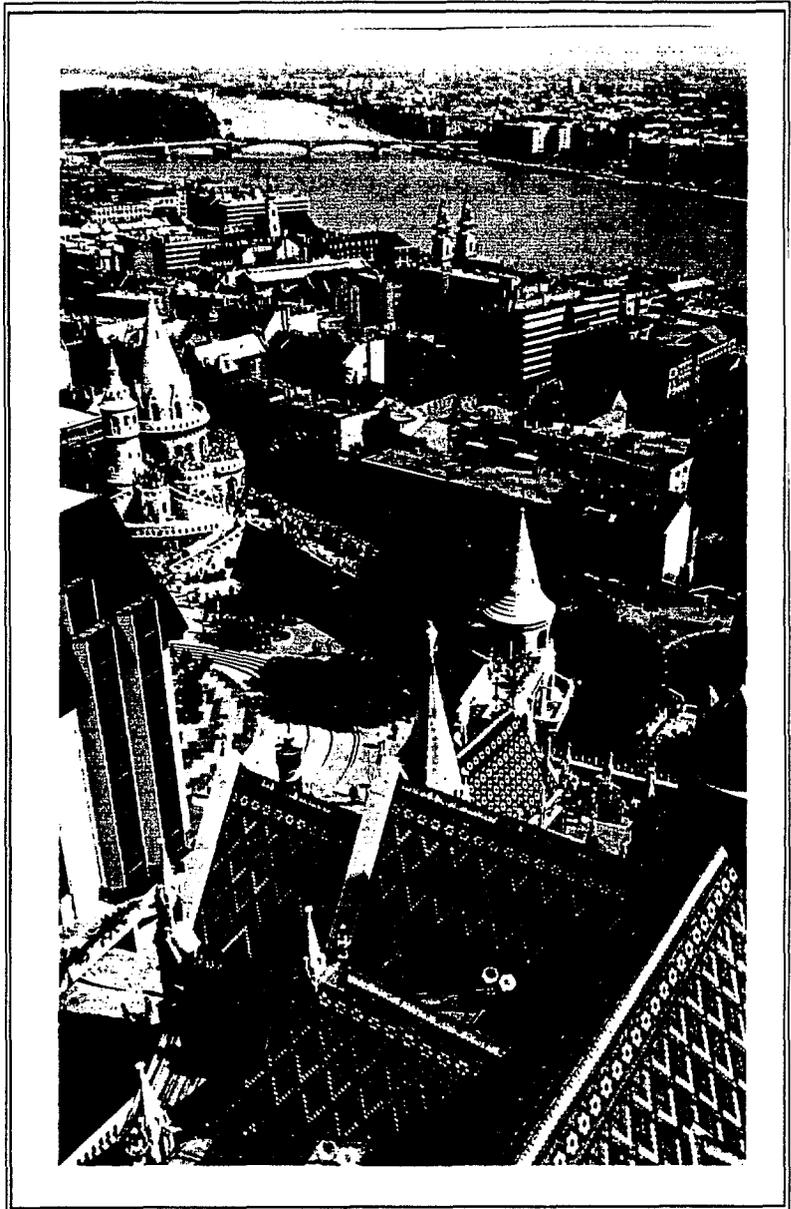
HUNGARY

Energy Efficiency Financing Seminar May 22, 1993

Eight (8) participants attended the full seminar. One person, Nagy Tibor, was present for part of the morning. (The attendance list appears in Appendix B.)

A longer history of working on the edges of a market economy than Romania and Bulgaria plus some experience with performance contracting had the mixed blessing of enriching the discussion by some and pointing out "major" difficulties by others. Concerns expressed did not dampen the discussion. In fact, the perceived obstacles were used to explore ways to overcome or circumvent the problems cited.

Concerns brought up by several participants were: (1) limited capital; (2) the condition of the Hungarian banks (See articles in Appendix C, which appeared in The Financial Times the day before the seminar); (3) high interest rates (28%); (4) political instability of the country; and (5) organizational stability of potential customers. To help reduce risks, these conditions under standard performance contracting procedures would necessitate short term contracts (and very short payback measures).



No trip report of Hungary is complete
without a picture of Budapest.

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discussed with the ESCOs. This approach can reduce risks while offering a self-funding opportunity. To make it work, an ESCO agrees to take a share of the savings over a period of time -- usually starting with O&M, going to quick fix, then to short payback and eventually major retrofits with the project funded by savings roll-overs. This self-funding approach seemed attractive to several participating ESCOs as it could, to some degree, avoid the capital/interest problem.

It was also stated, but not substantiated, that contractual obligations do not convey if and when an organization/company changes ownership. The question of assignability in United States contracts was discussed. The participants asked for some contract language. This language was provided by sending a copy to the in-country contact.



Hungarian participants reconvening after lunch. Not all attendees are pictured.

SUMMARY COMMENTS

All participants in all three countries seemed especially interested in marketing procedures and approach. There was very high interest in the criteria Kiona International, Inc. uses for:

- ✓ selecting viable performance contracting countries;
- ✓ identifying in-country JV partners/ subcontracts; and
- ✓ preliminary selection of potential customers.

Based on the discussion with participants and our other energy efficient financing experiences, a few observations may prove helpful to future planning.

- ① The program has developed a cadre of good people and firms to promote energy efficiency and a market economy in their respective countries. They are clearly benefiting from the excellent training they are receiving, but will need continued guidance and support if USAID and RCG/Hagler, Bailly are to maximize what has been offered to date.
- ② Limited capital is a serious problem for the ESCOs to implement what they have learned. Anything that can be done to make capital available (international funds, secured loans) would greatly facilitate the ESCO efforts. Performance contracting could help leverage the limited funds available.

Since energy efficiency has self-funding potential, another possibility is an in-country revolving funds, which would also obviate some interest rate concerns.

Provisions to reduce risk exposure regarding financial instability, convertability and repatriation is more apt to induce ESCOs from the United States to act as partners.

- ③ The ESCOs in Hungary would benefit from knowing whether or not contract obligations are conveyed under Hungarian law. If they are not, it would help to explore ways to modify these conditions. If they are, those attending the seminar need to know this is not a problem.
- ④ The ESCOs are clearly hungry for financing and marketing information and assistance and the energy efficiency financing seminars clearly compliment other parts of the program.

- ⑤ Time was too short to give the ESCOs a working knowledge of performance contracting. One and one-half days, preferably two days, would be better.
- ⑥ The promotion and support of the training sessions provided by Mihai Maracineanu in Romania and Nick Zikatanov in Bulgaria were particularly effective. Their efforts offer greater in-country benefit from USAID and RCG/Hagler, Bailly funds and leadership.
- ⑦ The advance information on participants, the audit program and in-country energy conditions was very helpful. Seminar instructors would probably benefit from having a briefing packet which would also briefly describes the entire program, how their respective session fits and a brief backgrounder on the country as well as the in-country contact.

Several participants, particularly in Romania and Bulgaria , indicated the energy efficiency finance seminar with its focus on performance contracting had been the most helpful session so far in the program.

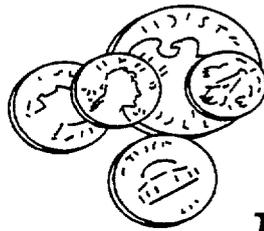
Kiona International, Inc. appreciated the opportunity to participate in and contribute to such a worthwhile program.

APPENDICES

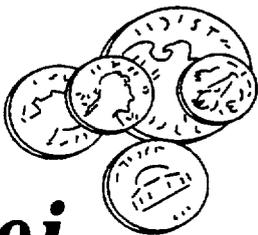
APPENDIX A

"MONEY SIDE OF ENERGY" HANDOUT

THE MONEY SIDE

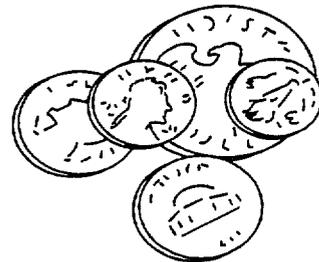


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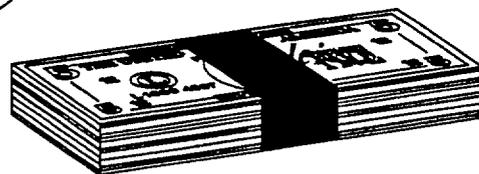
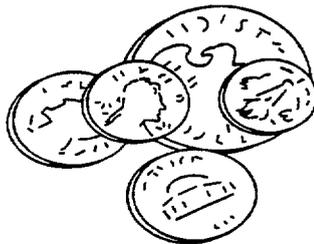
OF ENERGY



leva

***USAID EASTERN EUROPE
ENERGY EFFICIENCY PROGRAM***

***BY KIONA INTERNATIONAL
FOR RCG/HAGLER, BAILLY***



MAY, 1993

SELLING THE ENERGY EFFICIENCY CONCEPT

INTERNATIONAL

- ✓ increase export potential without increasing fuel consumption
- ✓ reduce energy intensity; improve competition
- ✓ energy efficiency is an environmental resource
- ✓ energy efficiency is a tool for economic development -- and sustained development

22



SELLING THE ENERGY EFFICIENCY CONCEPT

NATIONAL

- ✓ avoid losing limited resources
- ✓ reduce cost of producing energy;
ensure supply
- ✓ reduce environmental damage
- ✓ conserve capital resources
(energy supply projects
are 5 times as capital intensive)
- ✓ improve internal competition
-- country, firm & consumer
benefits
- ✓ create jobs -- 8 times as many as
production for the same level of
investment



SELLING THE ENERGY EFFICIENCY CONCEPT

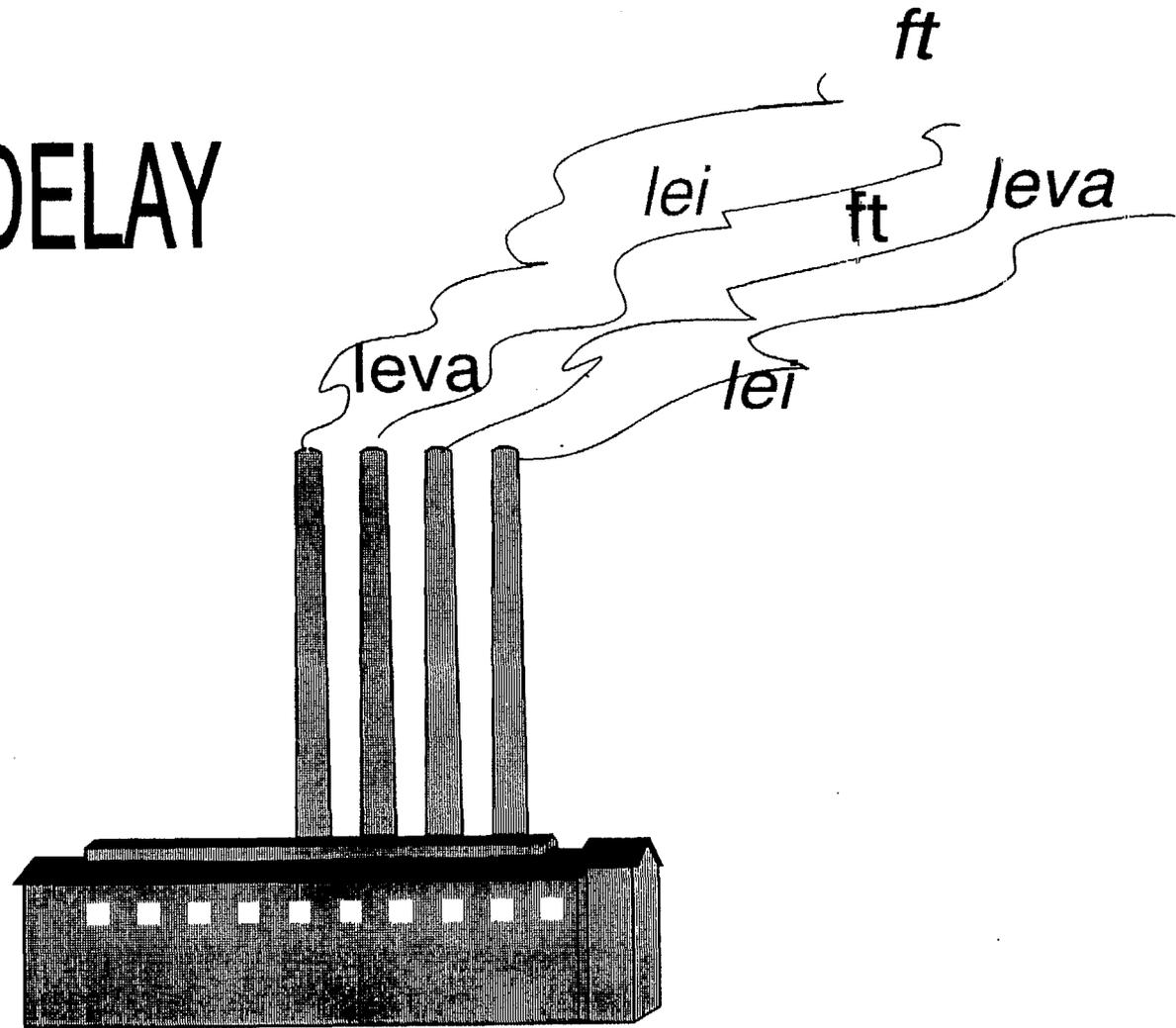
LOCAL -- COMMUNITY & ORGANIZATION

- ✓ Job creation
- ✓ Improve production with less capital investment
- ✓ Become more competitive
- ✓ Reduce production costs; increase profit
- ✓ Reduce consumer expenses; improve purchasing power
- ✓ Meet local needs

BARRIERS TO ENERGY EFFICIENCY

- ✓ disincentives
- ✓ lack of incentives
- ✓ money
- ✓ available technology
- ✓ expertise; lack of training
- ✓ perception of risk
- ✓ management priorities
- ✓ recognition of need; benefits

COST OF DELAY



4/6



SOURCES OF FUNDS

- Local
- National level
 - state
 - banks
- International funding sources
 - Demonstration projects
 - Foreign private sector investment
 - Grants from other governments
- Local financing over time (foreign loan)
- Performance contracting



FUTURE GUARANTEED SAVINGS



YEAR 1 SAVINGS



YEAR 2 SAVINGS



YEAR 3 SAVINGS



YEAR 4 SAVINGS



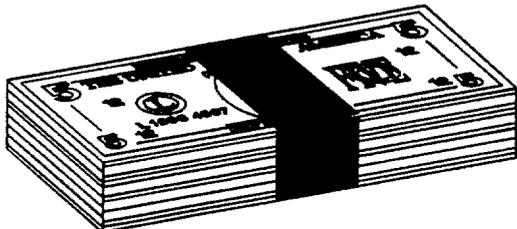
YEAR 5 SAVINGS



YEAR 6 SAVINGS



YEAR 7 SAVINGS



NOW!



PERFORMANCE CONTRACTING

The Customer Advantage

- ▶ More comfortable, productive environment
- ▶ Positive cash flow
- ▶ Opportunity value of the money
- ▶ Shed risks
- ▶ Get the use of money now paying for wasted energy

PERFORMANCE CONTRACTING

The Customer Advantage

- ▶ To use FUTURE SAVINGS to upgrade facilities and cut operating costs NOW

- ▶ Energy service company guarantees performance; results
 - energy efficiency expertise
 - equipment performance guaranteed
 - more energy efficient operations and maintenance

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**PERFORMANCE CONTRACTING
ESCO SERVICES PROVIDED**

- **Energy audit; identify cost-effective energy and operational savings**
- **Financing**
- **Construction manager: specifications, purchases and installations**
- **Guarantee that predicted energy savings are achieved**
- **Maintenance -- installed equipment
-- energy consuming equipment**
- **Training of O&M personnel**
- **Monitor savings; assure reductions continue**
- **Guarantee that predicted energy savings are achieved**

Kiona International, Inc.
Annapolis, Maryland U.S.A.

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PERFORMANCE CONTRACTING STRUCTURING THE DEAL

- **Audit site**
- **Develop energy use profiles**
- **Identify cost-effective energy measures**
- **Project cost and savings**
- **Obtain approval for measures**
- **Implement approved measures**
- **Maintain equipment; O&M training**
- **Monitor savings**
- **Billing/payment procedures**
- **Upgrades; modifications**

Kiona International, Inc.
Annapolis, Maryland U.S.A.

AN AUDIT? OR, AN IMPLEMENTATION PLAN

? Whose audit is it?

- not an exact science
- Btu savings; interdependence

? Practical recommendations?

- Can you do them?
[22% problem]
- Compatibility with existing equipment
- Can you guarantee them?

? Cost savings real?

- rate schedules
 - demands
 - power factor
 - more is less
- energy prices
 - ↑ down ... who's risk?
 - ↓ up ... who gains?

? Services and maintenance

- required?
- desirable?

SETTING CRITERIA

EVALUATING ESCOs

- ✓ ABILITY TO MEET CUSTOMERS NEEDS
 - Experience
 - in similar facilities
 - of all parties
 - proposed project

- ✓ QUALIFICATIONS
 - ESCO history
 - Assigned personnel
 - Financial
 - Technical

- ✓ FINANCIAL
 - Customer net financial
 - Guarantees
 - Quality of calculations
 - Contract terms
 - Length
 - Share of savings
 - Payment schedule
 - Return on investment



SETTING CRITERIA

EVALUATING ESCOs

✓ TECHNICAL

- Comprehensive analysis
- Performance estimates
 - equipment
 - services
 - O&M; training
- Integration - existing equipment

✓ PROJECT MANAGEMENT

- Organization structure
- Schedule
- Intrusion
- Quality Control
- Resources
- History

✓ RESOURCES

- HISTORY



MAKING IT WORK

Project Design

- Energy analysis
- Technical specifications, codes, standards
- Define limits of work
 - building list
 - technologies
- Schedule - goals, deadlines
- Establish critical path
- Communication lines (pre, during, post)
 - partners
 - manager
 - vendors
 - subcontractors
 - labor
 - client
- Disbursement system
- Buyouts, transfers of right change in customer identity



LEARNING FROM "THEIR" MISTAKES

- "FREE" AUDITS
- UNDERESTIMATING O&M, TRAINING
- SPREADING EFFORT TOO THIN
- THIN SERVICE AREA
- NOT GETTING ENGINEERS WITH ENERGY EXPERIENCE
- NOT GETTING STRONG COMMITMENT AT THE TOP
- NOT GETTING BROAD (TEAM) COMMITMENT
- "THEIR CASH; YOUR SAVINGS"



SP

MAKING IT WORK

Designing a Contract

- ✓ Maximize cash flow
- ✓ Payback time
- ✓ Return on investment (ROI)
- ✓ Control prices and costs
 - materials & labor
 - project management
- ✓ Establish and clarify
 - savings formula, calculations
 - payment terms
 - energy price risk
 - insurance, warranty
- ✓ Ownership, process issues



SITUATION A

1. Audit is done
 - Know ECMs
 - Predicted costs
 - Predicted savings
 - Savings persistences
 - Whose guarantee? Verify!
 - Base year
2. Total Costs
 - Add in
 - Engineering design, acquisition, installation
 - Services needed
 - Services requested
 - G & A
 - Profit
 - Guarantee level (cushion)
3. Project parameters
 - Contract length
 - Payback period
 - Measures to be implemented
 - Services offered
 - Guarantee
4. Negotiations & project approval
5. Project implementation
 - Installation & acceptance
 - Monitoring, billing
 - Servicing



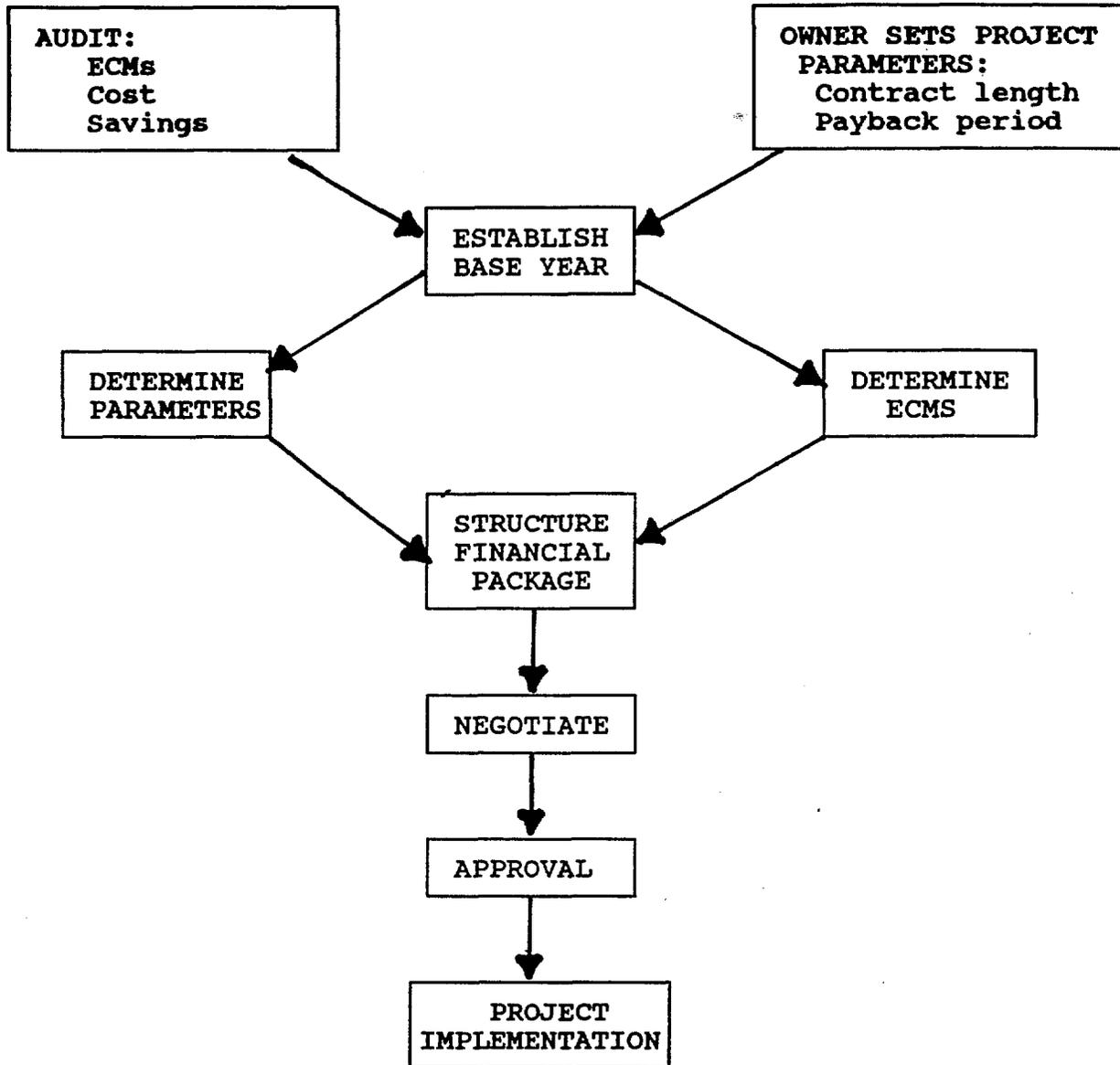
SITUATION B

1. Owner sets conditions
(Annual utility bill)
 - Contract length
 - Required measures
 - Payback
 - Services required
2. What can a [4-year payback] buy?
 - Audit
 - ✓ ECMs with interdependence
 - ✓ Potential costs
 - ✓ Savings persistence
 - Related services
 - ✓ Maintenance
 - ✓ Training
3. Total costs
 - Add in:
 - o Engineering, design, acquisition and installation
 - o Services needed or requested
 - o G & A
 - o Profit
 - Guarantee (cushion)
4. Negotiations and approval
5. Project implementation
 - Installation & acceptance
 - Monitoring, billing
 - Servicing



SITUATION A

SITUATION B



PERFORMANCE CONTRACTING: ASSESSING NATIONAL CONDITIONS

- Political stability
- Financial stability
- Incentives & disincentives
- Convertability & repatriation
- Financing
- In-country partner
- Implementation



PERFORMANCE CONTRACTING: IN-COUNTRY FIRM'S QUALIFICATIONS

TO WORK WITH U.S. ESCO, THE IN-COUNTRY FIRM NEEDS TO HAVE:

- been privatized or is becoming privatized;
- engineering and mechanical contracting experience;
- energy efficiency capability;
- effective in-country contacts;
- an understanding of all applicable codes and standards;
- ability to acquire in-country material/equipment and to import materials/equipment as needed;
- the capability to secure any needed subcontracting support;
- ability to effectively oversee all facets of project implementation; and
- capable of providing monitoring and services throughout life of contract.

WHY "THEY" NEED YOU

- ✓ way of thinking
 - culture
 - doing business
- ✓ codes & standards
- ✓ "no - nos"
- ✓ add value to process
- ✓ purchasing - local & imports
- ✓ subcontractors
- ✓ on-site supervision
- ✓ post-retrofit monitoring and service

ASSESSING CUSTOMER POTENTIAL

Facility

- age & useful life
- mechanical equipment
- level of maintenance
- energy saving potential
- cost saving opportunity
- annual utility bill; size & opportunity

Organization

- top commitment
- multi-level involvement
- understands concept
- what they want
- manpower & training needs



ASSESSING CUSTOMER POTENTIAL

Energy-related needs

Non-energy needs

Financial needs



PERFORMANCE CONTRACTING

PROJECT CRITERIA

- **has an annual utility bill of approximately USD 2,000,000 equivalent (if US partner involved)**
- **has at least one year's utility records/billing, or a record of units of consumption for 12 months and a copy of a recent bill for each fuel source...
or will negotiate base line**
- **has rate schedules/utility arrangements that indicate cost avoidance will be available over time**
- **has a facility and operations that is expected to be in use for the probable life of the performance contract**



PERFORMANCE CONTRACTING

PROJECT CRITERIA

- **can offer substantial evidence of organizational stability (such as a state hospital), or economic viability over time, including distribution of ownership and some indication of financial stability**
- **appears to have significant energy savings opportunities**
- **has strong interest and commitment to performance contracting in top management**
- **has depth of commitment**



MARKETING

FISHING FROM THE FISHES' POINT OF VIEW

- What does the customer NEED?

WANT?

- What other benefits can you offer?
- Energy-related
 - longer payback
 - roof
 - windows

- Non-energy
 - security
 - noise alarm
 - record keeping
 - _____
 - _____



MARKETING

- ✓ Targeting markets
- ✓ Identify potential customers
- ✓ Assess customer possibilities



MARKETING

- ✓ Negotiated contracts,
or
RFQ/RFP and proposals

- ✓ Communications, PR, Advertising

- ✓ Customer relations
 - monitoring
 - billing
 - quality assurance
 - upgrades
 - extensions
 - renewals



GETTING STARTED

with Performance Contracting

- **Concept**
 - understand
 - get comfortable

- **Identify national and local deterrents; barriers**
 - change?
 - go around?
 - modify operation

- **Strength your firm's offering**

- **Find a potential site or two**

- **Establish relationship with foreign partner**
 - you need
 - they need
 - agreement
 - interim
 - long term
 - non-compete

- **Help negotiate customer planning agreement, contract**

- **implement project**

- **Monitoring and servicing**

APPENDIX B
ATTENDANCE LISTS

**USAID EASTERN EUROPE EMERGENCY ENERGY PROGRAM
ENERGY EFFICIENCY FINANCING & PERFORMANCE CONTRACTING**

ROMANIA

ATTENDEES

COMPANIES

Ion Bota Manager	Energo
Valentin Vasile Cristescu Managing Associate	ECO-VEL S.R.L.
Corneliu Dusan	Robomate Ltd.
cerc.st. Padureanu Georgeta E. Director	ECO-ERG
Vasile Grasin Manager	ECO-ERG Technologie Serv.
Marian Manu Manager	Probeletro
Burtan Mircea	Consel - S.R.L.
Dipl. Eng. Dorin Moraru Managing Director	Electron - TD S.R.L.
Haralambie Pavel Manager	Invest Project S.R.L.
Simona Parvu Assoc. Manager	Automatizari Orion
Andrei Stefaneson	B.I.T. - S.R.L.
Paul Zara General Manager	B.I.T. Bureau of Industry & Tech.
Mihail Zdravcu Manager	Arcon S.R.L.

CONTACT

COMPANY

Mr. Mihai Maracineanu	RCG/Hagler, Bailly, Inc.
-----------------------	--------------------------

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ENERGY EFFICIENCY FINANCING & PERFORMANCE CONTRACTING**

BULGARIA

ATTENDEES	COMPANIES
Stefan H. Hristov Consulting Engineer	Energo Eco Iconomia Ltd. Combustion, Energy Conservation & Environmental Services
eng. Delan R. Iordanov M. Sc.	Argus'91 heating, vent., air cond.
George Rampov Ivanov President	Rampov & Son Co. Instruments, Soft & Hardware
Yordan Katzarov, M.Sc. Senior Project Manager	Risk Engineering Ltd.
Boris Petkov	Ivel Ltd.
Dr. Dimitar V. Shikov Associate Professor	Technical University-Sofia Department of Automation

CONTACT	COMPANY
Mr. Nick Zikatanov	RCG/Hagler, Bailly, Inc.

**USAID EASTERN EUROPE EMERGENCY ENERGY PROGRAM
ENERGY EFFICIENCY FINANCING & PERFORMANCE CONTRACTING**

HUNGARY

ATTENDEES

COMPANIES

Dr. Zsebik Albin	Technical University Budapest Dept. of System & Control-Eng.
Virágh György	Kontravill
Sándor Haragos Acting Secretary	Hungarian Scientific Society of Energy
Dr. Szaniszló Mihály C. Sc.	Rendszertechnika Fejlesztő Kft.
Gellért Miklós	Gellért Innovációs Mérnöki Iroda Bt.
Dipl. Eng. László Soós Chief Engiener	Epos Electric power Systems and PVI Photovoltaic Int'l
Nagy Tibor	Controll
Dr. techn. György SZ. Tóth M.Sc. Mech. Eng.	EGI - Contracting/Engineering

APPENDIX C
RELATED DOCUMENTS

ИКОНОМИКА

Търгове за продажба на общинските имоты ще бъдат проведени от началото на юл

атизация, не съумяват да се справят в да пазарна ситуация и се отказват от предмет на дейност. Фирмите и техните представители злоупотребяват със сключваната договор за съвместна дейност, които могат да бъдат разтрогнати в шестмесечен срок след налягането на решение приватизация. В много случаи по своята воля това са прикрити договори за наем сновата на възникнали кредитни закения. След сключването на такъв договор фирмата кредитор опрошава част от

дълга на задлъжнялата общинска фирма. Правен анализ на първата група обекти, включени в програмата на Столичната общинска агенция по приватизация, е възложен на подбрани от агенцията фирми и дружества, а резултатите се очакват в края на май. При положителен резултат националната Агенция за приватизация трябва да извърши в съответен срок оценката на обектите, а столичната агенция ще организира търговете и конкурсите. Предвижда се широка реклама на по-привлекателните

обекти, която ще включва данни за инфраструктурата, местоположението и кратка характеристика. Конкурсите са следващият етап от приватизационната тактика. След проучването на пазара пред купувачите могат да се поставят условия за запазване на работната ръка, инвестиции и да не се продава предприятието за известен период от време. Целта е постигане на баланс между пазарната насоченост на програмата и елементите на социална политика. Законът за приватизация

има цел да задоволи обществените потребности, но задожените в него предпочитания за колектива не били достатъчно подкрепени със съответните кредитни и данъчни механизми. Приватизацията е свързана с разслояване и прилагането на изцяло пазарни механизми и може да стимулира обществен негативизъм. В този смисъл проектът на Любен Беров е мотивиран психологически, но от икономическа гледна точка крие известен риск, твърди Иван Димитров. Проектът

има цел да измисли зация чрез ползването на много хора няма да работят на преден план проектът за те обществени слезкато платежно средство в ръцете на тези. Безсмислено било и бота за прилагането на зация тепърва да се т

Вещица

Вилски тощи реколтата от до миналото... донакъде е 30 април са мил тона раче 3 мил. повече... животновод... Производството намаляло с 11,4 ркото примеселстичности в нства с 38,9 на нлжи на поини животните, чактели с 14 на 0,5 на сто и го ето. Броят на алял с 15,2 на... първото три ет. производствено-голямо, тъй е са по-плодогичните са намаляди броя, ко то по-малко от Броят на живрдените проите земеделски увеличавана, но да компензира уби в държав-



Американският проф. г-жа Шърли Хансен по време на семинара за енергийна ефективност, организиран от Министерството на промишлеността в НДК

ИСКВА

Caption Translation

American female professor, Shirley Hansen, during a seminar concerning energy efficiency organized by the Ministry of Industry in NDK.

срайен е спец управление в ира за сиропейс... доклад за бде на отношенияните страни от а, който ще бина срещата на ивет през юни в него се придава на близките общности с иките страни, чи членство онеадат в сравнение рия, Кипър и а се, некая от идатки има сво и "минусови" инаше търху обкторите, които

странни, в това число и на България, да влязат по-скоро в ЕО? - От икономическите - началът, по който икономиките в Източна Европа ще бъдат доведени до съответното необходимо равнище. От административните е началът на извършване на реформите на държавно управление, способно да се справи с проблемите на членството, а от правните - началът и степента на хармонизиране на законодателствата. Самата институциона

терни, на които следва да отговарят страните, желасци да станат членки на ЕО? - Да, има таква принципи и нормативни изисквания. Тук бих посочил приемните критерии и Лисабон и Единбург; организационни приемането на нови членове, преди да бъде ратифициран договорът от Маастрихт. Всяка държава, която иска да се присъедини към ЕО, трябва безрезервно и безболезнено да поеме достигнатите вече равнища на икономическа, и политическа интег-

но състояние и пр. - Каква е процедурата? - Процедурата на пръв поглед е проста: всяка страна от европейския континент може да подаде молба в Съвета на министрите, който преценява и решава дали страната отговаря на принципите, а след това по въпроса за членството следва да се произнесе и Европейският парламент. Процедурата е проста, но критериите не са лесно изпълними. По принцип всяка европейска страна, чиято политическа

следва да отговаря и на изискванията на този договор по отношение на своето икономическо и финансово състояние. Икономическите изисквания на този договор са толкова строги, че при сегашното състояние на нещата се смята, че едва ли не само 3-4 страни от държавите членки могат да им отговорят. Можете да си представите какъв вид проблеми ще възникнат за България при сегашното й състояние. Интервюто взе Д. НИКОЛОВ

Избран е нов председател на Надзорния съвет на АП

Даниела ПЕТРОВА СОФИЯ, 20 май - Валентин Георгиев, най-младият член на Надзорния съвет на Агенцията по приватизация, е избран председател, стана ясно след редовното заседание на съвета

Той е 32-годишен, женен, с юридическо образование. Новият Надзорен съвет е дадене задоволителна оценка на дейността на агенцията през първото тримесечие на 1993 година след продължителна дискусия. Зависими били предиш-

дените приходи и разходи в програмата за 1993 година, заявения новият шеф на съвета В. Георгиев. Оценката се основавала на факта, че агенцията не е убягала да се прехвърли или водена институция на приватизацията.

При условие че новият Надзорен съвет реши да направи сериозни корекции в годишната програма на Агенцията за приватизация, приемането на закона за бюджета през 1993 г. ще се забави за неопределено време, коментират експерти.

Нова конвенция за риболова подготвена в черноморските държави

Даниела ГЕНОВА Държавите баятъв П приемни на Украй Турция на наблюдават приселка ФАО. Със дени в Со юни. Шел мите на р на рибите СОФИЯ, 20 май - Нова конвенция за риболова и опазването на живите ресурси на Черно море ще бъде подготвена с участието на всички черноморски държави на XIX сесия на смесената комсия за прилагане на споразуменията за риболов между България, Румъния и бившия СССР, съобщи началникът на

Проф. Тодор Вълчев пренесъбираемите кредити предприятия да бъдат заменени с държавни облигации

Ганета САГОВА твърдят, е получат, е от тези и кредити. I ват нищо, отежнява проф. Вълчев, проблемите кредити и шен, след телства не го сторят, те ни не харниват. Държавн умишлен те си с икватива не е проблем, няколко г лешите кр хвърли 10 СОФИЯ, 20 май - Несъбираемите кредити от държавните предприятия да бъдат заменени с облигации, предложи проф. Тодор Вълчев на среща със студенти от Университета за национално и световно стопанство. Според него по този начин задлъженията на докарано неплатежоспособни предприятия към банките ще се превърнат в държавен дълг в лицето на Министерството на финансите. То ще гарантира изплащането му, но при процент, равен на 1/3 от основния лихвен процент. Проф. Вълчев изрази учудването си, че търговските банки не приемат предложението. Те

Чужд капитал започва да навлиза в застраховане

Сузана ТОДОРОВА ита засти "Тай хаг вог", а осигуряват ледни предлагат рани и телни ш осъздаха необходимостта за застрахователно и преработвателно акционерно дружество "WINNER BROKER INTRA". Компанията е регистрирана през ноември 1992 година с участие на английски, немски и японски капитал, които ще работят в страната. Замисълът е венчки средства да бъдат реинвестирани. Програмата на "WINNER BROKER INTRA" дава възможност да се планира месечна рента - пенсия, която се реализира след изтичането на договорния срок от сключе-

Deutsche Bank makes firm start to year

By David Waller in Frankfurt

TOTAL operating profits at the Deutsche Bank group rose by "a good 20 per cent" in the first four months of the year against the comparable period for 1992, the chief executive of Germany's biggest bank told shareholders yesterday.

Mr Hilmar Kopfer said at Deutsche Bank's annual meeting that it was unrealistic to expect this level of growth to be maintained throughout the year as a whole. Last year, the bank's total operating profits rose by 7 per cent to DM6.39bn (\$3.96bn).

But he said that the result for the year would be satisfactory, given the sharp recession in the German economy. He warned that provisions for bad and doubtful debts would have to be on the same scale as last year, when they reached DM2.6bn.

Deutsche gave no figures, but the percentage increases are calculated with reference to a third of the total figure last year, rather than the actual profits made in the first four months of last year. Thus total operating profits in the first four months of the current year were in the region of DM2.55bn, up about 16 per

cent from the actual figure for the first third of 1992.

Deutsche is the third of Germany's big three banks to report excellent growth in operating profits in the early months of the current year. Commerzbank improved its profits by more than 25 per cent in the period from January to March and Dresdner Bank by 15 per cent in the first four months.

These profit increases provide a slightly unrealistic picture of German banks' prosperity as they are calculated before provisions which are set to rise steeply over the course of the current year, reflecting

deteriorating credit risks in recession-struck Germany.

As at other large German banks that have reported strong growth in profits for the early months of the current year, the bulk of the gain at Deutsche Bank came from own-account trading activities, stimulated by buoyant conditions in bond and equity markets earlier in the year.

Growth in net interest income was more subdued.

Own-account trading profits rose by 32 per cent, Mr Kopfer said, and commission income climbed by 13 per cent, while net interest income rose 6 per cent.

Rivals bid for stake in Belgian bank

By Andrew Hill in Brussels

FORTIS, the Dutch-Belgian financial services group, and Générale de Banque, Belgium's largest bank, are to fight it out for a stake in the Belgian state-owned savings bank, ASLK-CGER, in the first round of a four-year privatization programme.

The sale of up to 49 per cent of ASLK-CGER, which has a network of bank and insurance branches, could raise as much as BFr33bn for the government and help reduce its budget deficit.

Mr Philippe Maystadt, the Belgian finance minister, has also indicated that a bid for a majority stake in ASLK-CGER would be considered, although Belgian legislation would have to be altered to allow the state to give up control.

"The deadline for submitting 'indicative non-binding' offers for ASLK-CGER closed yesterday afternoon.

Both Fortis - which groups the activities of the Belgian insurer AG and the Dutch group Amey - and Générale de Banque confirmed they had bid. They refused to give further details or indicate whether they had bid for a majority or minority stake.

Internationale Nederlanden Groep, the Dutch financial services group which last year considered bidding for Banque Bruxelles Lambert, another leading Belgian bank, will not be making an offer for ASLK-CGER.

ING paid the required BFr2.5m to examine the ASLK-CGER prospectus but decided the group would not fit into its strategy.

Until recently Générale de Banque and Fortis were considering linking up with one another to develop "hancassurance" activities in Belgium, but they fell out over the terms of co-operation and Fortis sold most of its 14.7 per cent stake in the bank a month ago.

It was not clear yesterday whether other bids had been submitted.

ASLK-CGER, which is being advised by Petercam, the Belgian broker, will now consider the bids and submit its decision for approval by the government before the summer. Fortis said it hoped the sale could be concluded by the end of the year.

Separately, Nederlandse Nationale Investeringsbank, a Dutch state-controlled bank, said it had sought information about the privatisation of two other Belgian savings institutions, NIM-SNI and NMKN-SNCL.

Compass to acquire catering from SAS

By Richard Gourley in London

COMPASS GROUP, the UK healthcare and catering company, is to move into continental Europe through the acquisition of the airport restaurant and contract catering business of SAS Service Partner, the subsidiary of the Swedish airline.

The £71.9m (\$110.72m) purchase price is to be funded through a six for 19 rights issue at 420p. The rights issue will raise £86.8m.

The acquisition will give Compass a presence in eight mainly northern European countries, and 34 airports. It will also provide an entry into the fragmented continental contract catering business, although most of the SAS contracts are in Scandinavia or in the off-shore sector where growth prospects are limited in the short term.

UK analysts have recently been concerned that Compass has been better at improving margins through tight purchasing than increasing sales.

But the London stock market reacted enthusiastically yesterday - the shares rose 1p to 528p.

Compass also reported an increase in pre-tax profits from £17m to £18.2m for the six months to end March on sales up 18.6 per cent at £209.4m. Earnings per share rose from 16.8p to 18p and the group is to pay a 4.44p interim dividend, up 6 per cent.

