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# MUNICIPAL HEATING REFORM PROJECT (MHR)

## Guidelines for Improvement of District Heating Pricing Methodology

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## Introduction

This report offers guidelines to improve district heating pricing in order to solve the problems hampering the efficient functioning of this market.

For this purpose, the barriers for the development of district heating in Ukraine generated by imperfect pricing have been defined. Analysis of the Ukrainian legislation, pricing theory and practice evidence that district heating pricing:

- does not encourage consumers to save energy resources (heat energy);
- does not motivate producers to introduce any resource saving measures;
- provides no economic incentives for the private sector participants to make investments into the municipal infrastructure projects; and
- holds back market mechanisms due to the absence of relations with such main market elements as demand, offer, and competition.

This report has been prepared by Olena Babak and Olena Nych, experts of the Municipal Development Institute, within the framework of the USAID Municipal Heat Reform in Ukraine Project.

# 1 Problematic Pricing as a Barrier to the Heat Supply Development

District heating (DH) prices are formed on the basis of the Laws of Ukraine on Prices and Pricing, on Natural Monopolies, on Heat Supply, and on Housing and Municipal Services.

The Price/Tariff Setting Procedure has been established by the Cabinet of Ministers Resolution on Approval of the Tariff Setting Procedure for Heat Energy Generation, Transportation, and Supply, and District Heating and Hot Tap Water (HTW) Supply Services (No. 955 of 10.07.2006). The Procedure sets the mechanism to calculate tariffs for heat energy and DH and HTW supply services.

Despite of the considerable number of legislative and regulative provisions in Ukraine on DH pricing, the tariff setting methodology and mechanism remain undeveloped.

In particular, DH pricing:

- does not encourage consumers to save energy resources (heat energy);
- does not motivate producers to introduce any resource saving measures;
- provides no economic incentives for the private sector participants to make investments into the municipal infrastructure projects; and
- holds back market mechanisms due to the absence of relations with such main market elements as demand, offer, and competition.

Thus, pricing sets the following barriers to the development of heat supply in Ukraine:

## 1.1 Lack of Price Signals for Consumers to Save Energy Resources

### *1.1.1 Majority of consumers pay on the basis of heat consumption standards, rather than for the actually consumed resource*

Only a small share of consumers pay for the actual services consumed as per their metering devices. The remaining majority pays on the basis of the heat energy consumption standards, and thus they have no incentives to use the energy resources supplied to the building in an efficient way. The tariff setting rules do not enable heat supply companies to make consumption projections based on consumer demand (e.g. on the basis of the consumption actually billed in the previous years), rather encouraging them to use only the normative approach in the calculations.

As consumers mainly pay for the standard volume of heat energy, having no incentives to reduce the resource consumption, more and more of them try to get disconnected from DH systems and save money on the payment for heating and services, as well as to ensure comfortable temperatures in their dwellings. This results in the deterioration of municipal DH systems.

### *1.1.2 Consumers cannot influence the amounts they pay on the basis of single-tier tariffs*

Paying for services on the basis of a single tariff (without division for conventionally constant and conventionally variable parts), consumers cannot assess how much they pay for their residential or public building to have a certain design heat load. Design loads envisaged by engineering documentation are often the result of calculations and can be higher than those needed in reality.

Accordingly, consumers have no incentives to introduce measures to optimise such design figures, in particular in the buildings constructed before 1995.

## 1.2 Lack of Resource Saving Incentives for Producers

### *1.2.1 Pricing rules prevent producers from using the funds acquired through overplanned saving of resources*

Producers cannot use the funds generated by their efficiency measures to return investments or to pay dividends, as the producers are forced to reinvest them fully into the utilities infrastructure. According to the Tariff Setting Procedure, when the cap tariff method is used, any funds saved in excess of the plan should be used exclusively for renovation of the utilities infrastructure and for the staff remuneration.

### *1.2.2 Setting consumption standards for the purpose of pricing serves as a counter incentive for the decrease of consumption*

The tariff setting procedure sets requirements for (a) consumption calculation on the basis of the approved specific norms of fuel and energy consumption; (b) establishment of consumption standards; and (c) planning of fuel and energy costs in the current prices.

Tariff setting procedure also establishes that salary expenditures should be planned on the basis of the list set by the Procedure and with due regard of the general, sector, and collective agreements.

