

## Support Measures for DHC

Country

**Croatia**

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
1	Consumer protection of DH customers	legislative	Croatian Energy Regulatory Agency (HERA) District heating companies Consumer protection associations	existing

### Quotations from the measure

Croatian Energy Regulatory Agency (HERA) is an autonomous, independent and non-profit public institution which regulates energy activities in the Republic of Croatia. Agency obligations, authorities and responsibilities are based on the Act on the Regulation of Energy Activities, the Energy Act and other acts regulating specific energy activities.

Quoted from the Law on Regulation of Energy Activities (Official Gazette 177/04, 76/07)  
*from Article 12*

A dissatisfied party may submit a complaint to the Agency concerning the work of the distribution operator and the decision on methodologies (tariff systems, without amounts of tariff elements and compensation for the connection to the distribution networks, and for increase in connected load) The complaint may be submitted within 30 days from the day on which the irregularity in the work of distribution system operator occurs, and the complaint regarding methodology may be submitted within 60 days from the day on which the methodology is adopted.  
The Agency shall take a decision on the complaint within 60 days from the receipt thereof.  
The decision of the Agency shall be final and dissatisfied party may file an administrative dispute against it. This Law entered into force on December 11<sup>th</sup> 2004.

Quoted from the Law on District heat (Official Gazette 42/05)  
*from Article 22*

(1) The district heat distribution company shall provide access to the distribution network in accordance with the general terms and conditions of district heat supply.  
(2) A party which is denied access to the distribution network, or which is not satisfied with the terms and conditions of access, may lodge a complaint with the Agency. The decision of the Agency shall be final.  
(3) The party referred to in paragraph 2 of this Article may finance the construction of a direct line being built by the district heat distribution company with the approval of the Agency. for district heat supply  
This Law entered into force on April 8<sup>th</sup> 2005.

Regarding the obligations of DH companies, the following provisions apply:

Quoted from the General conditions of DH supply (Official Gazette 129/06)

- if customer or DH supplier submits a written complaint regarding the quality of heat, distributor of DH needs to provide measurements within two days upon the receipt of complaint; and to send the written report on the results of the district heat quality measurements to the customer or DH supplier in the next ten days.

- if the complaint is unsubstantiated, the customer bears the measurement costs , and if the complaint is substantiated the DH distributor bears the costs incurred.
- customer has the right of objections to the work of the DH distributor/supplier within 30 days from the day of the incurred reason; the DH distributor/supplier reaches a decision on the customer complaint within 30 days upon receipt of the complaint.
- tariff customer may challenge the monthly obligation and additional monthly obligations within 15 days of their issuance
- tariff customer may challenge in writing, partially or wholly, the invoice for the heat consumed at the latest within 15 days of the invoice; DH supplier is required to respond to the tariff customer complaint within 8 days from the receipt of the complaint. If the complaint is justified, the customer is issued a new invoice.

Quoted from the Law on Consumer protection (Official Gazette 79/07), regarding the public service (DH distribution and supply):

- sale of energy, when the nature of public service permits, must be calculated according to the consumption
- service of metering device readings are not allowed to be charged, except when the consumer required a non-standard reading prescribed with special regulation
- DH supplier/distributor (in this case) must provide the customer in advance with all terms conditions of the use of public services and publicly disclose those to the media
- DH supplier/distributor is obliged to establish a committee for consumer complaints which should as members also have representatives of consumer protection associations. Such a commission must respond in writing to consumer complaints received within 30 days of receipt of the complaint.

## The Purpose of the measure

This measure is set on the national level. Its purpose is to provide protection of customers in the DH sector by stating the authorities' responsible and established procedures for the consumer complaints.

## Eligibility Criteria

All distributors and suppliers of district heating in Croatia. All district heating customers.

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive			■	■	■
Negative					

Overall impact of this measure is positive as it provides a solid legal framework for the protection of district heating customers.