The board forecast a final dividend of not less than 8.56p which, if paid, would mean a 5.7 per cent increase over 1992.

Mr Francis Mackay, chief executive, said the catering division had performed well with operating profits rising 8 per cent to £14.6m.

Background, Page 20; Lex, Page 14

Nicholas Denton reports on the need for a recapitalisation

The hole at Hungary's banking heart

Behind the World Bank and International Monetary Fund's belief that Hungary's big banks need rescuing are some compelling facts.

The capital of the two biggest banks - Magyar Hitel Bank and Kereskedelmi Bank - is wiped out when international accounting standards are applied to their bad loans. Economic output has fallen 18 per cent in the last three years. The disappearance of demand from former Comecon countries has worsened the recession, hitting hardest the socialist industrial giants like Ikarus, Taurus, Videoton and Borsodchem which make up the rotten core of Hitel Bank's clientele.

In 1991 parliament passed strict new laws: on bankruptcy, causing about a tenth of companies to go into liquidation or file for protection from creditors; and on financial institutions, giving banks the incentive to recognise bad debts.

The banking sector's loans classified as bad, doubtful or sub-standard rose to Ft262bn (\$2.9bn) - 17 per cent of all loans and 10 per cent of GDP - in September 1992. Hitel Bank says its non-performing loans tripled from Ft255bn in December 1991 to Ft780bn at the peak last year.

The result has been a sharp credit crunch. Banks, faced with the need to make huge provisions, have charged high real interest rates to maintain margins and produce paper operating profits estimated at Ft39.7bn for the whole sector in 1992. The average interest rate on short-term corporate loans was 28.2 per cent at the end of 1992, compared with inflation of 21.6 per cent over the year.

The cost of borrowing has pushed bad risks to the wall and good risks abroad - or, like Nestlé, McDonalds and other western investors in Hungary, directly to the capital markets.

Made cautious by defaults, banks slightly reduced their outstanding credit to enterprises in 1992, a sharp fall in real terms. "A prudent policy today means extreme conservatism," says Mr Gyorgy Ivanyi, president of Inter-Europa Bank. The World Bank study concludes that: "The financial system is unable to finance the transformation to a market economy."

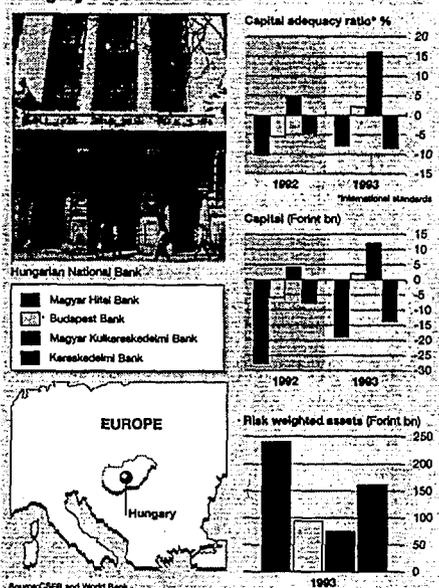
A one-off recapitalisation is widely seen as essential. Economic recovery is still feeble and loan portfolios are deteriorating. Weaker banks are losing their better clients to stronger ones. Mr Szalkai admits that Hitel Bank is at a "threshold," from which it could spiral downwards.

Recapitalisation also put the banking sector into condition for privatisation before more of the potential acquirers lose patience and set up local subsidiaries from scratch.

An injection of funds, however, would allow bank managers to escape the consequence of past errors. Magyar Hitel Bank, Kereskedelmi Bank and Budapest Bank inherited a portfolio of loans made under communist logic when hived off from the National Bank of Hungary in 1987. Since then, managers have been responsible for their own decisions - and some of them have proved painful.

Hitel Bank, for instance, has paid the price of a focus on lending to start-up businesses. The policy has won popularity, but

Hungary's troubled banks



the losses have been heavy. Mr Szalkai says that the default rate for new business is as high as on the old, communist-inspired loans.

Kontrax, one of Hungary's largest domestic private groups, only this month declared bankruptcy owing Ft4.2bn to Hitel Bank and other creditors. Hitel Bank has also been reluctant to reduce exposure to inherited shaky borrowers for fear of pushing them into bankruptcy. "In creditors' meetings Hitel Bank is always there," says a banker.

In contrast, Budapest Bank has pulled away from the other two commercial banks. Under Mr Lajos Bokros, managing director, Budapest Bank's capital has improved as a proportion of

assets from -5.5 per cent in 1992 to +2.2 per cent this year.

In 1991, Mr Bokros anticipated the wave of client bankruptcies to come. He defied the finance ministry's hunger for taxable profits and provisioned furiously.

Mr Bokros has taken a pay cut, drives a second-hand Renault and files economy class. He has refused to follow other banks in financing newspapers and political foundations.

This approach has won him the admiration of the Budapest financial community. But it has done him little good politically. The World Bank study calls for management changes at the worse performing banks. Yet it is over Mr Bokros's future that the biggest political uncertainties hang.

Saatchi surprises City with rights issue to raise £73m

By Gary Mead, Marketing Correspondent

SAATCHI and Saatchi, the world's fourth largest advertising group, yesterday sprang a £73m (\$112.42m) rights issue on the City.

Shareholders are asked to pay 130p, a 24 per cent discount to Tuesday's closing price of 172p, on the basis of 10 new shares for every 27 held.

About £36.5m of the cash will be used to reduce bank debt (average net debt was £194m in December 1992). £19m will be used to acquire minority interests in European advertising subsidiaries. £10.5m will be used to strengthen media buying businesses and to develop businesses in growing markets in Asia, Latin America and east Europe, £7.7m to acquire new

information technology. The targeted minority interests are 50 per cent of SSW Italy; 20 per cent of Grupo BSB Spain; and 37 per cent of Scholz & Friends Germany.

Mr Charles Scott, chief executive, said yesterday that the group's 20-bank syndicate fully approved the rights issue. He was confident that institutional investors would support the call for additional cash. For Mr Scott, the rights is a continuation of the process of putting the group back on a sound financial footing.

The rights issue is fully underwritten by SG Warburg and UBS Ltd. The largest institutional investor is the State of Wisconsin Investment Board with 8.99 per cent. Currently, 50 per cent of the group's shareholders are in the US and 40 per cent in the UK. Of the UK shareholders, half are pri-

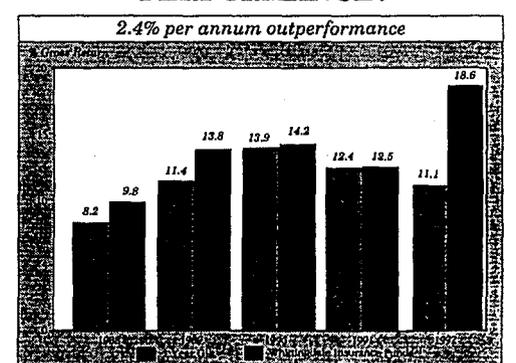
ivate individuals.

Since 1990 the group has sold seven non-core businesses and is now concentrating, Mr Scott said, on organic growth of its main business, global advertising. However, there are some doubts about future trading in the US, where one of the group's most important clients, Mars, has recently consolidated its media buying outside the Saatchi group.

In March 1991 Saatchi achieved a recapitalisation, which removed the threat of having to redeem £211m of Euro-preference shares. Saatchi's share price has moved from the equivalent of more than £60 in 1986, to 96p in December 1991, touching 245p in May 1992. Saatchi's share price yesterday dropped to 161p but finished the day down just 2p at 170p.

Lex, Page 14

DO YOU INVEST FOR CONSISTENT PERFORMANCE?



SMALL INVESTORS AND LARGE

in US trade prompts fear w with Japan

toned US-Japanese trade tension unexpectedly sharp rise in the US \$10.2bn in March, the biggest short-four years. More than half the deficit

ation is likely to prompt a sharp revision of first quarter growth to of 1.0-1.5 per cent against initial 4 per cent. Page 14; Clinton acts volt over cuts, Page 6

ank, Germany's biggest bank, ating profits rise by "a good 20 e first four months of 1993, but tive said it was unrealistic to expect ue throughout the year. Page 15

ges troops for Bosnia: Russia to have pledged troops to monitor rs, which Serbia's president Slobodan promised to seal to deprive Bosnian ties. Page 3

o for libel: Jacques Attali, president in Bank for Reconstruction and said he would sue for libel over plagiarism and inaccuracy in his ut President Mitterrand. Page 3

ending cuts: Chancellor Helmut d sharp public spending cuts as uk warned that government policies sponsible for last month's surge pily growth. Page 2

mens in Italy arrested: Giorgio airman and chief executive of the liary of Siemens, German electronics resided in Milan on corruption charges, connection with an inquiry into to obtain telecom contracts. Page 14

ges regional free trade blocs: Latin American countries should concentrate on regional trade groupings rather than pursue a continent-wide free trade zone, Uruguayan president Luis Alberto Lacalle (left) said in an interview with the FT. He praised Mercosur - a trade bloc made up of Uruguay, Argentina, Brazil - but cautioned against excessive which "is not a reality yet". Page 7

ewing and hotels group, reported drop in first half profit, predicts (tm) as Holiday Inns were hit by the UK brewing business increased visitors. Page 15

ulator sentenced: Japanese tor Mitsubishi Kotani was given "suspended jail sentence for what described as "naked manipulation" s. Page 4

anking has received permission ord Reserve to underwrite and sell ural through its securities arm, becoming US commercial bank to be underwriting powers. Page 17

nc hits exporters: Economic d the strong franc have made an umber of the clients of French export- pay their bills. Page 7

l local US telephone company, plans d 500,000 access lines in nine states itilities, a diversified utilities group necticut, for \$1.1bn cash. Page 17

Group, UK healthcare and catering to move into continental Europe acquisition of the airport restaurant catering business of SAS Service 71.9m (\$110m). Page 15

in violations: Political killings ng in Guatemala, despite the civilian s pledge to end them, Amnesty Interna- Page 6

oins Liggett: Edward Horrigan, the tobacco business at RJR Nabisco, g the cigarette industry as chairman- eutive of Liggett Group. Page 17

valuation battle: Fortis, an financial services group, and Belgian ie Banque are to battle for a stake state-owned savings bank in the f a four-year BF70bn (\$2bn) privatisa- nne. Page 15

MARKET INDICES		STERLING	
2819.7	(-27.6)	New York exchange:	
4.04		London:	1.57
1147.57	(-5.01)	\$	1.5415 (1.5319)
1393.51	(-0.7%)	DM	2.5025 (2.4873)
20,380.79	(+151.40)	FF	8.44 (8.392)
3434.98	(-0.41)	Sfr	2.275 (2.285)
498.41	(-0.91)	Y	170.25 (170.75)
		Index	80.5 (80.2)
BOND YIELDS		DOLLAR	
2%		New York exchange:	
3.034%		DM	1.8285
10 1/2%		FF	5.4745
7.016%		Sfr	1.4795
		Y	111.2
		London:	
5 1/2%	(6%)	DM	1.8235 (1.824)
10 1/2%	(10 1/2%)	FF	5.475 (5.48)
EA OIL (Argus)		Sfr	1.4745 (1.473)
\$18.37	(18.35)	Y	111.5 (111.52)
		Index	84.3 (84.3)

Fringe group blamed for riot ■ growth package to boost economy

Danish tax rates cut as reward for treaty vote

By Hugh Carnegie and Hilary Barnes in Copenhagen and Lionel Barber in Brussels

THE DANISH government yesterday brushed aside violent demonstrations sparked by Tuesday's referendum result endorsing the European Community's Maastricht treaty, and as a reward for the Yes vote announced a programme to stimulate economic growth and employment.

The riots in an inner city district of Copenhagen left 11 demonstrators wounded by police gunfire and 26 policemen injured. They were said by officials to have been the worst peacetime disturbances in Denmark. The government blamed a small fringe group of militant squatters.

Yesterday, the area returned quickly to normal, but local residents were braced in case of further disturbances last night. The government insisted the attacks did not represent the feelings of

- PAGE 2
- Rasmussen is quick to reward Danish voters
 - EC must now make Maastricht treaty work
 - Tensions ease in exchange rate mechanism
 - Editorial Comment Page 13
 - Major postpones ERM re-entry indefinitely Page 14

the vast majority of No voters. Mr Poul Nyrup Rasmussen, the Social Democratic prime minister, condemned the riots as an isolated incident and told parliament - the government would slash marginal income tax rates to bring them closer into line with the rest of the EC. State investment plans to push up growth in gross domestic product from under 1 per cent this year to almost 3.5 per cent in 1994 would also be brought forward. At the same time, Denmark's central bank cut the official dis-



Plainclothes police draw pistols during Tuesday night's demonstration in Copenhagen

count rate to 8.25 per cent from 9.25 per cent and commercial banks announced similar reductions in their lending and deposit rates, which had been held artificially high because of uncertainty over the Maastricht vote. Business reaction was positive. The Copenhagen stock market, which had risen strongly in expectation of a Yes vote, put on a further 2.30 points to close at 303.89. The tax cuts are aimed at galvanising other EC member states to rally behind a beefed-up economic growth package ahead of next month's EC summit in Copenhagen. The Danish presidency of the EC, working with the European Commission, wants member states to consider fresh measures to stimulate growth, mainly through shifting to capital spending, making the labour market more flexible, and other fiscal incentives to create jobs. The growth package and the unemployment crisis in the EC are top of the agenda at a two-day meeting of EC finance

ministers in Kolding, Denmark, which starts tomorrow. In Brussels yesterday, Commission officials hailed the Danish endorsement of the Maastricht treaty in Tuesday's second referendum as giving a "psychological lift" to the Community after several months of drift. The positive vote has given new impetus to the Danish presidency. Danish officials vowed to press for agreement on issues such as a new trade liberalisation

Continued on Page 14

Saarstahl failure blamed on EC policy

By Ariane Genillard in Saarbrücken and Quentin Peel in Bonn

LEADERS of the German steel industry expressed indignation and bitterness yesterday at the failure of European steel restructuring policies, in the wake of the collapse of Saarstahl, the French-owned steelmaker in the depressed German Saarland.

Thyssen, Germany's largest steel manufacturer, condemned the policy of allowing continuing state subsidies to ailing producers, and said the rest of the industry would be threatened if they were allowed to restructure their debts.

The steel manufacturers' federation lashed out at the failure of the European Community to curb production at Italy's state-owned Iva and at CSI in Spain, where the companies' debt burdens far exceed those of Germany's private sector producers. The industry condemned the policy of interfering in free market competition to protect the weakest manufacturers.

The anger of industry leaders was matched by the bitterness of workers at the Saarstahl plant, in Kiersa, above all, for the loss of their jobs.

Saarstahl filed for bankruptcy on Tuesday night after France's Usinor-Sacilor, which owns 70 per cent of the holding company, decided it could no longer transfer funds to cover estimated losses running at DM30m (\$18.6m) a month.

Hopes for an immediate rescue faded as both federal and Saarland authorities said no new subsidies were available. Since Saarstahl first ran into difficulties in 1978, it has received some DM3.7bn in direct subsidies, soft loans and credit guarantees.

"We are the victims of the European Community's inability to devise a coherent steel policy," said Dr Werner Franz, a member of the works council at the plant, which employs 7,200 people. "We hope the European Commission

Agreement would help open up German utilities to overseas competition Anglo-US group in E German energy

By Judy Dempsey in Berlin

A UTILITIES consortium headed by Britain's PowerGen and the US-based NRG, are close to completing a contract which will give them a 44 per cent share in generating power in Schkopau, eastern Germany.

If completed, the deal could help to open up Germany's utilities to outside competition, officials from Vereinigte Energie AG (Veag), the east German utilities company, said yesterday. The contract involves Power-

Gen and NRG building a 400MW power station at Schkopau, near Leipzig.

Until recently, Veag Kraftwerke Ruhr (VKR) had planned to build a 900MW station at Schkopau. VKR is a 100 per cent subsidiary of PreussenElektra, which undertakes the electricity operations of Veag, the German energy-based conglomerate.

The decision to allow PowerGen and NRG to negotiate a 44 per cent share at Schkopau follows lengthy negotiations between the Treuhander, the agency responsible for the priva-

lisation of eastern German industry. Veag, which controls 70 per cent of the region's energy production, and VKR.

Veag is technically still under the Treuhander, but legally it is controlled by Germany's three giant utilities companies, and the five smaller ones, following a treaty signed in 1990. These include PreussenElektra, RWE Energie and Bayernwerk, western Germany's powerful utilities.

Under the terms of the treaty, the Stromvertrag, eastern Germany's regional utilities are obliged to buy 70 per cent of their

power from Veag over the next 20 years as a means of underwriting large investments needed to modernise eastern Germany's energy sector. This treaty, however, has had the effect of making it difficult to introduce competition into the energy sector in the region.

The consortium had earlier tried to seek a stake in generating power at Lippendorf. But the negotiations collapsed because PowerGen and NRG could not seek guarantees to gain access to the high voltage grid in order to sell its energy. The grid is controlled by Veag.

Technical insolvency at top Hungarian commercial banks

By Nicholas Denton in Budapest

HUNGARY'S two largest commercial banks are technically insolvent and require big injections of capital, according to a World Bank paper.

The two banks, both state-owned, are Magyar Hitel Bank, heavily exposed to Hungary's troubled engineering industry, and Kereskedelmi Bank, main lender to the country's drought-stricken farms.

They have inherited debts from the Communist period, and have suffered from bad debts caused by the three-year Hungarian recession and a collapse in industry's sales to former Comecon countries.

Magyar Hitel Bank has Ft34.6bn (\$390m) of loans classified as bad, doubtful or sub-standard, according to the study. Taking those loans into account, the bank has negative capital of Ft19bn, equivalent to 7.9 per cent of its risk-weighted assets. Kereskedelmi Bank has Ft26.3bn in classified loans, with negative capital of Ft13.7bn, 8.5 per cent of assets.

The report, a World Bank Internal aide-memoire obtained by the Financial Times, says: "At present, most of the banks are technically insolvent according to inter-

nationally accepted accounting standards."

An infusion of Ft100bn (\$1.1bn) of new capital is required to bring the banking sector's capital up to a 4 per cent of lending, the target the World Bank recommends. Half the new capital is needed for the two big banks.

The plight of the banks came as little surprise to Budapest's close-knit financial community, which believes the two banks are "too big to fail" and will be rescued by the authorities.

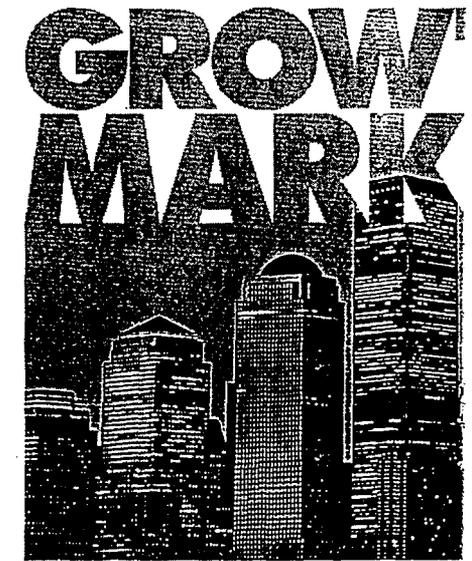
Mr Gyorgy Suranyi, managing director of Central-European International Bank, said: "A bank which enjoys the umbrella of the state cannot fail."

Mr Istvan Szalkai, president of Hitel Bank, expected little market reaction, saying that the money market had already discounted the bank's loan losses by reducing credit limits.

Central bankers at the National Bank of Hungary professed confidence that depositors, knowing the banks were liquid and would be recapitalised, would not panic.

Under Hungarian accounting principles, less conservative than the World Bank's, the two banks still have positive capital.

Background, Page 15



Between 1982 and 1992, the dollar volume of stock Nasdaq Stock Market has increased by 958% - almost achieved by the other major US stock exchange.

Last year, the Nasdaq Composite Index achieved a record high, with the S&P 500 and the Dow Jones Industrial

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**CENTRAL AND EASTERN EUROPE
REGIONAL ENERGY EFFICIENCY PROJECT
EUR-0030-C-00-2053-00**

**Energy Pricing, Energy Efficiency, and
Energy Sector Restructuring Component
Poland - Support to Energy
Restructuring Group**

Task Completion Memorandum

Prepared for:

U.S. Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy,
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Energy and Infrastructure Division

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February 1996

POLAND TASK #1

SUPPORT TO ENERGY RESTRUCTURING GROUP

1. Background

1.1. Energy Sector Restructuring Goals

The nation of Poland faced many challenges in the restructuring of its energy sector to prepare for a competitive energy market system that would lead to the eventual privatization of the sector. In its 1991 Letter of Sector Development Policy to The World Bank, the Ministry of Industry and Trade (MoIT) defined its strategic goals for the power sector:

- ▶ economic level electricity pricing for consumers and cessation of consumer subsidies;
- ▶ electricity supply security (reliability of service to the customer);
- ▶ environmental protection improvement;
- ▶ introduction of competition among power generating companies;
- ▶ reduction of natural monopoly within the transmission and distribution systems through "third party access";
- ▶ privatization and international ownership within the generation sector; and,
- ▶ assurance of cost transparency across the power industry.

1.2. Energy Restructuring Group Role

To assist the Polish Government in this effort, the European Commission, the United States Agency for International Development, and the United Kingdom Know-How Fund created a team of advisors in December 1992. This team, the Energy Restructuring Group (ERG) provided expert advice and information for MoIT and individuals and agencies within the Government on the transition of the energy sector to a market based economic system. The ERG covered four industry sectors: power and lignite, hard coal, gas, and district heating. The four functional sectors are: legal, regulatory, corporate planning and privatization.

The three functions of the USAID-funded team were electric power and lignite, corporate planning, and privatization. Each function was the responsibility of one US expert and a Polish "twin" or consultant working together. The twin concept proved to be valuable as an efficient instrument for the transfer of knowhow from the foreign experts to their Polish counterparts and as a facilitator of contacts and promoter of understanding between the ERG and the Polish

sector companies and institutions. The twins assisted in drafting necessary laws, regulations, statutes, business plans, corporate plans and structure of the sectors and enterprises. They also identified areas where additional training, technical changes and supporting structures are required within a restructured energy sector and its subsectors.

2. Objectives

The objectives of the ERG were:

- ▶ To provide a readily available consulting resource for the Minister of Industry and Trade and other individuals and agencies within the Government to obtain expert advice and information on the transition of the energy sector to a market based economic system.
- ▶ To create a base of knowledge and a group of experts that will assist the Government to carry on with the restructuring and privatization of the energy sector after disbandment of the ERG itself.

2.1. ERG as a Consulting Resource

Not only did the ERG provide a consulting resource for the MoIT but they also provided continuity of effort and of approach in a situation of frequently changing ministers. The ERG's presence enabled ministers to get neutral advice counterbalancing political lobbying of narrow sector interests. On the other hand, meeting with individual companies revealed the lack of coordinated government policy and the many bottlenecks that are obstacles for commercialized companies to act according to market rules. The neutral position of the ERG served to bring about a certain harmonization of views among sector staff.

On the power sector level, the ERG provided insightful comments, pointing out weaknesses in the original concept for power sector restructuring, thereby contributing to make the structure more realistic. On the enterprise level, ERG advised the Polish Oil and Gas Company on restructuring and corporate planning and made top management aware of the incapacity of some division managers to lead independent business units.

2.2. Energy Law Advice

The draft Energy Law now under review sets out the principles for the regulation of supply and use of fuels. There is general agreement among experts that the November 1994 draft is of good quality and that the ERG was instrumental in getting it to the present stage of development. It is a testament to the success of the ERG, that Mirek Duda, the power and lignite twin, was asked by the minister to prepare the Government's energy policy paper which accompanied the introduction of the draft energy law in Parliament.

The draft law allows for retail customer prices to be established by the servicing distributor and approved by a regulatory authority. Under the draft law, power suppliers, PPGC and distributors will compete for servicing the large consumers on the system, thus providing them with economic pricing. Internal power system transaction prices would be established by competition.

2.3. Creation of a Base of Knowledge

As a result of the training of the twins, the Government now has good consulting staff to draw on for advice on the restructuring and privatization of the energy sector after disbandment of the ERG itself. The original idea of recruiting staff on national Government salaries, however, had to be dropped. Salaries were too low to attract the high caliber staff needed to assist in the restructuring of the sector. The Polish staff had to be attracted from the outside or from high caliber internal staff, which was on the way out and had no intention of returning to the ministry.

3. Work Performed

3.1 Major Functional Areas

The work performed under this task can be best described in terms of the major functional areas for which the US-funded team was responsible: power and lignite, corporate planning and organization and privatization.

Power and Lignite

The ERG power and lignite specialists' original assignments included the evaluation of the appropriate size of generation, distribution and transmission companies with a view to developing a logical grouping of enterprises within the sector. However, in 1990, before the ERG's establishment, the Polish Power Grid Company (PPGC) was charged with the lead for restructuring planning and organization in the power sector. As a result, the ERG worked with power plants, distribution companies and others in the power sector on an individual basis. The main tasks performed by the power and lignite specialists were:

- ▶ the review, and editing of the energy law
- ▶ the preparation of different discussion papers on the organizational structure, regulations, trading principles, planning methods, financing and investment appraisal in the power industry for MoIT, PPGC and power companies
- ▶ advising managers of power and lignite centers on their plans for restructuring power plants and associated lignite mines
- ▶ the review of companies' business plans and advising the managers of distribution companies in preparation for their internal restructuring and privatization
- ▶ the organization of seminars for the managers of power companies on corporate planning under market conditions and on regulation and competition in the United States

The main aim of reform in the generation subsector was the creation of a certain number of commercialized and then privatized generating companies that could compete among themselves and at the same time be economically strong. The plan was to establish seven holdings of generating companies with capacities of about 4000 MW each, consisting of coal and lignite fired plants. The association of power plants and the trade unions fear that smaller holdings will not be economically viable for the investments required and will not be competitive in the European electricity market. MoIT and the Antimonopoly Office pressed for establishing four holdings to create better conditions for competition. ERG's specialists advised to carry out a detailed study to determine the optimal size of power holdings for Poland.

Not only the number of holdings but also the method of establishing these holdings has been a subject of debate. The two methods under consideration are bottom-up and top-down. The bottom-up method is preferred by the managers of the enterprises and the trade unions. It provides for commercialization of existing State owned enterprises and then for grouping them into the appropriate holdings. MoIT, however, insists on the top-down method which assumes first merging the existing State owned enterprises and then transforming them into commercialized holdings. The ERG suggested that the managers of each lignite power complex elaborate their individual restructuring path, in agreement with the trade unions and propose them to MoIT for approval. At least two power centers successfully followed this advice.

The larger combined heat and power enterprises were transformed into joint stock companies with the State Treasury as a single owner. Privatization of these companies with the participation of local authorities and strategic investors was to have been launched with the privatization of Krakow-Leg. This was derailed by the opposition of Solidarity and stopped by the Minister of Privatization. The decision does not bode well for foreign investment.

Pumped-storage plants that were independent State owned enterprises were originally to be incorporated into the PPGC. Instead, they were transformed into joint stock companies and grouped into a larger joint stock company in which PPGC holds the majority of shares.

Distribution companies have been commercialized without reducing their number. Privatization of distribution companies is foreseen in the near future.

Corporate Planning and Organization

The main focus of this advisory effort was the promotion of a proper institutional framework for the process of transformation including:

- ▶ an Energy Law favorable to competition
- ▶ the concept of licensing and regulation of natural monopolies

- ▶ clear separation of ownership and management roles of the Ministry in the interim period and the establishment of the Energy Regulatory Authority (ERA) as an independent state organ.

The ERG Corporate Planning Specialists developed papers on planning and a program for face to face discussion of planning processes. At the request of Polish counterparts the ERG shared related US issues and experiences through regular discussion papers. The Corporate Planning team prepared power sector enterprise managements and boards for directing and overseeing activities of newly-formed joint stock and limited partnership companies.

The new energy law will provide the support for the restructuring goals set by the government as well as for the ERA. MoIT consulted ERG extensively on the draft of the law that under review by the government. At issue are the formation of generation holding companies, the concept of “free market” and “regulatory market,” and the position of the PPGC.

Privatization

While the State has set as its goal the privatization of State enterprises and the entrance of new investors and competition into the power sector, its actions to date have detracted from such investment. Among reasons for postponing the model privatization project backed by The World Bank were: conflicts between the government’s desire for initial financial gain from sale of assets and long term benefit of a strong industry; conflicts between State and local government over ownership; and, employee union actions.

There have two main reasons for delay: the lack of an energy law and the drafting of regulatory licenses. There is some uncertainty as to how the network enterprises will operate, which complicates the development of specific schemes for their regulation. Nevertheless, energy laws and regulations are key to the success of privatization because they provide investors with fair opportunities to earn compensatory returns on their investments in energy enterprises and some hope of earning higher than break-even returns.

3.2 Counterparts

The work conducted under this task involved several organizations. The Ministry of Industry and Trade was the primary counterpart. Others included the Department of Energy, the Polish Power Transmission Company (PSE), the Polish Oil and Gas Company (PNiG), the Ministry of Physical Planning and Construction (MPC) and individual companies.

3.3. Personnel

Each function was the responsibility of one US expert and a Polish “twin” or consultant working together. Staffing was as follows:

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**DISCUSSION PAPERS
AND
OTHER DOCUMENTS**

WARSAW, 1994

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DISCUSSION PAPER
UNITED STATES' UTILITY REGULATION

QUESTION: DISCUSSION OF UTILITY REGULATORY SYSTEM IN THE
UNITED STATES OF AMERICA WITH SPECIAL ATTENTION TO THE
ELECTRIC POWER INDUSTRY

JOHN W. ARLIDGE; DORADCA ELEKTROENERGETYKI I WEGLA BRUNATNEGO

PURPOSE OF REGULATION:

The purpose of public utility regulation is to assure the furnishing of adequate service to all public utility customers, without discrimination and at the lowest reasonable price consistent with the interests of both the public and the utility. In the United States the regulatory system began in 1887 with a federal agency for regulation of railroads. The power of the regulatory authority is to carry out the policy of law. It has no authority except as is expressly conferred upon it by its legislative statute.

In the United States, public utility regulation plays an important role in the national economy. Regulation has made it possible for private enterprise to operate industries which are of a monopoly character. The industries critical to the national security, such as of electricity and natural gas, are the foundation of the economy but by their nature are not subject to the same forces of competition as other industries. In the United States private industries operate a larger portion of these vital industries than else where in the world. This is possible because of a balanced system of regulation. This system is designed to protect the consumers against exploitation where competition is unavailable or inadequate and to insure the industry serves the public interest. At the same time it provides the industry the necessary assurance of an opportunity to earn a reasonable return on investment.

PUBLIC UTILITY

The test as to whether or not a company is a public utility is the dedication by that company to supply its production or service to the public as a class. This is distinguished from

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serving only particular individuals from petrol stations or the like. Fundamentally, utilities are natural monopolies. Users of electricity, for example can not normally bargain with a company for such services. The price of the commodity is fixed and no amount of effort by the individual can change the rate. Thus, the public utility is granted a right to sell its product at a price determined to be proper by a regulatory authority. In accepting this regulated pricing policy the utility is in turn protected from encroachment by another public utility selling the same product. On the other hand the utility is not protected from competition by corporations or individuals which are in a private capacity providing the same product or similar service. To be more implicit, an individual can build a generator to supply a single customer and not be considered a utility. However, if that same individual plans to use that same generator to supply two or more customers, than that individual is a utility and must file for a franchised area. The regulatory authority may or may not allow that individual to enter into the service area as a public utility.

If an enterprise accepts public utility status it must accept regulation of revenues and service, and it must conduct its business in an open manner transparent to the "world".

In the US there are many different forms of public utilities. There are power sector utilities that are privately owned; utilities owned by the people served (cooperatives); utilities that are owned by the local city, county, State or Indian government; and there are "federal power marketing agencies" that act in many ways as a utility. Power utilities can have generation, transmission, distribution of power and sales to the ultimate customer. On the other hand there are utilities that have only one of either generation, transmission, or distribution systems; or utilities that have two or more of such obligations. There are also utilities that have no assets but act as brokers

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of power by buying power and selling the power to the ultimate consumer. In short, you name it and the United States probably has a public utility system that is its equivalent.

It is therefore a requirement in the States that the regulation is flexible enough to accept any type of public utility present. Regulation of different types of utilities and utility markets must anticipate a variation in the method of regulation. Important is the history of a large variety of types and forms of regulation that have been used in the United States. Such experience brings the knowledge necessary for developing a new regulatory system such as that required in Poland. It would be impossible in this discussion to cover all the problems, the successes and the failures that have occurred in the US regulatory systems. Therefore, it will be necessary to stay with basic concepts. A separate paper will be prepared to discuss the successes and failures of regulation in the United States.

REGULATION OF UTILITIES' SERVICE

The question of adequate service, or security of supply, is one of much importance in Poland. How in a regulated market can the State assure that there will be a proper balance between supply and demand? As stated above the utility when accepting a secured service area, defined by State and local governments also accepts the obligation to serve. An unwritten contract between the regulator and the utility states, that the service area is protected as long as the utility service is adequate. To guarantee that there will never be situations of over or under supply is ludicrous. No one can anticipate the future with full accuracy. However, prudent effort on the part of the utility should provide a measure of confidence that the supply will be adequate for a reasonably forecasted future.

It is up to the regulator to allow an adequate return on the investment in new plant that the utility made in good faith to

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meet anticipated demands. In the US a number of regulatory authorities have in the recent past refused to allow return on a number of large investments made by the utilities. The refusal was justified because of reduced consumer demands caused by current world and local economic changes. This occurred with the knowledge that the investment commitment was made many years prior to the change in economic conditions. Those particular regulators broke their unwritten contract with the utilities.

The resulting reaction of the utilities has been a major change in the utility commitment to the consumer and the system. Many utilities, who in the past have constructed generation stations to meet their consumer requirements are taking the position that major investments in power generation must come from other sources. This has given rise to the independent power generator who is not a utility and therefore not subject to regulatory authority for pricing purposes.

The regulatory contract between the utility, the consumer and the regulator must be explicit and must be supported by all parties. If the contract is broken by any one of the parties then a problem will result. In the case where the utility was not allowed to recover investment in generation, an independent industry has developed. The market is the dominate player in the story. If there is a demand and the buyer is willing to pay the price, there will be a supplier.

FEDERAL REGULATION

On the federal government level the utility is regulated by the Federal Energy Regulatory Commission. FERC regulates inter State commerce and inter utility trading. FERC has no authority to fix rates or prices for any purpose other than the sale of electric power at wholesale in interstate commerce. This restriction on federal regulation is being altered by the introduction of independent generation companies and power brokerage companies

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but for the most part the FERC is limited in its authority to inter State commerce.

ACCOUNTING STANDARDS AND PRINCIPLES;

Important is the fact that the Federal Power Act gives the FERC authority to prescribe a system of accounts. Clearly regulatory authorities have a need for recurring information to guide them in the decision process. The general public and investors share this same need for consistent information on the company's accounting and company's financial situation. In exercising the FERC responsibility under the Federal Power Act the Commission requires the maintenance of a comprehensive statistical data base for the entire power utility industry, including activities that are not subject to FERC regulation. This effort serves many purposes including but not limited to;

- 1) a system of accounts that is uniform throughout the regulated industry;
- 2) a comprehensive set of statistical information on one of the largest industries in the US;
- 3) the standards for audit of a company's performance for both the owner and the debt holder; and finally,
- 4) the basis for a uniformly applied and consistent price regulation throughout the country.

INDIVIDUAL STATE REGULATION

The State regulatory authorities come in various shapes and sizes; either appointed or elected. However, the State regulatory systems have in common their independence from the day to day politics and governmental authority applied to other agencies of the State government. State regulatory authorities are responsible for the review of the quality of service and the assurance of a reasonable price to the consumer while supporting the financial health of the prudently managed utility. The State regulatory body is responsible for the regulation of a utility within the State's boundaries. If the utility's service area

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extends beyond those boundaries, the utility must answer to each State within which it serves.

The State sets by law the methods of regulation and the authority of the regulator. The regulatory authority establishes the area in which a utility may serve, regulates retail consumer rates, approves the level and quality of service through a system of approved tariffs and service rules established by the utility; and approves the utility's accounting for assets whose cost may be recovered through prices charged the consumer. The regulator can not make management decisions for the company nor can the regulator interfere with the management of the company. For the most part these requirements are fairly uniform from one State to another. However, each State enacts its own regulation independent from the federal government and adjoining States.

LOCAL GOVERNMENT REGULATION

The utility must also obtain from the local community the permission to install its poles and wires and other facilities in the streets, alleys and public places. When such a privilege is accepted it is done so through a contract between the local community authority and the utility. The contract dedicates the utility's equipment to service that area and in return the utility obtains the right to use the community's roads and rights of way to place its poles and lines. This creates the obligation of the utility to serve the community's present and future needs and obligates the community to provide for such service in its land use planning.

REGULATORY AUTHORITIES' ORGANIZATION

Regulatory authorities in the United States go by various names and are established in various ways. The authorities are established to provide the balance between owners and customers in an area where competition does not exist.

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The public as well as those regulated, must fully accept a regulated market. Public acceptance strengthens the regulatory process. The transparency of the regulatory authority and full disclosure, in published form, provides for both public and industry acceptance. In the US the regulators are either appointed or elected. Their terms in office rotate so that the majority of the body has been in office for a significant period. In appointed authorities the members must come from differing political parities.

It is the responsibility of those appointing utility regulators to assure that only persons of high moral character and technical capability are selected to positions in the regulatory body. The regulators must be outside and removed from the day to day political theater. The use of political influence on regulator's decisions will prevent acceptance of the regulatory authority as a true abater for the consumer. In the United States the regulator is not to be subject to anybody in the government but only to the consumer; free from political domination or control or the probability or possibility of such control. The regulatory bodies are separate and apart from any other department of the government; and not subject to orders of the Governor or the President.

REGULATORY TRANSPARENCY

The transparency demanded of a public utility must also be demanded of the regulatory authority. The individual within the regulatory authority and the regulatory authority as a whole, must equally accept the need to be free from political influence. Neither industry nor the regulatory must;

- 1) grant any undue preference or advantage to any person or subject any person to any undue prejudice or disadvantage, or
- 2) maintain any unreasonable difference in rates, charges, service, facilities or in any other respect, either as

between localities or as between classes of service.

Any variation from this position can only come from an elected political government. The requirement must be established through legislation. Subsidies or requirements for favorable rate making (price setting) must be mandated through legislation and not created through the regulatory authority. When the government takes such action it must insulate the utility from loss of revenues and any form of financial penalty. In short it is a government policy not a utility or regulatory decision.

REGULATORY PROCEDURE

The need for regulatory authority independence and protection from outside pressures is most obvious in establishing rates and prices. The making of public utility rates (pricing) requires four basic determinations. These are:

- 1) What are the utility's gross revenues under the existing rate structure?
- 2) What are the utility's operating expenses, including maintenance, depreciation and all taxes, appropriately incurred to produce those gross revenues?
- 3) What utility property provides the service for which rates are charged and thus represents the base (rate base) on which a return should be earned?
- 4) What percentage figure (rate of return) should be applied to the rate base in order to establish the return (earnings on invested capital) to which investors in the utility enterprise are reasonably entitled.

In the United States these are generally determined through examination of data for a "test period" of one year.

REGULATORY CONTROL OF REVENUES

Proceedings to determine the proper rates for service or product pricing require detailed analysis of the utility's supporting data. At the same time, authorized consumer challenges must be

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reviewed. All this must be in the open and any decision of the regulatory authority must be justified by the data available. The authority can not make arbitrary or capricious decisions, especially on the matter of rates. The general principle followed in the United States is:

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 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.

The rate making process, fixing of just and reasonable rates, involves a balancing of the investor and consumer interests.

REGULATORY RATE STRUCTURES

With the establishment above of the background of regulation and the principles for rate making or pricing, the actual rates or prices can be established. In the United States the regulatory authority directs the utility to file rate structures that will give the utility the opportunity to collect the approved revenues

including the reasonable return on investment. The utility will structure its rates such that the rates will;

- 1) provide the necessary revenue requirements,
- 2) distribute the burden of meeting those revenue requirements fairly among customers, and
- 3) discourage the wasteful use of public utility service while promoting all use that is economically justified.

The rate design must also avoid discrimination, be simple and understandable for public acceptance, and have simple and feasible application.

The regulatory authority acceptance of the rate structure will be based on the utility meeting the above criteria. The authority will limit its review to assuring itself only that the rate design is proper and will provide the necessary revenues. After this the regulatory authority is responsible to assure that the rates are properly applied, provide the approved revenues, are consistent with the economic conditions of the present period, and are fairly applied.

REGULATORY EVOLUTION

The regulatory system in the United States is continually undergoing change. The effort is always to reach the ultimate in market efficiency and energy efficiency. In the last thirty years the market efficiency has been altered to include environmental efficiency. As such the politicians have begun a dismantling of the regulatory system that has served the US consistently with only minor variation since 1935. The federal law now provides that the State regulatory authorities require the purchase of power generated from independent power generators and requires that utilities with transmission lines between two or more utilities allow others to use that transmission system so long as the consumers of the utility, owning the transmission line, are not harmed. These changes are introduced to provide for energy and environmental efficiencies.