With such restrictions, DH companies are not able to decrease salary expenditures by decreasing the number of employees, as they are forced to keep a big number of employees with low salaries, required by the general and sector agreements, in order to be able to pay actually high salaries through combination of jobs. In addition, being required to plan salaries for a staff list number of employees, companies use vacancies to create a reserve for unplanned expenditures.

Thus, being guaranteed by legislation to get all resource consumption and losses, for which standards are established, reimbursed, companies lose economic incentives to decrease them.

### *1.2.3 Establishment of profitability standards for the full planned prime cost creates no incentives for consumers to save resources*

The tariff setting procedure sets that all planned operational expenditures and the planned profit, defined as a percentage of the prime cost, should be reimbursed in tariffs. Thus, in Ukraine tariffs are set through *establishment of profitability standards in relation to the full planned prime cost, and not the amount of the invested capital*. Accordingly, the producer has no economic interest to reduce expenditures, as this will decrease its planned profit.

Today, the planned profit, which is also defined as a percentage of the full prime cost, is the only source of investment revenues for a private investor. In such a way, a private investor loses any economic inventive to decrease the expenditures and to increase the sale of services, being, vice versa, rather interested in increasing the full prime cost of services.

### *1.2.4 Legislative provision on the state support and promotion of heat supply is insufficient to encourage companies*

Article 8 of the Heat Supply Law sets that if heat generation and supply companies implement energy saving measures which result in the saving of energy resources during heat generation, transportation, and supply, the heat tariff regulator should keep the tariffs at the level established before the introduction of such measure, for three years. The same article also establishes that if the tariff should be adjusted in accordance with the change of the energy prices during the payback period, the tariff level should be adjusted accordingly.

Adjustment of tariffs only by the changed energy prices redirects the savings, generated through the energy saving measures, towards to the compensation of all other expenditures that are expected to be rising over the upcoming three years due to the inflation. This will primarily concern salary payments and social deductions that will be constantly growing due to the change of the minimal wage rate. This makes such legislative provisions inefficient.

## 1.3 Lack of Incentives for Attraction of Private Investments into Utilities Infrastructure

### *1.3.1 Investors are not able to use the funds acquired through efficiency to return investments and to pay dividends, being forced to fully reinvest them into the utilities infrastructure*

Should *cap tariffs* be established in accordance with the *method* envisaged by law, investors have no possibility to use the funds saved through the efficiency measures to return investments and to pay dividends, being forced to reinvest them fully into the utilities infrastructure. According to the Tariff Setting Procedure, any funds saved over the established plan are supposed to be used exclusively for the restoration of the utilities infrastructure and for the material encouragement of the staff.

### *1.3.2 Legislation defines no source for the return of the invested capital*

The Tariff Setting Procedure envisages *receipt of revenues* from the invested capital at the expense of the profit, while *investments are supposed to be returned* at the expense of the depreciation. This mechanism set for the return of the invested capital contradicts Paragraph 3 of Article 20 of the Law of Ukraine on Concession which requires that the concessioner fully reinvests the depreciation deductions into the conceded facilities. This requirement is similar to the legislative requirements on the lease of the municipal and state property.

### *1.3.3 Legislation creates risks that private investments may not return during the period of validity of utilities lease or concession agreements*

Restriction of the profitability level in the tariffs established by the Cabinet of Ministers risks the failure of private investments non-return during the validity of the agreement on the use of any municipal/state infrastructure. Should such cap profitability level decrease, the investor, acting on the basis of a long-term agreement on the use of the municipal (leased or conceded) property, will not be able to get the planned profit.

## 1.4 Slowdown of market mechanisms due to no association with such main market elements as demand, proposal, and competition

### *1.4. Tariffs are formed on the basis of the rules which fail to ensure no-loss business operation and investment needs*

In particular:

- Pricing is based on taxation, rather than accounting statements. Tariffs are calculated on the basis of taxation, rather than accounting statements, which does not make it possible to take into account certain requirements of commercial contracts, such as lease or concession.

  Consequently, expenditures are compensated in tariffs with restrictions established by the Law of Ukraine on Taxation of Corporate Profit, before definition of the list and amount of gross expenditures and depreciation, which limits the companies' possibilities to compensate economically-grounded expenditures.

The Law of Ukraine on Accounting and Financial Reporting in Ukraine sets that accounting is obligatory for companies. Financial, taxation, statistics, and other types of reporting, which use financial indices, are supposed to be based on the accounting information.

