ROMANIAN NATIONAL STRATEGY REGARDING THE THERMAL ENERGY SUPPLY OF CITIES

16th Session of the Energy Efficiency 21 Project (EE 21)
Geneva, 29 June - 1 July 2005
**Question:**

In Romania, can the thermal energy that is being produced in a centralized system become a competitive product on an open energy market?

If the answer is YES, what should we do about it?

*Geneva, June 2005*
I. GENERAL DATA OF THE URBAN HEATING DEPARTMENT IN ROMANIA

1. During the winter 2004-2005, the total number of the companies that insured the thermal energy by centralized systems:

- **129** companies, out of which:
  - **9** companies buy the heating agent from third parties;
  - **120** companies produce and distribute the thermal energy by heating stations and co-generation power stations of their own.

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2. Number of metered connections: 110,446,
   - representing 64% of the total.

3. By applying the government decision OG No. 55/2004, sponsorships for heating were awarded to:
   - 520,074 apartments connected to thermal networks;
   - 519,638 apartments connected to natural gas networks;
   - 388,564 apartments that use other kind of fuels.
4. Total amounts of money awarded from the state budget for the winter 2004 – 2005 were:
   • for the apartments connected to the co-generation system: 1.067 billions lei (36 mil. USD);
   • for the apartments connected to the natural gas networks: 659 billions lei (22 mil. USD).

5. The amounts of money awarded from the local budgets for the apartments that use other kind of fuels: 668 billions lei (22,3 USD).

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The Romanian market for thermal energy in 2003

- 179 heat companies supply final consumers
- 36 heat companies cover 90.36% of the final market
- 111 heat companies cover 99.34% of the final market

Geneva, June 2005
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of apartments fed by Centralized Systems for Urban Heating CSUH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2,696,630</td>
</tr>
<tr>
<td>2001</td>
<td>2,485,295</td>
</tr>
<tr>
<td>2002</td>
<td>2,353,506</td>
</tr>
<tr>
<td>2003</td>
<td>2,115,186</td>
</tr>
<tr>
<td>2004</td>
<td>1,950,000</td>
</tr>
<tr>
<td>2005</td>
<td>1,926,463</td>
</tr>
</tbody>
</table>

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6. CONCLUSIONS

- The nower-days systems for producing and supply of thermal energy provide heating and tap water for 29% of country’s population, meaning for 55% of the urban population;
- The systems are based on technologies corresponding to the period before the 1972 energy crisis, they have low efficiencies, very high losses (between 30 and 35%) and high production costs;

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The very high costs for production, transport and distribution cannot be beared by most of the final users;

Due to the technical solutions adopted and the lack of repairing funds, the buildings produce supplementary heat losses (10-15%) and they do not allow the separation of the individual consumption for heating and tap water on each apartment;

Conclusion: the advantages of the district heating system are undermined by the following aspects: old pipeline networks, poor insulation, poor maintenance works.
STATISTICS REGARDING THE HEATING SYSTEM USED BY THE ROMANIAN POPULATION

- Solid fuel for stoves: 57%
- District heating: 31%
- Gas for stoves: 4%
- Other types of central heating: 8%

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II. THE MAJOR OBJECTIVES OF THE GOVERNMENT POLICY IN THE FIELD OF CENTRALIZED PUBLIC SERVICES FOR HEATING SUPPLY OF CITIES ARE:

- The security of energy supply for cities;
- The implementation on a large scale of the cogeneration systems wherever this is rational possible, according to Directive 2004/8/CE;
- Implementation of EU Directive No. 93/76/EEC regarding the reduction of the carbon dioxide emissions by improving the energy efficiency and of EU Directive No. 2001/80/EC regarding the chimney emissions;

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Increase of the energy efficiency of the systems, and promotion of the measures for durable development;

Adoption of the EU directives regarding the quality of the services for urban heating and environment protection;

Attraction of the private capital for financing the investments meant to improve the local energy services.
III. DIRECTIONS FOR ACTION

1. Decrease of the production costs by modernizing the systems for energy production and supply, increase of efficiencies and decrease of losses.

2. Encourage the investments meant to rehabilitate the Centralized Systems for Urban Heating CSUH, to increase the energy efficiency and to reduce the consumption of primary resources.

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3. Direct the investments for thermal energy production towards co-generation solutions, according to the EU directive 2004/8/EC regarding the promotion of co-generation based on the internal heat demand.

4. Implementation of automatic systems for measuring and control, from the source down to the final client, in order to control „on-line” the technological processes and to write down the monthly balances.

5. Modernization of the existing facilities or their replacement and the correlation with the heat demand of the town.

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6. Diversification of the primary energy resources used for heat production, promotion of regenerative energy resources, promotion of optimal solutions from the point of view costs / quality.

7. Introduction of meters for thermal energy delivered for each building and each apartment.
8. Stimulation of the thermal rehabilitation of buildings by fiscal means and simplification of the access procedures of the owners to the funds meant for that purpose, in order to reduce the heat losses and the heat demand.


10. Introduction of cost norms adapted to the quality standards for a public service.
IV. EVALUATION OF THE RESOURCES NEEDS FOR INVESTMENTS

1. Assumptions for the calculation:

- No of customers in the next 12 years:
  - cca. 6,5 mil inhabitants;
  - cca. 2,3 mil apartments.

- Production of thermal energy needed to insure heating and tap water: 1.610 thousands tons equivalent oil;

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• Reduction of the yearly consumption of resources by **612 thousands tons** in the Centralized System of Urban Heating CSUH;

• Alignment until 2012 to the EU Directive 2001/80/CE with regard to the reduction of atmospheric emissions of some pollutants coming from big combustion installations.

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2. Evaluation of the investment efforts

- Total investments needed for modernization and rehabilitation of the urban heating system:
  - 6.672 mil. €;

- Rehabilitations and modernizations of thermal power stations and co-generation power stations, including also the chimney emissions:
  - rehabilitations and modernizations of thermal power stations and co-generation power stations: 1.949,6 mil. €;
  - reduction of chimney emissions: 570,4 mil. €;
  - total : 2.520 mil. €;

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1. In Romania, winter lasts between 5.5 – 7 months.
2. 70% of the town dwellings are built so that they must receive thermal energy from CSUH.
3. The internal production of methane gas is decreasing.
4. The price for the methane gas will grow up to the level of the European market.

5. Until 2012 Romania will have to adopt the European norms with respect to the chimney emissions in big combustion installations.

6. The market for energy and fuels will become 100% liberalized.
ROMANIAN ACHIEVEMENTS IN THE FIELD OF ENERGY EFFICIENCY

- HEAT PUMP SYSTEMS (USING NONPOLLUTANT REFRIGERANTS)
  - Midocar Showroom Bucharest - 390 kW
  - Skoda&Fiat Showroom near Constantza - 138 kW
  - Majestic Hotel Bucharest - 240 kW
  - Avia Motors Showroom Bucharest - 270 kW
  - Ochsner heat pumps 2,4 kW - 17 kW
  - Viessman heat pumps 26 kW - 36 kW
  - Alfabit heat pumps

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SMALL CO-GENERATION UNITS INSTALLED

- Municipalities of Buzau and Targu Frumos (financed by the Swiss program of emissions trade)
- Municipalities of Sibiu and Ploiesti
- “CARO” Hotel Bucharest
- Connex Headquarters Bucharest

Geneva, June 2005
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