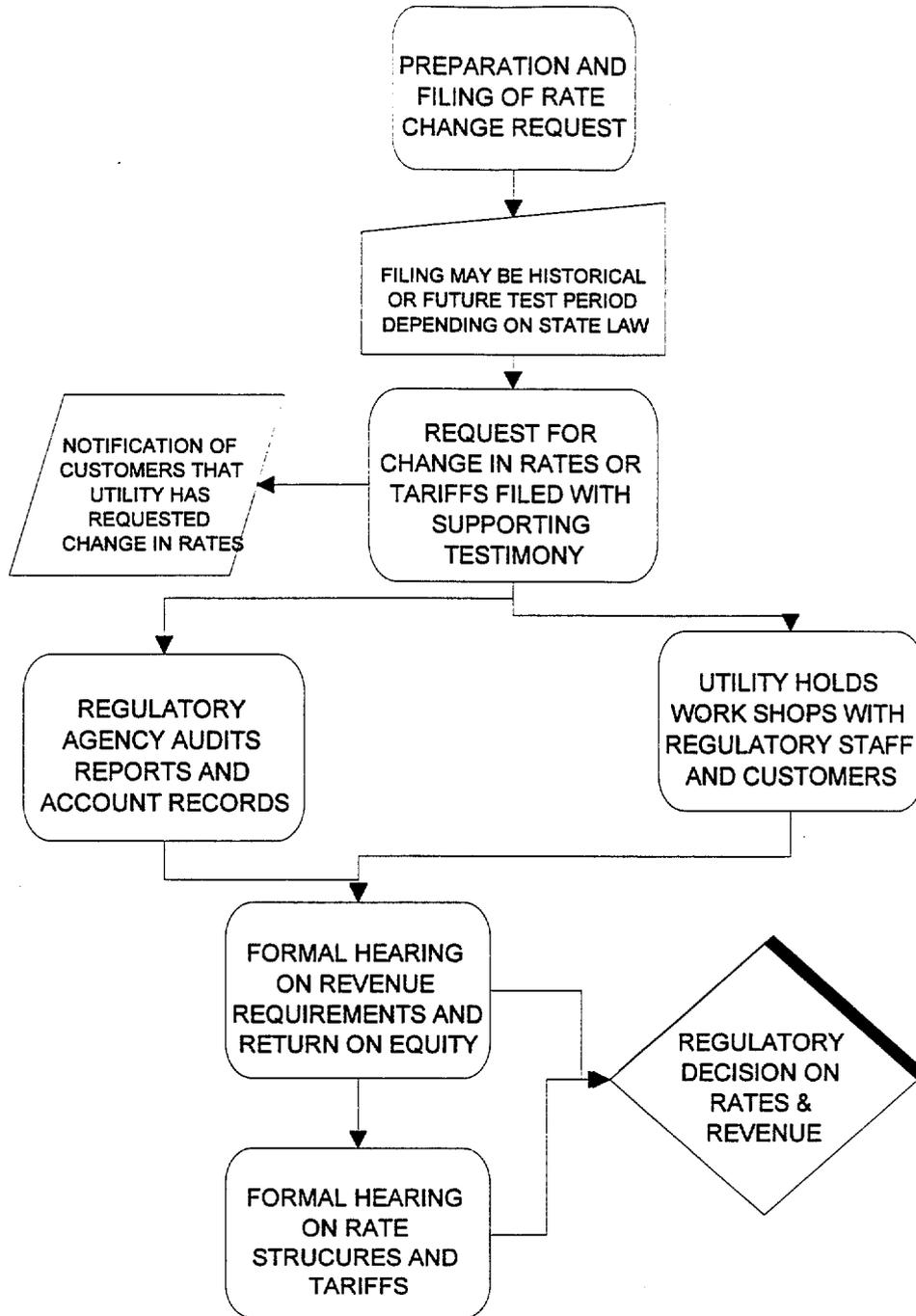
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The State utility regulatory authorities are now requiring the utilities to consider energy saving methods as an alternative to new generation to serve growth in power usage. The regulator is requiring the utility to construct new system facilities and to operate the existing power system using as its priority environmental protection as opposed to economic efficiency. Economic analysis of future facilities must include both internal utility costs and "externality" costs or consideration of those costs which may be placed on others if a facility is constructed.

SUMMARY

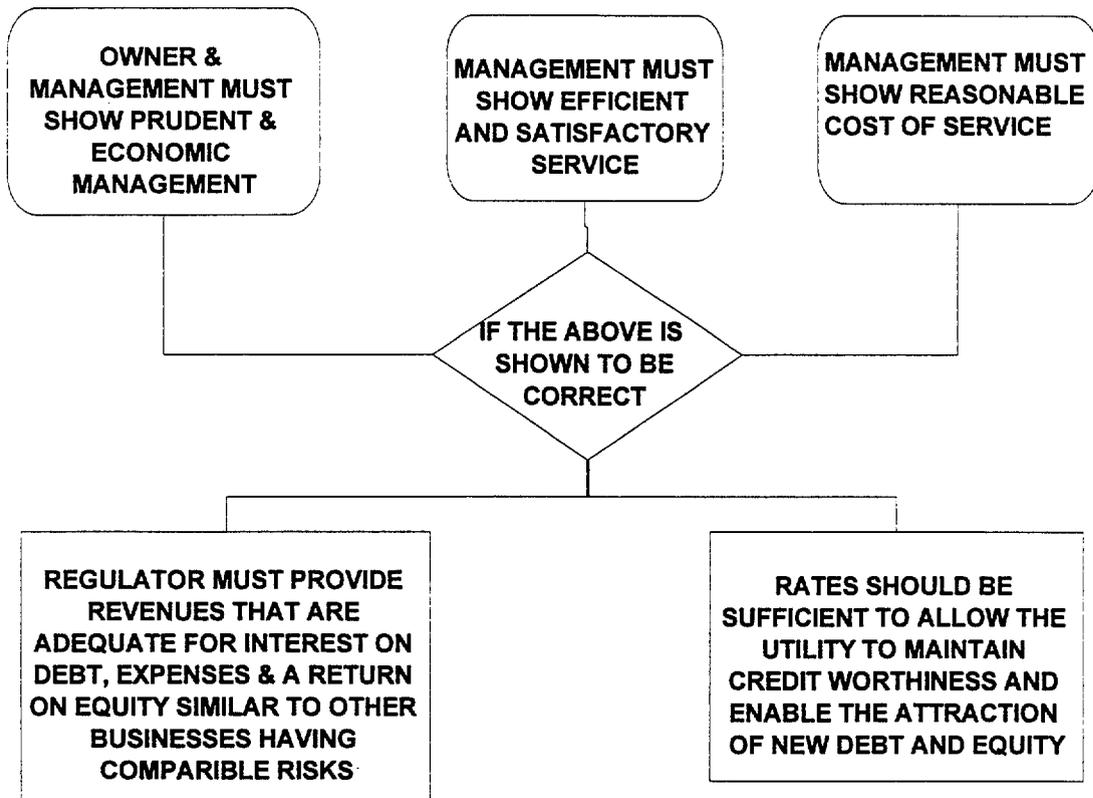
In summary the utility regulatory system in the United States is in many ways simple and in many ways complicated. It is in continuing change. However, the system has allowed for private ownership of businesses that are by their very nature public necessities for life, or are monopolies of requested services. The large dominance of private ownership of public utility systems is known only in the United States. This private enterprise system has been accomplished while maintaining the lowest energy prices and the most secure energy systems in the world.

REGULATORY HEARING PROCESS
FOR REVENUE ADEQUACY



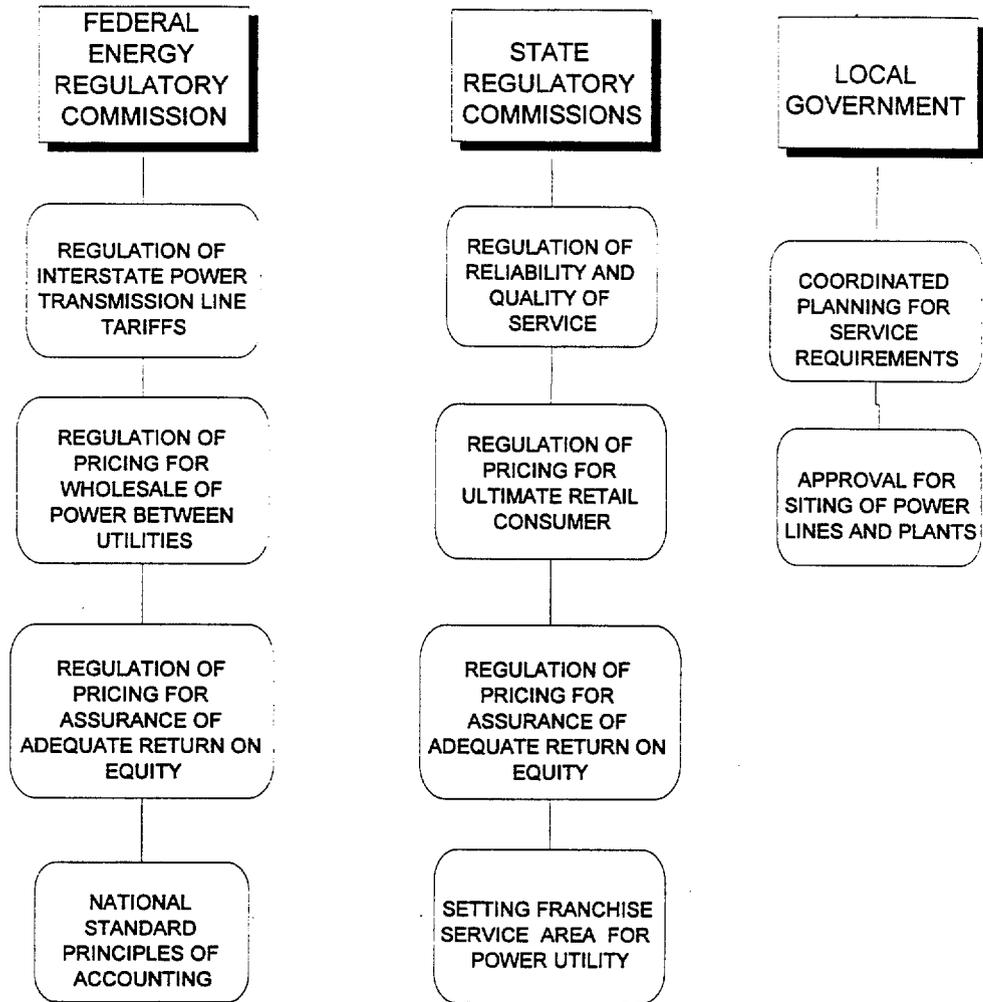
REGULATORY BALANCE
BETWEEN UTILITY OWNER AND CUSTOMER

REGULATOR MUST
BALANCE THE NEEDS OF
THE CUSTOMERS WITH
THE PROTECTION OF
THE OWNERS
INVESTMENT



GENERAL SERVICE REGULATION OF UTILITIES

UNITED STATES OF AMERICA



DISCUSSION PAPER
POLISH POWER GRID CODE

QUESTION: REQUEST FROM THE MOIT STAFF ON DISCUSSION OF THE
PROPOSED NATIONAL GRID CODE

JOHN W. ARLIDGE; DORADCA ELEKTROENERGETYKI I WEGLA BRUNATNEGO

BACKGROUND:

The Staff of the Ministry of Industry and Trade have asked for comments on the document prepared by the Polish Power Grid Company (PSE) called the National Grid Code. This is one of a number of documents that the PSE is preparing now to develop a market or trading arrangement for the initial restructuring of the power market in Poland. The documents include the "Trading Arrangements", a series of nine working papers, various contracts by and between the power entities, and finally the grid code. These documents are patterned after and follow closely the wording of the documents developed for the United Kingdom power utility restructuring effort. At the same time there is the effort to develop the new Energy Law together with the required secondary legislation and regulation.

In the new Energy Law the Ministry of Industry and Trade will be responsible for the national energy policy. The law will establish an Energy Regulatory Authority. The Regulatory Authority will take the place of competitive market forces where no competition exists, i.e. natural monopolies and will assure quality of service for the energy customer.

Within the general scope of restructuring of the sector, the PSE is charged with the "development of the national power system". PSE considers this charter to carry three major obligations. Those obligations are; the assurance of a reliable supply of power, developing a market system that will ultimately lead to a fully competitive market and to reduce the environmental impact of the industry. Although the PSE has the responsibility for development of the national power system, it will be the power distribution companies that will have the obligation to serve the ultimate customer. The PSE draft contracts with the distribution companies state that the distribution company is obligated to forecast its customers' needs and shall be responsible for the costs resulting from inaccurate forecasts.

The PSE and the Ministry of Industry and Trade have chosen a path similar to that of the United Kingdom in reaching a competitive market and fully privatized power system. This is a draw back since the UK system is still evolving and all the problems of the UK are looked at as potential problems for Poland.

One area where the PSE differs significantly from the UK counterpart model is the relationship between the transmission company and the distribution companies. The Ministry has taken the position that the PSE will be a State owned and controlled company. In the UK of the transmission system supervisory board

is controlled by the power distribution companies. With the Polish model the distribution companies have no direct voice in the operation of the transmission system. Thus, among other foreseen difficulties, the jurisdiction and responsibility for reliable service to the customer is seen as a very contentious issue in the future.

Another issue that has been much recited by the World Bank is the need to keep the generating and distribution companies from becoming too dominant. This is always stated as the need to stop any return to the Polish Power and Lignite Board that existed during the Communist command market because the Board was too strong and could control the whole economy. How the PSE, in almost the same dominant position, will be any different from the Power and Lignite Board is unclear to many. An independent regulatory authority will assure price regulation and quality of service but it is unclear how the Minister, the regulatory authority and PSE will interface.

It is necessary to add here that the personnel of the PSE are attempting to assure that other power sector companies are in some way involved in studies and decisions that would effect their collective future. However, the PSE personnel effort has not been successful in preventing the growing perception, among the rest of the sector, that PSE is a dominating dictatorial body.

DISCUSSION:

With the above as background it is necessary to discuss another issue before evaluation of the Grid Code. As pointed out above there are several documents being developed at the same time. The documents for the most part are being initiated by a British consultant along the lines of the UK system. The PSE personnel are of course active in the development of these documents but there seems to be some lack of overall planning or coordination. Each of the documents (the Grid Code, the working papers, the contract drafts, etc.) refer to similar or the same terminology without a common definition. Also, many of the considerations in one documentation, say the working papers, are repeated in another document, say the Grid Code. An example of this problem is the use of the term "dispatch". In some documents the term is used to describe both the dispatch and the scheduling of power. In technical and legal documents, this simple discrepancy will create massive confusion. When there is continued repetition of the same subject in different documents conflicts between the documents will develop.

The sector personnel as they review the draft documents have a growing misunderstanding of the roles of the Ministry, the PSE and the proposed Energy Regulatory Authority (ERA) (anticipated under the new energy law). There is confusion as to what regulatory functions each of the three will have and what the relationship is among the three and between each and the various

sector companies. An example of this is the use (within the last draft of the working papers) of the ERA as an arbitrator to settle business disputes among the companies. In another case ERA was actually given the responsibility to hire and fire the head and staff for a proposed committee established to manage certain contractual arrangements.

In the Grid Code the Minister of Industry "will issue ordinances defining specific terms of licensing". Certainly there is a difference of opinion on the extent the Energy Law will delegate licensing matters to the Minister and to the Energy Regulatory Authority. The concept of an independent regulatory authority can not exist if the Minister is forcing the Energy Regulatory Authority to take actions through Ordinances and directives as specified in the Grid Code. This becomes more vexing when the ownership of the PSE is held by the Minister.

At this point in time with the overall sector policy and restructuring principles still under development by the Ministry it is difficult to make comment on any one document without qualifications as to the principles and assumed policy that is the basis for the comment. Thus, it is necessary to return to the statement at the beginning of this discussion. The PSE is responsible for assurance of a reliable supply of power, developing a market system that will ultimately lead to a fully competitive market and to reduce the environmental impact of the industry. The Energy Regulatory Authority will be an independent agency that will replace the competitive market forces where natural monopolies exist and assure the quality of service to the energy customer. The Minister will be responsible through the Council of Ministers for the establishment of a national energy policy.

There is a clear and desperate need for greater understanding by the players in the power sector. Only through understanding can there be a true commitment on the restructuring of the sector. Understanding can come only through committed and structured participation by all of the players in the sector including the regulators, the companies, the sector employees and above all others, the customer. Each of the companies including PSE, must understand that they exist to serve a customer. To serve that customer the company must know who the customer is and above all else what the customer wants and needs. How can a Grid Code be developed by the PSE and accepted by all PSE customers if there was no chance for all of the players to participate in a meaningful way? Use of single individuals representing an entire subsector or giving the companies relatively short periods for review and comment on documents will not be considered acceptable participation.

There are two suggestions that this author has put forward over the last year and a half. This is an appropriate place to repeat

them.

1. There is a need to establish an interim regulatory committee. This committee would be without the legal authority anticipated for the ultimate Energy Regulatory Authority but it would take all actions and perform all functions anticipated to be assigned the Energy Regulatory Authority in the new Energy Law.

This interim committee would allow for the training of necessary personnel and members of the committee. It would be a vehicle for the development of secondary legislation and regulations. It would begin to function within the energy sector and provide for a clearer understanding of how the ultimate Regulatory Authority will operate and function.

2. Development of such documents as the Grid Code, National Resource Plan and National Power System Plans should be accomplished through a formal structured association of power sector companies. This association would function similar to the North American Electric Reliability Council, or the UCPTE where each member is allowed to place highly trained personnel within committees working on future system plans, protocols, etc. If a company does not participate in a particular committee then the company is still bound by the results. These of course are voluntary commitments but every one has had a role or has had the opportunity for a role in the committee action.

These suggestions both aim to achieve the same result. A formal method of participation in the process. The development of the power trading arrangements, contractual arrangements between parties, and the acceptance of the new market would be more easily accepted by the companies if there was a more formal structure in the process. The reason for renewing these suggestions here will be apparent later in the discussion of the Grid Code.

GRID CODE DISCUSSION:

I must admit that when this document was referred to as the Grid Code, I anticipated a document that would discuss the technical issues of operation and interconnection of a transmission grid. Many of the issues that are brought to light in review of the Grid Code were also issues within the trading arrangements and the working papers. There is a lack of assigned purpose for each of the documents now being developed or at least a lack of communication to the reviewers of the purpose of each and the necessity for restating procedures or concepts in each document. None of the documents are worded exactly the same, however this could be a problem with translation. An example is the discussion of merit order dispatch. Merit order dispatch appears in all the major documents. It is not clearly defined, it is

mixed with unit scheduling and automatic controlled dispatch.

There is very little allowed the generating company in flexibility of operation. The PSE is to dispatch by generating unit and will control maintenance and service schedules. The generator should be allowed more management flexibility in its own operations. How else can the generator increase the internal company efficiency?

If a true economic market is to develop, the generator must be afforded the opportunity to submit selling prices that it is willing to receive for power. The pricing structure of the Grid Code and contracts and trading arrangements is a "cost plus" arrangement between the generator and the PSE. In defining costs the Grid Code defines Fixed Costs and Variable Costs. But there is no underlying standards or principles of accounts that can be used to properly establish such costs. For instance, fuel costs, is this the cost of fuel at the mine, at the storage pile in the generating plant, at the bunker ready to enter the burner, or at some other point along the trail from the mine to the burner. Each time fuel moves there is a cost added.

Later in the Grid Code there is reference stating that the PSE shall determine the minimum reserve of fuel that each plant must have in storage. The plants' fuel storage has nothing to do with the PSE. A plant must fulfill its contract with the PSE or default. If there is a need for the PSE to confirm that fuel is in storage, albeit but to dictate the amount of storage is beyond the role of PSE as a customer. If PSE wants to provide for fuel in storage at the plant to meet a PSE internal policy, then it should be part of the costs of service and PSE should pay the carrying charges for the purchase and storage of the fuel.

There is an inconsistency within the documents as to how the Polish power sector will function in the future. The power generating companies are to be in a fully competitive market. But at this point and for the next five or six years the PSE has taken the position that it will be the only purchaser of power from the generators. If that is the case then there is a monopoly purchaser existing and there is no competitive market for the generators. A generator must meet all the conditions of the purchaser including price or the generator has no market. A cost plus contract for sale of power sets the PSE as a regulator over the power generating companies. The PSE will determine what is an acceptable cost and what is an acceptable return on investment. This fact requires that the power system trading arrangements begin with some form of competitive bidding for purchase of power by the PSE and that distribution companies be allowed, in the beginning to purchase some of their power requirements directly from the generators.

Within the Grid Code, under the planning code there is

established a set of principles, technical and economic criteria and orders used by the PSE in the planning and development of the national power system. The PSE should at best be the organizer of the national planning. A group of committees staffed by the best talent in the sector from each distribution company should be established to perform the technical work and detailed planning. (For it is the distribution companies that have the obligation to serve and it is the distribution companies that are the closest to the ultimate customer.) These committees will perform the various tasks needed to develop a national plan for meeting the customer demand for power. The Grid Code and all of the documents now under development fail to mention the customer and the customers' needs. The national power system should be planned to meet anticipated customer demands on the industry. The industry seems to be developing plans that will fit what the industry wants to do in the future. The main goal of the code is stated, "... as meeting interconnection with the power systems of Europe..." If interconnecting with Europe is to the advantage of the Polish customers then it is one goal to reach for in the future. The main goal of the national power system is to satisfy the customers' demands.

The establishment of a single power transmission company is a decision of the Polish government. That Polish government, however, also decided that restructuring goals also included the reaching of a competitive market place and the privatization of the companies within the sector. Thus, the documents being developed today must always reach for all the goals that the government has expressed, not one at a time. The fact that PSE is responsible for planning does not make it the national planner. The distribution companies, that have the ultimate obligation to serve, must be integrally involved in planning. If they, the distribution companies, are separated from planning and only the PSE has a planning capability how will the ultimate goal of the government be achieved? There is a need now for the individual distribution company to begin taking on the responsibility of planning to reach their ultimate responsibility of the obligation to serve the ultimate customer.

The above said in brief is that the Grid Code should not set a procedure, policy, guidelines or principles for the PSE to plan the national system. The Grid Code should be developed to require a single planning association between the PSE and the distribution companies. This need is well demonstrated by the section in the Grid Code that calls for the PSE "...based on studies of the long range development of the KSE, prepares and offers to current and future Users the opportunities of connection...". Where is the customer's desires and wants taken into consideration?

The Grid Code specifies the need for "merit order dispatch". This is assumed to assure that the nation is operating at the

most economic level of generation of electrical power. Has the PSE or a group power sector companies modeled the situation where each distributor would be allowed to purchase from its choice of generation and schedule power from its own available sources? Would such a practice result in an increase of power costs to the ultimate customer? If so is it significant in relation to the expense incurred in trying to set a merit order dispatch for the nation and to establish the necessary infrastructure to operate the merit order system? What will be the administrative costs of a contract for differences as used in the UK? The UK program with the "contract for differences" has the same result as the distribution companies scheduling their own power. The difference is that the national grid has to act as a book keeper.

SUMMARY:

The Grid Code is a large, complicated document that uses very complex wording. The wording becomes so complex that there is a need for a very lengthy and complex glossary of terms. The Grid Code and other documents now under development have many overlapping provisions. There appears to be an urgent need to develop an overview of the present efforts towards restructuring. As in all projects there should always be periodic review of the direction, condition and impact of new or unforeseen influences on the project. The personnel working on the restructuring documentation is dedicated and hardworking. However, they have other assignments to accomplish at the same time and there is a shortage of qualified staff. Here is where the use of qualified staff from sector companies could be the greatest assistance. The final product must be a Polish product and not a reworded foreign model.

DISCUSSION PAPER
MINISTRY OF INDUSTRY AND TRADE

QUESTION: REQUEST FROM THE MoIT STAFF ON DISCUSSION OF THE
PROPOSED DISTRIBUTION COMPANY LINE EXTENSION POLICY

JOHN W. ARLIDGE; DORADCA ELEKTROENERGETYKI I WEGLA BRUNATNEGO

BACKGROUND:

The staff of the Ministry of Industry and Trade has requested a discussion on power line extension policy (customer connection to the power system). The issue today revolves around the present law whereby the distribution company (ZE) is obligated to connect and serve a customer requesting service regardless of costs and there is no authority to recapture the costs from the customer. This is particularly difficult when the Minister of Finance is setting rates for electricity that have no relationship to the cost of service. The specific questions asked were:

1. What should be the policy on the connection of customers to the power system?
2. Who should pay the cost of such connection for service and who should be the owner of the connection facilities?
3. Can or should there be different prices for power when there has been a special connection to the power system?

There are two established policy concepts that must be set forth in the beginning of this discussion. The first is that interpretation of the "Letter of Sector Development Policy" issued by Poland in June of 1991 would set the following rules:

1. There should be no subsidized prices of energy.
2. There should be no subsidy of energy resulting from the pricing of power from one customer class to another.
3. There should be no discrimination between customers within the same class of service.
4. There will be regulation to ensure that the power industry is operating and functioning according to consistent principles.
5. The goal of the government is to ultimately lead to a privatized industry operating in a competitive market.

The second policy is the required conversion of the power industry to a customer service oriented business. That is the power industry will serve and in fact, the ZE's will be obligated to provide all customers with a reliable and satisfactory quality of service.

DISCUSSION:

The existing and future energy policy states that the customer will be served and that the ZE will have the obligation to serve. Therefore, the question of right of a customer to be connected to the power system is established. However, no customer should be served in such a way as to be subsidized by another customer or as to place an undue burden on the utility and thus, the other customers. Finally, the government is striving for a fully

competitive market will install an independent regulatory authority to assure that the customer receives a reasonable quality of service and the investor is able to recover appropriate cost. (See discussion paper dated November 11, 1993)

Thus basic considerations for this discussion are three rules. The ZE has the obligation to connect all customers that request service. The ZE must establish procedures and contractual arrangements with the customer so that connection of one customer will not place an undue burden on any other customer. Finally the ZE investor must not be placed in a position of loss of investment or lack of a fair return on the investment.

There are many different types of customers that will want to connect to the system. There is the average customer that has a home close to existing service; the agricultural customer that has a small load far from the ZE's established system; there is the large industrial customer that will significantly increase the demands on the ZE power and service requirements; etc. How do you establish a single policy that handles all the many possible different customer connection requests and yet fulfills the basic considerations listed above?

The practice of line extension policy is one of common sense. First the utility must be obligated to connect all customers. So one policy that the ZE must establish is a basis for reasonable cost of interconnect of the "typical" customer. An example of this would be that the basic tariff for a residential customer would include sixty meters of line connection and required equipment for the "typical" connection, i.e. transformers, meters, etc. This thus sets the standard design and the standard equipment that a ZE will obligate itself to install for the benefit of a new customer. Any customer that requires something different would be subject to a tariff that would prevent violation of any of the basic considerations.

For example the ZE tariff would provide:

1. The ZE would at its cost (subject to recovery through proper rates as approved by the regulatory authority) connect a residential customer requiring up to a 200 ampere service at a distance not to exceed sixty meters. The customer would be required to obtain the necessary rights of way for the connection and assign the rights of way to the ZE. The ZE would own and be responsible for the operation and maintenance of all connection equipment and appurtenances.

This would assure that the "typical" customer would receive a standard service connection with the minimum of complications or required obligations to the ZE.

2. The ZE would require a residential customer greater than sixty meters from the system to: a) obtain all necessary rights of way for the service and assign the rights of way

to the ZE; and b) advance the costs of connection (above sixty meters) to the ZE. The ZE would refund the advanced costs to the customer through a discount of the customer's billing (say 25 percent of the customer's billing over five years or the time necessary to refund the customer advance, whichever is shorter). All rights of way and equipment paid for through the customer's advance of monies will remain the property of the ZE. If at sometime in the future, before the customer is fully reimbursed for the advance of construction funds, a second customer can gain benefit from the line installed for the first customer then the second customer should advance funds (through the ZE) to reimburse the first customer. The ZE would then be required to credit the second customer's billing for its advance funds but of course would have a reduced obligation to the first customer.

This is of course incomplete in the details for such arrangements but it provides an outline where the customer who is "atypical" will balance his demand on the ZE so that other customers and the investor will not be unduly burdened by extraordinary demands of a single customer. Of importance, is the fact that the customer will advance the costs over the standard connection so that the ZE's cash flow is not effected by the introduction of a single customer. Another point of importance is that the ZE will only refund up to the amount of money that it can anticipate recovering through depreciation during the "life" of the customer service.

3. For residential customers with a service demand greater than 200 amperes, the ZE would have requirements similar to those in item 2. This customer would be required to advance or install its own equipment so as to be viewed from a cost stand point as a "typical" customer. The refund of monies through discount of the billing would again be appropriate.

The standard of a 200 ampere service may be the wrong level. In Poland the level maybe 100 ampere or some other level. However, it must be recognized that the ZE will have a standard design for wire size and transformer ratings to serve the "typical" customer. The ZE will under example 1. above serve a residential customer under the "typical" conditions. It is up to the "atypical" customer to advance or pay out right for its additional (above typical or standard request) cost burden on the ZE. Here again the refund would not exceed that amount of money that the ZE could anticipated recovering through depreciation during the "life" of the customer service.

Two questions are to be asked at this point. The first question is how will the ZE treat commercial (large stores or small business) and industrial (steel mills and the like) customers. The ZE should establish a standard service connection policy for each voltage and amperage level of service anticipated within its service area. The standard would contain the ZE's standard

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QUESTION: ZE LINE EXTENSION POLICY

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station for large customers establishing, at different voltage levels, the connection equipment and amperage level the ZE will provide at no additional cost to the customer. This requires the station designer and the rate designer to give the customers, at voltage levels higher than residential, the same connection standard (from a monetary view point) as the "typical" residential customer. At the voltage level and demand level of a commercial customer the standard service can of course be a significant value. However, large industrial customers will not see any significant value from a standard customer level of investment relative to the industrial costs of connection.

For the most part connection of new commercial large customers and industrial customers will require a negotiated contract between the ZE and the customer. The contract will discuss ownership, cost responsibility, cancellations charges, etc. In preparing such contracts the ZE must keep in mind the basic considerations and assure itself that it has not put the contracting customer in any position of advantage or disadvantage with respect to the other customers or the ZE investors.

The second of the two questions that should be raised is the need of the small customer a considerable distance outside of the ZE's standard for service connection. If the potential customer can not find a group of other persons that can share the costs then neither the ZE or the regulatory authority have the ability to take action. Any action by either the ZE or the regulatory authority, would violate the State's policy on subsidization; violate the statute of the regulatory authority for assuring a balance between the interests of the customer and the investor; or would violate the regulation against discrimination against any customer or customer class.

The answer to the second question lies outside the realm of either the regulator of the ZE. If a customer that can not afford to pay for service, then it is up to the State to make a policy decision as to how the situation is to be handled. If the State policy will require service to all customers requesting service regardless of ability to pay then the State must establish a method of paying for that customer's service. Within the Letter of Sector Development Policy neither the regulatory body, the ZE nor the State can require one customer subsidize to another customer. Nor can this be a burden on the investor without recovery of costs for this in turn would increase the cost of service to the customers. The State would have to provide for such through tax advantages or grants. In the US the government established a series of low interest government supported loans and grants to provide electric service to areas far removed from the local power distribution lines.

SUMMARY:

The following three points formalize and summarize the above discussion:

(a) The ZE would establish a standard line extension (customer connection) policy under which the ZE could expect to recover the costs of connecting a "typical" customer through its rate (pricing) structure. The customers that fall within the standard design will only have to provide the ZE with a rights of way to receive service. (There should probably be a nominal connection fee for processing the customer's individual request.)

(b) The customer whose connection requirements vary from the typical customer must advance funds or pay the additional costs of connection (costs above the standard design). Advancement of costs by the "atypical" customer would prevent that customer's connection costs from impacting the ZE's cash flow or other customers' costs of service.

The ZE would refund the advanced monies over a period established by contract. The period would equal the time anticipated by the ZE for the recapture of the refunded amount through the standard power rates (price) paid by the customer or the anticipated "life" of the customer service, which ever is shorter. The refund should never exceed the ZE's depreciation rate for such installation.

(c) Large customers or customers with extraordinary service connection requirements must enter individual contracts setting forth the cost sharing principles between the customer and the ZE. Those cost sharing principles will meet the basic considerations outlined on page 2. Full advancement of costs must be specified so that the ZE's cash flow or financial plans are not affected by the contracting customer's individual requirements. Refunds should be scheduled only up to the amount the utility can expect to recover through the standard rate for that class of customer. If the customer adds significantly to the forecasted power demand of the ZE, failure of the customer to utilize that demand should also be a consideration within the contract.

SIMPLE EXAMPLE OF LINE EXTENSION POLICY FOR A ZE:

The terms and conditions of the line extension policy are to be prepared by the ZE and approved by the regulatory authority.

I Distribution line connections;

ZE will build lines only along public roads or upon public lands or across private lands where satisfactory rights of way have been obtained without cost to the utility. The customer (applicant for power) requesting service will be responsible for obtaining the required rights of way the service connection in the name of the ZE. Any costs

incurred by the ZE in obtaining the rights of way will be reimbursed by the customer.

Where the ZE can not obtain satisfactory rights for construction of lines or the installation of equipment, the customer must build, own and maintain the line connection and equipment in a manner that will conform to the safety and construction standards established by the ZE. The customer will assume all liabilities for the lines and equipment installed by the customer.

The length of interconnection will be the distance from the nearest source with available capacity which is deemed suitable by the ZE, to the point where the customer requires the actual electrical connection. The path should not be in conflict with any other party or community plans.

II Transmission line connections;

When the electrical load or location of load requires the extension of a transmission line the ZE will make a special study of the conditions to determine the basis on which service will be rendered.

III Connections at ZE's Expense;

1. ZE will at its expense furnish, install and maintain any distribution line transformers, meters and service connections it deems necessary for permanent extension.
2. ZE at its expense will construct new line connections or make alterations to existing lines up to but not in excess of 60 meters for electric service connection to a customer which the utility considers permanent.

IV Connections at Customer's Expense;

1. When a customer requests connection to the power system of the ZE over the 60 meters stated above, the customer shall enter into a contract with the ZE to advance to the ZE sufficient monies to cover the costs in excess of the ZE's expense for a 60 meter connection. All equipment and line connections will remain the property of the ZE and will be maintained by the ZE at its expense.
2. a) If providing service to the customer requires the ZE to connect to an existing line where another customer has advance monies for the construction of the line then the customer shall advance monies in proportion to the use of the line constructed by advance monies from the other customer.
b) The customer will not be required to advance monies for a connection to an existing line where all previous advanced money for construction has been refunded to that customer who advanced money for such line.

V Refunding of Customers Advances of Monies for Connections;
Customer advances shall be subject to refund by ZE in accordance with the terms of the connection contract, with the exception of one million PZL to be retained by the ZE to defray costs in administration of the connection contract.

1. The customer shall be allowed a free extension length of 60 meters. If the contract does not provide for such free extension length then the customer is eligible for refund of that amount within the first year of contract.
2. The amount advanced to ZE under the line connection contract shall be refunded to the customer without interest at the rate of 25 percent of the customer's billing for electric service over the period of the contract term or until the full amount is refunded, whichever occurs first.
3. Should the customer terminate service prior to the termination of the contract for connection the customer will not be eligible for any further refund of monies advanced.

VI Connections Into Real Estate Subdivisions;

1. ZE will construct line extensions to and within the subdivision before individual service connections have been requested only after the entire estimated cost of such line extensions (exclusive of transformers, meters and individual customer connections) is advanced by the constructor to the ZE. Monies advanced to the ZE will not be subject to earning of interest.
2. The amount of costs in excess of 3.5 times the estimated annual electric revenue from the completed subdivision shall be advanced by the constructor as a contribution in aid of construction and shall not be subject to refund.
3. The amount of advanced monies subject to refund shall be refunded without interest during a period not to exceed five years, on the following basis;
 - a) When a permanent building within the subdivision is occupied by a bona fide customer, ZE will refund a prorated share of the advanced monies subject to refund.
 - b) Refund of monies will be made only once each three months upon written notification by the constructor that buildings have been completed and occupied by a bona fide customer of the ZE.
4. All line extensions will be owned, operated and maintained by the ZE. The constructor will provide all the necessary and required rights of way and assign all such rights of way to the ZE.

DISCUSSION PAPER

POLISH POWER DISTRIBUTION COMPANIES

**QUESTION: REQUEST FROM THE DISTRIBUTION COMPANIES FOR
DISCUSSION OF SEVERAL ISSUES DURING RESTRUCTURING AND
REORGANIZATION**

JOHN W. ARLIDGE; DORADCA ELEKTROENERGETYKI I WEGLA BRUNATNEGO

BACKGROUND:

The Polish Power Transmission and Distribution Association has listed several subjects that "could become ERG projects in the future". They are:

1. Income staying in a distribution enterprise. Analyze how much income from power sales stays in the distribution and how much goes for additional operations, based on foreign examples. What share of this income would be best in Polish conditions?
2. Marketing in a distribution enterprise. Possibilities of sales growth and non core business development. Developing market strategy, opportunities of influencing the market, ways of gathering market information and reacting to market needs.
3. Staff training on customer service and modern management techniques.
4. Types and structure of final consumers' tariffs.

DISCUSSION:

The above topics will be placed under discussion one at a time. There will be some overlap but cross references will be used.

1. Income staying in a distribution enterprise.

First it is necessary to remark that the actual revenues allowed each distribution company on its core activities will be established by the regulatory authority anticipated under the proposed new energy law. Independent of the final regulatory price control system used, the distribution company will be required to justify the revenues required to meet the cost of service to the customer. The revenue allowed will be that necessary to return prudent and reasonable expenditure for operation and maintenance, depreciation of investment, interest on debt and a return on the owners investment.

Each distribution company will require a different level of investment and thus revenues, depending on the geographical area of service, the density of customers, condition and age of equipment, climate and growth of market. At present Poland does not have a standard set of accounting principles that are needed to provide for a uniform understanding of the condition of a utility company. Since the function and investment requirements of a natural monopoly are quite different from other forms of business it will be necessary to develop such principles

directly applicable to distribution and transmission.

The question referred to "income from power sales". The cost of power purchased from the Power Grid (PSE) or directly from a power plant should be a straight pass through to the customer. That is, since the power was a finished product purchased and transported by the distribution company, then the company has no right to increase the power cost except for the cost of transport and losses. Other commodities and services purchased from the PSE may be treated similarly. For example, the purchase of volt-amps-reactive may be a pass through to the customer if the distribution company can show that economically this was the lowest cost method of correcting power factor or phase angle.

One area that will be treated differently by the regulatory is that of a distribution company who generates power from its own power plant within its service area. In this case the distribution company will be able to supply power to its customers directly and earn a return on the generating plant investment. The amount that the distribution company may charge its customer for power internally generated will be dependent on the regulatory authority. The regulatory may allow a marginal cost system or a cost of production plus return on investment. The actual pricing mechanism will depend on the evidence for pricing submitted by the distribution company.

Payment of dividends to the owner is generally a question of what the private investor demands for direct payment of return on his investment versus what the investor is willing to allow the company to retain for reinvestment. Dividend policy in the US generally rests on the interest rates an investor can obtain by investing in the bond market at lower risk and the cash flow a company needs for its future growth. In most cases the dividend is fixed at one level. The company then tries to maintain that level. If the company is in a position to increase the level it is looked on as a well managed company. If the company cannot maintain that level of dividend it is subject to question and more than likely will have its credit rating reduced. Thus, dividend payout becomes a critical measure of management's performance. This of course will not be an issue within the distribution companies until privatization.

In summary, the distribution company should collect "profit" on its investment in equipment and land, used for service to the customer. The company should also collect all costs of prudent and reasonable operation and maintenance of the system.

2. Marketing in a distribution enterprise.

Marketing of power by a public utility takes two forms. The first is part of customer service. The second is part of

community planning and development. Both must be balanced by the State's energy policy to increase the efficiency of use of energy within Poland.

Customer service and marketing go hand in hand. Programs that help the customer understand the available appliances that will help in every day business, industry and household service is a beginning. By assisting the customer to evaluate the appliance that could be economical in both time and performance the utility will begin to better understand its customers' needs and desires while at the same time the company will gain a better understanding of its future market.

Participation in community planning and development is a requirement for all public utilities. The community must plan with reasonable expectations that the public utility can provide the required infrastructure. The utility must plan with reasonable expectation that the community will accept the utilities plan for expansion of facilities. The two working together can be a critical force in providing the new jobs and services needed within any community.

This question has a more far reaching answer. The distribution companies must develop an individual capability for strategic and resource planning. Unlike other markets the utility must plan for expansion over a very extended period (some four to ten years). Twenty year business and resource plans are the norm for the power industry around the world. The power utility is very capital intensive. Therefore, it must include in its planning the proposed methods of financing in far greater detail than in other industries. The future growth of power usage must be as accurately forecasted as possible. The power utility needs to dedicate a significant effort to planning if it is to meet its obligation to serve and its obligation to provide a high quality of service.

3. Staff training and modern management techniques.

This simple statement is what we call in the U.S. a loaded question. The need to train both staff and management is a continuing effort. Customer service is a continuous changing requirement. Let's look at the geneses of the question. In Poland the power system is under change including changes in methods of working organizations, relationships within the companies (employees to management), relationships with other companies within the power sector, and relationships with the customers.

Part of the companies planning process should be to establish goals for these changing relationships with interim goals for reaching what the company wants as its ultimate relationship with each of the above groups. Once the goals are established

then the company can identify the proper training of all employees, including management. The actual management techniques that a company may choose will probably be different from company to company. Techniques generally follow the personality of the company, its boards and its management.

Thus, it is necessary for the company to have an initial strategic plan before it begins to strike out on management and customer service training programs. Possibly the first training and organizational effort should be in the area of strategic and resource planning.

4. Types and structure of final consumer's tariffs.

Service area, geographical conditions, variance in customer classes, community competitiveness for growth in jobs and population, the company's competitiveness for attracting industry and business, and many other factors enter into the formulation of tariffs. The basic considerations in the development of tariffs are the obligation to serve, no cross subsidies between customer classes, no discrimination within customer classes, and finally a balance of the obligations between the company and the customer.

