Regulatory Concepts and Issues of District Heating (National vs. local regulation, Municipal vs. Private vs. PPP ownership)

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Technical Exchange Programme: Sustainable energy regulation
March 3-4, 2011, Warsaw, Poland
District heating schemes have been developed gradually according to demand of heat consumers – no drastic changes.

- DH sector is competitive, feasible, well established, with good reputation, attractive for new consumers, etc.
- Efficiency and optimal heat prices ensured by competition with other methods of heating.
- Expenses for heating insignificant for the main part of heat consumers.
Regulation of DH in west European countries

- MARKET DRIVEN REGULATION EXCEPT DENMARK

- Minimal influence from the state institutions:
  - regulation (recommendation) of maximal allowed profit;
  - supervision by antimonopoly services mainly;

- Minimal administration cost;

- Attractive for private investors;

- Clear and stabile business environment;

- Predictable perspectives of business;

- All possible problems are risk of investor;
Market driven regulation

- Limitations:
  - Heat suppliers are interested in “feasible” consumers mainly;
  - Access to DH networks not regulated - so limited;
  - Exist all risks of a natural monopoly;
  - Difficult to plan and develop DH networks as part of municipal infrastructure;
  - Limited possibilities to use DH systems for implementation of state energy policy;
New challenges in Europe related to DH sector

- Climate changes, problem of CO₂ emissions
- Energy supply security and independence
- High and increasing fuel prices
- Stricter emission requirements (New directive);
- Obligations to increase renewable energy (20%)
- Necessity to increase energy efficiency (CHP)
- Reduced economical power of heat consumers
- Out dated big part of energy generating facilities
- Planning and development of growing cities
Trends in the DH sectors of west European Countries

- DH systems become important tool for implementation of European and state energy policy
- More state attention and regulation to DH sector:
  - Planning of city infrastructure
  - Targets for introduction of RE sources
  - Diversification of fuels, CHP promotion etc.
- Many countries planning to expand volume of district heating significantly (Germany, Holland)
Situation in the DH sectors of transition countries

- Very high consumption of thermal energy – more than 200 kWh/m² annual
- Renovation of building goes very slowly
- Most heat consumers have no individual regulation, so heating bills do not correspond their living standard
- Heat supply volume has been reduced several time from design conditions – many equipment and pipelines are oversized
- “Old” facilities and schemes are modernized or replaced slowly
- Low efficiency, poor quality standards, high heat prices
- Disappointment with such situation forms negative approach regarding district heating
Regulatory problems in DH of transition countries

- Destructive competition with gas heating in some countries (incorrect pricing policy)
- Planning/zoning of cities still seldom
- Unregulated disconnections, failed of DH in some cities
- New obligations to DH sector do not supported by required financial resources often
- Approval and financing of investment unpredictable
- Lots of speculations and populist decisions in the district heating sector
Different situation in the district heating sectors

- Well functioning and competitive (West European countries…)
- Economically stabilized and gradually modernized (Transition countries new members of EU…)
- Heavily subsidized, little progress of renovation – economical reforms to be implemented (Russia, Belarus, China…)
- District heating collapsed – to be reestablished? (Armenia, Georgia, Moldova…).
The main regulatory issues in the district heating

- Ownership
- Access to DH business
- Legal and economical regulation
- Institutional structure of DH administrative system
Dominating ownership in DH sector

- **State** (Azerbaijan, Belarus, Kazakhstan, Uzbekistan…)
- **Municipal** (China, Estonia, Lithuania, Moldova, Russia, Denmark, Sweden, Ukraine…)
- **Private companies** (Armenia…)
- **Associations of consumers** (Denmark)
- **Mixed ownership** (examples available in many countries)
Issues related to ownership of DH

- DH network is a part of the city infrastructure and, preferably, should stay in the ownership of municipality (heat consumers association - Denmark case).
- Full privatization leads to risk of share trading but only minimal investment in renovation of systems (Latvia’ case).
- Optimal solution for transition countries – municipal ownership of DH networks with involvement of private operators (PPP - Public Private Partnership)
Forms of access to district heating supply business

- Historically formed by state or local governments
- Appointed as a winner of tender for DH in new territories
- Regulated licensed enterprise
- Concession (leasing) agreement
- Purchase of shares of DH companies
- Construction companies formed DH infrastructure in new city districts, others…

TREND – MUNICIPAL OWNERSHIP OF DH NETWORKS AND PPP BASED ON LEASING (CONCESSION) AGREEMENTS, MIXED OWNERSHIP IN HEAT PRODUCTION PLANTS (CHP)
Dominating approach of economical regulation in the DH of transition countries

- Unregulated development of DH (In countries where DH collapsed and now is gradually restored)
- Social regulation (China, Russia, Ukraine mainly in the FSU countries)
- Economical regulation (Lithuania, Poland, Czech Republic…mainly in the countries – new members of EU)
Unregulated development of DH

- Was common in the beginning of transition period and caused many problems in the district heating sectors of varies countries.
- Recently this approach is common when old DH schemes are recovered or build newly (based on feasibility interest).
- Unregulated district heating is not acceptable when large existing DH schemes have to be renovated and adjusted to the new social and state interests.
Social approach to regulation of DH

Possible where state ownership dominates

External financial sources must be available to cover heat supply cost (state or municipal budget, income from electricity sales or similar.)

