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Report No: 21929

IMPLEMENTATION COMPLETION REPORT  
(CPL-38090)

ON A LOAN

IN THE AMOUNT OF US\$45 MILLION EQUIVALENT

TO PEC KATOWICE

FOR KATOWICE HEAT SUPPLY AND CONSERVATION PROJECT

June 28, 2001

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective June 1, 2000)

Currency Unit = New Polish Zloty (PLN)  
= US\$ 0.2257  
US\$ = PLN 4.4295

## FISCAL YEAR

January 1 to December 31

## ABBREVIATIONS AND ACRONYMS

### Acronyms and Abbreviations

CHP	Combined Heat and Power (Plant)
CO <sub>2</sub>	Carbon Dioxide
DH	District Heating
DHE	District Heating Enterprise
DHW	Domestic Hot Water
ERR	Economic Rate of Return
GHG	Greenhouse Gas
HOB	Heat-Only-Boiler
IAS	International Accounting Standards
MoE	Ministry of Energy
MTR	Midterm Review
NO <sub>x</sub>	Nitrogen Oxide
NPV	Net Present Value
O&M	Operations and Maintenance
PEC	Regional District Heating Enterprise (of Katowice from 1992 on)
PMR	Project Management Reporting
SAR	Staff Appraisal Report
UNFCCC	U.N. Framework Convention on Climate Change
URE	Energy Regulatory Authority
WPEC Katowice	Voivodship District Heating Enterprise (of Katowice until 1992)

Vice President:	Johannes F. Linn
Country Manager/Director:	Michael F. Carter
Sector Manager/Director:	Henk Busz
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**POLAND  
KATOWICE HEAT SUPPLY**

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<i>Project ID:</i> P008614	<i>Project Name:</i> KATOWICE HEAT SUPPLY
<i>Team Leader:</i> Karl Enar Wennerstrom	<i>TL Unit:</i> ECSEG
<i>ICR Type:</i> Core ICR	<i>Report Date:</i> June 28, 2001

## 1. Project Data

*Name:* KATOWICE HEAT SUPPLY *L/C/TF Number:* CPL-38090  
*Country/Department:* POLAND *Region:* Europe and Central Asia Region  
*Sector/subsector:* PT - Thermal

### KEY DATES

	<i>Original</i>	<i>Revised/Actual</i>
<i>PCD:</i> 01/07/1993	<i>Effective:</i> 12/19/1994	
<i>Appraisal:</i> 03/19/1993	<i>MTR:</i>	
<i>Approval:</i> 11/17/1994	<i>Closing:</i> 06/30/2000	10/31/2000

*Borrower/Implementing Agency:* KATOWICE DISTRICT HEATING ENTERPRISE/PEC KATOWICE

*Other Partners:*

STAFF	Current	At Appraisal
<i>Vice President:</i>	Johannes F. Linn	Wilfred Thalwitz
<i>Country Manager:</i>	Michael F. Carter	Kemal Dervis
<i>Sector Manager:</i>	Henk Busz	Bernard Montfort
<i>Team Leader at ICR:</i>	Enar Wennerstrom	Henk Busz
<i>ICR Primary Author:</i>	Karl Enar Wennerström; Arto Nuorkivi	

## 2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

*Outcome:* S

*Sustainability:* L

*Institutional Development Impact:* M

*Bank Performance:* HS

*Borrower Performance:* S

QAG (if available)

ICR

*Quality at Entry:*

S

*Project at Risk at Any Time:* No

### **3. Assessment of Development Objective and Design, and of Quality at Entry**

#### *3.1 Original Objective:*

The predecessor to PEC Katowice, WPEC Katowice, was originally intended to be one of the five district heating enterprises (DHEs) that were participants in the Heat Supply Restructuring and Conservation Project to the Republic of Poland (Loan 3809-POL, Project ID: P008576). Just prior to loan signing on September 16, 1991, however, the large WPEC Katowice system was broken up into 11 independent entities when ownership was to be transferred from the state to the municipalities they served. PEC Katowice was one of these entities, and the intention was for its ownership to be transferred to the five municipalities it serves.

Because of the relationship between the two projects, this ICR closely parallels the ICR for Project ID P008576, dated June 5, 2000, and the monitoring indicators of the two projects are compared when appropriate.

All of the Katowice Heat Supply and Conservation Project's objectives were investment-oriented. They were to:

1. enhance energy conservation and efficiency in the district heating sector by financing appropriate investments;
2. extend the life of existing district heating assets through rehabilitation and introduction of modern technologies and materials; and
3. reduce environmental pollution through investments in energy-efficient equipment and systems, as well as by supporting programs to eliminate coal-fired boilers.

These objectives were clearly defined and consistent with the Government's policy and the Bank's Country Assistance Strategy (CAS) of improving economic efficiency in the supply and use of energy and mobilizing additional domestic and foreign capital for investments. The Government's Energy Policy and Strategy, in line with the EU strategy for the energy sector, called for energy security through cost-effective supply of energy at socially acceptable prices and in an environmentally sustainable manner.

The Katowice Heat Supply and Conservation Project merited the Bank's support because it would yield immediate large benefits in two priority areas of the Bank's Country Assistance Strategy: increased energy efficiency and lower pollution. The background to the Katowice Heat Supply and Conservation Project was that, for a considerable period, the district heating enterprise for the Katowice region had suffered from a lack of funds to effectively operate, maintain, and renew its fixed assets. There were major heat and hot water losses because of serious corrosion caused by poor water quality and water leakage and lack of insulation. The local municipalities lacked the technical and financial resources to effectively address these problems and, even though already identified as potential owners, did not give them adequate attention because the district heating enterprise, PEC Katowice, was a state-owned enterprise.

The project's objectives also addressed the issue of environmental pollution. Under its National Environmental Policy, Poland had made progress in addressing short- and medium-term environmental priorities. Substantial progress had been made in addressing pollution from large scale sources, in part because of the restructuring associated with the transition to a market economy (i.e., the closing down of energy-intensive and inefficient industries), and to Poland's strategy for complying with international protocols and treaties and with the requirements for European Union accession. Continued progress now depended on tackling air pollutant emissions (especially particulates) from many small dispersed sources, such as those used for domestic heating, and which typically are located in densely populated areas, have low stacks, and are not equipped with any type of flue gas cleaning facilities. These were also a major source of health problems.

Finally, the project has supported the Government in meeting its international obligations. Poland ratified the U.N. Framework Convention on Climate Change (UNFCCC) on July 28, 1994, and submitted the National Communication in 1996, agreeing to limit greenhouse gas (GHG) emissions to the 1988 level in the year 2000 through measures aimed at encouraging economic efficiency and rational use of energy. Because the potential for reducing energy consumption (and in turn carbon dioxide (CO<sub>2</sub>) emissions) in space heating is largely related to the enhancing of heating devices and the quality of building insulation, priority was accorded to the public and residential sectors.

### *3.2 Revised Objective:*

The original objectives were maintained throughout the project.

### *3.3 Original Components:*

The project comprised the following major components: (a) Network rehabilitation and replacement (US\$ 26.5 million); (b) Substation retrofit, automation and metering (US\$ 28.8 million); (c) Network sectioning systems (US\$ 5.3 million); (d) Network monitoring, interconnection and dispatching system (US\$ 5.3 million); (e) Boiler elimination and conversion program (US\$12.6 million); and (f) Technical assistance (US\$ 1.7 million). Import duties and taxes amounted to US\$ 1.0 million. Annex 2 shows a comparison between the appraisal estimate above and the actual figures.

### *3.4 Revised Components:*

No formal revision of components was made and most of the equipment was installed as scheduled in the Staff Appraisal Report.

The original closing date was June 30, 2000, but, to enable the company to complete the project work in progress, the Bank approved a new closing date of October 31, 2000. At the same time, the loan amount was reduced from US\$45.0 million to US\$36.6 million at the request of the Borrower.

### *3.5 Quality at Entry:*

There was no quality at entry review conducted for this project. The priority rehabilitation measures to be implemented under the investment projects were identified through the Master Plan Study prepared by the Finnish consultant Ekono Energy. All recommendations for improvements to PEC Katowice in the Staff Appraisal Report were based on recommendations in the study.

Because the Katowice Heat Supply and Conservation Project began three years later than the Heat Supply Restructuring and Conservation Project to the Republic of Poland, PEC Katowice was able to use valuable experience that had been gained from the other project. The Bank already had experience from a number of sector studies carried out since 1986 as part of the assessment of the economy as a whole. Since the beginning of the promarket economic reforms in 1990, the Bank invested considerable resources in a program of economic and sector work tailored to provide the Government and civil society with guidance in transforming a command economy into a market economy. At that time, the energy sector was characterized by its high energy intensity and overcentralization, resulting in vast institutional inefficiencies and operational wastage, dependence on the state budget for investment and price subsidies, and by the absence of market-related price signals (except for coal exports). In addition, it was the country's major source of air pollution. The Polish district heating sector was at the core of these problems, and there was a need to capture the significant savings potential buried in the inefficient production, distribution, and utilization of district heating and to reduce the sector's negative impact on the environment.

## **4. Achievement of Objective and Outputs**

#### 4.1 Outcome/achievement of objective:

The project met its objectives of increased energy efficiency and good fiscal impact and benefits to the consumers and reduced pollution from coal-fired boilers resulting in coal savings and good fiscal impact and benefits to the consumers. Achievement of objectives was based on the improvements achieved in the PEC Katowice infrastructure, efficiency gains, the sustainable environmental development, the economic performance, and the major positive impact on the local district heating (DH) equipment manufacturing and associated industries. Details of the performance indicators, economic rate of ERR), and net present value (NPV) calculations for the investment components of the project are shown in Annexes 1 and 3. The achievements of the project are outlined below.

