RESTRUCTURING OF DISTRICT HEATING AND CO-GENERATION IN CENTRAL AND EASTERN EUROPE

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I. DH/CHP – an important energy service

Heritage of central planning, district heating (DH) and combined heat and power generation (CHP) are an important component of the energy economies in central and eastern Europe, - comparable to gas and electricity. On average, they provide some 60 % of buildings with heat and warm water [1], - a world record. Not surprisingly, they absorb an important share of primary energy: 39 % [2]. This is mostly gas (54 %), followed by coal (36 %), fuel oil (9 %) and nuclear and renewables/waste with 1 % each.

The situation is Slovakia is similar due to an energy- and heat-intensive industry structure and a developed DH system. Almost 100 % of apartment houses (= 40 % of all buildings[1]) are centrally supplied with heat and warm water. In 1999, heat generation for households and industry (process steam) absorbed about 7 % [3] of total primary energy supplies. Among these, in 1999, natural gas played a dominating role (85 %), followed by fuel oil (8 %) and coal (7 %). In terms of heat output, co-generation plants by far outweigh heat-only DH plants (96 % versus 4 %) and accounted for 12 % of total electricity generation [4] .

II. The issue – revitalizing an ailing industry

However impressive these numbers may be, the problems appear even more impressive. DH/CHP in central and eastern Europe is generally

1. inefficient

- **losses** in heat transportation and distribution: 30 – 60 % (in summer); in end-use in buildings: 20 – 40 % [5], **totaling 35 to 85 %, not including losses in generation**
- outdated equipment, overextended networks, overcapacities
- irregular peak service with subsequent shift of demand to electricity

2. **unprofitable**
    - households: neither tariffs nor subsidies cover cost (in Belarus, households cover only 10 % of costs); in Slovakia, subsidies cover cost but are not transferred to the operator
    - price distortions in favour of gas and electricity
    - payment arrears, illegal heat use
    - lack of capital for repairs, meters

3. **poses problems in terms of governance**
    - while a local service, the sector is (still) determined by national policy (licensing, tariffs, fuel use)
    - at presently prevailing losses, CHP is not rational in terms of energy use in comparison with direct use of gas and electricity
    - in CHP, the competitiveness of heat versus electricity is biased (allocation of overheads, cross subsidies) in countries where electricity and heat markets are under different regulatory regimes
    - gas/el. restructuring models cannot be replicated; access to grids must be regulated according to local circumstances (Third Party Access, Single Buyer, economic merit order …)

4. **and sustainability**
    - are insufficiently covered:
        - investments/incentives to enhance efficiency
        - externalities (costs and benefits)
        - optimization of local energy systems (multi-fuel competition on the basis of life cycle cost)

In Slovakia, the distortion of gas and electricity prices for households resulted in a tendency to disconnect from DH systems and to prefer individual heating based on natural gas and electricity. In the same way, CHP growth was affected by distorted gas prices.

III. Measures taken or contemplated

The DH/CHP industries had to await progress in the reform of the electric power industry (to which they were closely linked), before they saw their problems addressed by policy makers. Restructuring policies follow six lines of action:

1. **from centralization to decentralization**
    - at present, in PL 3000, in SK 1200 heat suppliers
    - by contrast, centralization prevails in BY and partly BG

2. **from public systems to a range of ownership and management models**
    - such as municipal agencies, limited liability companies, joint stock companies, public/private partnerships, ESCOs, industrial self-producers
    - privatization facilitates access to capital market and expertise, but is impeded by old debt, receivables and political interference in ratification and investments

3. **from vertical integration to unbundling and competition**

- towards separation of generators and distribution grids (may complicate system operation)
- towards several types of access to heat distribution grids (TPA, Single buyer, economic merit order)

4. **from subsidized, lump-sum tariffs to full-cost, metered tariffs**
   - despite substantial increases of heat prices**,** full cost coverage and elimination of subsidies practiced only in EE, LV, LT
   - implications are significant: social hardships, payment arrears, surge of self-production, surge of peak demand for electricity
   - H: law stipulates full metering by 2003 (expected savings: 15 – 25 %)
   - cross-subsidization still prevails between industrial and residential, and small and big industrial customers

5. **from ad hoc decisions to internationally compatible legislation**
   - almost everywhere exist laws on energy, environment and efficiency
   - specific DH/CHP laws exist in H, LV, LT
   - everywhere regulatory authorities (national, provincial or municipal) exist to deal with DH/CHP licensing, tariffs for captive customers, development planning and incentives for renewables, co-generation and efficiency improvement (audit, building codes)
   - there is a strong motivation to approximate EU policies and standards and apply the Energy Charter Treaty provisions on non-discrimination of foreign investors (land ownership, concessions, licenses, dispute settlement), but exceptions
   - this process is assisted by Phare, USAID, IBRD, EBRD

6. **from DH-specific policies to local energy systems**
   - PL, RO oblige municipalities to develop policies for local energy system

Slovakia had a special Act (No. 89/1987) on DH dating back to the former CSSR. The more recent (1998) Energy Management Act (EMA) No 170/1998 and the subsequent Regulation No. 15/1999 of the Ministry of Economy define fundamental terms and conditions for heat supply, purchase, measurement and illegal use. The aim is to reduce subsidies, losses and pollution, deploy modern technologies and adjust prices to reflect cost. EMA and subsequent legislation (Energy Act of 1998, above mentioned Regulation, Act on Efficiency of 2001,) emphasize efficiency, promotion of co-generation and renewable energy sources and waste. The recently established Regulatory Office for Network Industries regulated all tariffs. Price distortions between heat and gas/electricity still prevail. Licenses are granted centrally by the Regulatory Office for Network Industries. Municipalities frequently own heat sources and grids, but leave management to other commercial operators (performance contracting). There is no legal obligation for them to develop local energy systems.