Thus, for the purpose of tariff regulation, it is legal to take into account the expenditures in accordance with the financial accounting done on the basis of the National Accounting Provisions (Standards), and not taxation (limited) statements done as special fiscal accounting.

- Individual economically grounded operational expenditures cannot be compensated in tariffs: a) only gross expenses and depreciation deductions defined by the taxation legislation can be included into the tariff calculations; b) no compensation is envisaged for concession fee and rent payment for the lease of an integral property complex; and c) bad debts are not subject to compensation in tariffs.
- The adjustment mechanism envisages only indexation of individual expenditure lines, and not the tariff as such;
- A business operator has no possibility to indemnify the losses which have been formed in the period under report due to the objective reasons (e.g. regulatory delays, reduction/increase of consumption against the planned one) when tariffs are revised in the subsequent period.

#### *1.4.2 Pricing does not enable the consumer to plan heat energy demand on the basis of the actual need in it, which results in the maintenance of the groundlessly high production capacities and results in the incompliance of expenditures to their economically grounded level*

Single-tier tariff results from the planned full prime cost of heat energy together with the planned tariff by the forecast volume of heat sale. If the actual consumption is smaller than the planned on, the heat generator will not be able to achieve the planned sale indicators and will not be able to reimburse its conventionally constant expenses.

Therefore, for the purpose of heat sale pricing, generators take the heat system design load indicators without the consumption change and maintain the excessive production capacities to ensure design loads. If the actual consumption is smaller than planned (e.g. due to higher outside temperature during the heating season than it is envisaged by standards), the generator has to bill the consumer for smaller heat volumes in accordance with the tariff based on bigger consumption volumes. As a considerable number of boiler houses are insufficiently efficient due to the excessive capacities, the actual cost of heat production is not considerably different from the cost resulting from smaller sales. Thus, generators are not particularly interested in consumption metering under the current pricing system, as they have no possibility to plan tariffs for the consumption volumes based on the actual consumer needs.

#### *1.4.3 Pricing is Done Regardless of the Heat Market Functioning*

Formation of tariffs does not take into account the following:

- Differences in the heat wholesaling and retailing;
- Presence of a number of heat generators on the market which can ensure standard heat carrier parameters.

Tariffs for heat energy, district heating and HTW supply are currently calculated regardless of how heat energy is supplied to residential and public buildings though central heat points (CHPs) or individual heat points (IHPs) which sets up barriers for the development of

competition on the heat supply market. This is due to the fact that the tariff used to sell heat energy to consumers (both wholesale, and retail ones) is the same, independently of whether heat is supplied to the building from a CHP or an IHP. Moreover, expenditures for the maintenance of the customer service, which are considerable if individual users from multi-apartment residential buildings are served, are divided among all consumers independently of the actual expenditures related to the servicing of various customer groups. Thus, so called collective customers (e.g. apartment owner associations), which get services through IHPs reimburse those expenditures through the tariff, which have nothing to do with the cost of the provided services (in particular, support of accountants, operators, controllers which work with individual customers in multi-flat buildings, CHP maintenance expenditures etc).

Introduction of a uniform heat energy tariff (and not separated for generation, transportation, and supply) does not enable the regulator to compare the cost of heat energy generation (in terms of the lowest price) in the case when there are a number of heat energy producers (including, when heat energy is generated by the transporter and if all heat carrier standard parameters are ensured). Consequently, inefficiency of tariff regulation results in suppression of competition on the heat generation market.

# 2 Pricing Improvement Priorities

## 2.1 Formation of Price Signals for Consumers to Save Energy Resources

### *2.1.1 Introduction of consumption-based billing (or billing on the basis of the demanded consumption) as the tariff setting basis*

Consumption metering will give the biggest incentive to consumers to save resources. Combination of this requirement with the new approach to the formation of tariffs, whereby a heat supply company will be planning its sales on the basis of the heat energy billing and/or consumption volumes declared by the consumer, will encourage both consumers, and producers to save resources. Consumption metering will be a real incentive to introduce energy saving measures (including insulation of buildings/constructions), as this is a condition to decrease the payment for the actually consumed heat energy.

