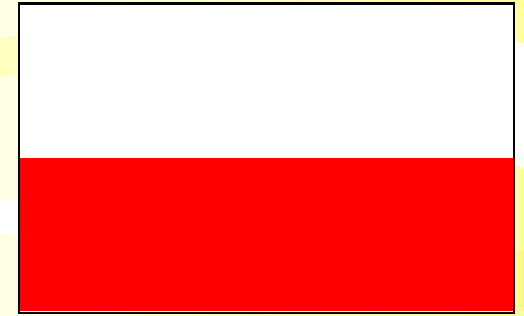




*miejskie
przedsiębiorstwo
energetyki
ciepłej s.a.
w Krakowie*



CRACOW DISTRICT HEATING SYSTEM UPGRADE

District Energy Summit Presentation

Copenhagen 3 November 2009

ISO 9002

ISO 14001

MPEC- Company from Cracow



ISO 9001:2000

0 50 100 150 200 250 500 1000 3000 5000

ISO 14001



Cracow (Kraków)

- One of the oldest and most historic cities
- Incorporated in 1257
- Population 754 624 (second to Warsaw)
- Former capital of Poland
- UNESCO World Heritage Sites
- Located in a valley



Cracow (Kraków)

ISO 9001:2000



Cracow (Kraków)



ISO 9001:2000

ISO 14001 5

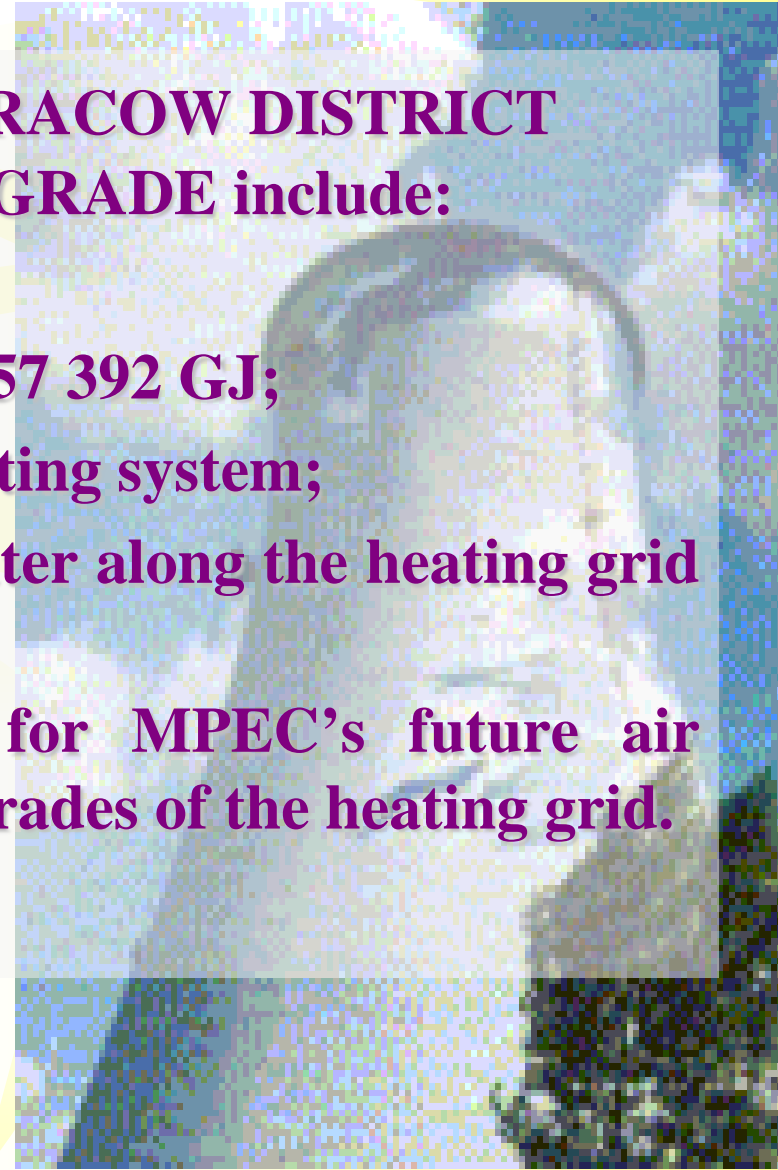


Entrepreneurial Spirit

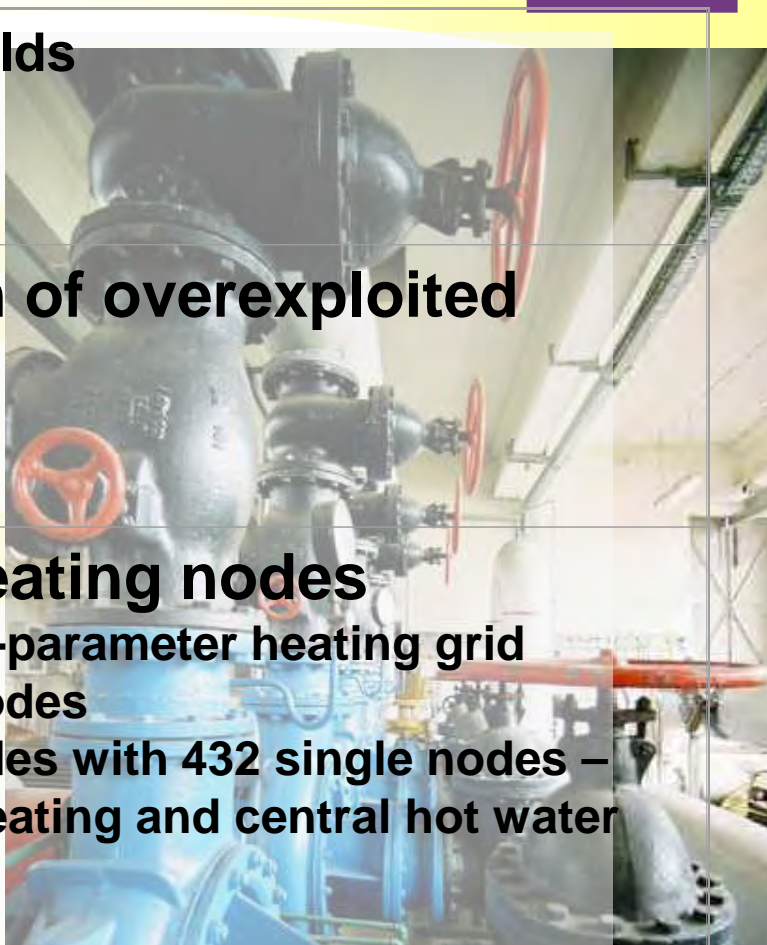
- WORLD BANK
- GLOBAL ENVIRONMENTAL FACILITY
- POLISH- AMERICAN PROGRAM FOR CLEAN FOSSIL FUELS AND ENERGY EFFICIENCY
- HONEYWELL PROGRAMME
- SHOOSHANIAN
- COMMUNAL FUND FOR ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT
- ECOFUND
- NATIONAL FUND FOR ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT
- JAPANESE GRANT
- GEF 2000 GRANT

The main objectives of the CRACOW DISTRICT HEATING SYSTEM UPGRADE include:

- a) Reduce heat consumption by ca. 157 392 GJ;
- b) Reduce breakdown rate in the heating system;
- c) Reduce losses of demineralised water along the heating grid by ca. 10 percent;
- d) Provide conditions to be used for MPEC's future air pollution control projects and upgrades of the heating grid.