Unified social heat prices are set by municipality, ministry or some other state institution

Heat prices are orientated to economical power of consumers

ALMOST ALL COUNTRIES TRY TO CONVERT FROM SOCIAL TO ECONOMICAL REGULATION
Economical regulation of DH

- Price regulation is separated from ownership and interested parties
- National or regional energy regulators have to be established
- Reasonable cost for heat supply must be paid by heat consumers only – protection of economical interest of heat consumers
- Incentive pricing methodology should be applied
- Stabile and predictable economical background ensure economical viability of DH companies
Advantages of economical regulation

- Predictable rules and business environment
- Attractive for private investors
- Commercial credit resources for operation and investment are available
- Efficient way to involve private resources and capabilities for quick investment and renovation of DH systems
- Good background for PPP
Problems of economical regulation

- Consumers do not trust heat prices and regulation – they have to be presented in the regulation process and well protected.
- Social and political pressure due to heat regulation.
- High cost of regulation because regulator must be of high competence and to have suitable tools for control.
- Regulation process has to be transparent and well described in legal acts.
Risks of economical regulation

- High pressure to regulator from private operators
- Risk of reduced quality and reliability to get more profit, when “price cap” methodology applied
- “Shadow” business using DH company’s capital and other possibilities
- Cost and profit allocation between regulated and non-regulated activities
- Risk of overinvestment and “related” business
Institutional concept of DH regulation in transition countries

- **State institutions** – energy policy, general principals of regulation, legal acts
- **Municipalities** – planning of local infrastructure, management of DH companies, price setting
- **Energy regulator** – methodologies, norms, standards, licensing, dispute settlement, supervision of DH market, final control of price setting and usage
State institutions

- Implementation of state energy policy in the DH sector
- General rules for licensing, contracting, planning etc.
- Requirements and control of reliability, quality, efficiency, environmental issues etc.
- Social support schemes for vulnerable consumers
Municipalities

- Local solutions related to heat supply systems
- Planning of local infrastructure
- Formation and control of company’s administration
- Permission for constructions
- Leasing or concession agreements
- Approval of investment plans
- Primary control of district heat supply efficiency
- Setting of heat prices according to unified methodology
Energy regulator

- Harmonization of suppliers and consumers economical interests
- Ensure economically reasonable background for heat supply business
- Exclusion of political influence and speculations
- Protection of heat consumers
- Licensing and legal control of DH companies
- Recommendations for state policy and municipal solutions
- Control of set and applied heat prices and tariffs;
- Dispute settlement
Strong and experienced private partners are very useful when situation requires high and fast investment but consumers are economically weak;

There is a possibility to attract capable partner (in the Baltic countries - Dalkia) for renovation of DH systems. Good example for other companies;

Private operator takes clear and detail responsibility regarding investment, renovation etc. fixed in leasing or concession agreement;

Some weak operators have failed in their obligations and were replaced;
Competition issues in the district heating

- Licensed DH company must ensure heat supply reliability and regulation of heat supply regime.
- Licensed DH companies should have an obligation to purchase heat from independent heat producers, if it reduces price for the final heat consumers.
- Access of the third side to DH networks for direct trade of thermal energy is not reasonable.
- Disputes between DH companies and independent heat producers should be resolved by Energy Regulator.
Regulation of heat transmission process

- Heat supply in the concrete municipality should be organized according to a local Heat Plan.
- District heat supply and competition zones are drawn in the territory of municipality.
- The only licensed company in the DH zone must connect all new heat consumers, connection cost is included in the general heat price.
- Heat consumers in the competition zone could be connected and heat supplied on the basis of individual cost.
Regulation inside multiflat buildings-blockhouses

- Monopoly of heat supplier ends at the inlet heat meter of a building
- Additional price component added if heat is delivered to an apartment
- Heat supplier or other company operates and maintains building piping system by choice of consumers (service paid by separate fee)
- The best way if district heating company supplies heat until building inlet and another utility regulates and distributes heat inside the building
Regulatory treatment of heat and electricity from CHPs

“Alternative heat source” - method applied for allocation of cost between heat and electricity is rather optimal when heat production is regulated activity and electricity is sold for eligible consumers or to the free market of electricity.

Small CHP units installed in DH systems could be considered as a part of heat supply business.

In any case, some part of profit drawn from electricity business should be allocated for renovation and development of DH network.
Conclusions

- Optimal solution for transition countries – municipal ownership of DH networks with involvement of private investors using varies effective forms
- Economical regulation by independent and competent Energy Regulator – background for economical viability of district heating sector in transition countries
- District energy systems - perspective instrument to meet recent and future public demands and to create civilized infrastructure in the cities of “cold” countries
Thank you for attention

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