## Effectiveness of the measure

This measure is considered effective. The data available that could serve as indication of the effectiveness of this measure is obtained from the HERA's 2008 Annual report.

In 2008, most of the cases submitted in district heating sector referred to client requests (energy operators, customers, Ministries, State Inspectorate and others) for the Agency's opinion, followed by customer complaints.

In 2008, customer complaints and statements in the district heating field related to the following:

- requests for disconnection from the DH system,
- tariff system application and heat consumption calculation,
- request for installing a heat meter,
- heat quality (sanitary hot water temperature, the temperature of the customer's premises),
- request for the Agency's opinion and interpretation of regulations.

Customer complaints and statements sorted by categories are presented in table below where it can be seen that in 2008, the Agency resolved 11 out of 19 received customer complaints and statements.

Case type	number	%
Requests for disconnection from the DH system	7	37
Tariff system application and DH consumption calculation	6	32
Request for installing a heat meter	1	5
DH quality (sanitary hot water temperature, temperature of customer's premises)	1	5
Request for the Agency's opinion and interpretation of regulations	4	21
Total	19	100

III. SUPPORT MEASURES FOR DHC				
Country			Croatia	
#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
2	Strategy of Energy Development of the Republic of Croatia	legislative	Government of the Republic of Croatia	existing

## Quotations from the measure

Quoted from the Strategy of Energy Development of the Republic of Croatia (Official Gazette 130/09)

Goals and activities in the period from 2008 to 2020 (with a view to 2030) regarding the *district heating* are:

- Development of district heating systems is directed towards increasing the efficiency of energy conversion, use of cogeneration units, reduction of heat distribution losses, distributed energy production as well as use of renewable energy sources.
- Supporting cogeneration in industry: current system of supports through feed-in tariffs for electricity generated in such plants will be reviewed, especially in case of highly efficient cogeneration, since interest for their construction under current conditions is insufficient.
- Individual energy metering in households: special measures will be introduced to promote individual metering, especially in DH systems, in particular use of smart meters combined with regulation devices.

Further, it states the following Development Guidelines for District Heating Systems:

- Improving the legislative framework for the efficient functioning of the heating sector;
- Necessity to introduce planned energy supply to settlements from the position of the lowest cost in the observed period;
- Necessity to technologically modernize the DH systems and incentives for development and application of domestic equipment and services (for production units and for the DH network);
- Utilization of renewable energy sources to produce heat and incentives for distributed production;
- Incentives for efficient use of heat; and
- Application of up-to-date information technologies to maintain and manage assets.
- Heat demand in residential facilities larger than 1000 m<sup>2</sup>, should be supplied either from single building boiler plant or from district heating systems (which according to current legislation obliges the installation of a heating substation and heat metering for each housing unit ensuring total management of consumption by the individual consumer). The aim is to satisfy cooling demand in future constructions that will be supplied from a district cooling system (at the building level or several district units). These solutions should enable the application of efficient trigeneration plants (CHCP) - combined heating, cooling and power generation or the application of natural gas fired absorption chillers.
- With production units in district heating systems, incentives will be made for the use of renewable energy sources (biomass, municipal solid waste, solar energy) as well as a diversification of energy sources used.

- With production units in natural gas fired district heating systems, the use of replacement fuel will be ensured during periods of peak consumption in the natural gas supply system. These measures may be normatively regulated even though the more favourable price of natural gas on a regulated market for consumers with the possibility of stopping delivery should be sufficient motive for this behaviour.
- In production units in the district heating system, construction of cogeneration units will be stimulated, if this proves to be economically viable regarding the external costs.

## The Purpose of the measure

This measure is set on the national level. The purpose of the new Croatian Energy Strategy is to define the development of Croatian energy sector by 2020. The goal of the Strategy is to build, under the conditions of uncertainty in the global energy market and scarce local energy resources, a sustainable energy system that makes a balanced contribution to security of energy supply, competitiveness, and environmental protection and provides for security and availability of energy supply to the Croatian citizens and business sector.