**Objective 1: Enhance energy conservation in the district heating sector through financing appropriate investments.** This objective was achieved, and the outcome was rated "Satisfactory". The overall system efficiency has increased from 59 percent to 69 percent (see Annex 3), resulting in annual energy savings equivalent to 118 kilotons (kt) of coal. These savings were achieved through (a) reducing overall heat transmission and distribution losses by almost half (from 30 percent to 18 percent of heat produced); and (b) reducing water losses by 45 percent (SAR: projected 65 percent). Energy efficiency and conservation measures implemented to achieve these savings included installation of preinsulated pipe systems, modernization of substations, metering, system automation and telecommunications controlled systems, and boiler elimination and conversion.

**Objective 2: Extend the life of existing district heat assets through rehabilitation and introduction of modern technologies and materials.** This objective was achieved, and the outcome was rated "Satisfactory". The investments in the district heating system that covered replacement of leaking components, installation of network sectioning, and installation of water treatment systems have substantially reduced water losses and improved water quality. This has considerably reduced the internal corrosion of the pipelines and substations, thereby extending the life of these fixed assets. The preinsulated pipe technologies installed under the project will not be subject to external corrosion and therefore have an expected life of 30 - 50 years compared with less than 15 - 20 years for the traditional, concrete duct pipe technologies. As a result of the project investments, the weighted average remaining lifetime has been extended from 23 years in 1992 to 26 years in 2000 for the networks, and from 10 to 15 years for the consumer substations. This is equivalent to a reduction in the rate of pipeline and substation replacement by 1.3 km and 36 MW per year, respectively, corresponding to a 17 percent and 33 percent reduction compared to 1992.

**Objective 3: Reduce environmental pollution through investment in energy-efficient equipment and systems, as well as by supporting programs to replace small coal-fired boilers by gas-fired boilers.** This objective was achieved, and the outcome was rated "Satisfactory." The environmental objectives were substantially achieved as a result of the above-mentioned increased energy efficiency and conservation measures, and the small-boiler elimination and conversion program. A major factor in the project's success was the concern of the population with the level of air pollution, which resulted in a strong commitment from both PEC Katowice and local municipalities towards mitigating this problem. Specifically, total flue gas emissions from all heat sources were reduced by 21 percent for sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), and carbon dioxide (CO<sub>2</sub>), and by 31 percent for particulates. This represents an annual reduction of about 1,150 tons of SO<sub>2</sub>, 550 tons of NO<sub>x</sub>, 500 tons of particulates, and 330,000 tons of CO<sub>2</sub>. In particular, the small boiler elimination and conversion program contributed significantly to this improvement. As a result, the population benefited from a substantial improvement in air quality.

#### 4.2 Outputs by components:



**Investment Component (total costs: US\$58.8 million; IBRD financing: US\$35.8 million).** The design of the optimization program was appropriate, and the achievements of the physical objectives of the project were "Satisfactory." The investment component provided for the rehabilitation and modernization of district heating facilities. Optimization programs developed in the context of the master plan identified the investment measures needed to sustain the least-cost heating solutions with significant environmental benefits. The measures implemented under this component aimed at (a) extending network life and minimizing network leakage; (b) enabling substantial system downsizing due to more efficient use of existing resources; (c) improving load management and reducing energy losses; (d) facilitating accurate metering of both energy purchased and sold; and (e) reducing air pollution through small coal boiler replacement and by conversion to gas-fired boilers.

**Technical Assistance Component (US\$0.8 million for the IBRD-financed portion).**

The design of the technical assistance component was appropriate, and the outcome was rated as "Satisfactory."

To strengthen institutional capacities, 230 staff-weeks of consulting services were used to prepare the master plan to develop the management information system and to initiate a quality assurance (QA) control system. Training was undertaken to cover general management, investment planning and economic evaluation, international procurement and trade, quality assurance, marketing and customer relations, and modern district heating management and operations based on new techniques and technologies. Training included courses in outside institutions and in-house, as well as training of engineers and operators provided for under all equipment contracts. As a result, PEC Katowice has developed in-house expertise for investment optimization and planning, execution and management of the network operation, and preventive maintenance. The success of the training and technical assistance programs was a key factor in achieving the substantial improvements in the company's physical operations as detailed in Annex 1, Key Performance Indicators/Log Frame Matrix.

*4.3 Net Present Value/Economic rate of return:*

The Project has had significant economic benefits. The major benefits have been coal savings and system down-sizing, which together accounted for 70% of the total economic benefits derived from the Project. Other benefits were extended life of DH assets, productivity improvement, increased availability of heating services, and reduction in flue gas and particulate emissions. The ERRs are summarized in the following table (see Annex 3 for details and also for a comparison with the "Four Cities"):

**Table 1: Economic Rates of Return (ERRs) and Net Present Values (NPVs) for the Project.**

	PEC Katowice	Four Cities
<b>ERR</b>		
<b>Without environmental benefits:</b>		
At appraisal	16.0%	23.0%
At completion	24.9%	44.0%
<b>With environmental benefits:</b>		
At appraisal	26.0%	30.0%
At completion	38.9%	74.0%
<b>NPV (10%)</b>		
<b>Without environmental benefits:</b>		

At appraisal		
At completion	\$30.3 mill.	N/A
<b>With environmental benefits</b>		
At appraisal		
At completion	\$46.6 mill.	N/A

The table above shows that even though satisfactory the ERR for PEC Katowice has not reached the same result as the "Four Cities" projects. The main reason for this is the "Four Cities" had on the average a considerably higher internal cash generation over the project period and were all granted extensions to the Loan closing date and could therefore use their loans over a longer period to achieve maximum economic benefits.

As also shown in Table 1, PEC Katowice's ERR at completion was higher than anticipated at appraisal.

The NPV at completion amounted to US\$46.6 million.. Eighty-five percent of the cumulative economic benefits of the investment project went to the PEC Katowice customers in the form of reduced heat prices. The remaining 15 percent was shared among all the inhabitants of the region through improved air quality, and the Polish economy as a whole through reduced greenhouse gas emissions (mainly from carbon dioxide). The CHPs have gained few economic benefits because the economic load dispatch was never implemented, and the water temperature reduction has been modest. The efficiency gains resulting from the Government's energy pricing policy and achieved by both PEC Katowice and the CHPs have greatly benefited the DH end customers through a 61 percent reduction in the price of heating 1 square meter (m<sup>2</sup>) of floor area (from PLN 55/m<sup>2</sup> in 1992 to 21.4 PLN/m<sup>2</sup> in 2000, both expressed in 2000 prices).

#### 4.4 Financial rate of return:

The financial rate of return was not issued in the SAR or in the Project Completion Report.

#### *Financial Performance of PEC Katowice:*

Although the economic benefits of the Katowice Heat Supply and Conservation Project have been substantial, the heat price reduction in real terms since 1991 has been 61 percent—the highest figure for any of the five cities participating the two projects. PEC Katowice thus was not able to keep a sufficient share of these benefits to achieve satisfactory financial viability. Because the financial performance of PEC Katowice that was anticipated in the SAR never materialized, it has therefore been rated "Negligible".

Insufficient tariff increases caused PEC Katowice's financial viability to gradually decrease during the project period. The operating ratio of PEC Katowice was in the high 90s, as compared with the 90 percent in the financial projections of the SAR. Because the net fixed assets increased from PLN 87.9 million in 1993 to PLN 269.5 million in 1999, the return on net fixed assets decreased from 10.2 percent to -1.4 percent in the same period. These figures overstate the return on assets in real terms because the fixed assets in Polish utilities have not been allowed to be revalued since January 1, 1995. In the meantime, Poland was suffering from hyperinflation from January 1, 1995, to December 31, 1996, and very high inflation in the five years thereafter. Because of this, all Bank projects in Poland using International Accounting Standards (IAS) have been given a qualified audit opinion with reference to IAS29, which concerns hyperinflation. If assets had been appropriately revalued and proper depreciation charges used, there would have been a negative rate of return in recent years. De facto, this meant that not only were all of the benefits from the project distributed to other parties, but also that losses in real terms depleted the company's equity and made the company less able to service its debt.

Because of delays in the project implementation, however, it was still possible to generate sufficient cash to finance the required counterpart funding for the project. With the exception of 1995, PEC Katowice was in compliance with its two financial covenants: an internal cash generation ratio of 30 percent and a debt service coverage ratio of 1.3. The debt service coverage began in 1995 at a very high level (25 times) and was gradually reduced to 5 times in 1998 (in accordance with IAS). During these years the company's financial performance was well in line with that of the DHEs in the Heat Supply Restructuring and Conservation Project (see Annex 1). In 1998 and 1999, however, the internal cash generation covenant of 30 percent was only fulfilled in a formal way as the current liabilities were increased from PLN 48.1 million in 1997 to PLN 95.6 million in 1999.

Tariff increases were not forthcoming in the early part of 1999 because the new regulator, URE, concentrated all efforts on the licensing of heating companies; tariff issues were not therefore a priority. Tariffs had not been increased between April 1, 1998, and March 1, 2000, and heat demand had been significantly reduced because of efficiency gains achieved under the project. Compared to other DH borrowers, however, there was very little or no improvement in internal restructuring and in labor productivity. From the lack of competition between external heat sources, heat prices from external CHP plants were approximately 10 percent higher than the neighboring DH company in Krakow experienced. Together with lack of financial planning and management expertise, these factors made it difficult to fulfill URE's requirements for the new tariff regime in time. In this context, it should be noted that the preparation of a tariff proposal is complex and time-consuming process, because it involves calculating costs for more than 60 different tariff categories.

The planned tariff increases in 1999 never materialized, and the actual net loss was PLN 25.9 million (according to IAS). In its audit report for 1999, Deloitte & Touche stated that because PEC Katowice suffered a net loss of PLN 25.9 million, and that its working capital as of December 31, 1999, showed negative value of PLN 42.5 million, causing substantial problems for the company to maintain an appropriate level of liquidity, there were substantial doubts about the company's ability to continue in operation for the foreseeable future. Calculations in accordance with Polish Accounting Law showed a net loss of PLN 18.3 million in 1999 compared to a net profit of PLN 2.5 million in 1998.