A tariff structure must begin with the development of the conditions of service. This would of course include:

- voltage level,
- power level,
- equipment to be supplied by company and customer,
- access to equipment,
- maintenance of equipment by both the company and customer,
- connection charges,
- energy price rates over the course of the day, week, and year,
- provisions for payment,
- provisions for disconnection of service,
- liabilities for both the company and customer, and
- emergency conditions.

There are several methods of establishing prices for service. The one used most often until recently has been the cost of service. Under cost of service the utility would group customers into classes of service. These would generally include single household, multi households (apartments), commercial, industrial, agricultural, etc. The utility would then segregate the equipment and services necessary to provide power to that class of customer. After calculating the cost of service to that class of customer the cost for each unit of energy sold to that customer class would be established. This was a simple process but economist felt it there was no incentive for the utility to minimize costs.

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The most used method of establishing prices for power service to day is that of "marginal" pricing. The determination of marginal costs for distribution and customer costs, is more difficult and less precise than for generation of power. Marginal costing requires a series of studies designed to establish specific conditions for cost analysis. One example would be a study were no power was delivered to the customer but the system maintain the proper voltage at the customers service connection. Such a study would represent the cost of properly maintaining voltage levels as one element of the overall cost of service to the customer. These marginal cost studies are very complex and requires considerable training and computer techniques. I would assume that Poland should begin by establishing the simpler but still complex cost of service pricing methods initially and then turn to the more complex systems.

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ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
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February 8, 1994

To: Jacek Novakowski

From: John W. Arlidge

Subject: Comments on Power System Trading Arrangements

In accordance with your request, the following are my comments on the trading arrangements, Working Papers 1 through 9. Some, if not all, of these comments may have been considered during the preparation of the working papers. However, since we were not kept abreast of the discussions and preparation of the papers, it is important that these issues be reviewed before taking a position on these working papers.

General comments are as follows:

In working paper 5 (the Settlement Agreement, page 27, Section 5.10) the Settlement Committee is allowed to "require additional criteria" for a new applicant to the Agreement. The committee therefore becomes a "club" that can keep new members out by varying and changing criteria. This is an anti competitive practice that should not be allowed. To prevent such anti competitive moves the criteria for application and participation should be established in writing and agreed to by all parties. Should there be necessity to change or increase the criteria, then all parties to the Settlement Agreement must be subject to the changed or new criteria.

Also in working paper 5, Sections 5.20 through 5.27; the voting rights of the PSE will allow for the formation of a dictatorship. It must be remembered that the PSE will have the monumental leverage of individual purchase contracts with each generator. Thus, although it appears in the paper that the PSE will have only fifty percent of the vote, it will in reality have a major influence over all the voting members. A possible alternative to the committee structure would be to have one third of the members from the general public or disinterested third parties. Other alternatives are available. The structure proposed in the working paper should not be accepted.

The "Regulator" is given several assignments within the working papers. The prime example of such assignments is shown in working paper 5, page 30, Section 5.27. In this section the Regulator is given the right to remove the Settlement Administrator. The Regulatory Authority must be completely

removed from the business decisions and negotiations between customer and supplier. The Regulatory body's duty is always to balance the interests of the customer and the supplier. That can only be accomplished by removing the regulatory function from the day to day relationships of the commercial parties. The argument on this point can be lengthy. This simple statement can be expanded if desired. Also, the working papers assume that the "Regulator" is a single person. ERG recommends that the Energy Regulatory Authority referred to in the draft energy law be a multi person (five or seven members) body with expertise from various disciplines, such as legal, economic, technical and accounting in addition to having various political leanings.

The use of "declared availability" seems to give the PSE a right to choose between initial contract and short term contract energy to the disadvantage of the generator. The dispatcher has the right to use the energy from the declared capacity and in fact a right to use the capacity as firm supply on system. Therefore, declared availability has value to the PSE and the system. This point should be recognized under the trading arrangements.

A number of the issues that occur in the working papers could be mitigated by a regulatory authority. An earlier paper, from this office, proposed that the Ministry consider an independent committee to review actions within the power sector as if the committee were a regulatory authority. This would provide for training of both the industry and personnel for the nucleus of a regulatory agency. Such a committee would be of great value in developing these trading arrangements and in developing the secondary legislation that will be needed when the new energy law becomes finalized.

More detailed comments are as follows:

1. Working paper 1; The long term contracts should provide for:
 - a. the buy out of the contract by another power purchaser;
 - b. review of contract terms for reason of hardship by either party; and
 - c. the future impact of a regulation authority on the relationship of the parties.
2. Working paper 1, page 7, Section 3.10; If PSE does not buy all the power the generator has for sale, the generator should be allowed to sell to others in Phase II and Phase III. Also, please refer to my earlier discussion on trading between ZE's and power plants during Phase I.
3. Working paper 2, page 1, Section 1.2 (a); Throughout the working papers PSE has taken the right (by leverage as the only purchaser of power) to review management and investor decisions of the generator. Here, a provision states if, "PSE believes that the investment is economic..." PSE should restrict its

concerns and review to its willingness to buy at a price acceptable to the investor and the generating company's management. Under the proposed arrangements, PSE is making management decisions for its suppliers and policy decisions for the State. PSE should restrict itself to decisions as a purchaser and wholesaler of power.

4. Working paper 2, page 5, Section 2.13; "[T]he energy payment in the Initial Contracts should relate to units within a single station." The discussion throughout the working papers refers to buying or scheduling power from a single unit. To provide the generator with flexibility, the contracts should allow the generator to substitute power from other units within the same station, so long as PSE and the system are provided such power at the same cost as the unit originally scheduled. If the price is the same PSE and the system should be indifferent to the source of the power from within a station.

5. Working paper 2, page 8, Section 2.25; This section states that a ZE or PSE will be paid for power supplied to a generating station at the BST. The generating station taking power from a retailer of power should pay the established industrial rate for such power. There should be no discrimination between customers within the same customer classification, by either the ZE's or the PSE.

6. Working paper 4, Summary page, Request for Tenders; The summary page states that, "[g]enerators who are not issued a Request for Tenders will not be permitted to take part in the annual contract round." This implies that the PSE will establish pre qualification for generators interested in bidding. Thus, the "Power Contract Tendering Code" should also specify the pre qualification requirements to be followed by both the PSE and the generators.

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on what it is willing to pay. This is only possible because of the restrictive nature of the long term and initial contracting procedures. The short term contract and the related bidding is leveraged by the PSE because of the "declaration of availability" required under the long term and initial contracts.

9. Working paper 5, page 3, Article 3; The Settlement rules do not consider the need to ramp the increase and decrease of loading on generating units. The rules also leave unanswered the periodic timing requirement for the scheduling of power for the system. All measures are in hours. Does that mean a clocked sixty minutes or the time from one hour to the next, i.e. five o'clock to 6 o'clock? What if a unit operates for 59.99 minutes, what is its Actual Availability? This section has enormous detail but leaves some of the basic questions on the procedures unanswered. Since this paper sets the basis for settlement, the details behind the principles should be well defined within the paper if the principles are to be approved. Otherwise the document will not result in the desired agreement but continued argument between supplier and customer.

10. Working paper 5, page 7, Rule 5; This rule states in summary that the only way a generator can remove a failure notice is by generating more than its previous Proven Availability. Such effort is subject to the dispatcher of the power system requesting the generator to supply the power associated with the increased capacity. This may not occur for many reasons not under the control of the generator but under the control of the PSE. There should be a procedure for the generator to prove availability so that payments for contract capacity can resume when the unit is restored to full service capability. Such procedure will eliminate the conflicts that occur when the purchaser determines and controls the parameters that are used for determination of payments to the supplier.

11. Working paper 6, page 5, Section 2.18; The right of the network operator to choose between services based on "their cost" will need to be carefully considered. New facility design and construction within the PSE, if compared economically with outside bidders will provide an advantage to the PSE owned facilities. The concept of tender for a service and evaluation through least cost financial analysis is an important consideration in the process of protecting the customer. Until a regulatory authority is established there is a need to provide for a review of all alternatives to the required services. Since there is at present ample capacity this may not become a problem initially but should be provided for in these working papers to prevent future problems.

12. Working paper 6, page 9, Article 4; In the discussion of connection charges there is no consideration of the need to change equipment because of power system dynamics, for example,

the need to change a circuit breaker because of increased short circuit interruption capability. In such a case will the system be required to change its circuit breakers and the connected system's breakers as well or will the connected system be required to cover expenses forced on it by the power system. If a connected system transfers the equipment ownership to the PSE, is the PSE then responsible for changing equipment due to changes by the connected system operator on its system. These are basic considerations associated with customer paid for equipment, owned and operated by the PSE. The acceptance of the PSE for infrastructure costs of connection would leave one to believe that the power grid will be responsible for all future costs related to equipment owned by the PSE. Is this a correct assumption.

13. Working paper 6, page 39, Section 8.2; After review of the working papers 6 and 7, the conclusion is that the customer is required to pay for transmission losses and constraints. The conclusion in Section 8.2, that the PSE will bear the costs of losses and constraints, is difficult to understand.

14. Working paper 7, page 3, Liability; Even with a Grid Code there will be uncontrollable forces or even employee errors (outside of forced majeure) that will happen on the power system that will affect connected systems. These events need to be considered in the contract and accepted provisions for handling of such claims should be included.

15. Working paper 7, page 6, Section 3.9; This section requires that generators must agree to enter into contract with the PSE for capacity and energy and agree to dispatch and other Grid Code terms. Such a requirement ignores the future and the ability of ZE's to enter into direct purchases from generators not on the PSE system. The requirement is repeated under Master Agreement, Section 4.6 as a requirement for the ZE's. When considering that the ZE's are obligated to contract with the PSE for an indefinite period (Section 4.21) the power system will never reach Phase III of the proposed trading arrangements. These provisions should recognize that the future relationships will change dramatically in Phase II and III from those presently experienced.

16. Working paper 8, page 6, Section 2.13; This discussion states that PSE will be bearing significant part of the risk associated with costs and pricing in Phase I. Later in the section there is mechanism providing for the recovery of "shortfall" (surplus) in the following year. Therefore, the only risk to PSE may be carrying charges on the shortfall costs for the one year. Whereas, the ZE's may have no method to pass through the costs of the shortfall. This needs further work.

We have a number of questions regarding the provisions of the working papers. These would be better handled in face to face

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discussions with the PSE staff working on the trading arrangements or their consultants.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP

Ul. MYSIA 2

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February 15, 1994

To: Anita Ronne
cc: Fernand Sonck
Igor Muszyński

From: John W. Arlidge

Subject: Suggested Statements for Answers to Ministry of Industry
and Trade Questions Regarding Regulatory Authority

As our discussion pointed out, the US utility regulatory system should be included in comments to the Minister for it is the only one that has had experience in the regulation of fully privatized utility systems. I suggest the following:

In the US each State has an independent regulatory commission. The commission members are either elected by the people or appointed by the State Governor and confirmed by a State legislative body. The commission is responsible for the protection of the customer against unreasonable prices and less than satisfactory service. At the same time the commission must provide for the utility to receive revenues sufficient to allow for continuing service and financially viable company. The regulatory process is fully transparent and open to the public. Based on this system, private enterprise has built an economically strong, efficient and reliable utility system.

The second point is a supporting statement for the need of an independent regulatory authority in Poland. I suggest the following:

Poland is at present striving towards a new marketing system and change in ownership of the utility industry. Much of the money needed for the reconstruction and restructure of the industry must come from private investment and a significant portion must come from foreign investment.

For the new market and ownership, it is strongly recommended that an independent regulatory authority be appointed to regulate the Polish energy industry. Such an independent body will assure that potential investors find a system removed from political control and influence and attendant high risks to investments. This way and this way only will the risk of government interference be removed and provide an atmosphere conducive to foreign investment.

The present government staff believes that the State must

retain a significant part of the ownership of the energy industry. If the State retains large holdings in the industry (under the control of the Minister of Industry and Trade) the ability to attract foreign private financing will be limited. This will be doubly true if the Minister of Industry is also to be the regulator of the industry. Maintaining ownership by the State will lead to the energy industry being guided more by government policy than by hard business decisions and competitions.

An independent regulator will assure separation of business decisions from unrelated government policy issues and will provide for an efficient industry with reasonable prices. The independent regulatory authority would be removed from the concern of answering to the politicians who have personal agendas not necessarily tied to the need for a stable and well run energy industry.

ERG Memorandum**CONFIDENTIAL**

MINISTRY OF INDUSTRY AND TRADE
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February 16, 1994

To: Robert A. Archer**From:** John W. Arlidge**Subject:** Donors Meeting Information

This memorandum will answer the information request from you by telephone on February 16.

1. ERG background issues; where ERG is going; etc.
This information is contained within the draft ERG "Annual Report" a copy of which I understand was delivered to you today.
2. Ministry and Government policy on privatization.
The well publicized Government policy on privatization is that the shift to a market economy will continue but the schedule may be slower than anticipated under the last government.

The recent controversy over the sale of stock for the privatization of the Bank Slaski will have continuing impact on this Government's privatization efforts. As you recall the stock when listed on the market brought 1250 percent increase in price over the Government's sale price. This led to the firing of the Minister of Finance and a Deputy and a visible split in the coalition.

The trade unions associated with the power sector continue to oppose privatization within the sector and are now showing signs of opposition to commercialization of the coal fired generation plants. The earlier efforts of the trade unions led the Minister of Privatization to reorder the method for privatization of Kraków Łęg. The continued lack of progress on that project has dampened the interest of many of the foreign interests that had been looking at projects within Poland.

During the drafting of the energy law there has been considerable discussion within the Government on the need to retain "control" of the energy sector to maintain "security of the system". This has resulted in calls for retaining fifty one percent ownership of all energy enterprises within the State. At present the draft only calls for retaining fifty one percent of the "grid"

companies, i.e. Polish Power Grid and Polish Gas. The trade unions are now calling for employees to get thirty one percent of energy enterprise stock at the time of becoming a commercialized joint stock company. If you put the two together you get only eighteen percent available for a private investor. This of course is referring to the core business.

3. Key issues in the energy law.

The first key issue is of course the Government retaining set amounts of the stock in companies within the energy sector.

The second issue is the development of an independent regulatory authority. At present the report is the Ministry of Finance objects to such a body since the Ministry believes that its function is to regulate prices within the economy. Also, it has been reported that the new Minister of Industry believes that appointment of such a body is not in the best interest of the State and that it should be the regulator of the sector.

The third issue is the growing lack of cohesiveness within the law. This comes from the many interests providing input and the continuing change of responsible personnel within the Ministry working on the draft.

The law as presently drafted (or at least as we believe it to be drafted) is a poor law at best. However, due to the length of time of the drafting and the growing opposition to the restructuring of the sector, and the failure to accomplish anything but the increase in prices, it is recommended that the law proceed as fast as possible through the Parliament. It is estimated that if this policy is adopted, it will be the end of 1995 or mid 1996 before the industry would have effective regulation.

4. Key issues in the power sector.

There is growing concern within the sector of the dominate position, power and attitude of the Polish Power Grid Company. The directors of the generating and distribution enterprises believe the PPGC is taking a position of dominance within the industry that will not allow the other entities to survive. This is fostered by the insertion of a single power transmission system whose management is also responsible for the development of a new market system and for development of planning and financing of all elements of the sector. The perception, if not the reality, of the situation would cause rejection by the dominated parties. These "key" issues of the generating and distribution enterprises are, in their minds supported by the new trading arrangements.

Adding reinforcement to the above situation are the trade unions' demand that any new increases in energy prices be justified as to cost of service. There are numerous statistics available (some of questionable origin) that show that Poland is above the economic equivalent of costs for energy in Western Europe. The trade unions have begun a major effort to stop the increases in energy prices and to use such increases, as have been levied to date, for social costs created by the effort to move to a new economy.

The new trading arrangements have a number of difficulties. The first is that the arrangements exist in statement of principles only. Thus, there is great concern as to the details that will be necessary to support those principles. There is no concerted effort to develop a documented explanation of the pricing and organizational structure anticipated by the trading arrangements. That is, there is no material developed that would simply explain how the arrangements will work or the impact on the producer or the consumer. The PPGC is presently asking the ERG for its support for the trading arrangements. The problem is that the ERG was not privy to the many discussions or the development of the trading arrangements. We have recently met with the directors responsible within the PPGC; however, the game is catch up, not participation.

4. Independent Power Producers.

At present all IPP efforts are on hold. Most are reviewing their positions because of the considerable change that has occurred within the country and the potential market area since the projects were first proposed. All have voiced a commitment to continue but most are looking for a more productive project with a commitment from the State to reduce the anticipated risks well below those that would have been acceptable in the original project. This statement cannot be supported by "fact" in that most of this information was given with the assurance that the source or the commitment not be quoted.

5. Next year.

The anticipated program is presented in the ERG annual report. I will state that the ERG has a large influence in the power industry. This is demonstrated by the many power sector players which approach the ERG for support of their positions. To date, the support of ERG has provided the turning influence on a number of decisions within the companies and the Ministry. The ERG opinion and support is being demanded more and more in all subsectors of energy. The ERG is also looked at as a source of internal support within the companies for the development of their future goals and strategies. These are the areas that the ERG can

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build upon to provide the most support for the commercialization, restructure of market considerations, and ultimate privatization of the sector.

Summary.

The mind set of the energy industry and the political leadership of the sector is State control and a controlled market. The trade unions are set to oppose anything that leads from a societal based management or leads to pricing based on an economy market system. The problem is one of protracted transition and establishment of dominate forces that are unfamiliar and thus, unacceptable. The need to bring information and considered plan development to Poland is crucially important at this point. This should be the ERG directive. The ERG must develop a closer liaison with the Government and the enterprises within the subsector. This can be accomplished by a strong commitment of the donors and an extension of the ERG commitment to the State.

As a note: ERG cannot nor can it be perceived to be a foreign body directing the Government or its policy!

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
Ul. MYSIA 2
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February 22, 1994

To: Fernand Sonck

From: John W. Arlidge

Subject: Questions for Vice Minister

We have been asked to prepare questions for the Vice Minister's meeting on February 23rd. The following are of interest to US AID:

1. What is the present Government's energy policy? Will there be changes from those stated in the World Bank letter?
2. What is the Minister's present position on the creation of a regulatory authority for the energy sector? Does the Minister support the concept of an independent body? If not why not? If so why?
3. The long discussion of two virus four holding company for the hard coal fueled power plants has ended in the Minister accepting two holding companies. The concern voiced by those supporting two holding companies in the hard coal subsector focused on the problem of the strength of the power grid. Thus, the Minister can now expect more combining of companies into larger holdings. The alternative would be to weaken the role of the power grid. Has the Minister taken a position on this matter? If not, does the Minister consider it an advantage to create a group to investigate this problem?
4. What is the Minister's position on privatization of power sector companies? Would there be an interest in an effort to privatize a distribution company this year?

ERG Memorandum

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Ul. MYSIA 2
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February 23, 1994

To: Jacek Nowakowski
Fernand Sonck

From: John W. Arlidge

Subject: Questions for Vice Minister

We have been asked to prepare questions for the Vice Minister's meeting with the donors on March 2nd and 3rd. The following are of interest to US AID:

1. What is the present Government's energy policy? Will there be changes from those stated in the World Bank letter?
2. Many of the restructuring impediments cross Ministerial boundaries. There has been a lack of fully utilizing ERG's expertise at all levels including within the Ministry of Industry and Trade. Has the Minister any plans to better utilize the ERG during the coming year or to have other Ministerial levels exploit ERG's potential value to the Government?
3. What is the Minister's present position on the creation of a regulatory authority for the energy sector? Does the Minister support the concept of an independent body? If not why not? If so why?
4. The long discussion of two versus four holding companies for the hard coal fueled power plants has ended in the Minister accepting two holding companies. The concern voiced by those supporting two holding companies in the hard coal subsector focused on the problem of the strength of the power grid. Thus, the Minister can now expect more combining of companies into larger holdings. The alternative would be to weaken the role of the power grid. Has the Minister taken a position on this matter? If not, does the Minister consider it an advantage to create a group to investigate this problem?
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ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
Ul. MYSIA 2
00 926 WARSAW 63
tel. (48 2) 625 62 80

February 8, 1994

Updated: March 1, 1994

To: Jacek Nowakowski

From: John W. Arlidge

**Subject: Comments on Power System Trading Arrangements
(With notes from meetings with Polish Power Grid Company)**

In accordance with your request, the following are my comments on the trading arrangements, Working Papers 1 through 9. Some, if not all, of these comments may have been considered during the preparation of the working papers. However, since we were not kept abreast of the discussions and preparation of the papers, it is important that these issues be reviewed before taking a position on these working papers.

General comments are as follows:

In working paper 5 (the Settlement Agreement, page 27, Section 5.10) the Settlement Committee is allowed to "require additional criteria" for a new applicant to the Agreement. The committee therefore becomes a "club" that can keep new members out by varying and changing criteria. This is an anti competitive practice that should not be allowed. To prevent such anti competitive moves the criteria for application and participation should be established in writing and agreed to by all parties. Should there be necessity to change or increase the criteria, then all parties to the Settlement Agreement must be subject to the changed or new criteria.

PSE agreed that all parties to the Settlement Agreement would be subject to the changed or new criteria.

Also in working paper 5, Sections 5.20 through 5.27; the voting rights of the PSE will allow for the formation of a dictatorship. It must be remembered that the PSE will have the monumental leverage of individual purchase contracts with each generator. Thus, although it appears in the paper that the PSE will have only fifty percent of the vote, it will in reality have a major influence over all the voting members. A possible alternative to the committee structure would be to have one third of the members from the general public or disinterested third parties. Other alternatives are available. The structure proposed in the working paper should not be accepted.

In the new Polish language version of the working papers the composition of the settlement committee will include representation from the Ministries of Finance and Privatization

and Anti monopoly Office. The distribution companies will elect representatives not necessarily from the PSE.

The "Regulator" is given several assignments within the working papers. The prime example of such assignments is shown in working paper 5, page 30, Section 5.27. In this section the Regulator is given the right to remove the Settlement Administrator. The Regulatory Authority must be completely removed from the business decisions and negotiations between customer and supplier. The Regulatory body's duty is always to balance the interests of the customer and the supplier. That can only be accomplished by removing the regulatory function from the day to day relationships of the commercial parties. The argument on this point can be lengthy. This simple statement can be expanded if desired. Also, the working papers assume that the "Regulator" is a single person. ERG recommends that the Energy Regulatory Authority referred to in the draft energy law be a multi person (five or seven members) body with expertise from various disciplines, such as legal, economic, technical and accounting in addition to having various political leanings. On this point the PSE thought that the regulator should be very involved during the first phase of the market development. I still disagree with the regulator becoming involve with business arranges between customers and suppliers. PSE acknowledged that the "regulator" will be a multi person body.

The use of "declared availability" seems to give the PSE a right to choose between initial contract and short term contract energy to the disadvantage of the generator. The dispatcher has the right to use the energy from the declared capacity and in fact a right to use the capacity as firm supply on system. Therefore, declared availability has value to the PSE and the system. This point should be recognized under the trading arrangements. PSE agreed that this point needs more work. PSE will handle in the next set of documents.

A number of the issues that occur in the working papers could be mitigated by a regulatory authority. An earlier paper, from this office, proposed that the Ministry consider an independent committee to review actions within the power sector as if the committee were a regulatory authority. This would provide for training of both the industry and personnel for the nucleus of a regulatory agency. Such a committee would be of great value in developing these trading arrangements and in developing the secondary legislation that will be needed when the new energy law becomes finalized.

The representative of PSE thought that this concept would prevent some of the difficulties during the transition of the marketing arrangements in the power sector.

More detailed comments are as follows:

1. Working paper 1; The long term contacts should provide for:
 - a. the buy out of the contract by another power purchaser;
 - b. review of contract terms for reason of hardship by either party; and
 - c. the future impact of a regulation authority on the relationship of the parties.

PSE agreed and will provide more details in future documents.

2. Working paper 1, page 7, Section 3.10; If PSE does not buy all the power the generator has for sale, the generator should be allowed to sell to others in Phase II and Phase III. Also, please refer to my earlier discussion on trading between ZE's and power plants during Phase I.

PSE agrees that direct sale of power to a distribution company in Phase II is possible but not in Phase I. The allowed sale of small amounts of power in Phase I will help the industry begin to gain knowledge on the transition to the future market and thus, should be considered.

3. Working paper 2, page 1, Section 1.2 (a); Throughout the working papers PSE has taken the right (by leverage as the only purchaser of power) to review management and investor decisions of the generator. Here, a provision states if, "PSE believes that the investment is economic..." PSE should restrict its concerns and review to its willingness to buy at a price acceptable to the investor and the generating company's management. Under the proposed arrangements, PSE is making management decisions for its suppliers and policy decisions for the State. PSE should restrict itself to decisions as a purchaser and wholesaler of power.

PSE agrees that the wording of this should be corrected.

4. Working paper 2, page 5, Section 2.13; "[T]he energy payment in the Initial Contracts should relate to units within a single station." The discussion throughout the working papers refers to buying or scheduling power from a single unit. To provide the generator with flexibility, the contracts should allow the generator to substitute power from other units within the same station, so long as PSE and the system are provided such power at the same cost as the unit originally scheduled. If the price is the same PSE and the system should be indifferent to the source of the power from within a station.

PSE agrees and units within a station on the same exit voltage can be treated as a single source.

5. Working paper 2, page 8, Section 2.25; This section states that a ZE or PSE will be paid for power supplied to a generating station at the BST. The generating station taking power from a retailer of power should pay the established industrial rate for such power. There should be no discrimination between customers within the same customer classification, by either the ZE's or the PSE.

PSE accepts that there should be no discriminatory rates within a customer class. Apparently the Polish text was not the same as the English.

6. Working paper 4, Summary page, Request for Tenders; The summary page states that, "[g]enerators who are not issued a Request for Tenders will not be permitted to take part in the annual contract round." This implies that the PSE will establish pre qualification for generators interested in bidding. Thus, the "Power Contract Tendering Code" should also specify the pre qualification requirements to be followed by both the PSE and the generators.

PSE agreed with this concept.

7. Working paper 4, page 2, Section 2.1 (b); This section states that the "Code of Practice [will be] issued by the Regulator". The regulatory function statement in Section 2.4 is that the "Code of Practice would be approved by and amended with, the approval of the Regulator". The later statement contains the correct function of the regulatory body. This maybe a translation error. However, the point that the regulatory body is only to approve such procedures is important and should be stressed when ever possible.

PSE agrees with the concept and pointed out that it was poor use of words in both Polish and English.

8. Working paper 4, page 13, Section 7.4; The first part of this section states that the PSE is willing to pay a five percent premium for power under a short term contract. However the last half sets a limit of no more than five percent above payments that PSE would expect to make without a contract. This later becomes a price cap that only protects PSE from its own errors. The PSE is setting up a tender procedure and then it puts a cap on what it is willing to pay. This is only possible because of the restrictive nature of the long term and initial contracting procedures. The short term contract and the related bidding is leveraged by the PSE because of the "declaration of availability" required under the long term and initial contracts.

PSE agrees that this is a cap provision and feels that it is necessary during the first phase and will only apply to the first phase.

9. Working paper 5, page 3, Article 3; The Settlement rules do not consider the need to ramp the increase and decrease of loading on generating units. The rules also leave unanswered the periodic timing requirement for the scheduling of power for the system. All measures are in hours. Does that mean a clocked sixty minutes or the time from one hour to the next, i.e. five o'clock to 6 o'clock? What if a unit operates for 59.99 minutes, what is its Actual Availability? This section has enormous detail but leaves some of the basic questions on the procedures unanswered. Since this paper sets the basis for settlement, the

details behind the principles should be well defined within the paper if the principles are to be approved. Otherwise the document will not result in the desired agreement but continued argument between supplier and customer.

PSE agrees and will put a statement in these working papers on the need for more detail in following development of the working papers.

10. Working paper 5, page 7, Rule 5; This rule states in summary that the only way a generator can remove a failure notice is by generating more than its previous Proven Availability. Such effort is subject to the dispatcher of the power system requesting the generator to supply the power associated with the increased capacity. This may not occur for many reasons not under the control of the generator but under the control of the PSE. There should be a procedure for the generator to prove availability so that payments for contract capacity can resume when the unit is restored to full service capability. Such procedure will eliminate the conflicts that occur when the purchaser determines and controls the parameters that are used for determination of payments to the supplier.

PSE agrees and will put procedures in the working papers to provide for return to service.

11. Working paper 6, page 5, Section 2.18; The right of the network operator to choose between services based on "their cost" will need to be carefully considered. New facility design and construction within the PSE, if compared economically with outside bidders will provide an advantage to the PSE owned facilities. The concept of tender for a service and evaluation through least cost financial analysis is an important consideration in the process of protecting the customer. Until a regulatory authority is established there is a need to provide for a review of all alternatives to the required services. Since there is at present ample capacity this may not become a problem initially but should be provided for in these working papers to prevent future problems.

PSE agrees. A discussion of an "interim regulatory committee" was considered as a possible solution to this problem.

12. Working paper 6, page 9, Article 4; In the discussion of connection charges there is no consideration of the need to change equipment because of power system dynamics, for example, the need to change a circuit breaker because of increased short circuit interruption capability. In such a case will the system be required to change its circuit breakers and the connected system's breakers as well or will the connected system be required to cover expenses forced on it by the power system. If a connected system transfers the equipment ownership to the PSE, is the PSE then responsible for changing equipment due to changes by the connected system operator on its system. These are basic considerations associated with customer paid for equipment,

owned and operated by the PSE. The acceptance of the PSE for infrastructure costs of connection would leave one to believe that the power grid will be responsible for all future costs related to equipment owned by the PSE. Is this a correct assumption?

The assumption is correct. Although not specifically stated PSE will stand the cost of up grading all equipment as system changes demand.

13. Working paper 6, page 39, Section 8.2; After review of the working papers 6 and 7, the conclusion is that the customer is required to pay for transmission losses and constraints. The conclusion in Section 8.2, that the PSE will bear the costs of losses and constraints, is difficult to understand.

14. Working paper 7, page 3, Liability; Even with a Grid Code there will be uncontrollable forces or even employee errors (outside of forced majeure) that will happen on the power system that will affect connected systems. These events need to be considered in the contract and accepted provisions for handling of such claims should be included.

PSE agrees and will include in follow on documents.

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PSE agrees.

16. Working paper 8, page 6, Section 2.13; This discussion states that PSE will be bearing significant part of the risk associated with costs and pricing in Phase I. Later in the section there is mechanism providing for the recovery of "shortfall" (surplus) in the following year. Therefore, the only risk to PSE may be carrying charges on the shortfall costs for the one year. Whereas, the ZE's may have no method to pass through the costs of the shortfall. This needs further work.

After some discussion on this point, the conclusion appears to be correct but viewed from the PSE as not covering all the risks that PSE will bear. This point should be clearly understood. If it is accepted that PSE "stands all the risks" and latter it is shown as not true, there will be an difficult time in the industry.

ERG MEMO Power System Trading Arrangements
To: Jacek Nowakowski

March 1, 1994
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We have a number of questions regarding the provisions of the working papers. These would be better handled in face to face discussions with the PSE staff working on the trading arrangements or their consultants.

PSE has stated that ERG will be more involved in the future development of these working papers and trading arrangements for the power sector.

In conclusion, the working papers are a good start towards development of the contractual arrangements that will be required within the power sector. The present energy policy requires this work. The refinement of this beginning effort will be more difficult and should begin immediately. Also, as this effort proceeds it will more than likely show areas of policy that should be changed. The need for policy change should not be ignored. The change in policy may be far more beneficial to Poland than the development of unworkable or unacceptable practices to meet an incorrect policy.

1/4/94

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
Ul. MYSIA 2
00 926 WARSAW 63
tel. (48 2) 625 62 80

March 1, 1994

To: Jacek Nowakowski
cc: Wojciech Kułagowski, PSE

From: John W. Arlidge

Subject: Comments on Power System Trading Arrangements.

At your request a memorandum was prepared to provide comments on the Power System proposed trading arrangements. That memorandum (dated February 8, 1994) reviewed in two meetings with the PSE. The conclusions of those meetings are indicated in the memorandum in **bold type**.

A meeting may be in order if you have any questions on this material.

Attached:

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP

Ul. MYSIA 2

00 926 WARSAW 63

tel. (48 2) 625 62 80

March 2, 1994

To: Anita Ronne

From: John W. Arlidge

Subject: Secondary Legislation

Your memorandum dated March 1, 1994 requested a list of activities for electric energy enterprises that do not require a license. It is our opinion that all core activities within the electric sector will require operating licenses. In addition those activities which are to be maintained as natural monopolies will require regulatory licenses.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
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00 926 WARSAW 63
tel. (48 2) 625 62 80

March 2, 1994

To: Anita Ronne

From: John W. Arlidge

Subject: Main contents of ERA Statute

Your memorandum dated March 2, 1994 requested comments on the proposed outline of ERA statutes. Several issues are generated by these proposed statutes.

General comments:

1. All members of the board should vote on all issues. Quorum votes should not be considered or allowed. There should be no appointed alternates. A board member should not be excused from the function of duties unless restricted by health or legally prevented from functioning as a member of the board.

2. There should be an administrative staff to assist and advise the board. In addition there should be a regulatory staff to represent the consumers' interests on issues before the board. These two staffs should be separate in function and direction. Without a regulatory staff, the consumers' interest could not be properly represented. Remember it is the board's function to balance the interests of the owner (investor) with that of the consumer.

3. The board members should sit full time and should divorce themselves from all outside interests that would be in conflict with their functioning as a member of the board, either due to time commitment or potential conflict of business interests.

4. The board should be an independent board not to be used as either advisory staff or support staff for any other part of government. The only relationship to be allowed with other government persons or agencies is that specifically stated in the energy law.

5. The board should set a minimum number of executive sessions to handle administrative issues and in addition, set any number of business sessions necessary to complete required regulatory actions. All meetings should be opened at least to the parties of interest in the matter before the board or more preferable open to the public so that the board actions are truly transparent. All actions taken by the board should be committed to writing, with documented support, published in form and also,

ERG MEMO: ERA Statutes
To: Anita Ronne

March 2, 1994
Page 2

in common language and presented to the news media.

6. The board in establishing regional branches can assign specific tasks but shall not surrender any of the responsibilities assign to it by law.

7. Qualifications for sitting on the board should be at least five years experience in one or more of the following fields: accounting, business administration, finance, administrative law, or professional engineer. There should be established behavioral and educational standards.

The above of course will require detailed support within the statutes. Please contact me if there are questions or need for explanation on this material.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
Ul. MYSIA 2
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tel. (48 2) 625 62 80

March 11, 1994

To: Jacek Nowakowski
cc: Fernand Sonck

From: John W. Arlidge

Subject: Current State of Reform in the Electric Power Industry

At your request I have reviewed the document dated January 1994, titled The Current State of Reform in the Electric Power Industry in Poland and Proposals for Further Actions. The following are my general comments:

1. The document is a statement of fact about the restructuring of the power industry to date.
2. I found nothing in the document that provided "proposals for further actions" unless the schedule to fulfill presently planned activities is considered a proposal.
3. Within the schedule there is an item called "a draft act pertaining to strategic and State reserves". As I recall the ERG reviewed such a proposed law and stated that it was not necessary. The "present" draft of the energy law gives the Minister of Industry and Trade sufficient powers to handle the matter.

I would like to take this opportunity to comment on commercialization of Turów and the "hard coal" power plants.

First, in the case of the lignite restructuring, the dispute between "bottom up" and "top down" is neither constructive nor necessary. The fact that other Ministries become involved in a bottom up formation of a holding company should not prevent the enterprises from using this form of restructuring. After all Poland is one country and therefore a State owned company is owned by Poland. In fact any holding company that is to be formed within the distribution sector or the combined heat and power sector will be a bottom up formed holding company. The hydro electric power plants are in the same position. Why then is this an argument in the restructuring of the lignite sector? I have suggested to Turów that it commercialize both enterprises without consideration of any future merger. This can be done on the basis of long term contractual relationships. After commercialization the companies can then take their time and

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ERG MEMO Reform, Power Industry
To: Jacek Nowakowski

March 11, 1994
Page 2

analyze the best future for the two individual companies.

Second, the hard coal sector has been held up from restructuring over the argument between two and four holding companies for more than a year. There has been no analytical evaluation of either the two or the four holdings. The original work by Coopers was very superficial and certainly not conclusive. The World Bank is afraid that if there are two hard coal holding companies that the lignite companies will want one holding company. I doubt very much that the lignite companies will be willing to backup from their present position and argue for a single holding with any believable determination. All of this discussion is based on individual opinion. It is past the time for study and discussion. The trade unions are against privatization in the power sector and in a short time will be against commercialization of the sector. I strongly suggest that the Ministry take a position that the enterprises either form two holding companies or fourteen individual companies. The Polish government has in place the Antimonopoly Office to protect against monopoly situations. Let it work in this case if the hard coal holding companies abuse the system.

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Ministry of Industry and Trade

The Current State of Reform
in the Electric Power Industry in Poland
and Proposals for Further Actions

Warsaw, January 1994

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List of Relevant Documents:

- [1] Proposals pertaining to restructuring programs for mining, bituminous coal and brown coal, natural gas, electric power industry, heating industry, and the liquid fuel industry. Schedules of activities in restructuring the following sub-sectors: mining bituminous coal, electric power, mining brown coal, petroleum mining and natural gas, heating, legal bases. Ministry of Industry and Trade. Warsaw. March 1992. Approved by decision number 21/92 by the Government Presidium on May 20, 1992 and up-dated in September 1992.
- [2] "Restructuring the Polish Electric Power Industry" Ministry of Industry and Trade. Warsaw, January 1994.
- [3] Assumptions of Poland's Energy Policy to the year 2010 (draft version). Ministry of Industry and Trade. Warsaw, January 1994.
- [4] Energy Act (draft version). Ministry of Industry and Trade. Warsaw, December 1994.

1. Introduction. Aims and Actions Undertaken.

This document presents the reform of the electric power industry as of January 1994 and a proposal for further activities which would facilitate the achievement of the intended aims. The evaluation of the state of reformation and the proposals for further activities in the electric power industry performed in this document has been based on the schedule of reform for the entire power industry sector, which was accepted by the government in May 1992; for this reason chapters 2 and 4 refer specifically (even the internal numbering of these chapters is the same) to document [1]. A complex description of the reformation of the electric power industry, along with a discussion of the accepted solutions and economic and financial evaluations is included in a separate paper [2]. The proposal to up-date activities in the electric power industry (chapter 4) presented in this paper is cohesive with the draft version of the assumptions for Poland's Energy Policy to the year 2010 [3] and with the draft version of the Energy Act [4].

The restructuring of the Polish Electric Industry was made a foregone conclusion by the Sejm's February 1990 Act to Liquidate the Energy and Brown Coal Association by the end of September 1990. By the might of this act, the Minister of Industry was obliged to undertake activities guaranteeing a growth in the electric power industry's economic effectiveness and to avoid the deterioration of the nation's electric power security. In order to coordinate these activities with the nation's political transformation, which was initiated at the turn of 1989/1990, and with its long-term goals, conceptual work on the restructuring of the electric power industry was begun. It was assumed that in order to overcome the difficulties associated with the tremendous rate of change in the country, the concept itself would have to be dynamic, facilitating the complete execution of the Sejm's act. This meant that there was a need to choose the fundamental direction of restructuring in a very short time and then to assure the evolution of solutions (this evolution had to fulfill the requirement of maintaining balance among the risk of lowering the nation's electric power security, the development of market relationships in the economy, and the supply capabilities of the electric power industry). The form of the concept, which took into account the necessity of considering at least a 20-year perspective in the case of the electric power industry, and the stage of advancement of restructuring, is presented in detail in the Ministry of Industry and Trade's Report "Restructuring Poland's Electric Power Industry" which is attached to the present paper.[2]

In the process of reforming the electric power industry, one of the fundamental tasks was to perform ownership transformations among the enterprises working in this industry. The basic concept for these transformations is the result of a series of studies, broad discussions and consultations in the electric power industry environment. Particular solutions were developed in 1991 and 1992 utilizing, among others, sector studies performed by World Bank experts, mainly represented by Coopers & Lybrand and on the basis of the privatization act. A Coordination-Preparation Group has been operating in the sub-sector since the beginning of 1992, mainly upon whom rests the burden to perform the basic work associated with the intended alterations in the electric power industry. In May 1993 it was replaced by the Group to Implement Reform in the Electric Power Industry, which was established by the Minister of Industry and Trade. This Group's assignment was to ensure the attainment of the largest possible consensus for the efficient execution of commercialization and the creation of a new organization in the sector and for the development of particular regulations on the electric energy market. This group is comprised by representatives of ministries (the Ministry of Industry and Trade, the Ministry of Finance, the Ministry of Privatization) Central Agencies (the Anti-monopolistic Agency and the Central Planning Agency) as well as by directors of enterprises - representatives of the sector and representatives of trade unions at the national level, and its labors are directly coordinated by Eugeniusz Morawski, Secretary of State at the Ministry of Industry.