According to the Energy Law, the Energy Strategy is a fundamental document aimed at setting up the energy policy and planning of the Croatian energy sector development adopted for a period of 10 years. The 2002 Strategy covered the period until 2030. Since the 2002 Strategy was adopted, significant changes have happened at both international and national level. These changes affected the energy situation in Croatia and the basic facts for reconsideration of the Croatian energy sector future. Events that marked the previous period and which will have an impact on the development of energy sector in Croatia are as follows:

- Croatia has become a candidate country for full membership in the European Union (EU),
- The Energy Community Treaty has been signed and ratified,
- Croatia ratified Kyoto Protocol along with the United Nations Framework Convention on Climate Change,
- Increase in the price of energy and instability of global energy market.

District heating is set as one of the priorities of energy policy in Croatia as can be seen from the following figure.

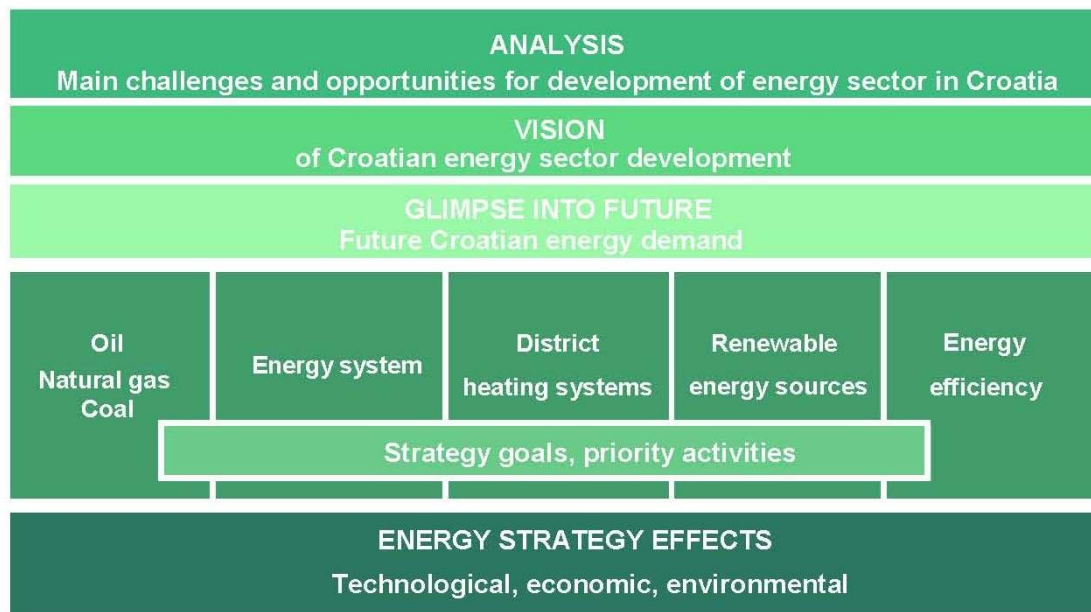


Figure: 1-1 Main elements of the Energy Strategy of the Republic of Croatia

## Eligibility Criteria

All stakeholders in the district heating sector of Croatia.

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	
Negative					

Overall impact of this measure is positive.

## Effectiveness of the measure

Based on the Strategy of Energy Development of the Republic of Croatia, the Implementation Program of the Energy Strategy will be developed which will determine measures, carriers of activities and implementation dynamics of the energy policy for the period of the next four years. Once the Implementation Program is in force, and this is expected in the near future, the conditions to provide an answer to the effectiveness of this measure will exist.

III. SUPPORT MEASURES FOR DHC				
Country			Croatia	
#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
3	General Conditions for the Supply of District Heat	legislative	Government of the Republic of Croatia	existing

## Quotations from the measure

General Conditions for District heat supply of define energy and technical conditions, as well as economic relationships, between the distributor, the supplier, the producer and the customer of district heat.