This situation led the Bank and PEC Katowice to agree on an Action Plan with specific financial targets. The Bank ask PEC Katowice not to award any new contracts before it was clear that the 1999 investment program could be implemented without reliance on short-term borrowing. It was also agreed that PEC Katowice should produce quarterly reports in accordance with the Project Management Reporting (PMR) format.

In February 2000, PEC Katowice submitted a request to extend the closing date and reduce the loan amount. The Bank would not consider the company's request for a closing date extension until a satisfactory financial restructuring plan ready for implementation had been submitted. By May 2000 it was clear that PEC Katowice could not produce a credible restructuring plan dealing with the fundamental causes of the problems, such as tariff increases, collection performance, improved liquidity, and other internal efficiency measures. It was therefore decided that an extension would only be granted for commitments approved by the Bank prior to March 16, 2000. After the voivodeship had reviewed PEC Katowice's restructuring plan and found it unsatisfactory, the managing director was dismissed on August 18, 2000. The voivode remained committed to solving the situation and employed an administrative receiver to find ways to improve the company's situation. He was given a mandate to restructure the company's finances before December 31, 2001

#### *4.5 Institutional development impact:*

Institutional development impact is rated as "Negligible". The institutional development impact was much lower than for other DHEs. One reason for this is that the other DHEs were granted two year loan extensions but also because PEC Katowice's senior management did not follow up their initial intentions with regard to insitutional development.

Over the project period the the limited scope and slow implementation of the Management Information System (MIS) hampered institutional development. Despite repeated reminders by the Bank of the need to broaden the scope to include financial accounting, billing and collection, etc., the System instead focused on technical matters, including initiating a sophisticated geographical information (mapping) system.

The Quality Assurance system (ISO 9002), which had been intended to indentify the main processes of PEC Katowice, internal/external customer relationships, information flows and documentation, internal development process, internal auditing, etc., was initiated but later stopped. The environmental development system (ISO 14000) was never initiated.

On the positive side, it must be mentioned that even though PEC Katowice stopped the development of the Quality Assurance System (ISO 9002), key personnel are aware of the System's requirements, and what would be expected of them if they should adopt a state-of-the-art system. Further, on the technical side, PEC Katowice has successfully introduced competitive bidding and has made substantial savings compared to original estimates. The project also indirectly supported the privatization of one of the heat sources, Chorzow Combined Heat and Power Plant, which uses PEC Katowice as its distributor for heat services. The American power company, PSEG, is the majority owner through its subsidiary, Elcho. Having taken all the above into consideration the Bank feels that the rating "Negligible" is justified.

### **5. Major Factors Affecting Implementation and Outcome**

#### *5.1 Factors outside the control of government or implementing agency:*

**High Inflation.** The transition from command to market economy was characterized by high inflation, which for several years reached the level of hyperinflation. According to International Accounting Standards, inflation accounting should have been used for the years in question. This was not the case and, because of this, the already low profits in the energy sector were overstated. In recognition of this, all Bank projects using International Accounting Standards were given a qualified audit opinion with reference to IAS29, which concerns hyperinflation.

**Transition to Market Economy.** At the beginning of the 1990s the energy sector had very little debt financing, which made it possible for the Ministry of Finance to reduce tariffs in real terms to an extent that would not have been possible in a developed market economy with a normal level of debt financing. By the end of the 1990s the situation had changed. Many companies increased their debt-to-equity ratio and made them very vulnerable to tariff regulations that did not take the sector's financial situation and actual financial viability into consideration. The example of PEC Katowice illustrates this point. By December 31, 1998, the company's debt-to-equity ratio was 36.9 percent (long-term debt PLN 60.5 million to owners' equity of PLN 163.8 million. One year later on December 31, 1999, the debt-to-equity ratio was 81.5 percent (long-term debt PLN 112.5 million to owners' equity of PLN 138.0 million). Because the debt-to-equity ratio is equivalent to the beta factor in equity risk calculations, this meant that the financial risk of the company increased substantially over only two years. The risk is likely to increased further as the company forecasts a substantial loss for the year 2000.

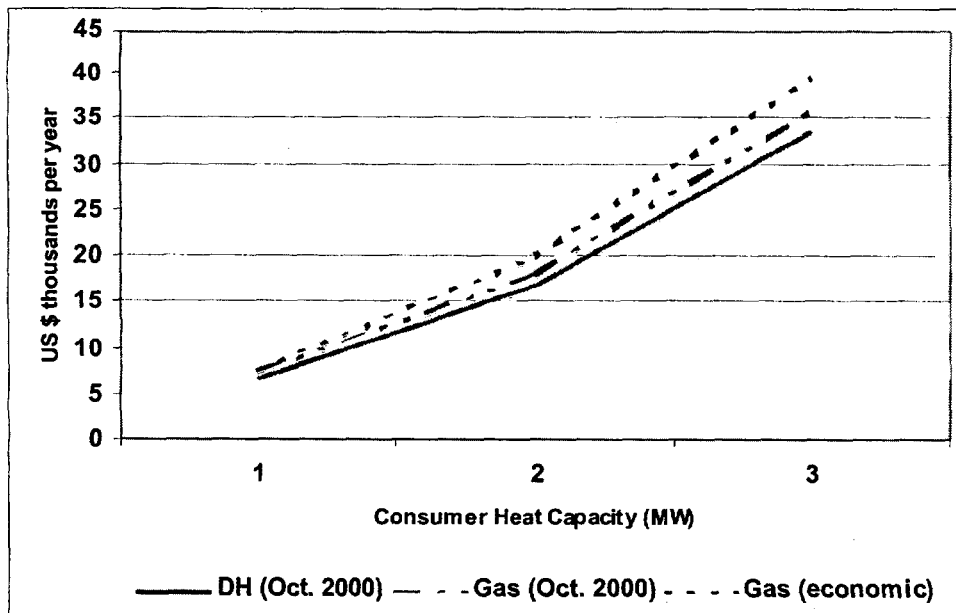
**Ordered Heat Load.** Prior to the implementation of the Energy Law in 1999, PEC Katowice had to negotiate a new contract with their customers which resulted in additional costs to the company and delays in the implementation of tariff increases. While the Energy Law resolved the problem of tariff changes, customers continue to renegotiate other aspects of their contract, particularly the heat demand levels, now that a substantial part (30 percent) of the heating bill (the fixed charge) is based on demand level. The heat load of the customers has dropped 19 percent from 1,317 MW in 1992 to 1,065 MW in 2000, despite the increased floor area connected to the system has expanded from 7.60 million to 9.45 million m<sup>2</sup> thus compensating the impacts. The negotiated heat load of original customers has dropped to 856 MW, to a 35 percent lower level than it used to be in 1992. The drop of total ordered heat load has had a drastic negative impact to the revenues of PEC Katowice, because the company was not allowed to compensate the drop by adjusting the fixed unit prices of heat accordingly. The reason for the drastic drop of ordered heat capacity is due to an unclear definition of the heat load thus giving very little assistance to PEC Katowice to defend their policy when customers requested to have their load reduced.

**Heat Demand.** 23 percent less heat energy was sold to customers in 2000 than in 1993; equivalent to 26 percent for a constant housing stock. This occurred even though housing stock connected to district heating had expanded by 9 percent, The decline had a substantial negative impact on PEC Katowice's financial situation. The SAR had expected that heat demand would decline 8 percent from 1993 to 2000.

*5.2 Factors generally subject to government control:*

**Energy Regulation.** During the 1990s, one of the main priorities of the Government was to reduce inflation, and to this end both macro- and microeconomic means were used. In this hyperinflationary economy, heat tariffs were not increased in line with inflation. This adversely affected PEC Katowice's financial situation and, ultimately, its ability to generate internal cash sufficient to carry out their planned investments. This was especially true in the middle of the 1990s, when the Government implemented a 22 percent VAT step by step without increasing tariffs in real terms. The introduction of a new regulatory regime further contributed to the deteriorating financial performance in the sector. In its first year the regulator, URE, concentrated on issuing licenses to some 2,000 energy enterprises rather than on reviewing proposals for tariff increases, and few tariff proposals were approved during the year. For companies such as PEC Katowice that were usually granted tariff increases in the first half of the year, this meant further financial hardship. Also, the new tariff regime as stipulated in the 1997 Energy Law, and detailed in the ordinance from the Ministry of Economy (MoE) dated October 6, 1998, resulted in inadequate tariff increases, mainly due to the way tariffs were calculated. The MoE, which is responsible for energy sector policy, as well as URE, the regulator, has recognized the shortcomings of the current ordinance for heat tariffs. The ordinance is now being revised, but although there is a consensus on the proposed revisions, no decision has been taken. The anticipated changes will make it potentially easier for the regulator to have a more flexible approach than was evident during the first two years of the new regime and which negatively affected the implementing agency's performance.

**Competition from Gas.** Competition in the heating market is critical and while the poor financial status of PEC Katowice would require the urgent increase of retail tariffs, there was little room in the market for raising district heating tariffs as gas heating was only slightly more expensive (7 percent in October 2000) than district heating. The only way to maintain competitiveness would be to reduce the high cost of CHP-generated heat but as the figure below shows little can be done without touching the bulk heat price of the CHP plants.



Competitiveness of District Heating versus Gas Heating from Customers' Point of View, Oct. 2000 Real Price Level and Economic Price Level of Gas.

The regulator, URE, while implicitly allowing gas price distortion (gas price lower than the economic price), keeping electricity prices low versus high heat prices at CHP plants while restricting district heat retail tariff increases, effectively prevented the financial recovery of PEC Katowice.