### *2.1.2 Introduction of tariffs envisaging separate payment for the heat energy consumed and for the connection to the DH system (two-tier tariffs)*

Two-tier tariffs will enable consumers to:

- Define the amount of payment for the volume of services actually consumed and, consequently, decrease the payment (the conventionally variable element) under the condition of reasonable consumption;
- Define the advisability and adequacy of heat load on their consumption systems and to have a possibility to decrease the payment for services (the conventionally variable element) through the investments aiming to optimize the heat load on their consumption systems;
- Enjoy conditions for fair reimbursement of constant expenditures to the consumers which customers which consume less services than big consumers.

Two-tier tariffs will enable producers to:

- Reimburse conventionally constant expenditures independently of the fulfillment of the heat sale plan; in this case, producers will be interested in avoiding the excess of conventionally constant expenditures against their planned level in tariffs;
- Prevent the discrepancy between the revenues received and the expenditures calculated under the conditions of seasonal production and with considerable fluctuations of demand for the services over a year.

## 2.2 Resource Saving Incentives for Producers

### *2.1.1 Improvement of the formula of tariff calculation on the basis of the profitability standards method (so called "expenditures plus") and/or introduction of the cap tariff method (price boundary)*

The following can be used to form resource saving measures for the consumer:

- Improvement of the *current tariff regulation method – profitability standard method*; and/or
- Introduction of the *cap tariff method*.

Resource saving can be stimulated through improvement of the *current tariff regulation method – profitability standard method* – by replacing the tariff adjustment formula and introduction of the provisions which should entitle companies to return the invested capital and to receive the investment revenues at the expense of the profit received due to the efficient operation during the period of tariff validity.

Introduction of the *cap tariff method* envisages the following:

- Companies will be able to get funds received due to the saving of resources over the tariffs term of validity (3-5 years) over the expected level;
- Adjustment of the basic tariff by a certain inflation indicator over the established term of tariff validity, which ensures break-even operation and investments in the planned volumes;
- Consumers can annually partially get back the funds received through the saving of the resources due to the introduction of the efficient factor (X-factor) into the basic tariff adjustment formula.

### *2.1.2 Introduction of benchmarking to replace the use of standards that lose their importance of the purpose of regulation*

Introduction of benchmarking as the basis for pricing to replace the use of a standard-based approach to the calculation of expenditures, valid today, is a drastically new approach to pricing. It will envisage definition of a list of target indicators to calculate operation expenditures reimbursed in tariffs and establishment of their level by the regulator for an individual business operator. It is expedient to introduce target indicators to calculate tariff resource components, i.e. its material and labour elements.

Thus, the standard-based number of the company staff, that the number of heat supply company employees is based on, can be replaced by the target indicators: the number of employers per 1,000 customers, or per 1,000 Gcal of heat energy produced/sold etc. As to the indicators of fuel and energy use, they should be established within certain boundaries as a target benchmark, i.e. not higher than a certain level. E.g., in the first years of operation with new tariff setting approaches, this indicator should be within the boundaries of the current resource

consumption (as the basic level), but in some time it should be oriented towards the optimization of the resource consumption, guided by the averaged indicators for a certain climate region etc. Thus, tariff calculation envisages that calculation of expenditures should not depend on standards, such as the operation fact (not always efficient), as it is the case today, but on the target indicators which can serve as a model for companies.

#### *2.1.3 Approach to state support and incentives should change*

Provisions of Article 8 of the Law on Heat Supply related to the method of state support should change as concerns the tariff adjustment approaches.

## 2.3 Formation of Incentives to Attract Private Investments into Municipal Infrastructure

#### *2.3.1 Conditions should be created for the return of investments over the planned level through introduction of resource saving measures*

There is a need to change the restrictions set in the law about the use of funds received through energy saving measures over the period of tariff validity only for the assets restoration and material encouragement of the staff. Instead, there is a need to use the funds received through efficient operation for the return of investments and payment of dividends.

Introduction of cap tariffs for an established period of time and the tariff adjustment formula will also promote attraction of private investments.

#### *2.3.2 Sources should be defined for the return of the private investors' capital*

Tariff-setting rules should be reconciled with the Ukrainian laws regulating relations within the framework of public-private partnership contracts (lease, concession, and others), as well as they should have clear instructions on the possibility to return private investments.