The reformation of the electric power industry, because of the strategic character of this sector and its influence on the entire economy and the preservation of national security is a process in which the Council of Ministers has been involved to varying degrees, starting from the previously mentioned act of February 1990. The crucial decisions, indicating the further stages of a cohesive reform program were, in particular, as follows:

- . The Council of Ministers' June 1990 resolution and July 1990 decree which created the bases of a price-setting system in the electric power industry for a transitional period, after undertaking significant decentralization;
- . the decision (June 1991) in the form of a letter of intent to the World Bank, in which the directions of solutions were delineated for legal regulations, organizational and ownership structures, and for pricing policy;
- . the acceptance (May 1992) of a detailed program and schedule of restructuring activities in the electric power industry, which were developed on the basis of the directional solutions outlined in the letter of intent sent to the World Bank;
- . submission to the Sejm (January 1993) of a draft of a statute about ownership transformations in sectors of especial importance for the country, which, after being ratified by the Sejm and signed by the President, created the conditions for the execution of the subsequent stages of reform;
- . the publication, on the basis of the February 5, 1993 Act, of the Council of Ministers' April 19, 1993 Decree pertaining to the drawing up of a list of some of the state-owned enterprises and companies which have significant meaning for the nation's economy, whose privatization is subject to a particular course of action.

The manner of privatization and the intended organizational form of all electric power enterprises were defined in the "Schedule of Restructuring Activities in the Electric Power Industry Sub-sector" [1], which was approved by decision number 21/92 of the Government's Presidium on May 20, 1992 and which was updated by a decision of Deputy Prime Minister H. Goryszewski in September 1992.

The significant meaning of the topic area under discussion in the labors of the government, whose expression is its inclusion in the Economic Committee of the Council of Ministers' work plan for the first half of 1994 as well as the observed growing interest on the part of the society, the Sejm and the companies' managing boards and trade unions involved in these changes, were the reasons for which the present synthetic paper has been prepared, which, on one hand, presents the current state of execution of the activities which have been accepted, but on the other hand, includes proposals for further steps, which will facilitate the achievement of the goals aimed for in the reform. The present paper is also an attempt at a new reform, concentrating on the factors which have arisen over the years of realizing the reform and which stimulate certain processes which have been set into motion by these factors; in the latter part of the paper the threats to restructuring which have become apparent at the turn of 1993-1994 have been presented, along with the actions which, in consequence, must be taken.

Aims. The three principal aims of restructuring the Polish electric power industry, which are being performed in accordance with this concept, are as follows:

- . Inexpensive energy for the economy and the general population, without overt and covert forms of subsidies
- . preservation of the nation's electric power security at a rational level
- . improvement of natural environmental protection, taking into account the requirements inherent in Poland's integration process with Western Europe

The factors which stimulated and forced the gradual execution of these aims over the last few years were as follows:

- . 1990 - significant decentralization associated with the division of the electric power industry into producers (more than 30 producers gained economic independence), transmission (The Polish Electric Power Network, Inc. - PSE, Inc. - was established), distribution (33 power plants gained economic independence). Decentralization caused extensive pressure for the clarity of costs in settlements among electric power companies, which in turn created pressure to reduce costs.
- . 1991 - fundamental reduction of subsidies (in particular to bituminous coal, but also in the area of financing transmission and manufacturing investments. The reduction of subsidies created pressure to standardize costs in internal settlements in the electric power industry (among electric power companies), and to improve the tariff structure for final recipients (elimination of cross subsidization for particular recipients by other recipients). The "creeping" standardization of costs for power in electric plants (electric heating plants) gives, in particular, the most expensive producers time, but it also forces them to undertake radical modernization programs while taking into account very difficult economic conditions. This standardization brings the entire electric power industry closer in a most effective way to a more complete implementation of the principle of marginal costs.
- . 1992 - initiation of intensive cooperation with the World Bank in the area of preparations to finance modernization and developmental investments in transmission and manufacturing and in cooperation with the UCPTTE association (integrated electric power systems of 12 countries in Western Europe) for the purpose of integrating the Polish system with the western systems. Cooperation with the World Bank brought a tremendous pressure to bear to improve the quality of planning and creating the opportunities to finance large-scale electric energy investments. In turn, cooperation with UCPTTE lead to a marked improvement of quality in steering the work (primary regulation) of the system, which has significant meaning from the point of view of the nation's electric power security (especially when taking into account the abruptly deteriorating electric power situation of the Ukraine, which may lead to inevitability of the independent functioning of the electric energy systems in Poland, the Czech Republic, Slovakia, and Hungary, without the Ukraine's system).
- . 1993 - Ownership transformations in the electric power industry among the enterprises listed in the Council of Ministers' April 19, 1993 decree pertaining to the drawing up of a list of some of the state-owned enterprises and companies which have significant meaning for the nation's economy, whose privatization is subject to a particular course of action, which was

conducted on the bases of the act ratified by the Sejm in February 1993. Transformations whose essence lies in the commercialization of power plants, pumped-storage electric plants, and electric heating plants pressured the management of commercialized companies to manage more effectively and to increase their financial discipline. In turn, the transfer of the transmission network and the property of the pumped-storage electric plants to the Polish Electric Power Network, Inc. assured the growth in the nation's electric power security (by allowing for the nation's effective control over the strategic transmission subsystem concentrated in a treasury-owned joint stock company). Furthermore, the ownership transformations which took place, treated jointly, created a tremendous pressure in the direction of mutual regulation of relationships among electric power companies on the basis of trade agreements (including medium and long-term contracts).

2. Execution of the Schedule according to [1]

The state of execution of restructuring the electric power industry which is being presented in this chapter refers directly to the "Schedules of Activities in the Restructuring of the following sub-sectors: bituminous coal mining, electric power, and brown coal mining, petroleum mining and natural gas, the heating industry, legal bases" [1].

Generally speaking, in 1993 activities concentrated upon performing ownership transformations in enterprises and creating a new organizational and ownership structure, an organization for the new electric energy market, preparing the legal principles for the electric power industry's operations and the system of regulations, and the preparation of conditions for the synchronized hooking up of the Polish electric power system to the UCPTE system. From July to December 1993 transformations were made in the electric power industry which had no precedent in the world with respect to difficulty and external conditions. Among other things, this was associated with the necessity of conducting essential restructuring modifications within the enterprises undergoing transformation, including the preparation of new action and development plans, which had to be adapted to differently-formulated, external conditions. Ultimately, a transmission subsystem for the Polish electric power system was put into shape, with the network's property and integral segment in the form of pumped-storage electric plants, which can ensure regulatory power for the electric power system.

2.1. Execution of the "Schedule of Restructuring Activities in the Electric Power Sub-sector"

2.1.1 Electric Energy Pricing Policy

Energy prices were increased for the general population to a level exceeding the fees paid by industrial recipients. In 1992 a creeping price mechanism was introduced (a "price path" was agreed upon), however, on the basis of a decision made by the Minister of Finance to depart from the performance of the 1993 schedule of electric energy price changes for final recipients, the 10% price hike for retail recipients planned for August 1, 1993 was not implemented and the date for the 10% price hike on retail and supply prices was postponed from November 1, 1993 to December 1, 1993. In the draft of the state's 1994 budget, energy prices are expected to grow by 29.5%, including electric energy: supply prices by 23% (in two stages, February and July 1994), and prices for the general population by 30% (also in two stages, February and July).

2.1.2 Brown Coal Sub-sector Restructuring Program

2.1.2.1 Mines and Electric Plants

Up until now, the planned commercialization, which was to take place by establishing three treasury-owned companies, encompassing mines and electric plants in the Bełchatów, PAK and Turów regions has not been performed. However, in the framework of the work performed by the Group to Implement Reform in the Electric Power Sector, the "paths" to establish two fuel and power holding companies in the Bełchatów and Konińskie (PAK) regions have been defined. During the performance of this work, various manners of achieving the final structure were considered ("bottom up" or "top down"), a broader description of them is presented in the document entitled "Restructuring the Polish Electric Power Industry" [2].

A model of transformations achieving a holding structure without the involvement of the Council of Ministers has been developed for the Bełchatów region. This concept, after its presentation to the trade unions and workers councils, has been submitted to the Ministry of Industry and Trade.

In the Konińskie region an action scenario for a "top down" holding company has been prepared and tentatively agreed upon with the labor unions. Its basic tenet is that after having established the mother company, the General Assembly will establish daughter companies on the basis of the independent, existing companies within a period designated in the mother company's charter.

In connection with this, the Group has finally accepted restructuring programs to be executed in the Bełchatów and Konińsko-Adamowski regions, which meant that other tasks were undertaken, whose purpose, in turn, is to prepare detailed execution schedules.

It is necessary to develop an action scenario for Turów, which would be acceptable within the scope of the current law.

2.1.2.2 Support Enterprises

The majority of them has been turned over to the competency of voivodship governors and is being restructured by the Ministry of Privatization according to the course outlined by the State-owned Enterprise Privatization Act. They are not subject to transformation on the basis of the February 5, 1993 act since they are not on the list published in the Council of Ministers' April 19, 1993 decree.

2.1.3 Bituminous coal Electric Plant Restructuring Program

All the indispensable documents to transform these electric plants into treasury-owned joint stock companies have been submitted to the Ministry of Industry and Trade. There is a lack of a complete consensus in the Group to Implement Reform in the Electric Power Sector with respect to the organizational solutions for the manufacturing sub-sector which groups electric plants utilizing bituminous coal: the principal problem remaining to be decided upon is the number of holding companies. It is necessary to decide whether there will be 4 or 2 holding companies.

2.1.4 Electric Heating Plant and Commercial Heating Plant Restructuring Program

2.1.4.1 Larger Electric Heating Plants and Electric Heating Plant Complexes

The transformation of the electric heating plant sub-sector has practically been accomplished, as a result of which 18 treasury-owned companies have been established. The first stage of transforming six enterprises, which have undertaken a restructuring program leading to the opening of a Silesian Holding Company (the last, small electric heating plant - Electric Heating Plant of Toruń submitted the appropriate documents to the Ministry of Industry and Trade) has also been completed.

2.1.4.2 Small Electric Heating Plants and Heating Plants

Electric heating plants and heating plants which are in the organizational structures of distribution companies, which were established as the result of transforming power companies, are subject to internal restructuring.

2.1.5 Fulfilling the Conditions of PSE, Inc.'s Charter Activities

At the same time as when the power companies were being transformed into treasury-owned joint stock companies, a transfer of the property in the transmission network and of the manufacturing property in pumped-storage electric plants was made to PSE, Inc. The Polish Electric Power Network, Inc. has undertaken the exploitation of the transmission network. Mature drafts of agreements regulating the operations of the electric energy market on commercial principles have been drawn up.

2.1.6 Distribution Companies Restructuring Program

All 33 power companies were transformed into treasury-owned joint stock companies on the basis of the February 1993 act (they were conveyed at the same time as the transmission network was to PSE, Inc.) Operations are underway to perform the internal restructuring of these companies.

2.1.7 Restructuring Program for Pumped-storage Electric Plants

At the end of 1993 a Stock Company called Pumped-storage Electric Plant was established; its shareholders are the Polish Electric Power Network, Inc. Hydro-electric Power Plant in Żarnowiec, Inc. Complex of Hydro-electric Power Plants in Porąbka-Żar, Complex of Electric Plants in Dychów, Inc. and the Rzeszowski Power Company, Inc. In the near future the company's shareholders will make their contributions in kind, whose value will be reappraised at a realistic level. 4 utility companies with respect to the pumped-storage electric plants were also established.

2.1.8 Hydro-electric Power Plant Restructuring Program

Hydro-electric plants located on rivers remained in the organizational structures of power plants transformed into treasury-owned stock companies. The separation of hydro-electric plants from power companies was suspended.

2.1.9 Transforming Support Enterprises in the Power Industry

These companies are presently being transformed (they have been conveyed from the Ministry of Industry and Trade to the competency of voivodship governors; a portion of them is being transformed, a portion is in the mass privatization program, a portion will remain as state-owned enterprises).

2.2 Execution of the "Schedule of Activities to Create the Legal Bases for the Restructuring of the Power Sector"

- 2.2.1 Preservation of the nation's power security by creating legal bases for the implementation of restructuring programs for the power sector, creating legal regulations for the functioning of entities in the power sector, establishing a regulatory institution for the power sector.

On February 5, 1993 an act was ratified about ownership transformations in some state-owned enterprises which are of significant meaning for the nation's economy, which allowed the Minister of Industry and Trade to take over certain activities and authorizations held by the Treasury with respect to bodies encompassed by this act. The list of state-owned enterprises and companies which are of significant meaning for the nation's economy, whose transformation is subject to a particular course of action outlined by the Council of Minister's April 19, 1993 Decree. A draft version of the "Energy Act" has also been developed, which, before it is sent to Sejm, must obtain inter-ministerial agreement. Work on the Network Law and the principles regulating the functioning of the electric energy market are advanced.

3. Conclusions and Threats

An evaluation of the state of execution of the ratified schedules leads one to formulate the following conclusions and to identify several apparent threats:

- . In order to establish a new Energy Act, whose regulations correspond to the conditions of a market economy, departing from the principles of a command-distribution system, cooperation among all the ministries is necessary, so that a consensus can be achieved with respect to the final form of this act. This is even more justified since drafts of the Network Law, or the principles for the operation of the electric energy market, already exist, two fundamental documents at the level of executive acts.
- . There is a lack of accepted solutions for the "price path" of attaining an economic level of prices for electric energy, especially with respect to multi-year contracts, which would put into motion a mechanism of reflecting the internal contractual prices in the final prices for purchasers. The acceptance of such a "price path" is indispensable to create the appropriate conditions to deregulate electric energy prices, while the acceptance of directions for creating electric energy prices on the long-term horizon will constitute one of the elements in preparing the nation's energy policy assumptions.
- . It is necessary to prepare and accept the principles and manner of reappraising property in the electric power industry, which would allow one to depart from the extremely distorted economic calculations currently made in this sector.
- . An equally important issue is the development and introduction of a mechanism to liquidate debts with respect to the electric power industry. The internal processes of financial restructuring which have been undertaken, which have a short-term character, must be replaced by system wide regulations.
- . The electric power industry also needs the preparation of cohesive (at the level of the government) principles regarding the policy for utilizing credits from the World Bank and the European Bank for Reconstruction and Development, which will facilitate the performance of the ratified program for natural environment protection and to slow down the growth of electric energy prices to the year 2000.
- . The delays which have arisen in the performance of restructuring are the result, to a large degree, of a lack of a full consensus with the staff of enterprises and trade unions, especially in the area of guaranteeing workers rights or participation in privatization. The trade union participant directed a letter of intent to the Minister of Industry and Trade pertaining to the restructuring of enterprises in the electric power sector along with a draft resolution for the Council of Ministers to allocate shares in privatized companies. In this situation, in order to overcome the existing resistance of the staff, it is necessary for the Minister of Industry and Trade to submit an agreed upon draft version of such a resolution for discussion by the government.
- . A significant threat is the lack of an action scenario to establish a fuel and power holding company in the Turów region, which could be accepted from the point of view of currently binding legislation and which could be ultimately ratified for realization.
- . There is also a lack of a consensus with respect to the number of holding companies, in which electric plants powered by bituminous coal will be grouped; this blocks the process of transforming them into treasury-owned joint stock companies and the organization of holding companies.

4. A Draft of Up-dates to the Schedules

The drafts presented below which contain up-dated schedules take into account the delays which have arisen in the performance of the assumed changes and indicate new deadlines, while at the same time they lead to a more detailed planning of the remaining activities. They also take into account the apparent threats and the necessity to overcome existing barriers.

4.1 Schedule of Restructuring Activities in the Electric Power Sub-sector

The schedule encompasses two groups of topics: pricing policy for electric energy and restructuring. The basic aim of the electric energy pricing policy is to attain an economic level of prices, the elimination of subsidies and mutual subsidization.

The basic aim of restructuring the electric power industry is to create economic organisms which are capable of functioning in conditions in which market economy mechanisms will be implemented in the sector.

Number	Scope of operations	List of further activities	Deadline	Institutions responsible	Cooperating institutions
4.1.1	Price policy for electricity	Development and agreement upon the pace and the implementation of a program to attain an economic level of prices for electricity (the "price path".	1st quarter 1994	Ministry of Finance (MF)	Ministry of Industry and Trade (MIT)
		Agreement upon and implementation of new commercial solutions in the wholesale trade of electricity	1st half 1994	MIT	Electric plants, distribution companies, PSE, Inc.
		Acceptance of principles and manner of reappraising property in the electric power industry	1st quarter 1994	MIT	MF
		Development and implementation of a systematic mechanism to liquidate debt with respect to the electric power industry as a continuation of its internal financial restructuring	1st quarter 1994	MIT	MF
		Preparation of principles concerning the policy for utilizing World Bank and European Bank of Reconstruction and Development credits by the electric power industry	1st quarter 1994	MIT	MF
4.1.2	Restructuring program for the brown coal sub-sector Mines and electric plants	Completion of the transformations in the Belchatów and PAK region	1st half 1994	MIT	Electric plants and mines in the region
		Development of a concept to establish a fuel and power holding company in the Turów region	1st quarter 1994	Electric plants and mines in the Turów region	
		Establishment of a fuel and power holding company in the Turów region	1st half 1994	MIT	

4.1.3	Restructuring program for electric plants powered by bituminous coal	Deciding how many holding companies there will be and about the path of transformation, developing an internal structure. Transformation	1st quarter 1994 1st half 1994	MIT	Electric plants powered by bituminous coal
4.1.4	Restructuring program for electric heating plants and commercial heating plants	Continuation of internal restructuring. Preparation for being transformed into a municipal enterprise or for privatization.	Ongoing	Electric heating plants and heating plants	Municipalities
4.1.5	Fulfilling the conditions of PSE, Inc.'s Charter Activities	Completion of the process of taking over the stations currently attached to electric plants.	1st half of 1994	MIT	Electric plants and PSE, Inc.
4.1.6	Restructuring program for distribution companies	Continuation of internal restructuring	Ongoing	Distribution companies	Municipalities
4.1.7	Restructuring program for pumped-storage power stations	Completion of the organization of the company "ESP" through the making of contributions in kind by the shareholders in the form of more realistically appraised property	1st half 1994	PSE, Inc. and ESP*	
* on the basis of a decision of the Minister of Finance to reappraise property					

4.2 Schedule of Activities to Create the Legal Bases for the Restructuring of the Power Sector

Its purpose is to assure the nation's power security by the following:

- creating the legal bases for the implementation of restructuring programs in the power sector
- creating legal regulations for the functioning of entities in the power sector
- establishing a regulatory institution for the power sector
- creating conditions to gain a social consensus.

Number	List of further actions	Deadline	Responsible Institution	Cooperating Institutions
4.2.1	Make inter-ministerial agreements about the energy act and send it to the Council of Ministers	1st quarter 1994	MIT	All institutions
4.2.2	Prepare drafts of executive acts to the first degree	1st quarter 1994	MIT	
4.2.3	Develop a draft of an act pertaining to strategic and state reserves		MIT	
4.2.4	Develop a draft of an act pertaining to the status of a public utility company		MIT	
4.2.5	Prepare a draft of a resolution for the Council of Ministers pertaining to the allocation of shares	1st quarter 1994	MIT	

ERG Memorandum

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March 17, 1994

To: Fernand Sonck

From: John W. Arlidge

Subject: Polish Energy Policy / Electric Power pricing

Your request as I understand it was for a statement on electric power pricing for inclusion in a Polish energy policy document. As stated during our conversation there is a major effort within the Polish Power Grid Company on the develop of a tariff policy and development of power tariffs. Also, it is our understanding that the Minister of Finance and the Minister of Industry and Trade have recently published an electric power pricing forecast, for each year up to the year 2010.

For this discussion it will be necessary to return to the Polish Letter of Sector Development Policy, 1992 which stated (among other issues) that:

The Government's strategy is, first, to raise official prices to households to parity with official prices to industry. In a second step, we will shift all electricity, gas and heat prices from direct price control to indirect supervision, i.e. as part of the regulatory framework for energy networks. A second phase of price adjustment (to full economic cost) will then take place within this framework, starting [at the] end 1992.

Thus the stage for a pricing policy statement was set in the "Policy Letter". The draft of the new energy law provides for the development of a competitive market economy in the energy sector and an Energy Regulatory Authority for regulation of prices and service in areas of natural monopolies.

The present average price of electricity to the customer is about 1100 PZL/kwh (0.05 USD/kwh). This is about the average customer price found in the United States and about two or three cents less than the average in Western Europe. The present plan of the Minister of Finance, as published in the news media, is a three step raise in prices during 1994 or about a thirty percent increase. This would be an increase in electric pricing somewhat greater than anticipated inflation.

Depending on the meaning of "full economic cost" and the rate of inflation we can anticipate that the Government plans some real increase in electric pricing over the next few years based on the present law that provides for the setting of consumer prices by

ERG MEMO: Energy Policy Pricing
To: Fernand Sonck

March 17, 1994
Page 2

the Minister of Finance. However, with the passage of the energy law the Energy Regulatory Authority will be responsible for establishing the allowable prices that an electric distribution company can charge. These prices will be based on a cost of service model similar to one or a combination of price setting systems for public utilities found in the Western economies.

An important element in the setting of a policy guideline on electric pricing is the present activities within the power sector. The sector is setting forth "trading arrangements" for the next four years (phase one) and thereafter, the next nine years (phase two) and thereafter (phase three). During phase one the Power Grid will be the only entity allowed to buy and sell power from the power generators and therefore the only supplier of power to the distribution companies. The Power Grid will contract for the purchase of power through multi term contracts where the amount of power under contract will begin to diminish after phase one. Some direct purchase of power by large consumers and electric distribution companies will be allowed during phase two and theoretically there will begin in phase three a competitive market for the sale and purchase of power. Thus, with the development of the market system in phase three all consumers should ultimately be able to buy power from multiple sources competing for the market.

With this as background I suggest that we consider the following statement for the energy policy paper:

The Government, in accordance with its Letter of Sector Development Policy to The World Bank, in 1992, is continuing to increase electricity prices to full economic levels. The present level of electric consumer pricing is about on par with the United States and some what below the average found in Western Europe. Thus the program to reach full economic price levels will continue.

A new energy law will be introduced into the Parliament during the second quarter of 1994. The new energy law will provide the necessary acts to allow the development of a competitive energy market and provide for regulatory review of energy prices in markets of natural monopolies. It will be necessary to prepare secondary legislation, regulations, standard accounting principles and other regulations for the power sector after passage of the energy law. The development of these necessary regulations will provide the foundation under which the regulatory authorities can act to protect the consumers' interests and sector companies will be able to attract new investments.

Until such time as the regulatory authority is established the present laws will provide for the development of pricing and pricing policy in the sector. For the transition period between

ERG MEMO: Energy Policy Pricing
To: Fernand Sonck

March 17, 1994
Page 3

now and the fully competitive power market, the power sector is developing a set of trading arrangements. The trading arrangements will provide for power marketing and trading and will allow the sector to remain a viable industry providing reliable power service to the nation.

To assist in the acceptance and effectiveness of the Energy Regulatory Authority the Government plans to form an energy regulatory committee. This committee will be staffed and will fully duplicate the final organization anticipated in the new energy law but of course without the benefit of a legal act and therefore without the power or authority of the ultimate agency. The committee will carry out all functions of the ultimate agency and thus provide a regulatory experience for the future regulatory authority personnel, the power sector and the consumer. At the same time its review and actions should help to resolve the issues that are daily developing in this major market conversion.

I trust that the above will assist you in preparation of the documents requested by the Minister.

ERG Memorandum

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March 25, 1994

To: Robert A. Archer
cc: David Keith

From: John W. Arlidge

Subject: Polish Energy Law Draft as of March 25, 1994

There has been a request as to the disposition of the Polish Energy Law and the present status of its development. The following information was developed to satisfy that request.

Upon arrival in Poland the ERG was requested to review the existing draft of new energy law. The draft was a very poor attempt to modify the existing command management of the energy sector to a structure that would fulfill the Polish "Letter of Sector Development Policy" to the World Bank (1991). The ERG during the month of December 1992 prepared a draft energy law to regulate the natural gas, electric power and district heating sectors. The draft provided for:

1. An independent regulatory authority to license energy activities and to regulate pricing of energy in monopoly market situations.
2. A method of establishing standards of service.
3. The ultimate development of a fully competitive energy market in Poland.

The law would not interfere with coal or oil markets.

In late 1992 and early 1993, Vice Minister (then Director) Adamczyk was responsible for the development of the energy law. During the first quarter of 1993 numerous meetings with the Vice Minister's staff resulted in several drafts of energy law. ERG submitted extensive written comments on the "official draft" energy law draft published in April 1993. The April draft was a disappointment to the ERG. Although the Polish team working on the law felt that there was little difference between the ERG draft and the April Polish draft. Several meetings were held in which ERG members delivered verbal comment on the Polish draft.

A new official Polish draft of energy law, dated July of 1993 was released in August. Shortly after this Vice Minister Adamczyk resigned from government as did key members of his staff. Again the Polish team felt that the draft was very close to the ERG concepts suggested in December of 1992. ERG submitted extensive comments on the draft with a letter stating that ERG could only

support the new energy law if its comments were fully incorporated into the law. The major objections of ERG to the draft law were:

1. Compromise of the independence of the proposed regulatory authority.
2. Conflicts between the regulation of district heating by the Voivodes and the balance of the sector by the energy regulatory authority.
3. Confusing structure and format of the law.
4. Retention by the Minister of Industry and Trade of all import and export of energy and fifty one percent ownership of all national grid systems (natural gas pipelines and power transmission system).
5. Mandatory stock piling and storage of fuels by private industry.
6. The right of the State to confiscate private business for "public interest".
7. The dedication of private property to the State by business as a condition of license.
8. The right of the State to place licenses up for bid at time of renewal.

The World Bank (ESMAP) in October, 1993 submitted its draft of energy law to the Ministry. ESMAP submitted its draft because of similar concerns to those of ERG. ERG was informed that the World Bank, Operations Division also submitted comments to the Minister.

In December the Ministry published a draft law for internal and has asked ERG for oral comments on certain provisions within the draft. The December draft was somewhat improved over the July draft. In January, 1994, Minister Morawski appointed a committee representatives of the energy sector to redraft the law. A second committee was appointed to redraft the energy law in February, 1994. The results from these efforts have not been released for review. An ERG member participating in the two meetings was instructed by the Vice Minister not to discuss the meetings with members of ERG.

ERG knows by means other than the Minister of Industry or the ERG liaison with the Minister, that several major concepts are under review. One major change that is under consideration is the elimination of the concept of an energy law all together. The alternative would be separate regulatory laws for each energy sector. This type of change will of course delay any possibility of submittal to the Parliament during the first half of 1994.

ERG Memorandum

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April 12, 1994

To: Robert A. Archer, US AID
cc: David Keith, RCG
Fernand Sonck, ERG

From: John W. Arlidge

Subject: Power and Lignite Specialists Action Plan for the Period
July, 1994 to January, 1996

POWER SECTOR

The power sector in the period of this action plan will have the following schedule of major activities:

1. Completion of commercialization of the various State owned power enterprises which will include, among certain companies, the forming of holding companies or the merger of companies.
2. Development of trading and contractual arrangements within the sector.
3. Development of technical arrangements for safe reliable operation and service.
4. Individual company reorganization and planning including individual company privatization, financial and resource plans.
5. Preparation of a coordinated national resource plan.
6. Preparation for compliance with the anticipated new energy law.
7. Continued development of international coordination and cooperation in preparation for interconnection of power system With Western Europe and resultant expanded trading.

In addition to the above the sector will have to begin developing a customer service orientation.

DISCUSSION:

It will be appropriate to discuss the major activities one at a time with consideration of how and the best way for the Power and Lignite Specialists to advise and assist.

1. Completion of commercialization of enterprises;
The remaining power sector enterprises to be commercialized include the lignite and hard coal fueled power plants. In addition some of the combined heat and power plants are looking towards mergers or forming holding companies.

The lignite fueled power plants in the PAK group and Bełchatów

have received approval for the formation of commercialized companies. Some work remains but it is understood that the action is a fait accompli. The Turów complex has received some approval from the Ministry for proceeding, however, there are reports that there may be some change or difference requested by the workers' councils.

The ERG Specialists can have little input in this effort beyond support of the advice issued to these enterprises as of this date. However, in the future there are a number of areas that the ERG can be of assistance. These include assisting and advising:

- a. in the reorganization planning of the companies,
- b. in financial planning and attracting of needed financing,
- c. developing the necessary contracts or arrangements between the mines and power plants, among the companies for power sales and exchange, and
- d. general business considerations under the new market conditions.

2. Development of trading arrangements;

The Power Grid Company has the lead in the development of trading arrangements; development of power contracts for power purchase, sales, transport and system operations; and the necessary technical procedures for the operation of the power system.

During the initial period of ERG, the Power Specialists have been asked from time to time to comment on various aspects of the program being developed by the Power Grid. For the coming year this work will continue. Meetings will be held with various personnel in the Power Grid to develop an organized method of participating in this work on a scheduled basis.

The Ministry of Industry and Trade has asked the Power Specialists for comment on documents submitted to the Ministry by the Grid. This work will continue.

3. Development of technical arrangements for power system;
Included in item 2, above.

4. Company privatization, finance and resource plans;

Each of the power sector companies have major efforts before them to plan for privatization of the company and ancillaries not necessary to the core business, obtaining new finances, and for the distribution companies, the planning for future resources to serve load.

The ERG has made some effort to assist a few companies in planning. This effort will hopefully lead to a model or group of models that can be transmitted easily among the companies. In addition US AID has funded reorganization planning for one

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generation company and one distribution company. PHARE has voiced an interest in further funding of this effort.

ERG specialists will continue the limited effort to assist some companies in planning and to develop planning models that can help other companies. In addition a proposed training program has been developed and submitted to the Ministry for ultimate submittal to PHARE for funding. The goal of this effort is to have each company within the sector exposed to the problems of planning in an economic or regulated market situation. Of importance, will be the proper planning for obtaining new finances. Here there is an effort by the ERG Manager to obtain a financial expert to work with the existing ERG Specialists on methods for obtaining funds within the European financial community. The Power Specialists together with the Corporate Planning Specialists will supplement the financial expert by providing experience from the US financial community.

The distribution companies have yet to investigate their individual needs for planning of future resources. There is a growing desire on their part to develop a significant amount internal power generation away from the national power system and Power Grid. This is further stimulated by the need to refurbish the entire district heating sector and thus, provide a large amount of "co-generation". All foreign funding for utility resource planning has been funneled to and used in the Power Grid Company. All western utility planning tools have thus been acquired by the Power Grid Company. The distribution companies have been by passed in this important issue. The Power Specialists have incorporated resource planning in their discussions with the distribution companies. A proposal for funding for training of resource planning on the distribution company level is under preparation. PHARE has voiced interest in such a concept.

5. Preparation of a national resource plan;
The Power Grid Company is responsible for the reliability of the power supply for the national power system. The Power Grid has taken this to mean that it is the national planner. This has been disputed by some and there is consideration for the Power Grid to become the national power planning coordinator instead of the national planner.

The Power Specialists have recommended the consideration of a national planning system similar in structure to that of the North American Electric Reliability Council. This work will continue with the goal of a national cooperative planning process among the power transmission and distribution companies.

6. Compliance with the new energy law;
Development of secondary legislation and regulations for licensing of power companies and for revenue regulation of power

ERG Power and Lignite Action Plan
To: Robert A. Archer

April 12, 1994
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companies operating as natural monopolies will take many months. The actual passage of the new law may take a year or more.

To assist the transition to the new regulatory environment the Power Specialists have recommended the formation of an interim regulatory committee. The committee for all intents and purpose would act as the anticipated Energy Regulatory Authority in the present draft of energy law with the exception that the committee will have no legal authority. The committee would develop the regulations and participate in the development of secondary legislation under which the Regulatory Authority will act. In addition, the committee will begin to sit in review of the issues to be under the consideration of the Regulatory Authority. Thus, the industry and the regulatory staff (and possible future members of the Regulatory Authority Board) will obtain first hand experience in the operation of a regulatory system.

The Power Specialists will continue to work towards the establishment of such a committee and towards obtaining the necessary funding for its formation. The World Bank has stated its interest in this project.

7. Development of international coordination and cooperation; The Polish Power Specialists has been advising the Polish team negotiating the European Energy Charter. This work will continue.

The Power Grid is responsible for international power interconnections and operations, as well as, purchases and sales. To date there has been no request for assistance or aid in this area.

8. Customer service orientation of companies; This is an area of need in Poland. The word customer is just beginning to have meaning to company personnel. Some distribution companies have taken preliminary steps towards customer service orientation but not in an organized fashion with specified goals.

This is an area where a work plan for ERG has to be developed within the near term.

MINISTRY OF INDUSTRY AND TRADE

The original scope of work for ERG was as advisory to the Minister of Industry and Trade. The Ministry has made limited use of this advisory capacity. For the most part ERG has contributed to the development of the new energy law. This advice has been used to some degree. The Ministry will probably want assistance from ERG during the Parliamentary review of the proposed law. This activity has been assigned by ERG Manager to the Legal Specialists. Thus, the Power Specialists will be providing support to the Legal section on this matter.

sector;

- * continue working with other ministries on the formulation of energy law, regulation, and power sector development;
- * begin formulation, together with other power sector consultants and ERG advisors, a program for introduction of market driven strategic planning within the power sector and resource planning within the distribution companies.
- * establish final budget and schedule for the remaining period of US AID funding for ERG activities.

There has been periodic requests from the Ministry for review of selected documents. This activity will probably continue.

ACTION ITEMS

1. There will be protocols established with a number (3 or 4) of distribution companies for the purpose of assisting the companies in their respective efforts at corporate and resource planning. The ERG team will provide overview for the companies planning organization, consultant tenders, and other areas where the companies ask for advice. The ERG effort will result in planning models to be distributed among the power distribution companies to assist them in general and resource planning.

- a. Effort will be six man months.
- b. Final result will be a series of papers and seminars for training of distribution company personnel.
- c. Completion July of 1995

2. A similar program as outlined for the distribution companies under item 1 above will be developed for the combined heat and power generation plants. Schedule of activities should be parallel with item 1.

3. Efforts will go forward to develop a more formal arrangement with the Power Grid Company. A protocol will be established to identify when and how the ERG will assist or advise in development of documents and concepts for restructuring of the power sector. The major work that should be included in the formal arrangements between ERG and Power Grid are; resource planning, contract development, trading arrangements, technical codes, and customer relations.

- a. Effort will be six man months.
- b. Final result will be a series of papers on the work effort.
- c. Completion end of 1995.

4. Development of principles for secondary legislation and regulations for the compliance with the new energy law will be an ongoing activity for ERG. These will include licensing of companies, detailed administrative procedures for the Energy Regulatory Authority, development of tariffs and price structures, etc.

- a. Effort will be three man months.
- b. Final result will be a series of principles and discussion papers on the function of the Energy Regulatory Authority and individual company compliance with the regulations.
- c. Completion end of 1995.

5. Continued assistance to the Ministry on the development of the European Energy Charter.

- a. Effort will be one man month.
- b. Final result will be a series of reports on the negotiation sessions held by the Charter Conference.
- c. The Charter is scheduled for completion this year.

6. Develop a series of lectures and presentations on the need for customer relations and service organizations within the newly formed companies. These papers will develop the type of services that should be offered and the training of employees in the ability to present the proper image for good customer relations.

- a. Effort will be two man months.
- b. Final result will be a series of lectures as described.
- c. Completion will be July 1995.

7. Continued general advice and services to the Ministry of Industry and Trade as requested. Meetings and service with other Government Ministries as requested or as need is indicated. General advice and services to companies within the power and lignite sector as requested or as need is indicated.

- a. Effort will be six man months.
- b. Final result will depend on the requesting organization.
- c. Completion with the termination of ERG.

ERG Memorandum

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May 25, 1994

To: Anita Ronne

From: John W. Arlidge

Subject: Definition of Price and Tariff

Regulated Price: (value) Regulated price should ensure that the supplier under prudent and economic management, an opportunity to collect sufficient revenues to recover all proper operating costs reasonably applicable to the service, taxes and depreciation, and cover the commercial cost of capital, which is:

- a) related to the degree of efficient and satisfactory performance of services;
- b) adequate to provide debt interest, dividends on the companies stock if any;
- c) similar to the return in businesses having similar or comparable risks; and
- d) sufficient to allow the companies to maintain and support their credit worthiness and enable them to attract the necessary capital for proper discharge of their duties.

Market Price: The price which a supplier is willing to sell and a purchaser is willing to pay for an energy unit.

Tariff: Any schedule of prices or fees and associated conditions or obligations for both the supplier and customer.

ERG Memorandum

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May 27, 1994

To: ERG Members

From: John W. Arlidge

Subject: Requested Comments on May, 1994 Draft of Development Strategy for Energy Sector

Because of the request to make the comments no more than one or two pages any examples or support for comments will be held to a minimum. There is some misunderstanding as to the request. At least two members of ERG believe that the request was for proposed policy alternatives. The majority believe the request was for general comments on the draft paper itself. I will follow the majority.

This paper is being developed as the energy guidelines that will accompany the draft energy law to the Parliament. Thus, the paper should be constructed to follow the report presently outlined in the draft energy law. There are two general subjects that should be added to the paper. The first, a discussion on how, mechanically the pricing will change from controlled market to free market or regulated pricing, in each subsector, is to be accomplished. The second should be a discussion on accomplishments in restructuring, to date and anticipated schedules for changes that will effect or impact the consumer in the future.

There are many incomplete and unsupported statements within the paper. This document should be prepared to give the Minister the support he needs to carry it and the energy law to the Parliament. The following are a few items that would be more effective with proper support:

1. The statement, "as result of prolonged recession" is used very often. Under competitiveness of the Economy; the phrase "with poor shape of national economy" is used. Reports for the first quarter of 94 have shown a growth in GDP of 4% compared to a negative in 1989; inflation in 1989 was 640% vs 1993 at 38%; and deficit as percent of GDP is down to 3%. There are many countries in Europe that would like to have economic conditions at this level.

The "prolonged recession" is used as a reason for reduced power consumption. However, all the distribution companies that we talk to have had increase in use by households, commercial and light industrial customers. It appears that the large State owned industries, that cannot compete

without subsidies, are the cause of the past reduction in use. Many of the distribution companies we visit report a growth in demand.

2. Under prices and wages, power rates show an increase of 13.2 for industry and 1.9 for households. In actual terms the ratios reported by the Energy Information Center are about 190% for industry and 600% for households. Admittedly there is an effort to use real terms (use of the USD) and the numbers could have been reversed in typing but the ratios of differences should be the same and they are not. The paper should be consistent throughout using the same basis for statistics and should use the Polish Złoty. Statistics should use a single base year.

In discussing power prices the discussion appears to be missing a number of considerations. The first would be the effect on the customer. Average wages in present term Złoty (first quarter of 1994) is about 15 million. This is considerably higher than in 1985, the base year for this particular price statistic in the paper.

3. Under Part III Energy Security, Pricing in the Transition Period, a flat statement is made that tariffs will vary no more than 20% nationally or 10% in adjacent systems. There is no discussion of the method to accomplish this tariff policy system. Will the PSE have to use internal subsidies or will the distribution companies need external subsidies. If you argue that no subsidies will be needed then this should be explained so that the Parliament and the customer can understand how a customer in Warsaw proper will be paying within ten percent of the prices paid by the farmers in adjacent systems. Does this mean that the customers within different classes of service, within a single distribution system can not have prices that vary from one another by more than ten percent?
4. Under Supply Diversification, the goal for coal production is set at 140 to 150 million tons and coke at 25 to 35 million tons per year. This is a small increase over present production (130 million tons and 16 million tons). It is set as a production goal. The readers of this paper are going to ask what the market will be and is it possible to place all growth of energy use on the other energy sources and efficiency improvements. We have seen, very recently, that Parliament members want support for such statements.

Under Power there is a statement that construction of a new major power plant must begin in the last half of the 1990's, to meet expected increases in power demand. This paragraph also talks of new "PP and CHP" plants. The State

is looking at the need for a major overhaul of heating systems. Will the increase production from combined heat and power plants be sufficient to handle the power demand growth. How many of the existing power plants will be refurbished? Can private investment be expected to handle everything required including the additional expenditures for the environment? What is the Minister planning for this period and is that plan supported by expected private financing? If the State will be required to contribute, how will the contribution be requested and in what form? Will the Minister's policy guideline proposal include a budgeting of energy for future growth?

5. The paper has a number of errors that should be corrected the most out standing is the statement that, after thirty years of operation of nuclear power plants there has been "no casualties or environmental damages...". I have read about Chernoble, the Soviet reactor that went into an excursion, melt down and fire causing several hundred immediate deaths, several thousand radiation cases, and as yet, unclassified but assumed thousands of years of environmental damage to a large part of Asia. The section goes on to berate coal and oil for their respective environmental impacts with such questionable comments as 25000 lives have been saved by nuclear power. Later in Protection of Natural Environment, there is a statement that coal fueled power plants emit radioactive levels many times the level of a similar nuclear plant. Such a statement mixes the toxic impact of background radioactive elements with that of highly toxic "man made" radioactive elements. The argument does not consider that in a modern coal plant the removal of post combustion products eliminates many toxic elements before release and reduces the remainder to diminimus levels.

The above are a few of the examples of inaccuracies in the paper and inconsistencies between remarks. It also, points to the need to assure that there is proper support for each statement and conclusion. The Parliament will want support and so will the people. Thus, the document must be constructed on sound well founded data. Conclusions must be supportable and tested. If the assignment to ERG was in fact to formulate suggested alternative energy policy from this paper, it would be very difficult with the conflict, inaccuracies and lack of support for statements and conclusions. This document is a strategic planning report. It should be structured as such.

Energy Restructuring Group

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May 7, 1994

Ministry of Industry and Trade

Subject: Comments on Draft Energy Law

During the meeting with Ministry staff on May 5, 1994, ERG was asked to submit in writing its comments on the draft of energy law. The particular issue to be addressed was that of independence of the proposed Energy Regulatory Authority. The following is in answer to staff's request.