**Complex Tariff Structure.** As far as PEC Katowice is concerned, the very complexity of its organizational structure serving five municipalities and a great number of heat sources made the calculations much more cumbersome and time-consuming than for other district heating companies. Tariffs for more than 60 different categories had to be calculated, while other district heating companies did not have more than seven. The calculations were so complicated and time-consuming that PEC Katowice was unable to complete its proposal in a reasonable time. Thus, there were two years between tariff increases in a high-inflation environment.

*5.3 Factors generally subject to implementing agency control:*

**Tariff calculations.** According to the ordinance from the MoE, tariffs are calculated as "justified" costs plus a maximum 10 percent profit margin, with the restriction that no tariff may be increased by more than 15 percent in any given year. Justified costs are defined as the costs of the economic activity being carried out, including the costs of modernization, development and environmental protection and, according to URE, these costs should be interpreted as operating costs (including depreciation but excluding heat purchases from external heat sources) and interest. The first major shortcoming was that the calculations for 2000 had to be based on the 1998 costs and thus two years' inflation was not included in the "justified costs." The second shortcoming was that only 90 percent of the heat losses were allowed as justified costs, even though the regulations stated that all costs incurred by purchasing heat from external heat sources should be passed on to the end users. In addition, the lack of clarity and precision in the law appears to have been a problem in itself. For example, some local branches of URE seemed to interpret "justified" costs to mean operating costs but not interest costs and compensation for foreign exchange losses, and

calculated tariffs accordingly, while the URE HQ in Warsaw stated that interest costs could be included.

**Competition among the heat sources.** PEC Katowice did not promote competition between the major interconnected heat sources, EC Chorzow and EC Katowice, which caused major economic and financial problems. The need to promote competition was emphasized: (a) in the SAR, enhancement of load dispatch capacity was pointed out in the Project Scope (item g); (b) the Master Plan 2 (Chapter 4.2.5 in particular) focused on changing the system operation mode from the old constant flow to variable flow which would enable parallel operation, and competition, of several heat sources supplying heat to the integrated network; and (c) the importance of competition was stressed frequently to the management during supervision missions. Despite these efforts there was a lack of cooperation between the CHPs and PEC Katowice in the areas of integrated investment planning, minimizing heat supply costs and of marketing. Lack of competition between heat sources meant, for example, that in 2000, PEC Katowice paid 11.7 percent more than they would have paid with Krakow's bulk heat purchase tariff. PEC Katowice also purchased increasingly more heat energy from the more expensive (10.6 percent in 2000, for instance) source, EC Katowice, than from the cheaper, EC Chorzow.

**Implementation.** Initially, there were many delays in project implementation, and slow progress in procurement because of (a) the borrowers' lack of familiarity with the Bank's procurement procedures and commercial specifications; (b) replacement of pipes and installation of sectioning valves could only be implemented during the five-month off-heating season; (c) the borrower's restricted resources in counter financing (internal cash generation); and (d) the borrower's limited rights to access private property, land and buildings, to install modern heating equipment.

**Institutional development.** The borrower stopped development of the Quality Assurance system (ISO 9002) that was initiated to improve organizational performance and customer orientation, and did not initiate the environmental system development (ISO 14000). The ISO 9002 had been intended to identify the main processes of PEC Katowice, internal/external customer relationships, information flows and documentation, internal development process, internal auditing, etc. Later in the project period, in 1996, the management asked the consultant to issue a proposal for continued technical assistance covering, for instance, reorganization and quality assurance. The consultant submitted the bid to PEC Katowice in 1997 but the management neither proposed any changes nor made any decision about the bid. Over the project period management information system (MIS) development has focused on initiating a sophisticated geographical information (mapping) system rather than investing in enhancement of financial accounting, billing and collecting systems. Concentration on technical development and the leaving of financial needs aside has had serious consequences for the financial management performance of the company. The supervision missions have therefore expressed their concerns about the limited scope and slow implementation of the MIS and have recommended the company to broaden their scope to include financial accounting, billing collecting, and so forth.

#### *5.4 Costs and financing:*

**Completion Costs and Financing.** The total completion cost for the investment project was US\$59.6 million. This figure is 36 percent lower than the estimated appraisal cost of US\$92.9 million. The lower cost is mainly due to the lower use of loan and delays in project implementation. The investment expenditures were funded by World Bank loans of US\$36.7 million and PEC Katowice's own funds of US\$22.9 million. The detailed project costs and financing are shown in Annexes 2a and 2b.  
Table 2: Projected and Actual Costs for the Project

US\$	SAR	Actual	Diff.
IBRD Loan	45	36.7	18%
PEC Katowice	47.9	22.9	52%
Total Costs	92.9	59.6	36%

**Project Implementation.** PEC Katowice was reluctant to enter into large-scale, multiyear financial commitments in case the local funds were not available when required.

The average delay in project implementation and disbursements was two years. The closing date would have had to be extended by two years to complete the project according to the initial financing level expressed in the SAR. The initial delays resulted from procurement problems. Later problems centered on the precarious financial situation resulting from high inflation, uncertainty as to when tariff increases would be authorized, delays in collection of accounts receivable, and substantial bad debts.

The Project resulted in the modernization of 88 percent of pipelines and 57 percent of substations. 82 percent of the boilers were eliminated. The cost assumptions of SAR were that the cost for achieving this would be 83 percent of the total project costs. In reality only 64 percent of the funds estimated at appraisal were needed to finance the investments. Therefore, physical implementation has been assessed to as "Satisfactory."

## 6. Sustainability

### 6.1 Rationale for sustainability rating:

Sustainability of the project is rated as "Likely." Despite the recent serious financial problems, the Bank firmly believes that the sustainability of the achievements of the Katowice Heat Supply and Conservation Project is "Likely". The new ordinance for the heating sector will bring with it a number of positive changes. First, on the regulatory side, a new and more sector-oriented approach is on the way. Second, it will potentially be easier for the regulator to have a more flexible approach than was possible during the first two years of the new regulatory regime, and which negatively affected the PEC Katowice's performance. Third, the voivodeship, the owner, has appointed an Administrative Receiver with a mandate to take all the necessary actions to turn the Company's net loss into a net profit before the end of 2001.

On the technical side, modern DH control systems are in operation, and the major tasks now are to continue the replacement of the distribution networks, the modernization of the substations, and the conversion of owner-operated, coal-fired HOBs to gas-firing or connecting the boilers' customers to the CHP-supplied DH network, if economically feasible. The master plan prioritizes these investments for the next 15 years, and PEC Katowice has acquired the knowledge and the analytical tools to update the plan on a regular basis. PEC Katowice also has the necessary experience in modern technologies to continue the rehabilitation and renewal work commenced under the project.

PEC Katowice is on the way to establish a strong image as a utility that is concerned about the environment, and that sees its long-term interest in retaining its customers and helping them reduce their utility bills rather than just trying to increase heat consumption. The company is now in a position to play a more proactive role in promoting energy efficiency at the end user level.

### 6.2 Transition arrangement to regular operations:



As far as technical operations are concerned, PEC Katowice has been operating satisfactorily for a number of years, and further monitoring of physical development is unnecessary. The project investments consisted of upgrading and replacing the existing infrastructure and were put into operation immediately after construction. Water quality has significantly improved, which will ensure safe operation of the equipment over its design lifetime. Even though the administrative receiver has replaced all senior management, the technical competence is solid.

## **7. Bank and Borrower Performance**

### ***Bank***

#### *7.1 Lending:*

The Bank carried out the project identification, preparation, and appraisal in a comprehensive and satisfactory manner. By the time the Bank was ready to lend to Poland in 1990, it had advanced greatly in identifying the principal issues underlying the vast inefficiencies and wastage in the energy sector and the negative impact of the sector on the environment. Although the plan was to develop an initial operation covering all primary energy subsectors, the coal, lignite and power subsectors were not ready for a Bank-financed project. As a result, the Bank narrowed down the project scope to two lending operations, one for oil and gas (Loan 3215-POL of 1990) and one for district heating with a sector policy component (Loans POL-3378 for Gdansk, POL-3379 for Gdynia, POL-3381 for Krakow, POL-3382 for Warsaw, and POL-3383 for Bank of Poznan, the latter one as a credit line). The Katowice district heating system initially was part of the comprehensive district heating loan preparation but, after corporate restructuring, was covered by a separate district heating investment loan a few years later than the others.

During project preparation, basic master plan studies, including the DH optimization program, were completed for the district heating system of the Katowice region covering five cities altogether. The studies focused on rehabilitation and optimization of the existing system only, and identified the areas where investment was most urgently needed. In addition, funds were included in the loan for preparation of a comprehensive master plan for long-term rehabilitation, modernization, and future development of the district heating system.

The appraisal mission correctly identified the major DH technical problems: (a) poor physical condition caused by poor water quality and inadequate treatment, leaking networks, and lack of insulation; (b) inadequate operating system, using constant flow and variable temperature operation instead of the variable flow and variable temperature operation; (c) lack of sectioning and control capabilities to facilitate repair and maintenance; and (d) excessive use of small coal-fired HOBs resulting in significant environmental pollution. The project investments were designed to address these issues. At negotiations the investment plans were reviewed, and the Bank agreed to set the loan amount to US\$45.0 million.

The Staff Appraisal Report provided excellent assessments of the optimization program for the investments. Bank performance at the lending stage was "Highly Satisfactory".

#### *7.2 Supervision:*

The Bank supervised the project on an average of once per year (see Annex 4, Bank Inputs). In addition, during the first years of the project, staff from the Bank and the project implementation unit in PEC Katowice maintained almost weekly communication to discuss implementation issues and follow up on processing requests. Because of PEC Katowice's reluctance to procure equipment on multiyear basis, the project was procurement intensive. The tripartite meetings between Katowice and four other DHEs, the Bank team, and international DH experts provided timely and effective exchanges of views on technical,

financial, economic, and implementation issues.