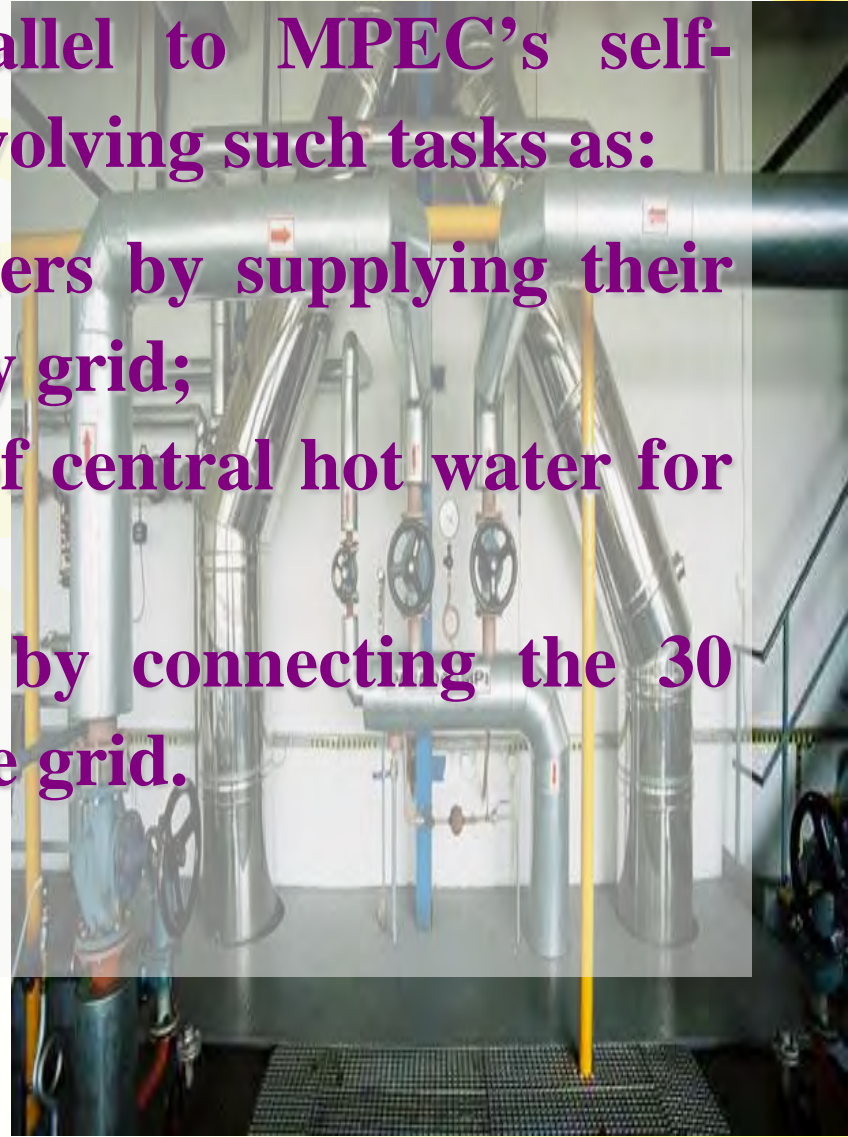


CRACOW DISTRICT HEATING SYSTEM UPGRADE

Project Symbol	Fields	
Z1	Replacement of 99 km of overexploited heating grid	
Z2 Z2 A Z2 B Z2 C	Full replacement of heating nodes Replacement of 33 km of low-parameter heating grid Replacement of 103 single nodes Replacement of 13 group nodes with 432 single nodes – for the purposes of central heating and central hot water	

The Project runs in parallel to MPEC's self-financed capital projects involving such tasks as:

- a) Close down of 32 coal boilers by supplying their users with heat from the city grid;
- b) Facilitate the preparation of central hot water for existing and new users;
- c) Replace 2,000 coal stoves by connecting the 30 stove-heated buildings to the grid.





Principal and Secondary quantified objectives

Principal quantified objectives and indicators

Secondary quantified objectives and indicators

Objective 1:
Limit heat loss and improve safe and breakdown-free grid operation;
replacement of worn high and low-performance sections of the grid

Objective 2:
Improve safe and breakdown-free grid operation, limit heat loss; increase use weather automated controls and grid monitoring;
replace worn heating nodes; elimination of 13 nodes serving groups of buildings and installation of 432 individual nodes

Objective 1:
Reduce heat loss in transmission and at nodes

Unit:
km
132

Unit:
Number of nodes eliminated
535

Unit used:
GJ
157 392

ISO 9001:2000

ISO 14001 10

BEFORE AND AFTER EFFECT



BEFORE



BEFORE AND AFTER EFFECT



AFTER



OLD AND NEW HEATING PIPELINES



ISO 9001:2000



ISO 14001

OLD AND NEW HEAT EXCHANGER



ISO 9001:2000



ISO 14001

THANK YOU VERY MUCH FOR YOUR ATTENTION



JACEK WÓJCIKOWSKI

COUNSELLOR

EMBASSY OF THE REPUBLIC
OF POLAND IN COPENHAGEN

WWW.COPENHAGEN.TRADE.GOV.PL

ON BEHALF OF



*miejskie
przedsiębiorstwo
energetyki
cieplnej s.a.
w Krakowie*



ISO 9001:2000

ISO 14001