IV. The "Neptun Declaration"

DH/CHP reforms have only begun and advance at different speeds in the various CEE countries. This is the moment to compare experience among them and to shape the next steps, last but not least to facilitate technology transfer and capital flows.

Under these circumstances, the World Energy Council's Group Central and Eastern Europe organized a Workshop on "Restructuring and Privatizing the DH/CHP Industries in CEE: Towards Local Energy Systems" in Neptun (Romania) on 10 June 2002. After discussion, the Workshop adopted the following

Draft [1]
Neptun Declaration
on the
"Revitalization of district heating and co-generation in central and eastern Europe"

The participants of the WEC Workshop on "Restructuring and privatizing the district heat and CHP industries in central and eastern Europe", held in Neptun (Romania) on 10 June 2002,

noting that on average 60 % of buildings in the region are centrally supplied with heat, and that district heating and co-generation plants absorb 39 % of primary energy supplies [2],

concerned that the heritage of the past caused and continues to cause heavy losses in generation, transmission and end-use of heat ranging from 35 to 85 % of the heat generated; this prevents cost-effective operations and investments, affects customer satisfaction and delays the optimization of local energy systems,

welcoming the measures taken or contemplated by Governments to modernize and restructure the heat supply industry

[1] as adopted at the Workshop; the Draft will be considered for adoption and circulation to decision makers in government, municipalities and industry by the WEC Group Central and Eastern Europe at its session in Cairo in October 2002

[2] IEA Energy Balances 1999; weighted averages

welcoming reports of successful implementation of reforms which indicate that decentralization and privatization of heat supply must be accompanied, if not preceded, by supportive measures

anxious to assist and, to the extent possible, accelerate the process

believe it to be desirable if

I. GOVERNMENTS

A. with regard to DH/CHP policies generally

1. recognize district heating (DH) and combined heat and power (CHP) systems
   - as essential for the well-being of the population
   - as important components of the national energy economy, comparable to gas and electricity
   - as a means to reduce pollution and attain CO_2 reduction targets
   - as a means to absorb unemployment and enhance skills
2. eliminate preferential pricing, taxation and regulatory regimes for competing fuels;
3. encourage access to capital markets by initiating or accelerating the process of restructuring, price liberalization, decentralization and, possibly, privatization of DH and CHP companies, bearing in mind that several ownership and management models can apply;
4. encourage pilot projects, pending the implementation of systemic and nation-wide DH/CHP policies; such pilot or island projects would address isolated local systems in their entirety or parts of systems (small-scale generation, pipeline rehabilitation, end-use efficiency, metering, …);

B. with regard to financing

5. encourage foreign investments in granting national or most-favored nation status, without exception, and secure a predictable legislative and regulatory framework;
6. encourage third-party financing of DH/CHP investments (performance contracting), joint implementation and emission trading;
7. eliminate old debt, thus enabling a fresh start of the DH/CHP industries;
8. compensate for foregone revenues of DH/CHP companies as a result of applying special heat tariffs for the poor;
9. recognize the social and economic implementation of heat supply and, were necessary, grant well targeted and transparent subsidies for a limited period of time, financed from public budgets;

C. with regard to regulation

10. establish an independent regulatory body for, inter alia, granting licenses, determining heat supply tariffs for captive customers, access to grids, and

metering and billing procedures; to secure a common competitive framework, this regulatory body should cover all grid-based energies;

11. divest these functions to the extent possible to the local authorities;
12. choose the type of access to grids according to local circumstances (third party access, single buyer principle, economic merit order …);
13. eliminate progressively cross-subsidies between households and industrial consumers, and between categories of industrial customers
14. promote
    - fair rules for the allocation of costs and benefits from co-generation to electricity and heat prices respectively, in circumstances where markets for electricity and heat operate under different regulatory regimes
    - the transparency of tariffs
    - improved services to customers (installation of meters, insulation, use-related billing)
    - building codes, energy auditing
    - an increased role of local authorities in the development of local energy systems
    - EU/IEA-compatible statistics on heat generation, transmission and use

II. MUNICIPALITIES

1. view and determine the development of DH/CHP as part of local energy systems using gas, coal, refuse or renewables and to promote insulation, rational use of heat, co-generation and, where appropriate small, decentralized plants;
2. encourage effective multi-fuel competition on the local energy market and the liberalization of energy prices generally;
3. arbitrate the long-term development of grid-based energies (heat, gas, electricity) on the basis of life cycle cost;
4. abstain from operational activities, rather entrust the ownership or management of DH/CHP companies to the private sector, in particular energy service or multi-fuel companies.

Given at Neptun, this tenth of June, 2002

Prof. Aureliu Leca	Natan Bernot	Dr. K. Brendow
Chairm Workshop	Chairman WEC Group Central and Eastern Europe	WEC Regional Coordinator Central and Eastern Europe

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The Declaration, once adopted by the WEC Group Central and Eastern Europe, will be submitted to decision makers in CEE, including to the Government of the Slovak Republic, in a spirit of facilitating DH/CHP reforms and cooperation.

[1] Witold Cherubin, Present situation and current trends in the restructuring of the DH sector in Poland and other CEE countries, General Report, WEC Workshop on Restructuring and Privatising the DH/CHP industries in CEE: towards local energy systems, Neptun (Romania), June 2002
[2] IEA, Energy Balances for OECD Countries 1999; ditto for Non-OECD Countries
[3] IEA; but national sources (Spravodaj 1999, p. 24) quotes 39 %
[4] IEA Energy Balances for OECD Countries 1999, Slovakia
[5] Mercedes Marin: Co-generation challenges in central and eastern Europe, in Co-generation and On-Site Power Production, May/June 2000