The necessity to increase tariffs and to control accounts receivable in order to generate funds for investments during this period of high inflation was emphasized. In this context it was also repeatedly emphasized that the company needed to strengthen its expertise in tariff and cost analysis calculations as well as general financial analysis and calculations. The relevance of this recommendation was later confirmed by the Warsaw office of URE, which stated that companies relying on accounting staff for the preparation of tariff proposals were far less successful in proving that the proposals submitted were justified in accordance with the ordinance. The Bank also gave much attention to the application of international accounting standards to PEC Katowice's accounts, particularly with regard to adequate provision for doubtful debts and depreciation.

The Bank supervision missions gave many recommendations in nontechnical areas, such as strategic planning and financial management, and frequently stressed the importance of organizing competition between the heat sources and of raising retail tariffs. PEC Katowice failed to address these issues satisfactorily and focused almost entirely on the technical implementation (see Section 8, Lessons Learned). When the financial situation became acute the Bank made it clear that it would not be willing to extend the Loan. This decision was based on the Company's unwillingness to address management and financial issues during the project implementation period and its failure to produce a realistic Action Plan aimed at solving the serious financial situation (see Section 8, Lessons Learned). Bank performance during supervision was "Highly Satisfactory".

#### *7.3 Overall Bank performance:*

Continuity in the composition of the Bank project team was maintained throughout project preparation, implementation and completion. This resulted in consistency in recommendations to the borrower regarding physical and institutional aspects of the project. During the early critical years of implementation, a senior Bank staff was located in the Resident Mission for ensuring close dialogue on energy sector matters. Bank overall performance was "Highly Satisfactory."

#### **Borrower**

#### *7.4 Preparation:*

The performance of PEC Katowice for the investment component was "Highly Satisfactory". Cooperation between the Voivodeship, the company, and the international consultants to develop fully satisfactory master plan studies was also "Highly Satisfactory".

#### *7.5 Government implementation performance:*

Contacts with the Government were under the auspices of the Heat Supply and Restructuring Project as this project contained a policy component addressing the addressing sector issues such as sector restructuring, regulatory framework, commercialization, etc.. The Government's contribution in this respect was rated as "Highly Satisfactory". This rating was partly motivated by the fact that successive Governments had demonstrated their commitment to proceed with energy sector reforms even when politically unpopular. That PEC Katowice has not been able to benefit from these sector reforms in the short run does not alter the fact the Government has acted forcefully throughout. The Government, represented by the Voivode, also reacted remarkably quickly and forcefully when PEC Katowice's financial situation became clear. The Government's performance is therefore rated "Highly Satisfactory".

#### *7.6 Implementing Agency:*

Except for an initial delay in implementation, the physical and economic aspects met expectations. Over the seven years of project implementation, PEC Katowice moved towards becoming a customer-oriented organization, and the staff was been responsive to consultations and proceeded with related implementation

in a timely and effective manner. Relevant training was provided during implementation to equip them with the latest operational and system management methods. However, in the areas of institutional development and financial management the company's performance was "Unsatisfactory". This contributed to the financial crisis in 1999 and 2000 being more serious than it would otherwise have been. PEC Katowice's overall performance is therefore rated as "Satisfactory".

#### *7.7 Overall Borrower performance:*

*The overall performance of the borrower is rated as "Satisfactory".*

### **8. Lessons Learned**

**General:** The Katowice District Heat and Conservation Project has been a large and complex project with five different municipalities involved, ownership discussions, and administrative and legal problems about such issues as right of way and authorization. This caused initial delays in the implementation of the project, but as soon as these obstacles had been removed, the investment portion of the project was highly successful, and the objectives were achieved.

The financial and institutional sides of the project were not equally successful. Contrary to the other DH projects in Poland, PEC Katowice did not address these aspects of the project in a proactive way. This, in combination with the tariff-setting framework in which they worked, resulted in delayed and inadequate tariff increases. Unlike the other DH companies, the regulator had made PEC Katowice use a very complex tariff structure with more than 60 tariff categories for which costs and revenues had to be calculated. (To put this in the correct context, it must be noted that the neighboring DH company in Krakow, MPEC, had only 7 tariff categories.) The key lessons learned concern: (a) demand forecasts; (b) tariff policies, (c) financial covenants, (d) entity financial management, (e) corporate governance, (f) institutional development, (g) reallocation of substation benefits, and (h) involvement of local CHP.

**Demand Forecasts:** (see section 5.1, Ordered Heat Load, Heat Demand) The demand forecast of this Project was too optimistic. The project period coincided with heat conservation measures not fully anticipated at appraisal, a recessionary period in the Katowice region, as the Ministry of Finance pointed out in its pre-review, and unexpectedly mild winters. However, in a dynamic company, demand forecasts must be constantly reviewed and immediate action taken to adjust to new factors. Deviations from previous forecasts should be analyzed and acted upon and high quality heat sales projections should be used during the annual budget process when figures are to be revised. Further, the regulatory agency should be made aware that seemingly positive actions such as requiring the DHE to inform and negotiate new tariff increases with each customer might have a serious impact on the company's financial viability in the short term.

**Tariff Policies:** (see section 5.2, and 4.4) Tariffs must be set at a level where it is possible for a company to recover all its costs, including a reasonable return on total assets. DH systems are capital intensive and have high fixed costs which make them vulnerable to decline in heat demand and the need to have a correct base for tariff-setting. Among other things, having correct fixed assets values is vital. The rate of return on fixed assets must, at least, reflect the cost of debt financing. During appraisal it was not possible to estimate the value of the fixed assets but an operating ratio of 90 percent was assumed to be a prerequisite for a financially viable project. This did not materialize either during the Ministry of Finance's years as tariff-setter or during the first years of the new regime with URE as the regulatory agency. In the case of Katowice, the negative effect of this was not severe during the years when the debt financing was insignificant, but became increasingly apparent as the company's long term debt was increased by 85

percent between 1998 and 1999. The steep increase in the debt/equity ratio that this led to meant that a return on total assets of -2.3 percent due to the will result in a return on equity of -17 percent. Even though this situation is not yet critical for PEC Katowice's survival (on condition it obtains a capital injection from the owner in combination with reasonable tariffs), it is serious enough to be a strong warning. The regulations must be based on market economic principles and sector specificities such as capital intensity must be taken into consideration.

**Financial Covenants:** (see section 4.4, Financial Performance) A Bank task force team should be formed to examine the issue of financial covenants and to recommend new guidelines. According to the Loan Agreement for this project "funds from internal sources" include "reduction in working capital other than cash." This means that increases in short-term loans, promissory notes, and the current portion of the World Bank Loan are all defined as funds from internal sources. For this reason, the internal cash generation covenant is an unsatisfactory covenant in situations where there is a surplus of liquidity in the banking system and a regulatory agency approving tariffs. As the Bank guidelines for financial covenants are now out of print and have not been changed since the beginning of the 1980s, when the Bank was operating in a completely different environment where there was a shortage of cash and a different regulatory framework, the key ratios recommended by the Bank are no longer appropriate.

**Entity Financial Management:** (see section 5.3, Institutional Development, and section 7.2, Supervision) PEC Katowice would have benefited greatly from having a strong Company Financial Officer (CFO) who could have coordinated all financial issues. Because energy utilities are technology oriented (see section 5.3, High Level of Technical Skills Experienced), their managements accept the need for modern technology, but are reluctant to give financial management the correct priority. One reason for this attitude has been that, historically, financial staff have had very low status in the company management structure and their views have not carried sufficient weight. Therefore, even though comprehensive training of the company's management and specialists and the introduction of a modern accounting system at an early phase of the project are crucial, it is probably just as important that corporate culture is changed so that a strong CFO is part of the senior management to provide a balance to the technical management and to be able to stop or slow down the investment program if needed, to review it from a financial point of view, and be responsible for tariff-setting and presentation to the regulator, and so forth. Further, the CFO would be able to channel information from financial and accounting specialists to the senior management more effectively than they are able to by themselves..

**Corporate Governance:** One of the assumptions made prior to the project beginning was that the company would be corporatized and the ownership transferred to the five municipalities it serves. This did not materialize and the voivodeship is still the owner. Thus, during most of the project period, ownership was unclear and the senior management of the company spent a great deal of time in making agreements with representatives of the municipalities on the issues of ownership, strategy and development. One of the effects was that the management spent too little time on the institutional, commercial and financial development of the company. A corporatized company with a strong supervisory board would most likely have focused on and been able to enforce financial and institutional development at an early stage.

**Institutional Development:** (see section 5.3, Institutional Development) PEC Katowice, as other utilities in the region, is a technically oriented operations and maintenance (O&M) organization. The managements of these utilities are dominated by technical staff, and a number of functions necessary for commercial success such as strategic planning, financial management, marketing and customer relations, etc., are given low priority. In Katowice, even when this lack of attention to necessary functions was continuously brought to their attention by Bank staff during the entire project period, the company management failed to address them satisfactorily. The lesson learned from this project is that a working corporate governance should be

in place, even if it is an interim solution, when the project begins.

**Reallocation of Substation Benefits:** (see section 4.2, Investment Component) There should be a fair allocation of substation benefits between the DHE and the customers. Rehabilitation of substations fully benefits the customer but may lead the DHE to financial problems, as has extensively happened in Poland. DHEs rehabilitate the consumer substations because they comprise an integral part of the DH system operation and are key elements in energy conservation. From a financial point of view, however, the substation is beyond heat metering and thus lower energy consumption of substations directly reduces the customers' heat bill. A fair allocation of benefits could be achieved by transferring the substations to customers' ownership by means of a leasing/purchase agreement, that will fully repay the costs of substation investments to the DHE, or by invoicing a maintenance fee that will cover not only the O&M costs of the substation owned by the DHE, but also a slice of accrued energy conservation benefits.