The energy law is being drafted with the goal of creating an economic and stable market for the energy sector. This goal is established to promote efficiency within the energy sector, to attract investors into the system, and to provide the people of Poland with an assurance of stable pricing and good service. In those areas where a monopoly will exist, there is to be established an Energy Regulatory Authority (ERA). ERA is to be independent and separated from the cyclic swings in political directions and subject only to the national policy established by Parliament. ERA will assure a quality of service to the energy customer while promoting a stable economic climate for the investor. The draft law (Article 29) establishes that national energy policy provides that ERA is responsible for a "balance between the interests of energy enterprises and users of energy and fuels".

The present draft of energy law fails to provide ERA with a true independence from the direction and interference of the Ministry of Industry and Trade. The draft law in fact defeats the very goals, set forth in this draft, as the intent of the government. Examples of this can be found throughout the draft. Some specific citations are:

- Article 35; Provides for suspension of specific tasks assigned ERA by the Council of Ministers on motion of the Minister of Industry and Trade. This motion may be issued "if state security is endangered". Without specific definition of this phrase a liberal interpretation by some future Minister would endanger the very stability that this law is to provide the customer and the investor. Article 14 provides the Council of Ministers with authority to take specified actions under defined conditions. Thus, Article 35 creates conflict within the law itself.
- Article 12; Provides for the Minister of Industry to create an

ordinance that would override the responsibilities of ERA including that of approval of pricing for services. A number of the provisions in this article will go so far as to override company management. Such an article in the law is counter to the goal of establishing an economic and stable market. Article 6 specifies the national pricing policy but Article 12, Section 3, states that the Minister of Industry will by way of ordinance establish detailed terms of settlement and prices and tariffs setting for energy and fuels. Thus, the Minister creates a command market which Poland, by this law, is trying to eliminate.

Article 15(2); Provides for the Minister of Industry, by way of order, to determine detailed principles of keeping accounts. This is a direct infringement on the duties of the ERA and the management of the companies. If ERA is to regulate the monopoly industries it must develop the expertise and methods for review of the accounting of the regulated industries. This assignment by its very nature, requires ERA and the companies to develop suitable accounting principles. It would be unnecessary duplication of ERA functions for the Ministry to develop the same expertise as the ERA. For the Ministry to establish the very tools that ERA must have to regulate is certainly interference with the "political independence" of ERA. What happens if the Ministry order does not allow ERA to fulfill the national policy established by Parliament?

Several other articles interfere with the independence of ERA. These will be covered in ERG detailed comments and recommendations. During the meeting with Ministry staff, it was suggested that many of the provisions that create an interference with ERA independence are because of present conditions and the need for some transition from the present conditions. ERG detail comments will include suggested language that would allow for the termination of such provisions when they are no longer necessary. If such provisions have been incorporated only for purpose of transition, there should be provision for termination by a date certain.

Energy Restructuring Group

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May 19, 1994

Robert Ovar
International Energy Agency
tel. 1 45 24 94 65
fax. 1 45 24 99 88

Subject: IEA Request for Information on Cost Estimates for Polish
Generation "Modernization"

Source: "Electric Power Tariff Study: Polish Power Grid Company"
October 1993

1992 to 2000
Rehabilitation of 2,865 MW \$800/kw

Present to 1997
Modernization for compliance with
emission standards; about 15500 MW

SO ₂	\$200/kw
NO _x	100/kw
ash	45/kw

Other modernization for efficiency about
Turbine blading replacement
rotors, exciters, etc.
85 units above 120 MW \$ 48/kw

ERG Memorandum

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June 1, 1994

To: David Keith
From: John W. Arlidge

Subject: Individual Efforts for the Month of February 1994

As requested by Mr. Archer, the following are preliminary goals for the month of February, 1994:

1. Assist Gliwice Distribution Company in the development of a schedule for the Company's development of a strategic plan.
2. Assist the Łódź Distribution Company in the development of a scope of work for consultants developing the Company's plan for privatization.
3. Participate in conference for the review of the restructuring of the Polish power subsector.
4. Review documents for the Ministry of Industry and Trade, at the request of the Ministry Staff, and prepare comments on the following documents:
 - a. Polish Power Grid Code,
 - b. Power Subsector Trading Arrangements,
 - c. Energy Policy for the Power Sector, and
 - d. Regulatory License for subsectors within the Power System.
5. Develop proposals for European Union funding in cooperation with the District Heating and Gas Specialists within ERG.
6. Finalize proposals for European Union funding of programs for the Power Subsector.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP
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tel. (48 2) 625 62 80

February 12, 1994

To: David Keith
cc: Bruce Exstrum
tel. 001 703 351 0300
fax. 001 703 351 0342

From: John W. Arlidge

Subject: Funding of ERG Through December 1995

It appears that the funding for the ERG through 1995 will be forthcoming from the European Union. It is uncertain if the UK Know How fund will extend its funding. However, I believe that Bob Archer may want some sort of proposal for funding past the present budget. He can either reject it, or change it but he probably should have something to think about. The following is a likely concept for US AID funding in 1995:

1. Present US AID funding budget provides for the Power and Lignite specialist to continue full time and in residence in Poland until July 1, 1994. After which he will begin a travel schedule of two weeks in Poland out of every five through January 1995. The Corporate Planning and Privatization specialists will continue a schedule of two weeks out of five working in Poland through January 1995. The Polish associates (three), translator, and secretary will continue under present contracts which terminate February 1, 1995. This will require the budget of approximately 1.8 million USD as submitted to Mr. Archer in December 1993.

2. For the period February 1995 through December 1995 it is proposed that the foreign specialists commit to a schedule of two out of every six weeks in Poland for a total of 16 weeks (approximately 300,000 USD). Travel associated with this schedule is eight trips for each of the three specialists and would require about 300,000 USD. All Polish personnel would continue, under extended contracts, at a require expense of 150,000 USD. Administrative and overheads would be 150,000 USD. Thus, the total for the eleven month commitment would be 900,000 USD.

Refinement of this budget would probably change it to an amount somewhat less than the 900,000 USD stated. However, there should be a contingency provided for unforeseen expenses and some preparatory work by the US specialists before travel to Poland.

The scope of work during the extended period would be as follows:

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
ENERGY RESTRUCTURING GROUP

Ul. MYSIA 2

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January 29, 1994

March 1, 1994

To: David Keith

From: John W. Arlidge

Subject: Individual Efforts for the Month of February 1994

Report on Individual Efforts for the Month of February 1994
As requested by Mr. Archer, the following are preliminary goals for the month of February, 1994:

1. Assist Gliwice Distribution Company in the development of a schedule for the Company's development of a strategic plan. *A meeting with Gliwice was held and several other communications were handled during the month. The planning personnel will prepare a detail scope of work and final schedule. A follow on meeting will be scheduled in about one month.*

2. Assist the Łódź Distribution Company in the development of a scope of work for consultants developing the Company's plan for privatization.

Łódź Distribution Company has not completed the work plan necessary for our return a meeting will be scheduled in March.

3. Participate in conference for the review of the restructuring of the Polish power subsector.

Due to the costs associated with the conference and schedule conflicts, I did not attend this conference. Messrs Duda and Kurczewski attended and reported on the conference.

4. Review documents for the Ministry of Industry and Trade, at the request of the Ministry Staff, and prepare comments on the following documents:

- a. Polish Power Grid Code,
- b. Power Subsector Trading Arrangements,
- c. Energy Policy for the Power Sector, and
- d. Regulatory License for subsectors within the Power System.

Initial review of all documents was completed. Meetings were held with the PPGC to discuss the trading arrangements and ERG submitted comments on the energy policy to the Ministry.

5. Develop proposals for European Union funding in cooperation with the District Heating and Gas Specialists within ERG.

Drafting of documents with the other specialists was completed and submitted for inclusion in the EU annual report.

6. Finalize proposals for European Union funding of programs for the Power Subsector.

Programs proposals were included in the EU annual report

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
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February 28, 1994

To: David Keith
From: John W. Arlidge

Subject: Individual Efforts for the Month of March 1994

As requested by Mr. Archer, the following are preliminary goals for the month of March, 1994:

1. Assist the Łódz Distribution Company in the development of a scope of work for consultants developing the Company's plan for privatization.
2. Participate in Central and Eastern European Power Industry Forum.
3. Continue discussions with the Ministry of Industry and Trade, and others on the following documents:
 - a. Polish Power Grid Code,
 - b. Power Subsector Trading Arrangements,
 - c. Energy Policy for the Power Sector, and
 - d. Regulatory Licenses for power subsector.
4. Prepare paper on the Polish energy law for presentation in conference on Polish power sector restructuring to be held in London on April 13, 1994.
5. Prepare for and participate in the ERG Donors meeting during the first week in March and the meeting of banking interests associated with Polish restructuring to be held during the second week in March.
6. Participate in the seminar on Electric Sector Regulation as part of the Utility Partnership Program.
7. Participate in a seminar on the European Energy Charter organized by Internationaal Instituut Voor Energierecht.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE
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Ul. MYSIA 2
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April 1, 1994

To: David Keith
cc: Bruce Exstrum
tel. 001 703 351 0300
fax. 001 703 351 0342

From: John W. Arlidge

Subject: Report on Individual Efforts for March 1994

Individual efforts for the month of March 1994 were specified in ERG memorandum dated February 28, 1994. The following is a report of those efforts:

1. Assist the Łódź Distribution Company in the development of a scope of work for consultants developing the Company's plan for privatization.

Łódź reported several times during the month that it could not resolve certain issues with the hiring of a consultant. It was requested that a meeting be scheduled in April.

2. Participate in Central and Eastern European Power Industry Forum.

Mirek Duda and I attended the Forum in Prague together with a number of people from the Polish power sector. A trip report will be filed. The papers given by the majority of the Eastern Europe participants described technical restructure of physical plants. Most of the Western European papers focused on the need to restructure the legal background, the industry and the companies to attract the necessary capital for the restructure of the power sectors within the eastern block.

3. Continue discussions with the Ministry of Industry and Trade and others on the following documents:

- a. Polish Power Grid Code,
- b. Power Subsector Trading Arrangements,
- c. Energy Policy for the Power Sector, and
- d. Regulatory Licenses for the power subsector.

A discussion paper is being prepared for the Grid Code and meetings were held with Arthur Andersen who is preparing comments for the generation subsector. Additional verbal comments were submitted on the trading arrangements and licenses. A document was circulated which reported to be an ERG paper on the energy policy. The document had many errors and violations of a number of ERG positions. The Manager after review of the issue stated that it was a personal paper by an individual and should not be considered an ERG document.

4. Prepare paper on the Polish energy law for presentation at a conference on Polish power sector restructuring to be held in London.

It was concluded that the cost of attending the conference was too much and work schedule would not allow attendance.

5. Prepare for and participate in the ERG Donors meeting during the first week in March and the meeting of banking interests associated with Polish restructuring to be held during the second week in March.

The Donors meeting was held and reported in a separate document. The banking meeting was not finalized and there is some question if such a meeting will occur, at least in the near future.

6. Participate in the seminar on Electric Sector Regulation as part of the Utility Partnership Program.

Mirek Duda and I took an active part in the seminar. Discussions with the program sponsors lead to a commitment to work together and coordinate activities in the future.

7. Participate in a seminar on the European Energy Charter organized by Internationaal Instituut Voor Energierecht. The seminar was cancelled.

**ENERGY RESTRUCTURING GROUP
MINISTRY OF INDUSTRY AND TRADE**

ul. MYSIA 2
00-926 WARSZAWA 63
tel 482 625 62 80

The Energy Restructuring Group (ERG) is a group of international experts with specific professional backgrounds chosen to advise and consult with the Ministry of Industry and Trade (MoIT) and Polish energy enterprises on restructuring of the energy sector. ERG subsector specialists provide advice in the areas of electric power and lignite; hard coal; district heating; and natural gas. In addition there are functional specialists advising in the areas of corporate planning; legal; regulatory; and privatization. Each specialist has a Polish associate of similar background and education. The subsector specialists and all of the Polish associates are resident full time employees in Poland. The functional foreign specialists are scheduled to be in Poland approximately fifty percent of the time.

The ERG is financed by three international organizations: United States Agency for International Development; UK Know How Fund; and European Union PHARE program. US AID funds the positions of power and lignite , corporate planning and privatization specialists. UK funds the positions of regulatory and hard coal specialists while PHARE funds the positions for legal, natural gas and district heating. In addition PHARE funds a position of manager/coordinator together with a Polish associate. Also in the ERG offices are two PHARE funded specialists for training and energy efficiency programs. Office staff is jointly funded by the EU and US AID.

ERG's major objectives are to:

1. Provide an available advisory or consulting service for the energy sector in Poland, including MoIT, Ministry of Planning and Construction, and the various State owned enterprises for the planned transition from a State managed industry to a competitive market based industry.
2. Create through the Polish associates and by consultation and advice to the ministries' staff and the sector enterprises, a base of knowledge for the continuing development of an efficient, economical, and customer oriented industry.
3. Provide background experience to assist the Polish managements in solving the day to day problems which occur in the energy markets, as well as, internal corporate planning and organization of companies operating in a market economy.

ERG began work in November of 1992. Since that time, in addition to its other efforts, ERG has participated in the drafting of

ENERGY RESTRUCTURING GROUP MINISTRY OF INDUSTRY AND TRADE

Page 2 of 2

several new laws and State policy positions that will effect the energy industry. ERG has been very involved with the formulation and drafting of the energy law which will be introduced to the Parliament by mid 1994.

In the past sixteen months the energy sector has progressed towards restructuring in many areas. Within the power subsector there has been formed thirty three power distribution companies (commercialized joint stock companies) as the first step towards privatization. All of the hydro electric power plants and many of the large combined heat and power plants have also formed commercial companies. It is anticipated that the hard coal and lignite fueled condensing power plants will form commercial companies during the first quarter of 1994. During 1993 the ownership of all the power transmission system facilities above 110 kilo volts was transferred to the Polish Power Grid Company, a joint stock company formulated in 1990.

The hard coal enterprises have formed seven commercial holding companies holding all the active hard coal mines. Within the hard coal subsector, as in the other subsectors, ERG is working to provide strong planning assistance to the management of the hard coal mines because of the very difficult social and environmental issues facing the State during restructure of the industry.

There has been many activities in the district heating subsector leading to the transfer of heating plants to local governmental bodies and the development of local planning work particularly on the environmental and efficiency problems associated with the district heating in Poland.

The natural gas subsector recently began work on privatization of a number of the ancillary enterprises which are appurtenant to but not required for continuing gas marketing. The State gas enterprise is working on detailed planning as to its ultimate corporate form for the future competitive market scenario.

At present it is considered that ERG will remain funded until the end of 1994. EU has announced that it is willing to fund ERG through 1995; however, no formal contracts have been issued. A meeting of the donors has been scheduled in March to discuss the future of ERG.

Prepared by:
John W. Arlidge, Advisor
Power and Lignite Subsector

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The Energy Restructuring Group (ERG) is a group of international experts with specific professional backgrounds chosen to advise and consult with the Ministry of Industry and Trade (MoIT) and Polish energy enterprises on restructuring of the energy sector. ERG subsector specialists provide advice in the areas of electric power and lignite; hard coal; district heating; and natural gas. In addition there are functional specialists advising in the areas of corporate planning; legal; regulatory; and privatization. Each specialist has a Polish associate of similar background and education. The subsector specialists and all of the Polish associates are resident full time employees in Warsaw. The functional foreign specialists are scheduled to be in Poland approximately fifty percent of the time.

The ERG is cooperatively financed by US AID; UK Know How Fund; and European Union PHARE program. US AID, through RCG, funds the positions of power and lignite, corporate planning and privatization specialists as well as positions for a translator and a secretarial.

ERG's major objectives are to provide an available advisory or consulting service for the energy sector in Poland and to create through the Polish associates a base of knowledge for the continuing development of an efficient, economical, and customer oriented industry. ERG began work in November of 1992. Since that time, in addition to its other efforts, ERG has participated in the drafting of several new laws and State policy positions that will effect the energy industry.

The energy sector has progressed towards restructuring in many areas. Within the power subsector the majority of the State own enterprises have reorganized into commercial joint stock companies. The hard coal enterprises have formed seven commercial holding companies holding all the active hard coal mines. ERG is providing planning assistance to the management of the newly formed companies. The district heating subsector has completely reorganized by the transfer of heating plants to local governmental bodies. The natural gas subsector, working with ERG, recently began planning for privatization of a number of the ancillary enterprises which are appurtenant to but not required for gas marketing.

During a meeting of the donors in March of this year a protocol was signed extending ERG funding through the end of 1995.

ERG Memorandum

MINISTRY OF INDUSTRY AND TRADE

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Date:January 12,1994

To:John W.Arlidge, Fernand Sonck, Jacek Nowakowski

From:Mirosław Duda

Subject:as below

A SIMPLIFIED PROPOSAL OF TERMS OF REFERENCE

TRAINING PROGRAM FOR THE KEY PERSONNEL OF POLISH POWER ENTERPRISES ON REGULATED MARKET SYSTEMS

1.BACKGROUND INFORMATION

1.1.Recipient institution: Ministry of Industry and Trade of Poland

1.2.Project beneficiary : Selected groups of key personnel being involved in preparation and implementation of the economic reform in the power sector of Poland.

1.3.Relevant country background

For more than four years Polish economy has been under transformation into a free market oriented system. Also the power sector is subject to structural changes towards market oriented industry in order to increase its overall efficiency. However, the free market system in the power sector is limited because many segments of this industry have their natural monopoly features. For such enterprises regulation by an independent regulatory body is foreseen in order to assure reasonable prices and acceptable level of electricity supply security for all consumers.

Regulation under market conditions is a new practice in Poland and a comprehensive understanding of such system is very important for good results of the economic reform in the power sector. To achieve that goal it is necessary that the managers of power enterprises be properly trained on all aspects of regulated market systems.

The managers of power enterprises are at present composed of two kinds of people: young open minded specialists without a deep managerial experience and

middle-age managers with a specific experience in the former centrally managed system. Both groups need to be trained, the second one even more to eliminate their irrelevant behavior resulting from the old habits.

Implementation of market economy and then privatization of state owned companies create many fears among the employees about their social safety. The employees councils and trade unions of presently state owned enterprises can easily block the reform if they do not understand the principles of the new system and possible benefits of its introduction. There have been many such examples since the beginning of the reform also in the power sector (i.e. Kraków-Łęg CHP plant case)..

Transformation of state owned power enterprises into commercial companies will need many members of supervisory boards from different institutions. They should also understand specific features of regulated market in the power industry in order to fulfil their duties in a proper way.

The reform in the power sector is subject to a growing interest of many politicians especially parliamentary members. This has been shown by latest discussions in Sejm. A good promotion of the ideas of the reform among politicians involved can help in proper implementation of the new economic structure within the power sector.

1.4. Current state of affairs in the power sector.

The reform in the power sector is being implemented generally in accordance with the concept adopted by Ministry of Industry and Trade in June, 1992, with some changes and delays caused by current interaction of managerial groups and trade unions.

The restructuring began in 1989 with the parliamentary act dissolving Power and Lignite Board and creating 32 generation enterprises, 33 distribution enterprises - all of them state owned - and imposing establishing Polish Power Grid Company (PPGC) as a joint stock company being fully owned by the state treasury. It is assumed that the state treasury will always have vast majority of the shares in order to maintain a strong state control over the activity of PPGC which is to be an integrating company of the whole national power system. PPGC is presently acting as the owner of the transmission grid and a wholesaler of power and electricity between generators and distributors.

In order to coordinate economic activities of so dispersed generating and distribution enterprises there have been called up three associations:

- Association of Polish Power Plants;
- Association of Polish Combined Heat and Power Plants;
- Association of Electricity Transmitters and Distributors.

The associations have no commercial activity. They serve only as a discussion forum for managers of the enterprises associated.

At present, a discussion is being carried out on the ways of grouping generating enterprises into holdings. It was planned to create 7 holdings of generating

companies with capacities of about 4000 MW each, consisting of coal and lignite fired plants. Three of them, based on lignite, should have incorporated also the associated lignite mines. The final number of hard coal power generation holdings and the organizational shape of lignite holdings have not yet been settled.

Combined heat and power enterprises are being commercialized more successfully. All of them have already been transformed into State Treasury JS companies. Selling of their shares to different public and private investors is to take place in the near future. Creation of some holdings is also being considered.

Pumped-storage plants that were originally to be incorporated into PPGC, finally have been transformed into State Treasury JS companies that then have created, together with PPGC, one JS company to which the shareholders transferred their production assets. PPGC will have vast majority of the stocks in the JS company. After transferring the assets the companies will serve as operation enterprises to be privatized.

Distribution companies have been totally commercialized without any grouping that had originally been planned. Privatization of distribution companies is foreseen in the future. Their shares are to be sold or given to local authorities, and to be sold to final consumers and also in the public market.

In 1993 the electricity prices and tariffs for final consumers were being set by Minister of Finance. The breakdown of the transition prices between distributors, PPGC and generators was prepared by PPGC with participation of the power associations and approved by MoIT. The way of setting up electricity prices seems to be the same for 1994 as there is little chance that the new trading arrangements can be in force in that time. A proposal of new trading arrangements in the power sector is being now reviewed by different experts.

The new energy law which is the legal base for the reform in the power sector is still under preparation. The latest draft of the law (of January 10,1994) has been generally approved by all ministries and central authorities. Some detailed comments are to be discussed with the ministerial experts before the draft goes to the Economic Committee of Council of Ministers and then to the government and finally to the parliament.

So, the final shape of the new economic structure of the power sector in Poland has not yet been settled. Therefore, the training program should be flexible enough to show variety of possible solutions of regulated market in different countries and should provide for construction of the optimal final system for Polish conditions.

1.5. Target regions, target subsectors and target groups involved

1.5.1. Regions

No specific regions of the country have been foreseen for the training.

1.5.2 Subsectors

All core subsectors of the power industry are to be included in the training program i.e. generators, distributors and PPGC. Power auxiliary companies should have a separate training program.

1.5.3. Groups of people

The project is aimed at the training of two groups of people involved:

- A -** members of all kinds of restructuring committees, representatives of employees' councils in still existing state owned enterprises, members of supervisory boards in already commercialized companies, representatives of trade unions acting in the power sector and politicians, especially parliamentary members that are interested in reforming the power sector.
- B -** the large managing staff of power enterprises (general managers, economic and finance managers, chief accountants, managers of planning departments, marketing managers);

1.6. Expected state of the sector at the end of the program

The training project in the power sector should help in preparing the key people of the sector for a proper implementation of the reform in the power industry i.e. in:

- choosing the optimal organization of power companies;
- establishing the trading arrangements most proper for Polish conditions;
- elaborating effective strategies and business plans for power companies;
- finding the best ways of financing investment projects;
- raising the overall efficiency of the power sector by introducing possible range of competition etc;
- establishing the relevant methods of power system operation.

The trained people should be able to arrange and to run further training programs based on chosen solutions of the reform for wider number of managers of power companies.

1.7. Related programs

The program is related to the activity of Energy Restructuring Group sponsored by PHARE funds, US AID and UK Know-how fund.

1.8. Other donors' contributions

(to be established after consultation with the ERG's donors).

1.9. Relevant addresses:

Energy Restructuring Group, Ministry of Industry and Trade of Poland, ul.Mysia 2, 00-926 Warszawa 63, Poland, tel. +48 2 625 62 80, fax +48 2 625 63 05, att.Mr.Fernand Sonck

2. OBJECTIVES OF THE PROGRAM

2.1. General objectives

General objectives of the project are in accordance with the general goals of PHARE program and other donors' activities i.e. to help in restructuring the national economy of Poland by introducing market oriented systems.

2.2 Specific objectives

- * to help in finding the optimal implementation of a market oriented structure in the Polish power sector based on best foreign achievements and being suitable for specific Polish conditions;
- * to facilitate implementing of the new system to all power companies;
- * to prepare managers of power companies to plan and to run the business under regulated market system in most efficient way.

3. PLANNED ACTIVITIES OF THE PROGRAM

3.1 General remarks

As the training program is targeted at two groups of trainees the activities within the program should be divided consequently into two kinds with the appropriate content. The detailed programs of the training should be proposed by the contractor.

3.2 Specific activities

3.2.1 Topics of the training programs

Below are the recommended topics of the training for further consideration of bidding contractors. The detailed content of each program should be established in cooperation with Energy Restructuring Group and representatives of power associations.

The content of the detailed training programs should reflect different power market systems in order to present to the trainees a wide range of possible solutions of market oriented structures.

Topics for group A of the trainees

1. Basic goals and principles of regulated market in the power sector.
2. Different national realizations of regulated market in power sectors with description of their:
 - organization;
 - trading systems;

- ways and range of competition;
- independent power generators;
- third party access;
- regulatory systems;
- power supply security on national and local scale;
- achievements and failures;
- future trends.

It is recommended to choose three or four national examples (UK systems, typical US solutions, German or Dutch and Danish systems).

3. The proposed Polish power sector restructuring, its specific features and comparison with other systems with results of comparative analyses.

Topics for group B of the trainees

1. The goals and principles of regulated market in the power sector.
2. Detailed description of the proposed market oriented system in the Polish power sector (eventually with some optional solutions).
3. Existing and future laws and regulations.
4. Engineering economics for power industry: basic principles and specific issues for different types of power companies.
5. Strategic and business planning under regulated market conditions on national and corporate scale, resource planning, demand side management planning.
6. Financing of power projects: possible types, sources of investment funds for each type of financing, repayment conditions .
7. Power system operation under regulated market conditions: trading arrangements, power dispatching, scheduling and performing of maintenance works, liability of market players, emergency regulations.
8. Pricing: competitive and regulated prices and tariffs, cost-plus pricing.
9. Accounting systems for power companies: regulatory and business requirements on the national and local scales, compliance with statistical needs.
10. Contracting: types, legal requirements for national and international trade, model contracts for power generation, transmission, distribution, supply, trade, system services.
11. Cogeneration of heat and electricity under market conditions: sharing of cogeneration benefits between electricity and heat supply sectors, dispatching of CHP plants.
12. Power system auxiliary services under market conditions.

3.2.2 Organization of the training

Form

The training for group A of the trainees can be run as a seminar with presentations and discussions between the trainees, the lecturers and special guests invited by

the contractor and/or ERG.

The training for group B of the trainees should be performed by running a training course with lectures, working sessions, homeworks and final tests. Each participant of the course should obtain a certificate of successful completing the course signed by the manager of the course and a representative of Ministry of Industry and Trade.

Recruiting of the trainees

Recruiting of the trainees should be done by Ministry of Industry and Trade in cooperation with the contractor, power associations and ERG.

Arrangement of the training.

The training course and the seminar will be arranged by MoIT in cooperation with ERG and power associations. They will be responsible for all facilities necessary for running the training sessions : the lecture rooms, audio-visual equipment, copying facilities, accommodation of the participants and other necessary arrangements.

The contractor should prepare the detailed programs of the training, select the lecturers, edit and print all lectures and back-up materials in English. The translation of the materials and interpretation of the lectures will be done by ERG.

Running the training.

The training course and the training seminar will be day-to-day managed by the manager of the contractor in cooperation with a Polish organizational manager to be nominated by MoIT.

Financing.

Financing of the training program will be provided by PHARE fund and (to be established after the other ERG donors' commitment).

3.3 Project management

The manager acting on behalf of the contractor will be responsible for:

- the contract performance;
- expenditures imposed by the contract;
- the reports according to terms of reference.

The organizational manager acting on behalf of MoIT (ERG) will be responsible for:

- arranging the seminar and the training course in a chosen location suitable for running such training.

3.4. Contractor's tasks and responsibilities

Tasks:

- to prepare a detailed programs of the seminar and the training course;
- to select and to hire appropriate lecturers;
- to prepare , to edit and to print the lectures and back-up materials in English;
- to run the seminar and the training course together with the Polish partner.

Responsibility:

The contractor will be responsible for accomplishment of the tasks in accordance with the contract and general conditions for service contracts financed from PHARE/TACIS funds.

3.5. Project location

The exact location of the training seminar and the training course will be set up by MoIT or ERG.

3.6 Project period

Duration:

The seminar: one week (5 working days) .

The training course: 8 weeks continuously.

Time:

The seminar: as soon as possible.

The training course: October and November 1994.

4. Expected outputs

5. Required inputs

6. Time schedule, period of performance

7. Job description

all to be filled out in accordance with the standard PHARE form of terms of reference after the proposed terms of reference are accepted.

ENERGY RESTRUCTURING GROUP
1994 SECOND QUARTERLY REPORT
POWER AND LIGNITE SPECIALISTS

TASKS PERFORMED

- * review and comments and recommendations to the Vice Minister on the draft energy law and energy policy guidelines;
- * participated in several negotiation sessions among representatives of the various ministries interested in the energy law;
- * cooperation with the Polish delegation on negotiations of the European Energy Charter;
- * review and comments and recommendations on the proposed power system trading arrangements and grid code;
- * meetings with members of distribution and transmission association; generation association; and individual companies on the subjects of restructuring, planning and contracting for the sale and purchase of power; tariffs and customer relations;
- * participation in conferences on the regulatory future in Poland, independent power, and European Energy Charter;
- * meetings were held with Anti monopoly Office to discuss utility regulation and operation;
- * several papers were prepared on issues ranging from "line extension" policies to pricing policies;
- * briefed American Embassy Secretariat on possible effects of the on going coal mine strikes;
- * met with representatives of International Energy Agency to assist in IEA's up coming report on the Polish energy sector;
- * numerous meetings with representatives of foreign companies interested in energy related developments in Poland;
- * participated in the development of the Energy Restructuring Group's action plan requested by the donors.

TASKS UNDER PREPARATION

- * continue to monitor and participate in the development and negotiations of the energy law and energy policy guidelines;
- * continue meeting with various companies and associations on issues of restructuring and future planning in the power

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POLISH POWER SYSTEM RESTRUCTURING ASSESSMENT

Draft Report

Prepared For:

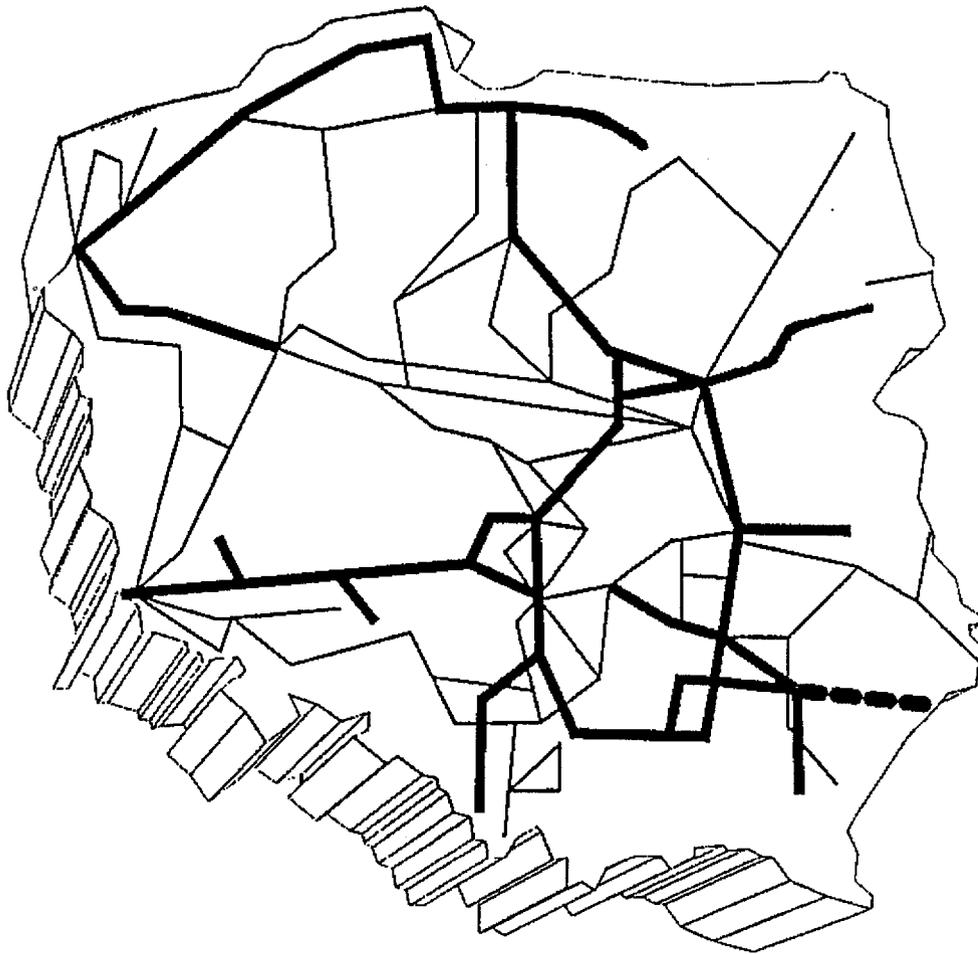
Ministry of Industry and Trade

Prepared By:

John W. Arlidge
Advisor for Power and Lignite
Energy Restructuring Group
1620 Charles Lam Court
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(702) 228-8017

January 1995

POLISH POWER SYSTEM RESTRUCTURING ASSESSMENT



**PREPARED AT THE REQUEST
OF
MINISTRY OF INDUSTRY AND TRADE**

**JANUARY , 1995
BY
JOHN W. ARLIDGE
ADVISOR FOR POWER AND LIGNITE
ENERGY RESTRUCTURING GROUP**

FOREWORD

This assessment of the Polish power system restructuring effort was prepared at the request of the Ministry of Industry and Trade (MoIT). The request was made of the Energy Restructuring Group (ERG), an advisory group of foreign and Polish energy experts reporting to the Minister of Industry and Trade. Preparation of the initial draft of the report fell on the foreign advisor for power and lignite with the assumption that the normal ERG review process would be followed and the final product would be an ERG issued report. Circumstances have made it impossible for the normal ERG review process to take place. Therefore, this Assessment will be submitted to ERG for its use and finalization of the report to be submitted to MoIT.

The Assessment is broken into seven chapters. The chapters are roughly grouped around the questions asked by Vice Minister Gabryœ at the time of the assignment. The project was delayed for various reasons but was completed in January, 1995 by the ERG US Advisor on Power and Lignite.

The format of each chapter has the main body of the chapter broken down into discussion subjects. At the end of each chapter is a Brief of the issues in the general discussion. The Brief should not be considered a summary of the chapter for it does not summarize the material in the chapter. The Brief is an independent discussion that could stand alone. Charts and graphs are used to help the reader "visualize" the issue under discussion. Tables of data are few and included at the end of the chapter where larger Font can be used and the data associated with the discussion can be included.

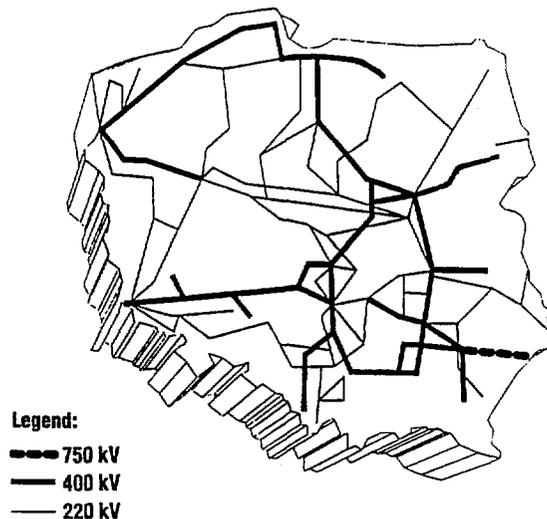
Data and information availability has been a continuing problem with the development of this assessment. Only data through the second quarter of 1994 was available to ERG. The data has inconsistencies and is not always properly defined. These data problems required a good deal of effort to over come. At this point it is necessary to thank the personnel at the Energy Information Center and my associate Dr. Mirek Duda for their respective efforts on the author's behalf and their tolerance of the author's inability's with the Polish language which does not prevent his impatience from coming forward.

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CHAPTER I DESCRIPTION OF POWER SYSTEM

- Note:* 1. data are as of end of 1993 unless otherwise noted.
2. data are from Ministry of Industry and Trade Energy Information Center unless otherwise noted.

Figure 1.1
The Polish Power Transmission Grid



General Description. At present the main features of the Polish Power System are 34 public utility power generating enterprises, one transmission company (Polish Power Grid Company [PSE]) Figure 1.1 and 33 retail distribution companies Figure 1.2. The electric power market consists of purchase of energy from the generation enterprises by PSE; and sale of energy and transmission services by PSE to the distribution companies. The distribution companies also purchase very small part of their requirements from small "non utility" generators. Power sales to ultimate customers and the obligation to serve rests on the distribution companies. However, the generating enterprises and PSE do sell small amounts of power directly to end users.

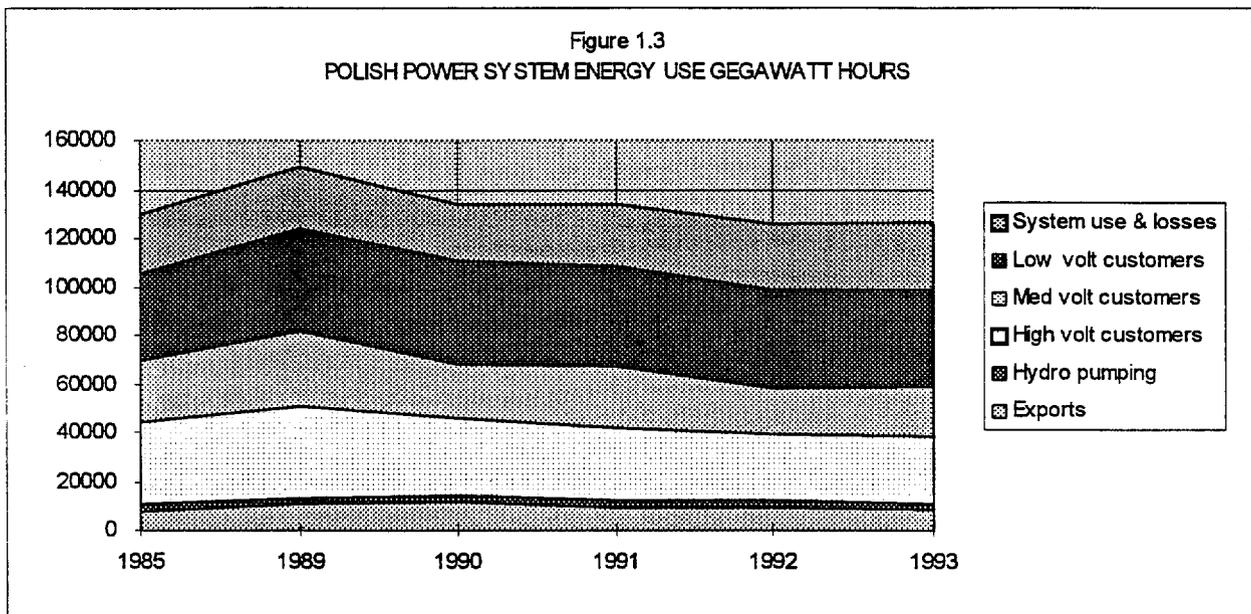
DESCRIPTION OF POWER SYSTEMS > 3

~~West~~ Leg

The Minister of Industry and Trade through the Property Transformation Act of 1993 and by ordinance of the Council of Ministers has the functions of the State Treasury for the majority of the power system enterprises and commercial companies. The notable exceptions to this are combined heat and power plants, Kraków ~~Łęg~~ and Bielsko ~~Biała~~. *Biała*

The surplus production capacity on the system conceals a number of problems both technical and financial. Over sixty percent of the power generation equipment and plants are in excess of fifteen years of age and over fifty percent are in excess of twenty years of age. The present reduced load on the system offers time for refurbishment and replacement of equipment and plants as needed. Transmission and distribution systems have similar problems with age of equipment and needs for repair and replacement.

System Supply Requirements. Figure 1.3 shows the electric power generation and consumption of power for the years 1985 through the 1993.



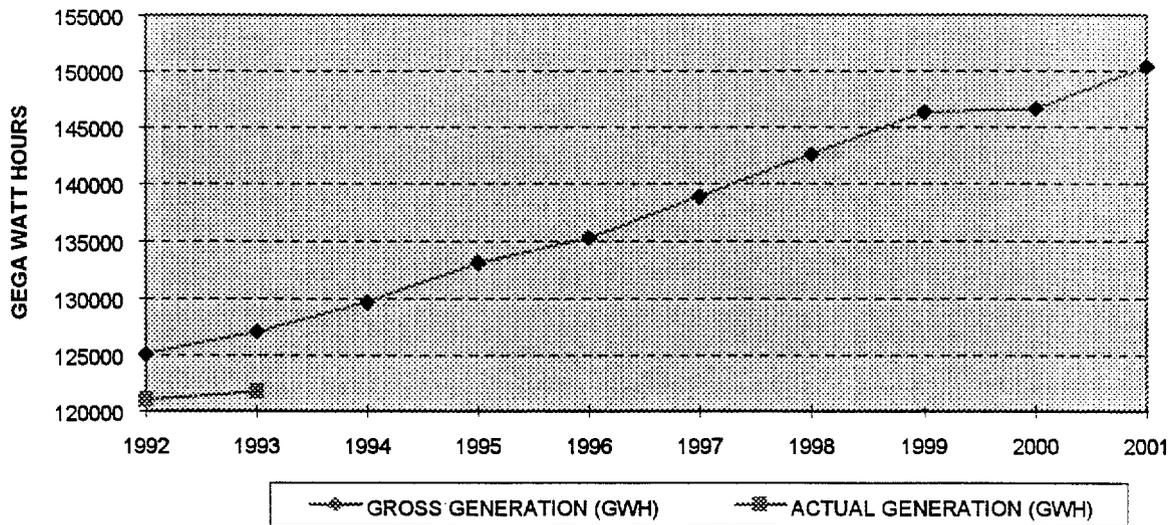
In Poland the greatest annual energy supply to the system occurred in 1989 at a level of 137.6 TWh. The highest annual electric capacity demand on the system occurred in 1988 at a level of 24.7 GW. A lower demand was recorded in 1992. In 1992 capacity demand fell to 21.5 GW, in December. The annual energy supply to the system in 1992 was 132.7 TWh. However, in 1993 the peak demand

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increased to 22.8 GW, also in December, with an energy supply demand of 133.7 TWh. In 1993 the lowest monthly peak demand during the year occurred in July at a level of 14.2 GW. Figure 1.3 shows the electric power generation and consumption of power for the years 1985 through the 1993.