#### *2.3.3 Private investments default risks during the term of validity of the lease or concession contract should be eliminated*

Tariff setting rules should not establish restrictions that create risks for the private sector on the possibility to return investments. Therefore, in the case of a public-private partnership, requirements to the tariff setting regulatory documents should provide the right to define the essential conditions of such agreements and issues that are important to ensure implementation by the parties of their obligations.

*Elimination of pricing problems inherent in the pricing system in general will also encourage private investments into the municipal infrastructure.*

## 2.4 Ensuring Interconnection and Interrelation of the Main Market Elements of Heat Supply to Ensure Its Operation

#### *2.4.1 To create conditions for break-even business operation and support of investment needs*

This envisages improvement of tariff formation methods by the following means:

- Replacement of the expenditures reimbursement principle in tariffs defined on the basis of taxation statements by the reimbursement of the economically grounded expenditures confirmed by the accounting data;
- Elimination of drawbacks in the current tariff setting procedure;
- Change of rules for the definition of the planned profit; and
- Change of the tariff adjustment formula.

Tariffs should reimburse economically grounded expenditures, which can be confirmed by the accounting and financial statements, and not those defined in accordance with the taxation legislation, which does not take into account the various features related to the implementation of the commercial agreements in general and concession and lease agreements in particular.

This approach should be fixed in the Law of Ukraine on Natural Monopolies by replacing the current provision, present in Article 9 of the Law, whereby tariffs for goods (works and services of natural monopolies are allowed to take into account only the expenditures, which are attributed by the taxation laws to the production expenditures, turnover and depreciation deductions.

All economically grounded operational expenditures should be reimbursed in tariffs. Regulatory requirements to the reimbursement of such expenditures as concession fees and lease rent should be clear and unambiguous.

The formula for the definition of the planned profit should be changed. The planned profit should be calculated not as a share of operation expenditures, but on the basis of another basis, e.g. average weighted cost of investor's capital (own or attracted) or cost of the company's assets.

Tariffs should be adjusted only as concerns individual expenditure elements, as it is done today, but through a simplified mechanism. This envisages, for example, application of the index of change of industrial producer prices to the entire tariff on the results of the year, or for any other established period (three months, six months etc). Such adjustment approach will be based on a transparent formula that can be easily checked by the regulator, it will require no lengthy control procedures on behalf of public authorities, as it will also allow a company to take into account inflation processes that influence all areas of the company operations, including the investments ones, without full tariff revision.

The business operator should get a possibility to indemnify losses that emerge at the moment when tariffs are revised due to objective circumstances (e.g. regulatory delays, increase/decrease of consumption volumes as compared to the planned ones).

#### *2.4.2 Permitting the producer to plan the heat energy demand on the basis of the demanded consumption (billed or contracted)*

A tariff is a result of the planned full prime cost of heat energy and the planed profit divided by the forecast volume of heat energy to be sold. If actual consumption is below the planned level, heat generator will fail to achieve the planned selling indicators and will not be able to pay back its actual conventional and constant expenditures. The conventional variable expenditures will be repaid, as less consumption will result in less fuel and electricity used.

Since, for the purpose of pricing, the volumes of heat sales are planned with due regard to the indicators of design loads on the heat supply systems without taking into account the change of demand, producers are forced to maintain excessive production capacities in accordance with the design loads. If the actual consumption is below the planned one (e.g. due to higher outside

temperature in the heating season than it is envisaged by standards), the producer has to bill the consumer for the smaller amount of heat consume in accordance with the tariff formed on the basis of assumed higher consumption. As a considerable number of boiler houses are not efficient enough due to the excessive capacities, the actual cost of heat generation is not very much different from the one produced by smaller sales. Thus, producers are not interested in consumption metering under the current pricing system, as they have no possibility to plan tariffs for the sale volumes close to the actual consumer needs.

#### *2.4.3 Formation of prices with due regard of the operation of the heat supply market*

To take account of *the heat energy to wholesaling and retailing, business operators should be required to form* tariffs separately by types of operation – generation, transportation, and supply – and by consumer groups defined through the difference in the cost of goods/services supplied.

Thus, if heat is supplied to residential and public buildings through central or individual heating points, the consumers, which do not use services supplied through central heating points, should not pay for this, while no expenditures related to the servicing of individual uses in multi-flat buildings should be reimbursed to the wholesale buyers.

Development of the competition at the heat generation market can be stimulated through introduction of requirements for formation and establishment of tariffs by types of activities as described above.