**Involvement of Local CHP:** (see section 5.3, Competition Among Heat Sources) The local CHP plant should be involved in optimizing the DH/CHP system by reducing costs of heat that can be simply done by reallocation of costs between generated electric power and heat, or by participating in marketing campaigns. The fact is that CHP production fully depends on heat demand: declining heat demand shrinks volume of co-generated power. The CHP involvement should be organized by a cooperation agreement, in case only one CHP plant is connected to the DH system, or by competition between the heat sources if more than one CHP plant is connected.

## 9. Partner Comments

*(a) Borrower/implementing agency:*

The Bank ICR mission undertook a Dynamic Group Evaluation exercise at PEC Katowice in November, 2000. Approximately 25 managers, staff and trade unions representatives participated. However, the company has not followed up on this exercise and has declined the Bank's offer to incorporate written feedback into the ICR. The reasons are that the entire senior management and the staff in the foreign relations department have been dismissed, and the company did not therefore have anybody who could prepare the written assessment.

The main items of the verbal feedback from the exercise participants given during the ICR mission in November was as follows:

- (a) The Loan Agreement was criticized as being too inflexible for project implementation and without possibilities to re-negotiate the terms and conditions. The covenant regarding internal cash generation was too restrictive. The amount of the loan was too high and beyond the financial capabilities of the enterprise.
- (b) The preparation of technical documentation was laborious and time consuming. In the course of implementation, the main contractors were not always capable of coordinating the local subcontractors to keep the strict time schedule. In some foreign contracts lack of local aftersales service capacity hampered operation and maintenance of equipment.
- (c) The district heating system benefited from modern heating techniques by reduced losses and enhanced maintenance and operation but because of the biased tariff system the benefits of investments went to the customers, leaving PEC Katowice with insufficient financial resources to manage its operations and debt service. This was said to be especially true of consumer substations, but also for other investments.

The new management of PEC Katowice submitted written comments on the ICR. In general, PEC

Katowice considers the ICR “as objective and agree with the majority of presented conclusions.....”

Most of the Company’s comments have been incorporated into the main text of the ICR. However, the Company stressed that the heat demand forecasts at the time of appraisal were too high as the speed with which heat conservation measures had an effect was not fully anticipated and indicates that this influenced the size of the investment program (see “Section 8, Lessons Learned, Demand Forecasts”).

The Ministry of Financie has submitted the following comments:

**REPUBLIC OF POLAND  
MINISTRY OF FINANCE**

Warsaw, 11 May 2001

**Guarantee Department**

DG / S-5 / 121 / 1551 / 2001

**Mr. Enar Wennerström  
Sr. Financial Analyst**

**THE WORLD BANK GROUP  
Energy Sector Unit  
Europe and Central Asia Region**

**1818 H. Street N.W.  
Washington D.C. 20433,  
United States of America**

*Subject: Comments on Implementation Completion Report for the Katowice Heat Supply Project (3809-POL)*

Dear Mr. Wennerström,

I would like to thank you for asking for comments on Implementation Completion Report for the Katowice Heat Supply Project.

The Ministry of Finance is very satisfied that the PEC Katowice's technical update has been finalized successfully despite serious financial difficulties. The necessary modernization of the enterprise is significant, and it was needed in the circumstances of the market reality changes taking place after the transformation process had begun. Satisfactory technical completion of the investment without the guarantee having been called is the fact that we particularly appreciate.

In addition to the tariffs problems it seems that there have been also some other reasons of PEC Katowice's critical situation in 1999 and 2000. Modern technology that entered the country after 1989 and elasticity of demand for energy and heat higher than expected have made it difficult for the enterprise to comply with the demand forecasts. Moreover, the region of PEC Katowice's activity had been facing economic troubles for a couple of years, and it

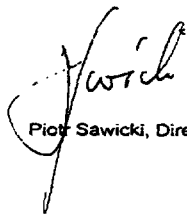
had been a hard task to the enterprise to achieve the financial goals also for that reason. As the energy market is supposed to become more liberalized and further development of high technology is likely to continue, we agree that the paradigm of the enterprise and its financial models should encompass market orientation in internal and external policies, to make predictions and planning the most effective.

We believe that continuous improvement will be present not only in the technical area but also in the field of management and finance of PEC Katowice. We agree that this should embrace the establishment of a market oriented company culture, with particular attention to pushing finance functions up to a higher position in company's organizational scheme. Strategic thinking, relating to management, operations and structure, seem to be also very important, especially in the view of changes in the energy sector in Poland. Eventually, we would like to pay special attention to Quality Assurance System (ISO9002), development of which has been stopped by the enterprise. The QAS can be very helpful, inter alia in creating and preserving adequate culture and quality of the management.

We hope that, from now on, external factors will stimulate the development of PEC Katowice rather than have negative influence on its financial condition. However, the need for taking proper care of company's organizational aspects and for stressing the importance of financial issues is an essential challenge for PEC Katowice in the sector undergoing changes.

If the Ministry of Finance can be of any further assistance, your questions and opinions will be very welcomed.

Yours sincerely,



Piotr Sawicki, Director

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*(b) Cofinanciers:*  
Not Applicable

*(c) Other partners (NGOs/private sector):*  
Not Applicable



## **10. Additional Information**

Additional information is in the Project Files and listed in Annex 7.

## Annex 1. Key Performance Indicators/Log Frame Matrix

Performance Indicators - Institutional									
		Katowice			4 Cities				
1	Quality Assurance System (ISO 9000)	Initiated but stopped			Implemented (Gdansk) or under processing (Krakow, Gdynia)				
2	Environmental Management System (ISO 14000)	Not initiated			Initiated in Gdansk				
3	Marketing Department	In operation			In operation				
4	Management Information System	Under implementation			Under implementation				
Performance Indicators - Physical									
		Katowice			4 Cities				
		Unit	1991-1992	2000	Diff.	1991-1992	1999	Change	
<b>Direct Customer Benefits</b>									
	Heat price in 1999 level	PLN/m <sup>2</sup>	55.0	21.4	-61%	W. aver.	54.5	24.5	-55%
	Sold heat energy	GJ/m <sup>2</sup>	1.25	0.84	-33%	W. aver.	1.13	0.93	-18%
	Metering (from total sales)	%	30%	100%		W. aver.	21%	100%	
<b>A Coal Savings (net)</b>									
	Coal consumption w/o project	th. tons	480	500	4%	Sum	4,363	4,873	12%
	Coal consumption with Project	th. tons	480	382	-20%	Sum	4,362	3,778	-13%
	Coal savings above	th. tons		118	-24%	Sum		1,095	-22%
	<i>Coal savings in SAR/94</i>			137		SAR/91:	760		
	Heat transmission loss from supplied heat	%	14.7%	12.2%	-17%	W. aver.	18.0%	9.9%	-45%
	Heat substation loss from sold heat energy	%	18.0%	7.1%	-61%	W. aver.	15.3%	9.1%	-41%
<b>HoB Elimination, in terms of</b>									
<b># Boiler capacity:</b>									
	Existing owned by PEC	MW	250.9	78.7	-69%	Sum	548.4	268.3	-51%
	Connected to DH	MW		171.1		Sum		166.8	
	Converted to gas/oil	MW		1.1		Sum		92.2	
	Other investors/Ownership changes					Sum		21.1	

		Katowice			4 Cities			
		1991-1992	2000		1991-1992	1999		
<b># Number of boilers:</b>								
Existing owned by PEC	Units	131	48	-63%	Sum	667	244	-63%
Connected to DH	Units		80		Sum		296	
Converted to gas/oil	Units		3		Sum		136	
Other investors/Ownership changes					Sum		-9	
<b>B Extended Lifetime</b>								
Network, remaining	years	22.7	26.1	15%	W. aver.	11.0	16.1	46%
Substations, remaining	years	10.0	14.8	48%	W. aver.	10.0	15.8	58%
Water loss	th. m <sup>3</sup> /a	775	430	-45%	Sum	14,700	5,127	-65%
Water volume revolutions	times/a	10.5	5.8	-45%	W. aver.	22.6	8.2	-64%
<b>C Electricity Gains</b>								
CHP heat/total heat capacity <sup>(1)</sup>	%	30%	74%	150%	W. aver.	51%	53%	4%
CHP heat energy/total heat energy	%	15%	27%	80%	W. aver.	71%	76%	7%
Pumping energy/Heat energy	kWh/GJ	4.4	4.2	-4%	W. aver.	4.4	4.1	-7%
<b>D Productivity Improvement</b>								
Staffing (entire company)	prsns	1,131	1,099	-3%	Sum	6,571	4,498	-32%
Sold heat energy/staff	TJ/prsn	6.4	6.0	-7%	W. aver.	10.3	13.8	34%
Wages and benefits in total cost	%	8.9	13.0	46%	W. aver.	6.7%	10.0%	49%
<b>E Other Features</b>								
Ordered heat Capacity	MW	934	763	-18%	Sum	8,068	7,105	-12%
Unavailability of heat service	days/a	156	0	-100%	W. aver.	39.9	0.6	-98%
Heat customers	number	1,356	2,233	65%	Sum	17,073	19,041	12%
Heated floor area	th. m <sup>2</sup>	7,597	9,450	24%	Sum	63,793	68,565	7%
Peak load duration time	h/a	1,741	2,199	26%	W. aver.	2,776	2,753	-1%
Heat load density	TJ/km	18.0	14.7	-18%	W. aver.	25.6	22.9	-11%
Order capacity/network length	MW/km	2.8	2.3	-19%	W. aver.	3.9	3.2	-17%
<b>F Emissions - Total</b>								
SO <sub>2</sub>	tons	5,371	4,222	-21%	Sum	96,938	72,099	-26%
NO <sub>x</sub>	tons	2,569	2,019	-21%	Sum	35,140	26,157	-26%
CO <sub>2</sub>	tons	1,541,387	1,211,643	-21%	Sum	11,147,832	8,291,404	-26%
Dust	tons	1,621	1,115	-31%	Sum	13,827	7,609	-45%
<b>Emissions - HoB's only</b>								
SO <sub>2</sub>	tons	574	185	-68%	Sum	6,265	2,120	-66%
NO <sub>x</sub>	tons	274	89	-68%	Sum	2,271	768	-66%
CO <sub>2</sub>	tons	164,604	53,196	-68%	Sum	720,464	243,638	-66%
Dust	tons	549	202	-63%	Sum	5,926	840	-86%