The last known forecast for load growth within Poland was produced in 1992. That forecast for electric power production is shown in Figure 1.4 (Table 1.1). 1992 and 1993 actual production is shown in Table 1.2. As can be seen in the Table 1.1 retail sales will increase from 95073 GWh in 1992 to 118212 GWh in 2001 or about two percent per year. The 2001 forecast will require a gross generation of 150400 GWh. Retail sales in 1993 had reached 92411 GWh. It is apparent that a new forecast is required if it has not already been accomplished.

Figure 1.4
POLISH POWER SYSTEM FORECASTED GROSS GENERATION



System Supply. At the end of 1993 about 93 percent of the 131318 GWh of electric energy input to the system was supplied from coal fueled public power plants. Hard coal provided 52 percent and lignite 40 percent of the coal fueled base. The remaining amount of thermal electric energy supply was produced by "auto-producers" (cogeneration), providing less than 1 percent (367 GWh).

Of the total energy input, 3 percent (3533 GWh) came from hydroelectric. The hydroelectric generating units consist of both "run of river", providing about 1.4 TWh and pumped storage with a net production of -0.8 TWh (generation 2.1 TWh

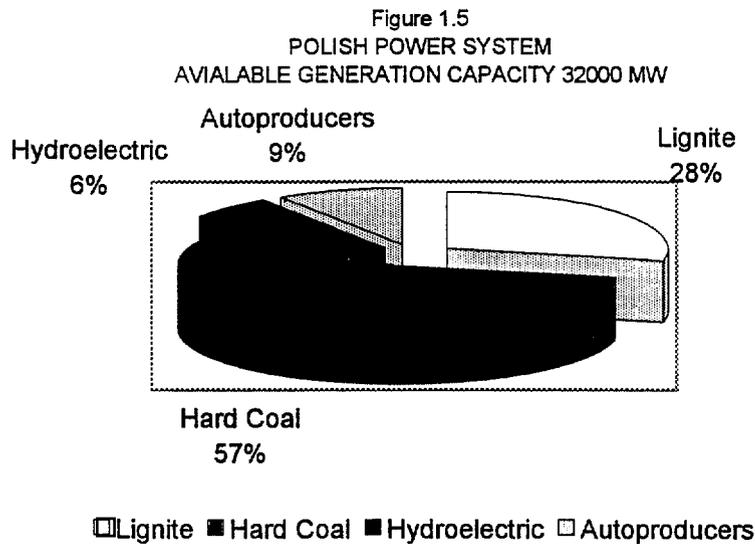
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and use 2.9 TWh). Thus, the combined hydroelectric production provided a total net energy supply to the system of 0.5 percent.

Imports accounted for 4 percent (5600 GWh) of the input to the system. However, exports totaled 8011 GWh. Thus, imports and exports of power had a small negative supply net value to the system, in the order of about 2 percent of total system energy supply. Net foreign trade to the system has always been small. Since there are no long term contracts, foreign trade can not be considered as either a firm source of supply or sales. Refer to Table 1.2.

Oil and gas fueled generation accounted for almost 2 percent of the total electrical energy input.



At the end of 1993 the installed generation capacity was 32750 MW. Of this amount 28 percent (9103 MW) were lignite fueled, 57 percent (18328 MW) were hard coal fueled, 4 percent (1330 MW) were pumped storage, 2 percent (677 MW) were run of river hydroelectric, and 9 percent (3295 MW) were "auto-producing" thermal plants. See Figure 1.5. This total capacity statistic could be misleading when considering the installed capacity which can be dispatched for load. Auto producing plants do not commit their capability to the grid and should not be counted as available dispatchable capacity. In addition a number of the combined heat and power plants do not have either full or partial capability to operate without heat load. This amounts to about 3500 MW of the thermal rating. Thus, the total installed capacity fully dispatchable for load should be reduced to 25945 MW.

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There are 55 hard coal fueled public power plants with a total rated capability of 18328 MW and 5 lignite fueled plants with a total capability of 9103 MW. More than 50 percent of the total public generating capability is in individual plants with installed capability in excess of 1000 MW. The largest hard coal fueled plant is Kozienice (2600 MW) and the largest lignite fueled plant is Be³chatów (4300 MW). Over fifty percent of the capability exceeds twenty years of age. Employment in the thermal public power plants is 55747 people not including the coal mines.

There are 209 industrial power plants (auto producers) with a total installed capability of 3295 MW. These are, for the most part, coal fueled plants.

Hydroelectric capacity consists of four pumped storage plants with a combined rated capability of 1330 MW. There are 115 run of river hydroelectric plants with a combined total rated capability of 677 MW. Employment in the public hydroelectric plants is at 1520 people.

System Transmission Network. The Polish Power Transmission System consists of all transmission lines above 110 kV. However, the PSE does own or control a number of 110 kV facilities because of interfaces between its facilities and those of the distribution companies. There are 12,383 km of 400 kV and 220 kV lines and a 114 km 750 kV inter-tie with Ukraine.

The transmission system as it is today was transferred to PSE in 1993. At present the lines are operated and maintained by contract with several distribution companies, the previous owners.

The points of interconnection with countries to the east and west are:

Czech Republic: Capacity 1200 MVA. Consists of: two 400 kV circuits; two 220 kV circuits; and a 110 kV circuit.

Germany: Capacity 568 MVA. Consists of: three 400 kV and two 220 kV circuits.

Ukraine: Capacity 1300 MVA. Consists of: a 750 kV circuit and a 220 kV circuit.

Belarus: Capacity 160 MVA (recently derated to zero).

Poland is a member of CENTREL, an association whose members include Hungary, Czech Republic and Slovakia. This association provides mutual transmission and system support.

System Distribution Network. The 33 distribution companies distribute power using high voltage lines (110 kV), medium voltage lines (15 kV to 60 kV) and low voltage lines (below 15 kV). There are 31446 km of high voltages lines, 267403

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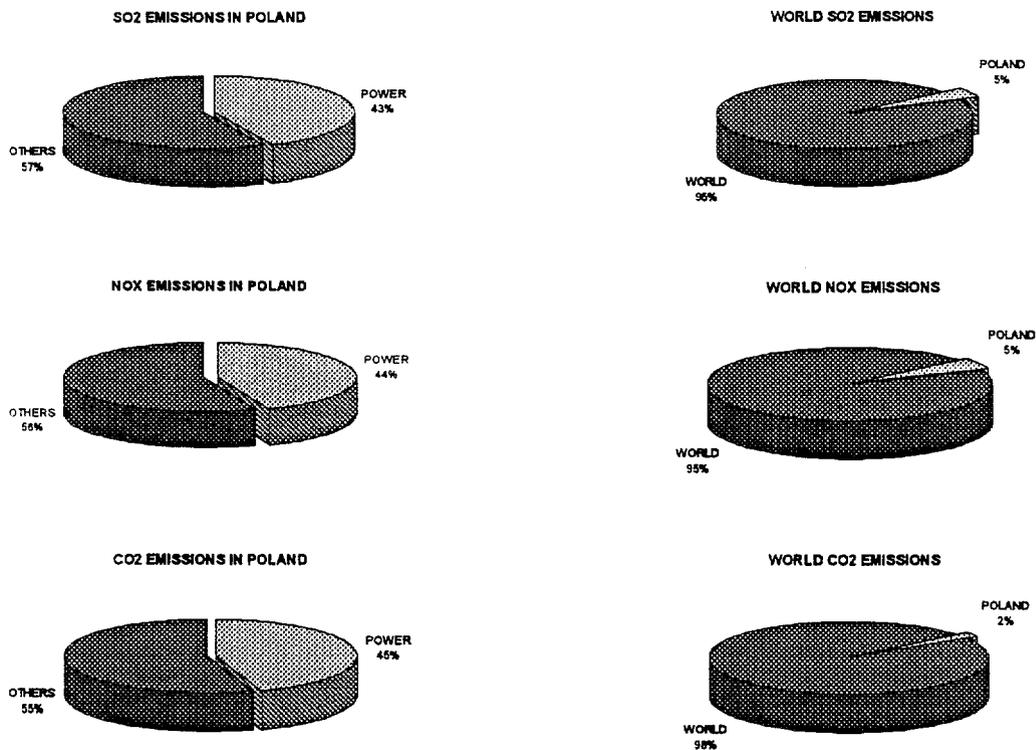
km of medium voltage lines and 366200 km of low voltage lines. The network has a total transformer capacity of 106835 MVA.

The distribution companies supply 14564700 of the total 14590000 customers in Poland. It is assumed that the balance of 25300 customers are being supplied either directly from a power plant or from PSE (the size of this number may indicate a statistical error). Of the final consumption (92411 GWh), high voltage users accounted for 27683 GWh (30 percent), medium voltage users 20483 GWh (22 percent), transportation 4624 GWh (5 percent), and low voltage users 39621 GWh (43 percent). Within the low voltage users, households account for 18206 GWh (20 percent of final consumption) and farms accounting for 6293 GWh (7 percent).

Environmental Considerations. The magnitude of the environmental damage caused by the generation and distribution of electric power in Poland is not known. Several of the lignite mines have been called for polluting and damaging connected aquifers. The hard coal mines have problems with release of methane and dumping of salt water. The generating plants have little or no control of water discharge from the plant. The air emissions are large and virtually uncontrolled. The following set of figures show the magnitude of the air emission problem as compared to the rest of the world.

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Figure 1.6
World Wide Emissions Compared to Poland and the Polish Power System.



Brief. Total system production capacity is 32750 MW. Power production requires over 30 million tons of hard coal and 65 million tons of lignite per year. Peak load on the system was 22.7 GW in 1993 with a system input requirement of 131.3 TWh. These requirements are well within the rated capability of the system.

The transmission and distribution system has over 650000 kilometers of lines (220 kV to 750 kV) and over 200000 transformation and switching facilities or stations.

The system employs over 120000 employees, not including the coal mines and serves more than 14.5 million customers.

PSE estimates that it would cost over 10^{18} Z³oty to replace the system from scratch. Although the system does not need complete replacement it does need a great deal of refurbishment, modernization and a good percentage of replacement capacity. Therefore, it is expedient to take advantage of this period of over capacity to upgrade and refurbish the system.

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Table 1.1 Grid Sales and Loss Forecast (Data from PSE)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
PEAK DEMAND (MW)	22024	22224	22528	22978	22989	23570	24077	24660	25173	25279
GROSS GENERATION (GWH)	125100	127100	129700	133200	135300	138900	142600	146300	146600	150400
TOTAL USE & LOSSES (GWH)	22475	21925	21509	20900	21642	22267	22911	23557	23600	24213
CONSUMPTION TOTAL (GWH)	102625	105175	108191	112300	113658	116633	119689	122742	125000	126187
very hi voltage	3200	3200	3300	3300	1900	1900	1900	1900	1900	0
hi voltage customers	28229	28158	28146	28410	29049	29742	30451	31153	31637	32373
medium voltage customers	24943	25471	26102	27051	27665	28329	29010	29684	30151	30906
low voltage customers	41901	43945	46193	49040	50506	52084	53711	55347	56613	58188

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Table 1.2 Generation Sector Statistics

YEAR	1985	1989	1990	1991	1992	1993
PUBLIC THERMAL PLANTS						
Installed capacity (mW)	24981	26826	26781	26990	26990	27431
Available capacity (mW)	24117	25827	25687	26107	26277	26795
lignite	7223	8993	8923	8918	9038	9043
hard coal	16894	16834	16764	17189	17239	17752
Gross generation (GWh)	124997	133151	124899	123451	121030	121766
lignite	39499	53486	51990	52898	51604	52377
hard coal	84650	78964	72268	70553	68785	68807
Auxiliary consumption	9025	9696	9105	8932	8605	8597
Net generation	115972	123455	115794	114519	112425	113169
Plant factor	0.59	0.59	0.56	0.54	0.53	0.52
lignite	0.62	0.68	0.67	0.68	0.65	0.66
hard coal	0.57	0.54	0.49	0.47	0.46	0.44
Employment	53099	54647	56338	59945	52130	55747
PUBLIC HYDRO PLANTS						
Installed capacity (mW)	2005	2005	2005	2005	2006	2007
Available capacity (mW)	1976	1976	1852	1918	2042	2044
pumped storage	1205	1205	1205	1241	1366	1366
Gross generation (GWh)	3894	3749	3300	3393	3546	3533
pumping (GWh)	2749	2922	2565	2703	2753	2804
auxiliary (GWh)	32	29	28	29	32	34
Net generation (GWh)	1113	798	707	661	761	695
Employment	1672	1517	1527	1530	1530	1520
AUTO PRODUCERS						
Install capacity (mW)	3121	3168	3166	3140	3228	3312
Available capacity (mW)	2945	2947	2949	2901	2970	2952
Gross generation (GWh)	8817	8564	8152	7851	8127	8364
Auxiliary (GWh)	459	458	459	432	483	488
Internal consumption (GWh)	7775	7710	7198	7080	7311	7509
Net to grid (GWh)	583	396	495	339	333	367

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Table 1.3 World and Polish Air Pollution Emissions in Millions of Tons

YEAR	POLAND POWER	POLAND TOTAL	WORLD TOTAL	POWER% POLAND	POLAND % WORLD
SO2					
1990			64.6		
1991	1.7	2.95		57.63	4.57
1992	1.5	2.77		54.15	4.29
NOX					
1990			24		
1991	0.5	1.14		43.86	4.75
1992	0.5	1.12		44.64	4.67
CO2					
1990			20791		
1991	172.6	386.88		44.61	1.86
1992	167.4	393.11		42.58	1.89

CHAPTER II HISTORIC POWER SYSTEM

Historic Organization. Prior to 1990, and the establishment of the Polish Power Grid Company (PSE), the Power and Brown Coal Board (WEWB) functioned as the State manager of the power industry. WEWB primarily set internal transfer prices for electricity. This in turn determined how the distribution enterprises would share the supply revenues. The Ministry of Finance established prices for fuel and ultimate sales, as well as setting the State dividend on the founder's fund (return on State investment). Each enterprise paid its own dividend and taxes. All major capital expenditures and operating budgets within the industry were approved by the WEWB. The WEWB also had the obligation for the "security of supply" and therefore, the planning and development of future production and transmission facilities.

Management organization of individual enterprises consisted of a Workers' Council and a manager reporting to the Council and the Ministry of Industry and Trade (the "founding organ"). The Manager however, looked to the WEWB for new and replacement capital budget approval and for enterprise operations and maintenance budgets.

System Operations. The power production and major transmission interconnections were controlled from the National Load Dispatch Center (PDM). From a government organizational chart, PDM was on a level with WEWB. In addition to PDM there were five regional dispatch centers [Figure 2.1] controlling transmission and distribution of power within their respective regions. The production power units were operated in a "merit order" dispatch. Production or generator dispatch was from the PDM facilities in Warszawa. Merit order dispatch in no way should be confused with the economic dispatch principles used in the United States and elsewhere. The merit order sequence of unit commitment, as electric demand increased, was:

- run of river hydroelectric power plants;
- electric output from combined heat and power stations meeting heat demand;
- lignite fueled power units requiring oil fuel for flame stabilization;
- lignite fueled units;
- hard coal fueled units;
- pumped storage units for peak demand;

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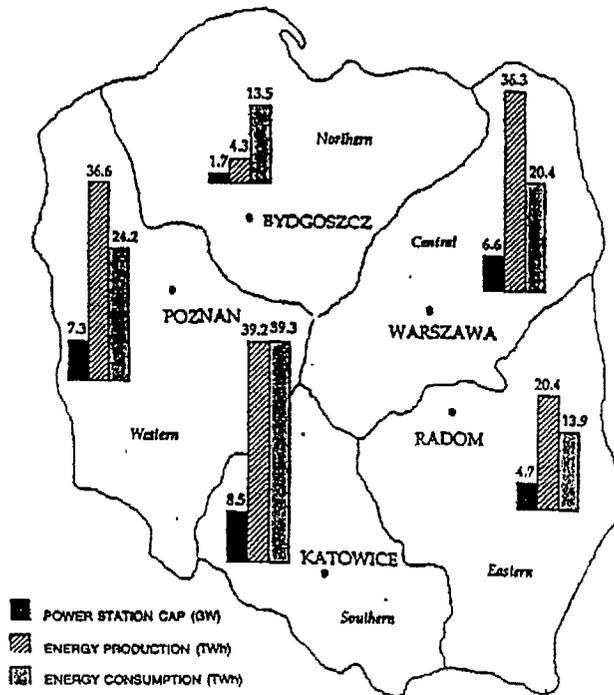
- coal fueled, both lignite and hard coal, with oil fuel enhancement (required to increase the total fuel energy for decreasing the effect of fuel moisture or primary fuel with low heat content, or operating at a power output higher than the machine rated output);
- Patnów oil fired units.

Review of the "plant factor" associated with each of the above power generation sub sectors shows that the merit order dispatch was not rigorously followed. Social/economic conditions probably had as much effect on power dispatch order as did merit order.

Figure 2.1

Soviet and European Research Institute
Project PL 0101 ■ September 1991

BOUNDARIES OF REGIONAL BOARDS OF WEWB

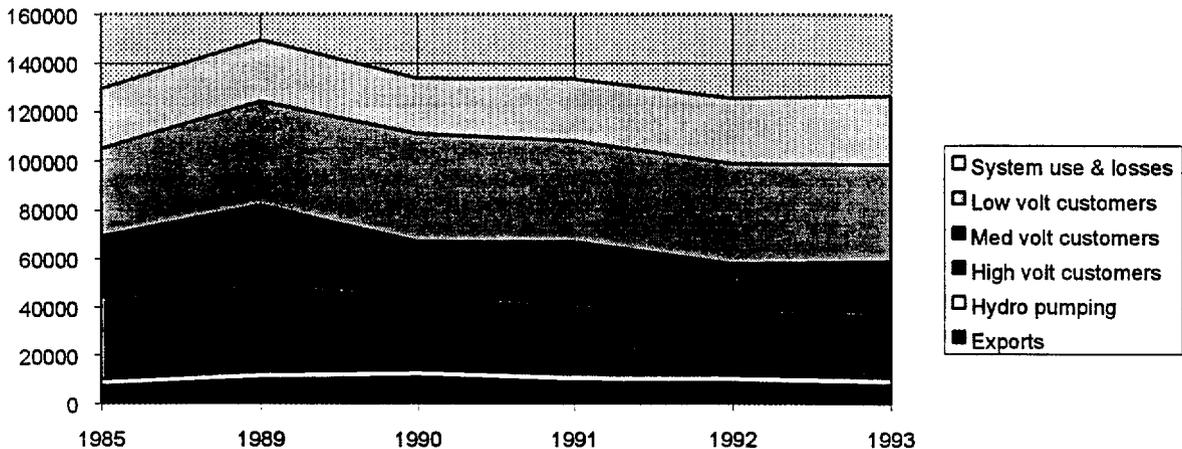


System (Government) Goals. The management goals of the past system were centered on production and output. Capital costs and actual operating expenses apparently had minimal impact on limiting financial commitments. The system did use economic evaluations for selecting among alternatives for capital investments. However, the then political and social goals were used to override critical

economic considerations for capital and operating expenditures. In addition, enterprise management became very proficient in manipulating capital and operating budgets to obtain benefits for their respective operations. Investment was planned and funded at two levels. Generation plants and large transmission or distribution projects were planned and funded through the WEWB. While "small" projects were planned at the enterprise level and funded through the enterprise's "operating" budget.

The "good manager" was the one that could get the most cash to flow into the company. The Workers' Councils of course supported such management procedures. A manager that did not provide for additional and continuing employment and associated pay levels was not acceptable to the Workers' Council. The surprising results of this system was the lack of management/employee relations and the lack of customer service.

Figure 2.2
POLISH POWER SYSTEM ENERGY USE GEGAWATT HOURS



Production orientated management, minimum economic considerations, the fixed merit order dispatch, and a bias towards worker or employment security all contributed to high internal costs and lack of efficient operations. The internal power use by the system and the very high transmission and distribution losses are just one example of the problems created by the past system of management. Figure 2.2 (Table 2.1), shows that internal consumption and losses, form the second largest user group on the power system. A business that is its own second largest customer can not stay in business for long.

System (Government) Planning. One of the results of the central planning for generation plants was the standardization of design. This supposedly gave benefits of "economy of scale". However, it resulted in freezing of designs so that

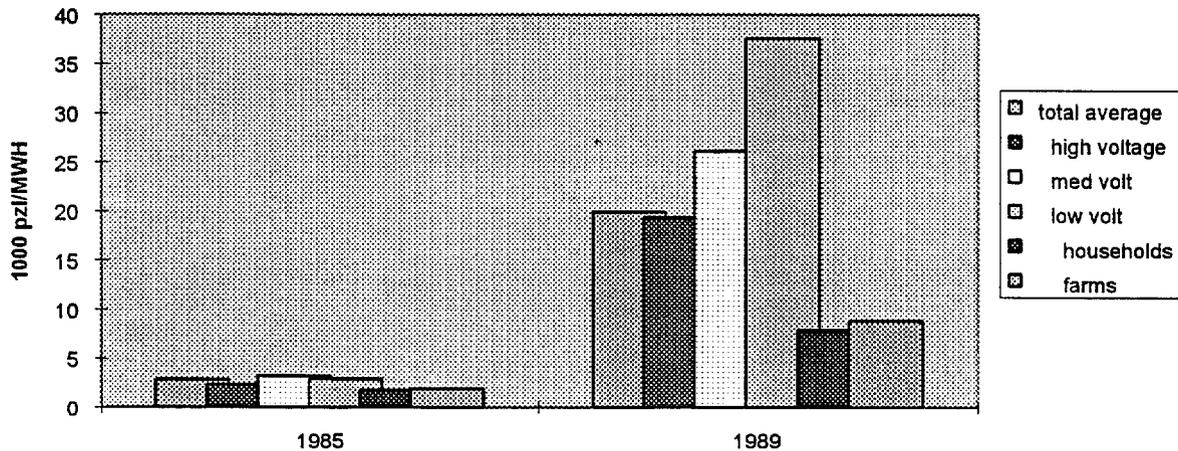
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technology and site specific requirements were largely ignored. Some of the most "modern" and newest power plants in Poland have the appearance of fifty to sixty year old plants in the United States. The mechanical and electrical control systems and the mechanical and electrical equipment are at best two generations behind Western systems.

Thus, the history of development of the power industry was one of planned production and supply. Economics was a minor issue in the considerations of the industry's management. The resulting failure of the power supply to meet demands in 1985 was used by those in power to further support this philosophical management concept, i.e. increase production at any cost and for what ever purpose.

Production was the goal of the industry. Consumer or customer supply was the result of production goals. Customer service was not the driver of the industry. This can be identified by the statistics kept within the industry. All statistics relate to production and supply. There is no data on customer desires or plans. Very little data has been available on household appliance saturation or demographics relating to use of electricity. Power system planning was driven by production goals set by the State.

Figure 2.3
POLISH POWER SYSTEM 1985-1989 CUSTOMER PRICE RELATIONSHIP



Costs did not relate to prices nor did prices relate to the cost of service. All customer service price rates were subsidized. Figure 2.2, shows the average price for the major customer groups in 1985. The normal or anticipated relationship between prices in different customer classes does not exist. An interesting conclusion can be drawn from this figure on cross subsidization between customer groups. It is apparent that cross subsidization was not a major factor until after

1985. In addition, it can be seen in the 1989 price data that the household and farm prices were apparently more subsidized than the other customer groups.

Brief. The historic organization of the power system was one of central command and control of construction, operation and production. The WEWB set internal pricing and the Minister of Finance set the fuel prices and power consumer prices.

Production goals and customer subsidies led to inadequate planning and excessive costs on the power system. The fixed "merit order dispatch" of power production did not provide a true economic dispatch i.e., dispatch of units based on the next lowest cost of energy available to the system considering production costs, losses and system reliability. The direct result of such activities were the heavy burdens on the State budget contributing in a large part to the State deficit.

Management by central command was ineffective in assuring the economic use of available capital or accounting for expenditures. The attempt to gain "economies of scale" led to direct loss of new technology development and failure to use many of the available new technologies.

The system did not support customer service or system reliability. At present the system is itself the largest single consumer of power in Poland. Such conditions need to be changed if Polish power is to fuel a rising national economy.

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Table 2.1 Generation Sector Statistics

YEAR	1985	1989	1990	1991	1992	1993
PUBLIC THERMAL PLANTS						
Installed capacity (mW)	24981	26826	26781	26990	26990	27431
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CHAPTER III POWER SYSTEM RESTRUCTURING

Goals of Power System Restructuring. In the past the power industry was controlled and commanded by a centralized governmental structure. The system was operated under:

- highly subsidized fuel and supply pricing resulting in a false market and inappropriate supply/demand relationships,
- political goals drove investment decisions resulting in high State deficits not justified by economic or financial market conditions,
- lack of fuel diversification resulting in a vulnerability of supply under conditions other than force majeure,
- lack of transparency or full knowledge of actual costs of production and operation resulting in lack of efficiency of systems, and
- production orientation of the system resulting in a lack of social considerations such as customer service and environmental protection.

Continuation of the past system would be impossible because of the lack of financial support available from the State; the limited availability of private capital within Poland; the technical and physical decay of the system's production and transmission facilities; and the extensive environmental damage within Poland.

To correct the problems outlined above and other problems found throughout the energy sector the government in 1991 established a policy for energy sector development. This government position was explained in a letter (Letter of Sector Development Policy, June 1991) to The World Bank signed by the Minister of Industry and Trade. The strategic goals stated in the letter for the energy sector were to:

- phase out of all budget subsidies to energy enterprises and consumers, as well as the elimination of cross subsidies between consumer groups;
- ensure that energy prices reach economic levels either by decontrol of pricing or where appropriate establishing pricing rules overseen by an appropriate regulatory system;
- restructure and de-monopolize energy enterprises, including reduction of vertical and horizontal integrated sectors, as well as, combining enterprises which are too small to survive in a market economy;
- convert the restructured State enterprises into either joint stock or limited liability companies and assure that the newly commercialized companies are exposed to competition by new entrants to the markets;

- progressively privatize the energy supply industry; and
- assure that restructuring in the energy sector is accompanied by significant improvements in environmental performance.

These governmental goals have been translated into the following goals for the power system:

- economic level electricity pricing for consumers and cessation of consumer subsidies;
- electricity supply security (reliability of service to the customer);
- environmental protection improvement;
- introduction of competition among power generating companies;
- reduction of natural monopoly within the transmission and distribution systems through "third party access";
- privatization and international ownership within the generation sector; and
- assurance of cost transparency across the power industry.

Process of Restructuring. In 1990, by resolution of Parliament, the Power and Brown Coal Board (WEWB) was liquidated and many of its functions were assigned to the newly formed Polish Power Grid Company (PSE). PSE was, by ministerial ordinance, given the responsibility for transmission of power, power dispatch, power system restructuring, and establishment of market trading for the power sector.

In 1991, a British consultant's report (Restructuring of the Electricity, Lignite and District Heating Sub sections; January, 1991). The consultant supported the formation of the PSE and recommended that no fewer than four power production commercial joint stock companies be formed holding the hard coal fueled power plants; three companies be formed holding lignite fueled power plants and associated lignite mines; and about fifteen companies be formed from the thirty three distribution enterprises. The report also recommended that the ancillary enterprises be separated from the core businesses and that each of the core companies review their respective internal organizations for possible removal of non core functions into separate companies.

The British consultant's report was funded by The World Bank and managed by the PSE. After its publication the distribution enterprises commissioned their own report (Reorganization of the Electricity Sector of Poland [DECON report]; November 1992) which among other recommendations, recommended that the thirty three distribution enterprises retain their individual identities as they

transform into commercial stock companies with all or the majority of ownership shares being given to local governments.

The basic concept of the government, in power at the time, was for the reorganization of the sector to follow the United Kingdom example for power sector market and corporate structure. The generation enterprises would form a number of holding companies. The resulting companies would then compete with one another for direct sales to the customer. PSE would operate the transmission system and establish a power supply pool. Initially PSE would purchase power from the generation companies and wholesale the power to the distribution companies. Ultimately distribution companies would "become more sophisticated" and be allowed to contract directly for power purchase from generation companies. However, PSE would continue operation of the pool so that "merit order dispatch" could be continued on a national scale. The differences between the distribution company's contract price and the pool costs would be resolved through a "contract for differences".

Coordination of the Restructuring Process. Coordination of the restructuring process has all appearances of being controlled by "seat-of-the-pants" management style. There is no critical path evaluation for the process and no defined schedule for accomplishing critical inputs to the process. A critical path for accomplishment of restructuring and a milestone schedule should have been developed no later than 1991. Without these necessary management tools the process has been one of slide, tumble and fall.

Important to the restructuring of the power sector is the development of a new energy law. The new law should provide the support for the restructuring goals set by the government for the energy sector. The draft of the law to be submitted to Parliament by the end of 1994 has a number of short comings that may increase the cost of future financing or prevent the attraction of needed new equity capital to the power system. However, the law with proper formulation of secondary laws, ordinances, and regulations could allow the fulfillment of the basic government goals for the sector. Even with expedited passage of the law through Parliament and expedited administrative processes it is highly unlikely that the necessary regulations and regulatory authorities will be in place before 1998. An interim set of regulations under the existing law and established contractual operating procedures is necessary. These measures were suggested to the Ministry in mid 1993, however, there has not been any interim regulation put in place as of this date.

As a step in the process of restructuring the Minister of Industry and Trade established a Coordinating Committee in late 1992 chaired by the President of

PSE. The committee was comprised of individuals representing the proposed generation "holdings", combined heat and power plants and the distribution enterprises. At the same time, all enterprises and proposed groups of holding companies were ordered to prepare "business plans" for restructure of the enterprises into Commercial Joint Stock Companies, in accordance with the Polish Commercial Code. (The business plans were basically documents stating the management's activity towards fulfilling the legal requirements to form a commercial joint stock company under Polish law.) The Coordinating Committee was also to provide procedure and documentation for the planned transfer of ownership of transmission facilities above 110 kV from the distribution enterprises to the PSE. The initial schedule for accomplishment of these assignments was the end of 1992. An impossible schedule.

With the change of government and appointment of a new Vice Minister, the Coordinating Committee was disbanded, with praise for its accomplishments, and an Implementation Committee was formed. The Implementation Committee was chaired by the Vice Minister and met regularly and frequently to begin with. However, strikes in the coal fields and growing opposition to restructuring by Solidarity resulted in fewer and less frequent meetings and the ultimate fading away of the committee. The strikes also lead to the replacement of the Vice Minister.

There has been little, if any, facilitation of the public acceptance of the energy sector restructuring. Recently a number of technical articles were presented in the newspaper explaining the happenings in the power sector and the anticipated energy law. The Ministry has stated that there are plans to continue this type of public communication.

Progress of Restructuring. The schedule for accomplishment of the Coordinating Committee assignment was for it to conclude all business by the end of 1992. As it was the thirty three distribution enterprises for the most part reached commercial company status in mid 1993 and transferred transmission facilities to the PSE in the fall of that year. The combined heat and power enterprises were individually commercialized during the third quarter of 1993 with plans to form holding companies at a later date. The pumped storage hydroelectric plants have formed commercial joint stock companies and will transfer the majority of their stock to PSE under a single holding company structure.

None of the hard coal plants or lignite plants have been commercialized to date. Many reasons and excuses can be found for the failure of the plants to be commercialized by this date. Not the least amongst which was the impossible

schedule given the Coordinating Committee. Another major reason for failure of to form commercial stock companies within the generation sector was the argument between the use of the so called "bottom up" and "top down" formation processes for holding companies.

In 1993 The Property Transformation Act gave the Minister of Industry and Trade (MoIT) the functions of State Treasury for "energy enterprises of critical State importance". This included (by following ordinance of the Council of Ministers) the electric generation sub sector. Legal interpretation of the Transformation act states that MoIT would lose its position as State Treasury and thus, "control" (ownership responsibility) of the generation sub sector to the Minister of Privatization, if the bottom up holding company formation process was used. MoIT cited "legal reasons" that prevented the use of the bottom up corporate formation process and required the companies to produce a plan for the top down formation process. (However, the combined heat and power plants, the distribution companies, and the hydroelectric power plants all proceeded to form commercial companies and will thus use the bottom up formation process for any future holding companies.) The bottom up process was favored by management and employees because of their obtaining a more favorable position for receiving preference ownership shares in the resulting companies.

One of the great advantages to having the State Treasury responsibility is the ability to appoint supervisory board members. Appointment to the supervisor boards has been used by many of the government ministers for appointment of ministry staff. By such appointments the ministers are able to increase the very low government salary level of important staff members.

By June of 1993 Solidarity had come out against privatization of the generation sub sector. By February of 1994 Solidarity led a strike with a major issue, among others, Solidarity's demand to halt commercialization of the power generation sub sector.

The final organization of the generation sub sector is unclear. MoIT is negotiating with the unions. Statement's from the Ministry are that all generation enterprises

will be formed into commercial joint stock companies by the end of 1994. It is assumed that such action would have the concurrence of the management of the enterprises. Obtaining the concurrence of the union may be another matter.
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Solidarity may also agree for it has issued a statement, that should the enterprises become joint stock companies, employees should receive one third of all ownership shares. This is compared to the twenty percent maximum preferential shares

authorized for employees when other State owned commercial companies are to be privatized. Solidarity has also demanded three to five supervisory board positions be given to union members.

Underlying much of the difficulties and disputes on reorganization in the power sector is the dominate role of PSE. Many view PSE as a body more powerful and more command orientated than was WEWB. Some of this concern has merit but in other instances the problem is exaggerated in order to gain support for opposing positions.

An example of using PSE dominance as a supporting argument is the reasoning for only two holding companies from the hard coal fueled plants versus the government supported four holding companies. The logical argument for larger (and thus, fewer in number) electric production companies is the potential for production companies to participation in foreign trade. However, the Ministry of Industry and Trade has taken the position that PSE will be the representative of Poland in foreign trade of electricity. (A position that has never been supported by documentation and is not in keeping with the 1991 State development policy.) The generation enterprises, to support fewer production holding companies, used the argument of PSE dominance within the sector and thus, production companies have to be larger to protect themselves financially against PSE.

DECON report, on the other hand, argued that fewer distribution companies (fifteen as opposed to the thirty three recommended by DECON) would give PSE the advantage in negotiations. DECON argued that it is much easier to negotiate with a small number of companies than with a large number of companies. Therefore, fewer distribution companies would enhance PSE's dominate role. It is interesting to note that PSE supported the DECON position and not the production companies.

It must also be recognized that there are those in both the generation and distribution sub sectors whose sentiment favors a dominant role by the PSE. A dominant PSE allows the companies' management certain freedoms and flexibility

in making decisions that would not otherwise be available. That is, there is certain comfort in having a subservient role when difficult decisions have to be formulated and acted upon.

Early in the restructuring effort the generation enterprises and the distribution enterprises each formed trade associations. These associations have helped lead the direction and implementation of restructuring in the power sector. The associations have been valuable assets to both the enterprises and the government.

One growing problem with the associations is the governments tenancy to use the associations as business contacts for formation of business policy and negotiation of other business matters. Trade associations should not be placed in the position of business managers for the industry. This would lead to formation of cartel practices and other monopolistic practices that Poland can well do without.

Brief. The past central command and control supervision of the power sector resulted in a highly subsidized, inefficient and obsolete industry. There was a lack of economic consideration, customer service commitment and environmental protection considerations. Management was free from the need to formulate company policies and missions that were subject to either the market place or the financial markets.

The State through a series of policy decisions set goals to restructure the energy sector that should eliminate and correct the past problems of the power system.

Many in industry agree with the need to restructure. But many do not agree with the structure or direction of the new system. Employees' unions, although originally supportive of the restructuring effort are now against the effort. Management's most often stated concern with restructuring is the (perceived) dominant position of PSE. The union opposition to restructuring is stated as lack or loss of social benefits. These arguments probably have there roots formed by the force and command policy used to accelerate restructuring of the industry. The government made a limited effort to explain itself and its actions in order to gain the basic approvals from enterprise management or employees. The present union negotiations are still leaving the majority of employees and managers out of the information loop.

Two of the major goals of the restructuring process were attracting equity capital to the power system, and development of a competitive market or a transparent regulated market where natural monopolies are allowed to exist. The draft of

energy law which is scheduled for submittal to the Parliament before the end of 1994, could allow these goals to be satisfied if supported by properly formulated ordinance and regulation.

POWER SYSTEM RESTRUCTURING > 25

There has been progress towards the restructuring goals and commercialization of the power sector. Namely PSE, combined heat and power plants, hydroelectric plants and distribution enterprises have been formed into commercial joint stock companies. On the other hand the hard coal and lignite fueled enterprises together

with MoIT are still trying to formulate an acceptable procedure for the formation of commercial joint stock companies and anticipated holding companies.

There is no publicly available critical path or milestone schedule for the restructuring of the energy sector or the power sector. It is difficult to understand the government's intent and direction for the process without knowing its formal plans for completing the process. Beyond the stated goals for restructuring, the directions for accomplishment of restructuring have been vague and have offer the public little or no participation in establishing the direction or future of the industry. MoIT has stated that it will start to release information to the news media on restructuring and the energy law.

CHAPTER IV POWER SYSTEM PRIVATIZATION

Privatization. One of the strategic goals of the State in restructuring of the energy sector was "to progressively privatize the energy supply industry". The intent of this goal was to; (1) remove the government from the business management and control of the industry in order to attract private equity capital investment; (2) allow new entrants into the market; and (3) create competition. A particular goal for the power sector, as stated in the 1991 State development policy, would be establishing competition in the field of electric production and allowing for new companies to enter the supply sector. In short the goal set was for privatization of the power production sector. The most important justification for the privatization goal was attraction of new capital into the sector for the required improvement of service, construction of new facilities, and reduction of the environmental impacts.

Privatization Efforts to Date. Kraków Łęg Combined Heat and Power Plant (CHP) was a project designed and to be financed by an international group composed of utility companies, banks, world institutions, and private investors. The project had taken the better part of two years to define and to assemble a team of investors. The project would result in the closure of a number of old heat only boilers supplying heat in Kraków and also supplying a good percentage of the pollution in the area. In addition the project would result in funding the refurbishment and upgrading of Kraków Łęg; increased electrical and heat production efficiencies; and needed pollution control mechanisms. The increase in output of heat from Kraków Łęg would be used to supply the heat customers of those heat only boilers slated for shut down. Heat supply would also be extended to areas where individual residences and businesses are presently using coal fuel for production of heat and hot water.

The long term contracts for purchase of project electricity output had been negotiated with PSE. The revenue from these contracts would support, in part, the project financing. Revenues from the supply of heat would provide the balance of cash flow needed to support the financing. However, the heat supply price had not been finalized with the major local heat purchasers. It is understood that the heat purchasers were demanding a significant reduction from today's highly subsidized prices. The project would ultimately be owned 49 percent by the State (from which the employees were to obtain their preference shares), 2 percent by

Polish private capital and 49 percent by the foreign investors. The foreign investors would provide 120 million USD for refurbishment of the Kraków plant and other cost such as retirement of heat only boilers. This amount was in addition to the more than eight million USD spent by the investors to get to this point of project development.

The project was much more complex than this simple explanation. The problem of State assuring performance of its wholly owned companies supplying fuel and purchasing the energy output of the project; issuance of preference ownership shares to employees; acceptance of adequate prices by the customers; provisions for investors to receive an adequate return on their investment; the need for radical reform in management practices; etc., all entered into the complex development and definition of the project. For the purposes of this discussion the details of the project definition will end here.

As the Kraków project investors were reaching the conclusion of their long and costly efforts, Solidarity announced its opposition to the project and called several strikes. The opposition was based on the unions' position that; (1) the foreign investors were receiving too great of a financial return; (2) there was a potential loss of employment due to management operational reforms; and (3) relocation of employees within the defined project was not justified. The investors argued the need for a financially viable packaged project and stated that reduction in employment was not probable but relocation of individuals within the system was necessary. Solidarity focused its opposition on one foreigner who's removal from the project, by the investors, had no affect on the union opposition.

A new Minister of Privatization stopped the project and announce that the project would be placed on the market for competitive bidding. This was a blow to the investors that had committed a large amount of "front end" money to define the project and to put a financial package together. The bidding process for the project required almost six months. The awarding of the project was delayed almost twelve months. When the award was made, the National Electric Utility of France was nominated to negotiate with the government for the final project. To date, almost six months later, negotiations have not occurred. On the date for last known scheduled project meeting, sponsored by The World Bank, the Polish representatives called by telephone and stated they would not be present.

Also, during this time the local government had sued in court challenging the State's right to any funds received from the project. The local government claims that it should be the recognized owner of the Kraków plant and it should derive any financial gains from foreign investment in the project.

Impact of Kraków Łęg. This has been a long explanation of the one privatization project in Poland that had progressed to a degree of completion. This project had unqualified support from The World Bank and others. It was to be the model for all future privatization projects in the power sector. Its death was the result of:

- failures by project management, both investors and plant management, to assure that each of the stake holders in the project understood and supported project parameters and specifications;
- State government and a local government who looked more at the short term monetary gain as opposed to the long term benefits of the people and the environment; and
- to employee unions that were interested in maintaining status quo as opposed to the development of their members into a more advanced economic system with greater individual challenges and rewards.