1) The increased share of CHP was caused by commissioning a back-pressure turbine at Katowice CHP plant in Jan. 2000

**Performance Indicators - Financial**

	1993	1994	1995	1996	1997	1998	1999	2000
<b>Gross Margin</b>								
Katowice Heat Supply Project	28%	27%	27%	26%	26%	28%	25%	27%
Heat Supply Restructuring and Conversation Project:								
Lowest Value	19%	23%	23%	22%	22%	28%	30%	28%
Highest Value	32%	40%	42%	32%	34%	32%	32%	36%
<b>Operating Ratio</b>								
Katowice Heat Supply Project	93.1%	93.7%	94.9%	96.4%	96.7%	96.9%	105.5%	101.9%
Heat Supply Restructuring and Conversation Project:								
Lowest Value	88.1%	89.8%	92.7%	93.0%	91.5%	96.8%	95.0%	96.9%
Highest Value	97.7%	105.8%	99.5%	102.3%	99.9%	98.2%	99.6%	99.1%
<b>Rate of Return on Average Net Fixed Assets</b>								
Katowice Heat Supply Project	9.3%	10.2%	6.5%	3.8%	3.4%	3.1%	-4.5%	-1.4%
Heat Supply Restructuring and Conversation Project:								
Lowest Value	3.2%	-6.5%	6.0%	-2.3%	0.1%	2.1%	0.4%	0.9%
Highest Value	19.2%	10.7%	6.7%	7.1%	8.9%	3.5%	4.9%	3.1%
<b>Internal Cash Generation</b>								
Katowice Heat Supply Project	70%	92%	22%	63%	42%	33%	31%	5%
Heat Supply Restructuring and Conversation Project:								
Lowest Value	17%	29%	37%	9%	52%	33%	30%	30%
Highest Value	91%	67%	83%	87%	113%	69%	145%	113%
<b>Debt Service Coverage</b>								
Katowice Heat Supply Project			25	11	6	5	1	0.9
Heat Supply Restructuring and Conversation Project:								
Lowest Value	14.7	-4.6	3	1.4	1.1	1.6	1.8	1.9
Highest Value	44.1	54.4	17.2	18.6	5.8	4.9	3.6	3.7
<b>Number of days of Accounts Receivable</b>								
Katowice Heat Supply Project	105	105	100	102	85	84	65	65
Heat Supply Restructuring and Conversation Project:								
Lowest Value	75	60	52	57	37	52	44	38
Highest Value	119	93	95	78	59	74	75	82
<b>Current Ratio</b>								
Katowice Heat Supply Project	1.1	1.2	1.4	1.2	1.2	1.1	0.8	1.1
Heat Supply Restructuring and Conversation Project:								
Lowest Value	1.1	0.9	0.9	0.8	0.6	0.7	0.8	0.9
Highest Value	4.0	3.9	2.5	2.2	2.3	1.5	1.9	1.9

## Annex 2. Project Costs and Financing

Project Cost by Component (in US\$ million equivalent)

Project Cost By Component	Appraisal Estimate US\$ million	Actual/Latest Estimate US\$ million	Percentage of Appraisal
Goods	43.80	35.90	
Services	1.70	0.70	
<b>Total Baseline Cost</b>	<b>45.50</b>	<b>36.60</b>	
Physical Contingencies	6.60		
Price Contingencies	4.30		
<b>Total Project Costs</b>	<b>56.40</b>	<b>36.60</b>	
<b>Total Financing Required</b>	<b>56.40</b>	<b>36.60</b>	

Project Costs by Procurement Arrangements (Appraisal Estimate) (US\$ million equivalent)

Expenditure Category	ICB	Procurement Method <sup>1</sup>		N.B.F.	Total Cost
		NCB	Other <sup>2</sup>		
<b>1. Works</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>2. Goods</b>	47.00 (31.30)	0.00 (0.00)	44.20 (12.50)	0.00 (0.00)	91.20 (43.80)
<b>3. Services</b>	0.00 (0.00)	0.00 (0.00)	1.70 (1.20)	0.00 (0.00)	1.70 (1.20)
<b>4. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>5. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>6. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>Total</b>	47.00 (31.30)	0.00 (0.00)	45.90 (13.70)	0.00 (0.00)	92.90 (45.00)

**Project Costs by Procurement Arrangements (Actual/Latest Estimate) (US\$ million equivalent)**

Expenditure Category	Procurement Method <sup>1</sup>			N.B.F.	Total Cost
	ICB	NCB	Other <sup>2</sup>		
<b>1. Works</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>2. Goods</b>	34.80 (34.80)	0.00 (0.00)	1.10 (1.10)	0.00 (0.00)	35.90 (35.90)
<b>3. Services</b>	0.00 (0.00)	0.00 (0.00)	0.70 (0.70)	0.00 (0.00)	0.70 (0.70)
<b>4. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>5. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>6. Miscellaneous</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>Total</b>	34.80 (34.80)	0.00 (0.00)	1.80 (1.80)	0.00 (0.00)	36.60 (36.60)

<sup>1/</sup> Figures in parenthesis are the amounts to be financed by the Bank Loan. All costs include contingencies.

<sup>2/</sup> Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.

\* Cancelled \$8,357,335.16 loan amount.

**Project Sources and Uses of Funds (US\$ million equivalent)**

Description	1992	1993	1994	1995	1996	1997	1998	1999	2000	Life of	Life of
										Project	Project
										(Actual	(SAR)
										)	
<b>Sources of Funds</b>											
IBRD	-	-	2.1	3.2	2.7	4.4	5.1	13.6	5.5	36.6	45.0
PEC Katowice	1.5	2.1	1.4	3.4	2.7	3.4	4.9	2.6	1.0	23.0	47.9
<b>Total</b>	<b>1.5</b>	<b>2.1</b>	<b>3.5</b>	<b>6.6</b>	<b>5.4</b>	<b>7.8</b>	<b>10.0</b>	<b>16.2</b>	<b>6.5</b>	<b>59.6</b>	<b>92.9</b>
<b>Uses of Funds</b>											
Network Rehabilitation and Replacement.	1.2	1.0	1.3	3.0	3.1	2.4	5.1	7.0	3.1	27.2	26.5
Substation Retrofit, Automation & Metering	0.2	0.9	0.8	1.6	0.8	3.1	2.7	2.6	2.5	15.2	28.8
Network Sectioning System	-	-	0.8	1.2	1.0	0.1	0.3	0.3	0.3	4.0	5.3
Networking, Monitoring and Disp. System	-	-	-	-	-	0.4	0.8	1.3	0.6	3.1	5.3
Conversion Program	-	-	-	0.2	0.2	1.7	1.1	5.0	-	8.2	12.6
Technical Assistance	-	-	0.3	0.1	0.3	0.1	-	-	-	0.8	1.7
Import Duties and Taxes	0.1	0.2	0.3	0.5	-	-	-	-	-	1.1	12.7
<b>Total</b>	<b>1.5</b>	<b>2.1</b>	<b>3.5</b>	<b>6.6</b>	<b>5.4</b>	<b>7.8</b>	<b>10.0</b>	<b>16.2</b>	<b>6.5</b>	<b>59.6</b>	<b>92.9</b>

The table below compares the materialized project components to those designed in the SAR and verifies the equipment unit costs where applicable.

Project Component	Quantities			Costs (US\$ mln)			Unit Costs (incl. Cont'ies & taxes)		
	Real	SAR	Real/ SAR	Real	SAR	Real/ SAR	Real	SAR	Real/ SAR
<b>A. Preinsulated Pipes (km, single) (including components)</b>	146	167	88%	27.3	23.1	118%	189.58	182.49	104%
<b>B. Substations</b>	447	783	57%	13.9	24.5	57%	31.76	41.05	77%
B.1 Conversion to Compact Substations	447	491	91%						
B.2 Automation, Control & Metering		292	0%						
<b>C. Network Sectioning</b>				4.0	5.0	81%			
C.1 Big Bellow Compensators	66	140	47%	0.3	0.2		4.85	2.28	213%
C.2 Sectioning Ball Valves	8,523	1,063	802%	1.6	3.3		0.19	4.10	5%
C.3 Sectioning Flap Valves	236	104	227%	2.1	1.4		9.00	17.66	51%
<b>D. Monitoring &amp; Dispatching</b>				4.3	6.4	67%			
D.1 Heat/Flow Meters for Network	21	38	55%	0.5	1.9		22.46	67.14	33%
D.2 Steam Meters	-	2	0%	-	1.0			656.58	0%
D.3 Pressure Differential Valves	1,123	68	1651%	0.6	0.4		0.58	7.72	7%
D.4 Circulation Pumps	276	4	6900%	1.2	1.0		4.50	311.88	1%
D.5 Network Strainers	-	11	0%	-	0.9			107.44	0%
D.6 Central Control Units	-	38	0%	0.2	1.3			43.20	0%
D.7 Pumping station	1	-		1.8	-				
<b>E. Small Boiler Conversion - Elimination Program (MW)</b>	106.1	67	158%	8.2	10.0	82%	78.63	196.96	40%
<b>F. Technical Assistance</b>	2	2	100%	0.8	1.6	47%			
<b>G. Total Base Costs :</b>				58.5	70.7	83%			
<b>H. CONTINGENCIES</b>				-	10.9	0%			
<b>I. IMPORT DUTIES AND TAXES</b>				1.0	11.2	9%			
<b>J. TOTAL PROJECT COSTS</b>				59.6	92.9	64%			

\* SAR - Staff Appraisal Report dated 31.03.1994.

\*\* Program of emission abatement during 1992 - 2000 caused elimination of 81 HoB's with capacity 103.9 MW.



### Annex 3. Economic Costs and Benefits

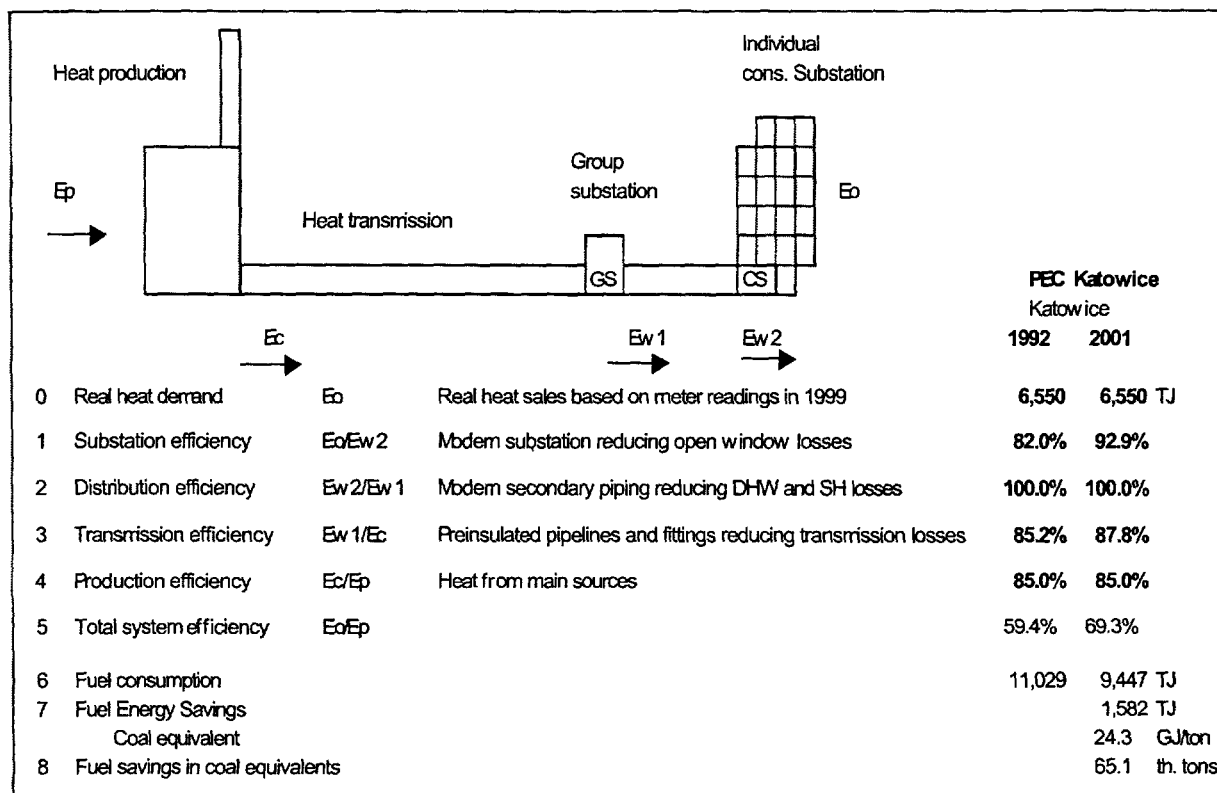
The benefits of the Project were calculated following the same methodology than in the SAR and as was done with the four other cities. The project's EIRR at completion is 39%, compared to 26% at appraisal.

<b>Summary of Benefits</b>		<b>PEC Katowice</b>	<b>Other four cities</b>
<b>EIRR</b>			
<b>WITHOUT environmental benefits</b>		<b>25%</b>	<b>44%</b>
<b>WITH environmental benefits</b>		<b>39%</b>	<b>74%</b>
<b>NPV (10%)</b>			
<b>WITHOUT environmental benefits</b>		<b>30</b>	<b>533</b>
<b>WITH environmental benefits</b>		<b>47</b>	<b>760</b>
<b>Distribution of above Benefits:</b>			
	From 1992 to 2000	<b>Share</b>	<b>Share</b>
<b>A Coal Savings</b>		<b>49%</b>	<b>33%</b>
<b>B DH System Life Extension</b>		<b>13%</b>	<b>30%</b>
<b>C Electricity Gains</b>		<b>0%</b>	<b>6%</b>
<b>D Staffing</b>		<b>5%</b>	<b>3%</b>
<b>E Other Quantitative Benefits</b>		<b>21%</b>	<b>7%</b>
<b>D Air Pollution Abatement (Low Level Sources)</b>		<b>13%</b>	<b>22%</b>
<b>Total:</b>		<b>100%</b>	<b>100%</b>

The table below offers a comparison between the benefits expected in the SAR in 1994 and those materialized in 2000.

<b>Benefit</b>	<b>SAR</b>	<b>Real</b>	<b>Explanation</b>
Energy savings	7,971	6,906	Coal savings 118 instead of 138 th. tons/a
Network life extension	1,698	1,342	
Reduction in O&M Costs	902	158	
Reduction in labor Costs	558	691	
Reduction in network water losses	354	318	
System down sizing		1,499	Heat purchase capacity drop 163 MW
Unbreakable DHW supply		1,505	Elimination of 165 days' summer break
Air pollution abatement	4,648	1,801	Less coal savings and improved coal quality than expected at appraisal
<b>TOTAL</b>	<b>16,131</b>	<b>14,220</b>	
Difference		(1,911)	

The scheme below illustrated the efficiency increase in the main network supplied by the two major CHP plants. Based on the implemented DH optimization program, the total efficiency from the fuel input to the end-user of heating services has increased from 59.4% to 69.3%.



The coal savings in the main network have amounted to 65.1 thousand tons of coal per annum. This together with the coal savings from the HoB elimination measures of 50.3 thousand tons and other savings of 2.5 thousand tons amount to 118 thousand tons savings in the entire system.

## Annex 4. Bank Inputs

### (a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating		
	Month/Year	Count	Specialty	Implementation Progress	Development Objective
<b>Identification/Preparation</b>					
	10/04/87	1	EGR, E, FA, ES		
	02/21/88	1	EGR, E, FA		
<b>Appraisal/Negotiation</b>					
	10/92	1	PFA, EP, E, ENG, ES		
	03/93	1	PFA, EP, ENG		
	04/09/93	1	PFA, LC, SFA, DO		
<b>Supervision</b>					
	01/05/95	1	EP, PFA	HS	HS
	07/01/96	1	EP, PE, DHE, E	HS	HS
	06/25/97	1	EP, FA, DHEcon	HS	HS
	07/10/97	1	EP, FA, DHEcon	S	S
	04/22/98	1	SFA, DHE	S	S
	03/01/99	1	SFA, DHE	S	S
	06/10/99	1	SEP, SFA, DHE	S	S
	09/11/00	1	SFA, DHE	S	S
<b>ICR</b>					
	11/02/00	1	SFA, DHE		

DHE – District Heating Engineer

DHEcon – District Heating Economist

DO – Disbursement Officer

E – Economist

ENG – Engineer

Energy Planner

HTS – Heat Tariff Specialist

LC – Legal Counsel

PFA – Prin. Financial Analyst

SEP – Sr. Energy Planner

SFA – Sr. Financial Analyst

FA – Financial Analyst

### (b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US\$ ('000)
Identification/Preparation	3.3	11.5
Appraisal/Negotiation	55.6	185.0
Supervision	10.2	28.4
ICR	5.2	25.8
<b>Total</b>	<b>74.3</b>	<b>250.7</b>

## Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

	<i>Rating</i>
<input type="checkbox"/> <i>Macro policies</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Sector Policies</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input checked="" type="checkbox"/> <i>Physical</i>	<input type="radio"/> H <input checked="" type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Financial</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input checked="" type="radio"/> N <input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Institutional Development</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input checked="" type="radio"/> N <input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Environmental</i>	<input type="radio"/> H <input checked="" type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input type="radio"/> NA

### *Social*

<input type="checkbox"/> <i>Poverty Reduction</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Gender</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input checked="" type="checkbox"/> <i>Other (Please specify)</i>	<input checked="" type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input type="radio"/> NA

*85% of the economic benefits of the project*

*were transferred to the heat customers through lower tariffs.*

<input type="checkbox"/> <i>Private sector development</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Public sector management</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H <input type="radio"/> SU <input type="radio"/> M <input type="radio"/> N <input checked="" type="radio"/> NA

## Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

### 6.1 Bank performance

#### Rating

- |                                      |                                     |                         |                         |                          |
|--------------------------------------|-------------------------------------|-------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Lending     | <input checked="" type="radio"/> HS | <input type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Supervision | <input checked="" type="radio"/> HS | <input type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall     | <input checked="" type="radio"/> HS | <input type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

### 6.2 Borrower performance

#### Rating

- |  |                                     |                                    |                         |                          |
|--|-------------------------------------|------------------------------------|-------------------------|--------------------------|
| <input type="checkbox"/> Preparation                           | <input checked="" type="radio"/> HS | <input type="radio"/> S            | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Government implementation performance | <input checked="" type="radio"/> HS | <input type="radio"/> S            | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Implementation agency performance     | <input type="radio"/> HS            | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input type="checkbox"/> Overall                               | <input type="radio"/> HS            | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

## **Annex 7. List of Supporting Documents**

Quarterly Project Management Reports

Performance Indicators

Audited Annual Financial Statements, IAS (1995 - 1999)

Annual Audit Reports (1995 - 1999)

Comments from Mr. Piotr Sawicki, Ministry of Finance

Comments from Mr. Tadeusz Starkiewicz, Administrative Receiver, PEC Katowice