The impact of this project's death on the future privatization attempts in Poland is devastating. The failure of the project shows that:

- the State's goals for restructuring are subservient to local political and social pressures at the time;
- the risk consideration for foreign investment in Poland is much greater than had been anticipated;
- that government may not accept the advice of major world institutions;
- employees may not accept enhancement of employment and environmental opportunities as justification for change;
- the government participation in project development does not represent its final position; and
- environmental improvement is not seen as a social benefit or a cost benefit to the State.

A second problem that will prevent an immediate interest of private or foreign equity investment in the Polish Power System is the lack of a new energy law. The detailed problems causing the delay in the development of this law and the potential failure of the law to provide the necessary incentives to attract capital to the industry is a long and difficult discussion. It should be presented in a separate document. For the present it should be stated that the delay in obtaining a positive law and regulatory system will further delay the necessary foreign and private equity investment into the power industry.

For the immediate future Poland will have to rely on equipment manufacturers and consortiums of commercial banks and others for financing the needed reconstruction and environmental improvement of the industry. Others will be

willing to provide funding based on their respective governments internal policies towards Central Europe. Some equipment manufacturers may be willing to take an equity interest or a long term debt position in place of direct repayment for equipment. Thus, the industry will be restricted to finance either by world development institutions, commercial banks, or some form of project debt finance. The recently signed contracts for completing construction of the Bielsko Bia³a CHP, a project started in the mid 1980's and the contracts supporting the refurbishment of two units at the Turów Power Plant are examples of this type of financing. The lending consortium for Bielsko Bia³a has eleven money lenders, in addition to commitments by the equipment suppliers. The funding package for Bielsko Bia³a is in reality a sub package of a PSE funding package. In the package Bielsko Bia³a will receive 38 million USD while PSE will receive 75 million USD. It is estimated that Turów will have about twenty money lenders plus equipment manufacturer commitments in its package.

As stated by the government in its 1991 development policy statement, privatization of the industry was necessary to attract foreign equity into the system. Foreign and private equity is the only way to provide for rapid refurbishment and betterment of the industry's existing plant. Government policies to date seem to be acting counter to its stated goal and financial policy.

Privatization of Distribution Companies. Probably the distribution companies will reach their privatization goals by the giving of ownership shares to local governments and to employees and management. Some companies are developing internal company generated funds for management and employee buy out of the company. The actual legal process to be used for this form of privatization and funding is unclear. It will require a first effort to define the process and its impact on the customers' cost.

Value of Assets. Another issue in the path of privatization is the asset values of the enterprises and companies. Inflation over the past ten years in Poland has reached annual highs as large as 585.8 percent. This has left the asset value of power sector property well below replacement value. The problem is further exaggerated by the lack of financial oriented accounting principles and the past practices of money management and budget controls. At best the industry feels that its booked assets should be brought up to date in current Z³oty value. Increasing asset value will allow for decrease in "profits" and thus a decrease in taxes and a corresponding increase in cash flow. But one has to also look at the impact in true present value for the company; and the impact on apparent equity value presented to future owners and for prospectus for future financing; and cost of service to the customer. If the increased present worth of profits, gained from the process are forced to be used to pay future taxes on the increased asset value, then the company has gained nothing. If the re valuation is not consistent with the

plant replacement costs less depreciation, then future financing and sale of the property will be in jeopardy. If the customer is required to pay a higher price for power produced by aged and obsolete plant then what will be the price for power when new and newly financed plant is brought into service.

In the fall of 1994 the Minister of Industry and Trade ordered that the power sector companies and enterprises initiate studies leading to the re valuation of the sectors assets. A consultant has been hired to develop the parameters of this process. The report is due by the first of 1995.

Privatization of Non Core and New Ancillaries. Both the generation enterprises and the distribution companies are making efforts to spin off "non core" activities. In addition a number of entities are investigating or have formed new companies in business areas where the companies have not had previous business experience and where the activities are not associated with the core business.

The major problem with this "diversification" activity has been a lack of corporate strategic planning. For the most part, the spin offs or the formation of new companies has been by internal decision with little or no market investigation or economic analysis. We have talked to some entities who plan to spin off accounting departments, "because accounting (book keeping) was not necessary for selling power". Others have entered businesses such as automobile sales or real estate development. These new businesses were of course financed by core business revenues. The question, not answered, is the financial benefit to the core business. Such activity could be taking very needed capital away from customer service and supply reliability.

A few entities have prepared proper business plans and have economically justified activity outside of the core business. These entities have also developed justified financial support of the new companies allowing the new companies a period for market development.

The Ministry of Industry and Trade apparently has no record or at best an incomplete record of company or enterprise activities outside the core business. The accounting and reporting required, either by the Ministry of Industry and Trade, for State enterprises or by the Commercial Code for commercial stock companies, is inadequate for the owner to make a proper assessment of the company. Few if any of the companies have sufficient internal budgetary controls or cash flow accounting. There is no required periodic documented review of individual entity activity other than State statistical requirements. In short, there is insufficient reporting for management control purposes. PSE published an annual report for the year 1992 which attempted to report its activities during the year. The report would not measure up to financial reporting standards in a RCG/Hagler Bailly, Inc.

market economy. Even so, in 1993 PSE published an "annual report" that was far below the standard set in 1992.

Brief. The State has set as its goal the privatization of State enterprises and the entrance of new investors and competition into the power sector. Government actions to date have detracted from such private and foreign investment into this under funded industry. Conflicts between government's desire for initial financial gain from sale of assets and long term benefit of a strong industry; conflicts between State and local government over ownership; and employee union actions, were reasons for the government to postponing the **model privatization project** backed by The World Bank and others. Postponing the project will have an affect on the future availability of investors interested in privatization and thus, the availability of equity capital.

Privatization of the power system will require the companies to develop a disciplined approach to management of their business. Privatization will also require the State to set restructuring goals and principles which will be supported by the government. The State must also realize that the performance of the companies under State ownership must be guaranteed by the State. Companies will not attract large amounts of private or foreign equity capital without some guarantee that the investors can control the management of the company or the State, were it holds the majority interest, will guarantee performance of management.

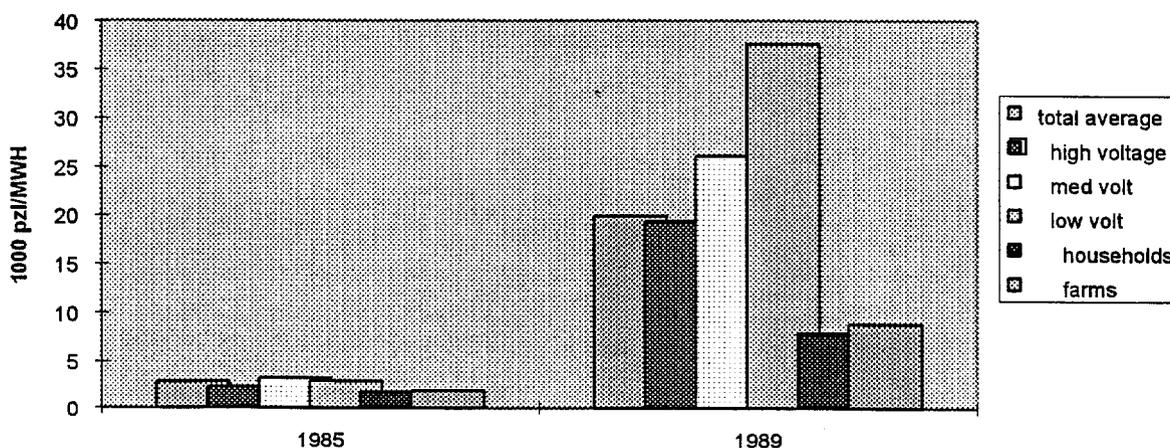
Financing for the foreseeable future will have to rely on "project financing". That is money loaned for a specific project with a guaranteed revenue stream. The guaranteed revenue stream will require a long term contract from PSE with a guarantee of company performance from the State. Project financing in Poland will have some limitation. Such financing will be considered a debt of PSE and therefore the State. Thus, this financing will be influenced by the overall economic performance of PSE, as well as, the State's budgetary and deficit performance.

CHAPTER V POWER SYSTEM MARKETING AND TRADING ARRANGEMENTS

Electricity Pricing. Prior to 1990, the Power and Brown Coal Board (WEWB) set internal transfer prices for electricity. This in turn determined how the distribution enterprises would share the supply revenues. The Ministry of Finance established prices for fuel supply and power sales to the ultimate consumers. The history of development of the power industry was one of planned production and supply and control of prices. Economics was not a major issue in the considerations of power supply for either the State or industry.

Costs did not relate to prices nor did prices relate to the cost of service. All customer service price rates were subsidized. Figure 5.1 shows the average price for the major customer groups in 1985 and 1989. In addition, it can be seen in the 1989 price data that the household and farm prices were apparently more subsidized than the other customer groups, i.e. were receiving subsidies from other customer groups.

**Figure 5.1
POLISH POWER SYSTEM 1985-1989 CUSTOMER PRICE RELATIONSHIP**



Restructuring Goals and Pricing Goals. The restructuring goals within the power system were designed to increase the efficiency of the system by:

- elimination of price subsidies and cross subsidies between consumers;
- establishing a competitive market condition among the power generation enterprises and allow new entrants into the power supply market;
- reduction of the natural monopoly market for transmission and distribution grids by allowing "third party access" to the grids and direct sales from generator to consumer;
- wholesale trading among the distribution companies and power brokers;
- "economic" pricing of power and fuels together with price "transparency" across the industry; and
- assuring that all costs of supply were represented in the pricing, especially environmental costs.

The government's policy set in 1991, acknowledged that establishment of economic market conditions within the energy sector would require consideration of the social and political realities in Poland. Any restructuring policy must consider the economic shock caused by any rapid changing of the pricing system and the price of energy to the customer. It was decided that the pricing and marketing changes in the electric power sector would occur over a number of years. The schedule for full market conversion has been changed several times since the program was first started. It is now expected that all prices will reach economic levels by 2002 and full market conversion will occur around the year 2010.

Future "Economic" Pricing. Ultimately the retail consumer prices will be designed by the servicing distributor and approved by the regulatory authority anticipated in the proposed new energy law. The proposed law is to be submitted to Parliament by the end of 1994. Large consumers will be able to obtain their power through a competitive market system. The existing economics and market conditions will establish the cost of electricity in the competitive market. Internal power sector competition will establish the economic pricing for internal power transactions. Until passage of the new energy law, the present price setting system will control the power prices paid by the consumer. That is, the Minister of Finance will set the price based on social programs and national budgetary requirements.

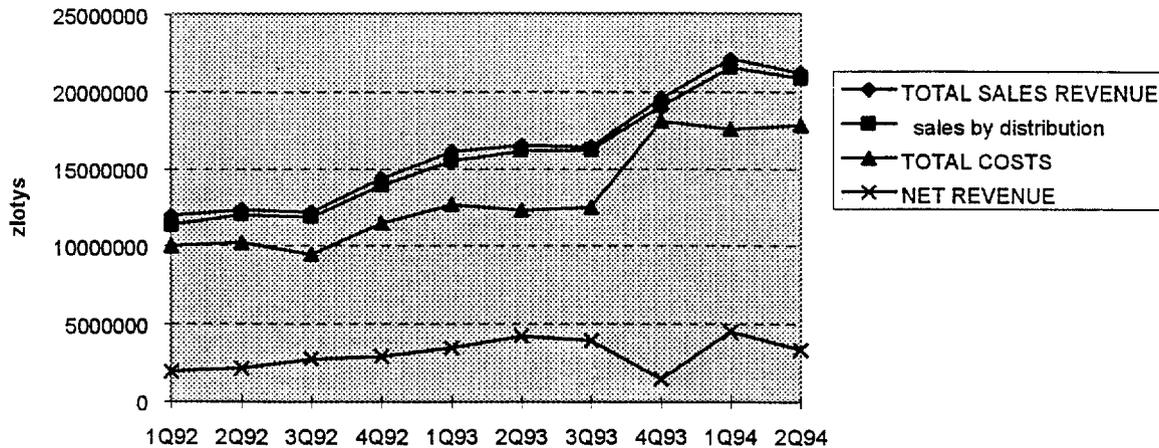
There is an open question in Poland as to what is the correct "economic" price of electric power. PSE maintains that inter connection with the Western Europe UCPTE will cause the Polish market prices to equalize with the West. Thus, establishing the economic market prices of electric power within Poland. This assumption is questionable since the maximum import capability from the West is

1700 MVA. At best, without major new investments, only 14 TWh (a more correct figure would be 9 TWh) of energy could be brought into Poland annually over these interconnections, assuming that there is sufficient transmission system to the West for support. 14 TWh is well below 10 percent of the power systems total energy requirements. Hardly enough to drive power price levels within Poland. In such a discussion it should also be recalled that Poland will have excess electrical energy supply for many years into the future. It is doubtful that the West would be interested in any increase over its present level of trade with Poland before Poland has incurred costs for environmental clean up similar to those incurred by the West.

A second problem with establishing the "economic" pricing of electric energy is the inability to calculate the cost of service. PSE has determined that the future market pricing should be based on "marginal costs". To calculate both long term and short term marginal costs of power there should be an accurate understanding of present system investment and incremental costs. The use of marginal costs for transmission and distribution systems is at best an art form. There has to be a clear understanding of "real" system costs to assure that marginal costs and therefore, customer prices are set at proper levels to assure the system will develop the most cost effective measures.

An interesting set of data to be reviewed when discussing "real" system costs is shown in chart form in Figure 5.2. The figure shows that the general cost of supply has been uniformly following the price increases authorized by the Minister of Finance. The one exception is in the fourth quarter of 1993, when the Minister authorized a lower price increase than was initially published. A review of the supporting data shows that the fixed and variable costs of supply have been increasing between 100 to 140 percent. About the same percentage as the increasing sales revenues. At the same time wages and surcharges have been increasing between 150 to 180 percent.

Figure 5.2
SALES REVENUE AND GENERAL COSTS



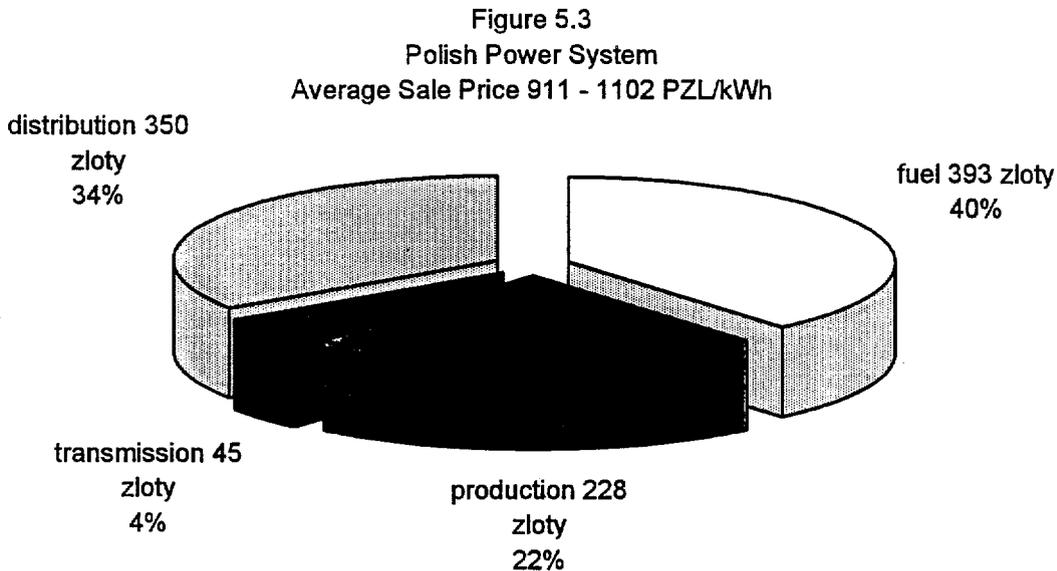
The international principles of accounting, recently introduced into Poland, will help to develop a clearer understanding of power system costs. The new accounting principles are general and do not provide the necessary supplemental accounting principles for the capital intensive power system. It is hoped that the energy regulatory authority, to be established by a new energy law, will be enabled to establish a uniform standard for accounting principles within the power sector. Standard accounting principles for the sector will allow for the accurate and consistent accounting of costs and a more accurate calculation of marginal costs. Such accounting principles are necessary to establish a data set required for cost of service pricing; marginal costs calculations; and regulatory authority review.

A third problem with establishing economic pricing, is the entrance into the market by new or third parties. Third party access to the grid will be provided for by the anticipated new energy law. However, the planned PSE trading and marketing arrangements do not offer much opportunity for competition by new entrants, in either the field of power generation or brokerage of power. The PSE trading arrangements are biased towards refurbishing the existing power generating plants. PSE will dominate the control and brokerage of power for at least the next fifteen years. The latest draft of the new energy law may result in making it difficult for new entrants in the power supply market, since the Minister of Industry and Trade, as monopoly owner of the existing supply sector, will be setting the rules for licensing and regulating his potential competitors.

Present Day Prices. The cost of electricity has eight major components. They are:

1. Capital costs of production plant,
2. Fuel costs for electricity production,
3. Operations and maintenance costs at the production plant,
4. Capital costs of transmission system,
5. Operation and maintenance costs of transmission system,
6. Capital costs of distribution system,
7. Operation and maintenance costs of distribution system, and
8. Cost of power for internal use and system losses (to be correct losses are incurred within each sub sector and thus should be applied within each sub sector).

Based on information developed by PSE the relative level of these costs are shown in Figure 5.3.

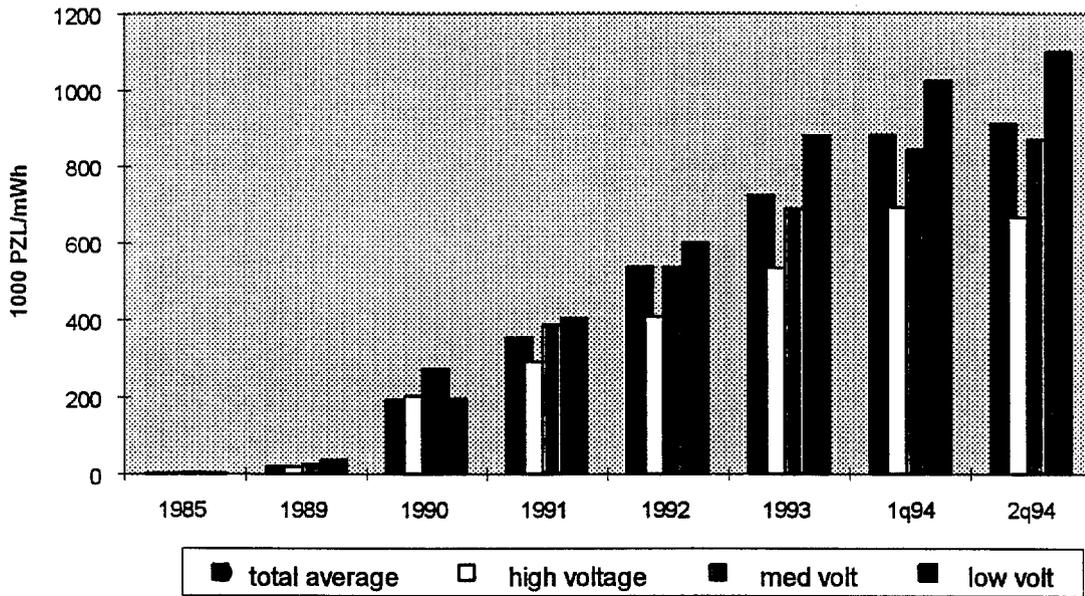


Assuming the costs and prices presented by PSE are correct Poland may be within its own short term marginal cost level, at this time. It should be remembered that the system operates totally on coal fuel. Polish coal prices have been at world price levels for almost a year. The cost of service in the present Polish system will be well above calculated marginal cost levels when asset values and therefore, depreciation costs are based on today's system replacement value.

PSE now has the internal capability of calculating marginal costs for the power system. The last public information on the marginal cost calculations showed long term marginal costs of power delivered to the distribution systems, in 1992 value, to be around 1000 Z³oty per kilowatt hour (about 1400 Z³oty per kilowatt hour in 1993 Z³oty).

Figure 5.4 shows the comparison of average cost per kilowatt hour for various customer groups since 1985. Figure 5.4 shows the total average customer cost and household average cost over the period 1989 through 1993, in 1989 Z³oty. These figures tell a number of things about the present pricing of power to the customer.

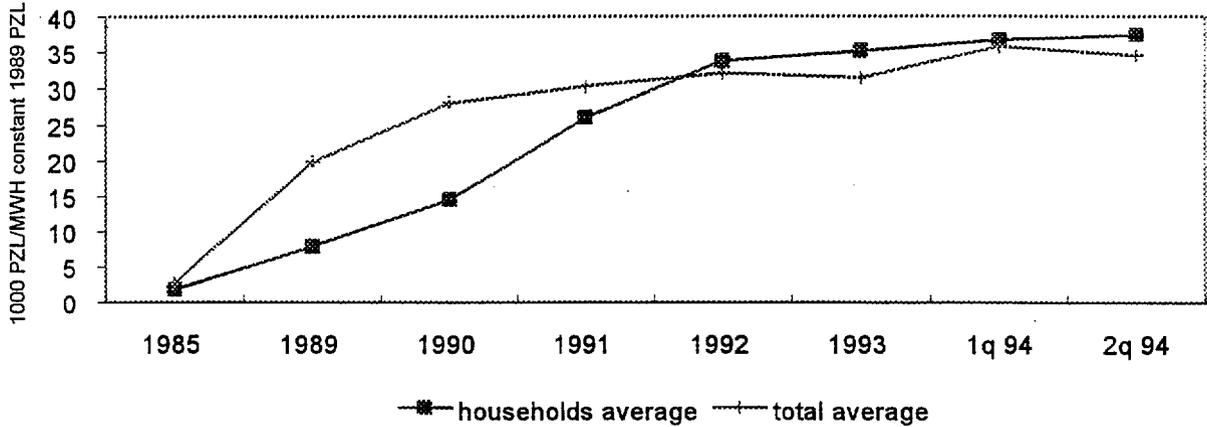
Figure 5.4
Polish Power System Average Sales Price



A goal of the power system restructuring was to eliminate cross subsidies among customers. Figure 5.2, shows the relationship among the customer groups. It can be seen that the overall average cost for the low voltage user group has increased to a point above that of the average cost for all customers while the high voltage group average cost has reached a point below. This is the cost relationship that one would expect to find between the two groups. However, within the low voltage customer group it is apparent that households are still receiving benefits from other users within the group.

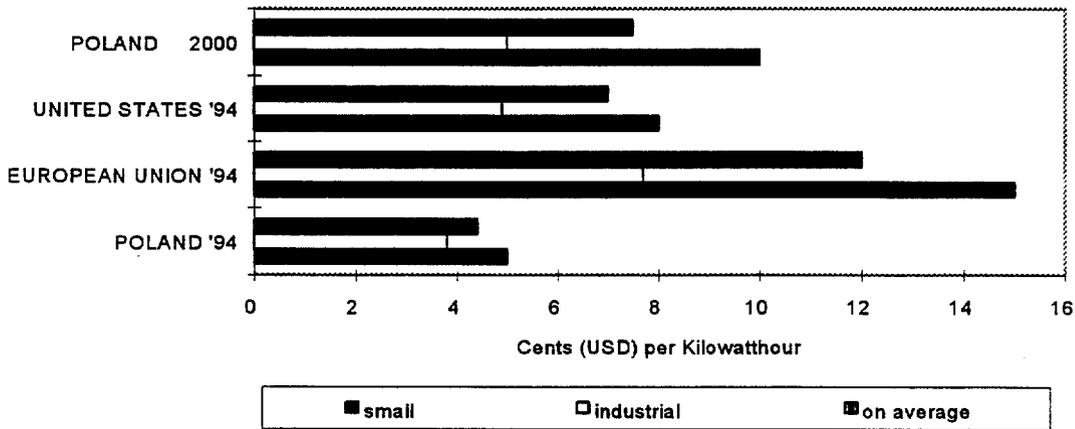
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Figure 5.5
POLISH POWER SYSTEM
Electric Sales Price in Constant 1989 PZL



Another goal of the power system restructuring was to gradually rise the customer prices to "economic" levels. Figure 5.5, shows that there has been no significant increase in average real power prices since 1992.

Figure 5.6
POLISH POWER SYSTEM
Comparison World Power Prices



Polish power consumer prices compared to European Union and United States are shown in Figure 5.6 (based on information from PSE). Figure 5.6 also presents PSE's forecast of "economic" prices in Poland for the year 2000.

At present there are basically twelve customer tariffs in the system. The tariffs are based on the various voltage levels of service and are further divided into user groups defined as industrial, commercial, transportation, agricultural, street lighting and household users.

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Power Marketing

Present System Marketing and Trading. Internal to the power system, power transfer and purchase prices between the generators and PSE; and between the distributors and PSE are "supervised" by the Minister of Industry and Trade. A committee on pricing, consisting of representatives from power enterprises and sectors of the government and its institutions, was established at the beginning of 1994 to advise the Minister on internal pricing issues.

The first commercial agreements between the generating enterprises and PSE were signed in 1992. These were one year agreements establishing prices for power based on a prior year of operation. There was no guarantee of purchase on the part of PSE nor was there a guarantee of delivery on the part of the generator. For some enterprises the agreement provided a wind fall profit since the prior year's costs were higher than the operating year. However, for other enterprises, that had low historic year costs and high expenses in the operating year, the commercial agreement created a large financial problem. Similar agreements were used for the 1994 operational year.

In 1992 contracts between the power plants and the mining companies were signed for the 1993 supply of coal. These negotiations were supervised by PSE. A similar set of contracts were negotiated in 1993. However, the decision on coal pricing by the Minister of Finance in early 1994, negated the pricing agreements between the power plants and the mines.

With minor exceptions, PSE purchased power was resold to major customers and all distribution companies. The exceptions were the small amount of power sold directly from the generators to ultimate consumers and distribution companies that obtained power from generators within and connected to their respective low voltage distribution systems.

Future Marketing and Trading. PSE plans to make January 1995 a transition point for several trading arrangements. In June of 1994 PSE signed two long term power purchase agreements with power plants. In September of 1994 PSE issued an Inquiry for its intended purchase of power under long term arrangements. The Inquiry was given to both Polish and foreign firms. In January of 1995 a new wholesale tariff will be introduced for distribution companies. Each of these actions have had detractors. For example, the distribution companies are

petitioning for delay in implementing the new wholesale tariffs because of their "complexity".

The development of the ultimate market envisioned by PSE will take over fifteen years, by PSE estimate. PSE has established a marketing plan divided into three phases. The phasing in of the market allows, "for a slow development of the ultimate competitive market system while at the same time providing long term purchase commitments believed necessary to attract foreign capital into the power system". The phases are defined as follows:

Phase I, 1995 to 1998. This phase will take the first four years of the market transition. During this period PSE will allow some competition to develop between existing generation companies and;

1. PSE will sign long term contracts for the purchase of power from those power plants that can obtain financing for refurbishment and environmental controls. The plants that will receive priority consideration for long term contracts are those identified by the PSE "integrated resource plan". The long term contract will provide the revenue stream for support towards obtaining the required financing.
2. PSE will sign short term power purchase agreements with power plants that can not obtain financing for necessary refurbishment or modernization or are low on priority as determined by the PSE "integrated resource plan". Short term contracts will begin with PSE purchasing maximum plant output the first year and decreasing purchases during the ensuing three years. That portion of a plant output not covered by either short term or long term contract can compete for annual capacity sales to PSE during years two to four.
3. Local small generators attached to the distribution system will be able to sell power directly to the distribution company at the distribution company's avoided cost (avoided cost would be based on the PSE wholesale tariff).
4. Distribution companies will be required to sign long term service arrangements with PSE. PSE will sell power at the "Bulk Supply Tariff" (wholesale rate).

To put Phase I into operation PSE has improved the metering and recording of transactions on the high voltage transmission system and installed new power dispatch equipment. The generating units will be dispatched on an indexed energy

price regardless of the amount of contract capacity sold to PSE. Units without capacity contracts with PSE will be paid a System Clearing Price for energy generated.

The rationale behind Phase I is to provide a transition period for both generators and distributors. This should allow generators to develop long term financial plans. Also, the period will help in the development of market arrangements.

Phase II, 1998 to 2008. This phase will last for about ten years. During the period more extensive competition between generators will develop and PSE will sell to large consumers on the 110 kV system at wholesale tariffs and;

1. Generators without long term contracts will compete to sign short term and medium term contracts with PSE. Generators will be paid "pool price" for scheduled generation or the revenue established within its long term contract.
2. A power dispatch pool will be developed. Units will be dispatched based on price bids by the generators. Differences between a generator's contract price and bid price will be settled by a "contract for differences".
3. PSE will sell power to distributors and large customers at Bulk Supply Tariff.

The rationale behind Phase II is the beginning of a competitive market for most generators. However, long term contracts will continue to receive revenue as provided by contract, thus supporting associated financing. PSE states that Phase II will see a reduction in its central control of the system. Many disagree with this rationale since PSE is to enter further into the market by increasing its sales to large customers. By PSE serving large customers the distribution companies are losing their most important source of revenue.

Phase III, 2008 and Onwards. This phase will see the development of the fully competitive market in the power system. Power will be sold based on contracts between generators and distributors or large customers. PSE will operate the power pool and establish the pool selling price. Contracts for differences will balance the pool price and the contracted sales price and the distributors' contracted purchase price. There will be open access to the transmission and distribution grids.

Brief. The method of pricing power today has not changed significantly from the past. The Minister of Finance sets the fuel price and electric power prices for the ultimate consumers. The Minister of Industry and Trade supervises the pricing

established by PSE which in turns sets the amount of the revenues that the distributors will receive. The relationship between prices paid by the large electricity users and the small users seem to be more in the relationship that would be found in other countries. The cross subsidization of rates among customers seems to have been reduced if not eliminated.

The anticipated new energy law will allow for retail customer prices to be established by the servicing distributor and approved by a regulatory authority. Power suppliers, PSE and distributors will be allowed to compete for servicing the large consumers on the system. This competition is to provide the large consumers with a "true economic pricing" of their power needs. Internal power system transaction prices will be established by competition.

PSE ultimately plans that all power system internal and customer prices will be based on marginal costs. Internal transfer prices will reach marginal costs on the basis of competition. Until that time the marginal costs will be calculated and used as the basis for developing contract sale prices and tariffs. For marginal costs to form the basis for customer tariffs, a number of supportive measures must be taken. Among the most important of these measures is the establishment of standard accounting principles within the industry.

PSE plans to begin the phasing in of a new market system in 1995. The phasing in of the "competitive market" will take some twelve years or more. There are many in Poland who question the market system proposed by PSE and the time proposed to bring it into full operation. Some of the stated support for the system seems to be flawed. One example is PSE's contention that power trading with Western Europe will bring the cost of power in Poland up to Western economic levels. The amount of power that can be brought into the system from the West is a very small portion of total needs. This small amount of power is not sufficient to drive the overall market pricing.

CHAPTER VI

POWER SYSTEM SHORT TERM CAPITAL REQUIREMENTS

Needed Investment. Based on data from the Energy Information Center, and data published in various reports, and information supplied by the Polish Power Grid Company (PSE) the power system will need the following major funding between 1994 and 2000:

	10 ⁹ USD
Life extension & rehabilitation	
about 3000 MW @ 800 USD/KW	2.4
1998 emission control standards	
about 16000 MW @ 400 USD/KW	6.4
Other rehabilitation work	
about 23000 MW @ 50 USD/KW	1.2
New plant construction	
about 5200 MW	3.2
Transmission update & rehabilitation	1.0
Approximate total investment by 2000	14.2

Potential for Capital. As seen above the power system will need extensive capital in the coming years. Note that the table does not include the distribution system capital requirements for the same period. As stated by the government in its 1991 energy development policy letter to The World Bank, the capital needed for Poland's restructuring cannot be found within Poland. Poland can supply only a small part of its total internal investment needs. Failure of the Kraków ξ g project will have a continuing affect on the formation of capital for existing plant refurbishment and replacement.

"Independent Power Producers" (IPP) have been interested in the Central Europe area since 1989. A number of independent power projects are proceeding throughout the area. Probably most noticeable of these are projects in Czech Republic. There have been a number of foreign companies working in Poland for the past four years attempting to develop generation as new entrants to the market or to form equity positions in existing power plants. Most of these companies have withdrawn from active pursuit of the formation of an independent power production facility within Poland.

Those who were interested in establishing an independent power industry were attracted by the government's 1991 energy development policy. The policies of increased energy efficiency, reduction of environmental pollution, competitive market, restructuring of the law to allow competitive development, and attraction of foreign capital lead the IPP (and other foreign investors) to actively seek future investment opportunities within Poland. This interest was further simulated by the potential for internal competitive development of a natural gas market. The presence of undeveloped natural gas fields (high methane and coal methane recovery) tied to the potential for future coal gasification also added to investors' interest. The government has been slow in placing its stated policies into action. Thus, the investors are losing interest and are discouraged about the future potential. Today there are many areas in the world where the potential for IPP and the returns on investment are more attractive than in Poland.

Government Influence. The present disposition of the 1991 energy development policies that attracted the interest of IPP and other foreign investors are:

- Legal reform; The basic energy law is still in draft form after three years of development. Over the history of development of the draft there has been numerous efforts to add provisions to the law that would maintain the State dominance and command control of the energy industry and in particular the power system.
- Energy efficiency; The State has formed a commercial corporation for the promotion of energy efficiency. Within the power system there are steps to analyze and gather data to determine methods of improving efficiencies.
- Competitive market; The delay of the legal reform has in turned delayed the entrance into the power market by IPP and other investors. PSE has issued inquires for future power supplies to existing power plants and several foreign companies. Conversations with IPP indicate that PSE's anticipated power purchase price is not sufficient for new entrants in the market. The district heating supply system has been divided into more than 500 companies making it difficult for IPP to combine power and heat sales for operational and economical efficiencies.
- Environmental protection; The government has indicated publicly that required compliance, by existing power plants, to the government's 1998 air emission standards regulations may be delayed or postponed indefinitely. This gives the existing power plants a decisive advantage over IPP. The 1998 environmental standards were designed, in part, to gain Western European agreement for interconnection of the Polish power system with the West. Delay of the new environmental standards will not only diminish the justification for of IPP investments but will also delay availability to Western power markets.

- Natural gas open market; The State has signed contracts with several independent exploration companies for development of potential gas fields within Poland. Before exploration by those companies can begin, additional letters of agreement with the Polish national gas enterprise are required. To date AMOCO has received permission to go forward with exploration and is to spud-in an exploratory well before the end of 1994. Availability of natural gas for IPP development of new power generation appears to be limited and probably many years into the future.

The government, if it is to regain its early advantage for attracting foreign capital, must take definite steps towards putting its stated energy development policies into place. There are estimates that the IPP industry has potential markets around the world requiring investments into the hundreds of billions of USD. Thus, international competition for money and new power generation development is high. As the government has stated itself, Poland will need private investment to upgrade the power system and to continue to provide reliable power service to the people of Poland. Therefore, the government should take steps to encourage investment in Poland. This will require Poland to adopt measures that are more attractive than other countries competing for reconstruction and new development investment money.

Internal Power System Efforts. From examination of the general statistical data on financial results published by the Energy Information Center, two power plants and three distribution companies show net losses for the year 1993. However, this is not an indication of the financial health of the power system. Many companies are not earning sufficiently to properly maintain their plant or put another way many companies are not making necessary additions, betterment's and replacements presumably because of insufficient revenues.

PSE through a transmission surcharge funded and constructed two links into the 400 kV belt-system. In addition, PSE has installed new dispatch equipment and has begun upgrading its metering and data transfer systems. Through the funding package with the Bieslko Bia³a Project has obtained funds for upgrade of system facilities. PSE also has a commitment from The World Bank for funds totaling several hundred million USD for use on the power system.

The distribution companies are moving forward with their respective reorganizations. Many of the companies are small and management has tended to refrain from any "overt" actions that move towards independent corporate initiatives. A few have formed holding companies from the original enterprise and are entering various new lines of businesses that are to provide upwards of fifty percent of the corporate revenues. Most distribution companies are making an effort to upgrade facilities and equipment as well as customer service orientation.

These efforts are financed by cash flow and bank loans. Through their trade association the distribution companies are attempting to gain access to training in business and financial planning. Some companies have hired local consultants to help in this effort. Generally these consultants are economic professors from the local universities and are not trained in corporate management and planning within economically driven markets. With many State enterprises failing to pay their power bills and a growing number of small customers following suit the companies will find it increasingly difficult to use cash flow or to qualify for loans. The power distribution facilities in major cities and in farm communities are in great need of repair and upgrade. The actual extent of this problem or the moneys needed to correct it are not known.

Some of the more aggressive power plant managers have hired consultants to put together formal and extensive proposals for attracting funds for new generation plants and to refurbish their existing facilities. A number of power plants, as well as combined heat and power plants are using cash flow to update control systems, burners and other low cost items of improvement. The Turów Power Plant is one that has had enormous expense because structural failures in cooling towers and efforts to extend the life of old equipment. These individual company cash flow efforts cannot supply the future equity investment needs let alone support the debt investment needed within the next five years. Delay of needed investment will occur but too much delayed investment will ultimately cause deep supply problems and follow on social problems.

Brief. The Polish Power System needs well in excess of 14 billion USD within the next five years in order to fulfill its political commitments and to assure the people of Poland an adequate and reliable supply of power. These funds must be acquired at the lowest cost possible so that the growing economy of Poland can continue and be competitive with the rest of the world. Efforts to date have been inadequate and in many cases counterproductive to obtaining this government goal.

The use of long term power purchase contracts to support project loans has a limited viability for Poland. First, large State enterprises, in growing numbers (with smaller customers following suit) are failing to pay their power bills. This practice and the government's failure to force performance of its enterprise will ultimate lead money lenders to question the State's ability to manage its businesses and the managers of those enterprises, This in turn will raise concern about the validity of the government's signed guarantee of performance. The perceived inability to manage could result in the cost of money reaching levels that the State cannot afford.

The financial health of the power system is at question. Inadequate accounting principles and reporting and management planning capability all give the outside investor cause for concern. Power sector enterprises and companies are relying on cash flow and bank credits to finance necessary upgrades and repairs. These methods of finance are inadequate to fund the enormous financing needs of the sector and their continued use will lower the possibilities of future private equity investments.

PSE has taken credit for putting together at least one group of foreign lenders to fund mainly transmission investments. This form of "project financing" however, will ultimately be considered the debt of the State. The need today is to attract equity investments into the system. For the highly capital oriented business of power production and distribution there is a large demand for investment. Many countries under reconstruction and development are actively working to attract foreign equity investors. These countries are making every effort to attract energy investors. Poland must begin to compete with these countries for investment money or it will be left behind.

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CHAPTER VII POWER SYSTEM PRESENT DAY DIFFICULTIES

Difficulties. The power system today is faced with difficulties that are the result of the "old political system" and in part are caused by happenings over the past five years under the "new political system". This chapter is an attempt to describe the most significant of these difficulties. While each of the problems are complex, the explanations will be kept as short as possible hopefully without losing the definition of the problem.

Note: Some of the problems have been identified in earlier chapters. Those problems may or may not be repeated in this chapter.

Problems. There are many problems within the power system and most of them demand immediate attention. It is impossible to discuss more than a few of the most critical problems in this paper.

Critical problems in the power sector include:

- Age and technical obsolescence of the equipment and facilities within the power sector.
- Delay of new legislation and regulation to support the restructuring and functioning of the power sector within an economic and environmental market orientation.
- Inconsistency between government goals and government actions and government decisions.
- Disagreement between local and State government on control and ownership of power assets.
- Union actions.
- Perceived or real dominance of PSE in the power sector.
- Economic and energy inefficiency within the power system.
- Inadequate accounting and statistical information for financial resource planning.
- Apparent excess profits going to salaries as opposed to funding necessary development work within the sector.
- Lack of outside funding for training and development to distribution and generation companies.

Summary of Power Sector Needs. The development and definition of problems provides for formulation of solutions and identifying needed actions or tools to resolve the problems. To short cut this process and to proceed with the problem

solving effort the following are some needs required for problems observed within the power sector:

1. Need for accounting principles to allow for; adequate financial evaluation of the company, definition of cost of service, a base from which to calculate marginal costs, and analysis of management competency in running the business.
2. Need for training at all levels of management; in financial and strategic planning; in techniques of budgetary and financial control; and market research and planning (system load forecasting and resource planning).
3. Need for training at all levels of management and employees; in employee relations, customer relations; market economy, job ethics, and environmental regulation.
4. Need to develop useful statistical data sets for economic, financial, business, market and customer service analyses.
5. Need to establish legislation and regulation to foster the restructuring of the power system and goals of the government.
6. Need for a strong government commitment and accurate definition of goals for the restructuring of the power sector together with development of a viable critical path and milestone schedule for the pursuit of those goals.
7. Need for technical and physical updating of the entire system for increased energy efficiency, reduction of costs and reliability of supply.
8. Need to install meters in each service location at the retail customer level and bill by recorded power use on a monthly basis.
9. Need to enforce payment for power use by State enterprises.
10. Need to study the power plants and the transmission systems to determine actions that can be taken now within existing budgets to reduce the large waste of power within the power system itself.
11. Need to develop a national planning strategy that all companies; local and State officials; customers; and other stake holders can accept as valid base for development of the future power supply for the country.
12. Need to funnel a large portion of foreign funds to the training of management and personnel in the distribution and generation companies.

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13. Need to develop training programs on topics of critical need to the distribution companies and generating enterprises.

Each of the above needs have a correlated problem or difficulty faced by the power system. Resolving the power system needs and problems must become a major goal of the government in 1995 if this vital industry is to continue to feed the Polish economic growth.