Quoted from the General Conditions for District heating supply (Official Gazette 129/06)

These General conditions for district heat supply define:

- procedure for issuing the prior approval/permission for connection to the district heating network power and creating the conditions for connection to the distribution network
- procedure for issuing of approval/permission for connection to the district heating network
- conditions for connection, delivery and supply of heat and use of distribution network
- follow-up on the reliability of supply and quality,
- mutual contractual relationships between the DH distributors and network users,
- obligations and responsibilities of DH distributors and network users,
- conditions of metering, calculation and billing of the delivered district heat,
- conditions for the implementation of procedures regarding limiting or stopping heat supply and
- procedures for determining or calculating unauthorized heat consumption.

This Regulation entered into force on January 1<sup>st</sup> 2007.

## The Purpose of the measure

This measure is set on the national level.

From the viewpoint of the consumer, these General Conditions bring to the consumer a legal security regarding the connection to the DH system, procedures and content of negotiations as well as definition of obligations and responsibilities of all parties involved. In this sense, incorporated into General Conditions is the provision according to which the DH distributor is required to inform the customer of his rights and obligations before conclusion of the contract for connection to the DH network.

In order to connect to the district heating network, use the network and heat supply, the customer must firstly obtain a prior approval for the connection to the DH network, then approval for the connection to the DH network followed by the connection contract as well as the contract on heat supply and use of distribution network.

General Conditions contain the basic elements of all abovementioned contracts.

## Eligibility Criteria

All distributors and suppliers of district heating in Croatia. All district heating customers.

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**Impact of Measure**

	Planning	Generation	Distribution	Demand	Organization
Positive			■	■	■
Negative					

Overall impact of this measure is positive. It provides a clear framework for operation of DH systems.

**Effectiveness of the measure**

It is difficult to quantify this measure but it could generally be said that having an established rules on operation of DH systems adds value to their development.

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
4	Law on District Heat: installation of heat flow control devices and heat meters in heat substations	legislative	Croatian Parliament	existing

**Quotations from the measure**

The Law on District heat prescribes conditions and ways of carrying out the energy activities of production, distribution and supply of heat, the rights and obligations of the operators who perform these activities, the rights and obligations of DH customers, the provision of means for carrying out these activities, financing the construction of objects and plants for production and distribution of heat, control over the implementation of the Law and penalties for perpetrators of offences defined by the Law.

Quoted from the Law on District heat (Official Gazette 42/05):

- production of heat for eligible customers and heat supply to eligible customers are to be carried out in accordance with the rules governing market relations
- energy activities of heat production for tariff customers and heat supply to tariff customers is carried out in accordance with the regulations
- distribution of heat is carried out as a public service
- local government unit that has energy operators for DH distribution on its distribution territory is obliged to provide permanent energy activity of heat distribution
- local government unit and energy operator for DH distribution are obliged to provide quality performance of DH distribution activity in accordance with the principles of sustainable development, to provide maintenance of energy facilities in working order and to provide transparency.
- energy activity of DH distribution is carried based on a concession or a contract for carrying out activities.

- the right to carry out energy activities for DH distribution and the right to construct power stations for DH distribution can be obtained through concession.

*In particular - Article 36*

(1) Connection to a heat distribution installation for buildings constructed after the entry of this Act into force shall be so designed that each self-contained unit of the building is fitted with a separate heat flow control instrument and a separate meter.

(2) Within two years from the date of entry of this Act into force, the energy service company responsible for distribution of heat shall at its own cost install the heat flow control instruments and the heat meters in all substations.

This Law entered into force on April 8<sup>th</sup> 2005.

## The Purpose of the measure

This measure is set on the national level.

Generally, adoption of this Law concluded the first phase of the normative activity of district heating in the Croatian legal system.

More specifically, at the time the Law on District heat entered into force (April 2005), many of the distributors of district heating had no regulation and no metering in the substations. The distributors of district heat had two years as the adaptation period in which to install the regulation devices and heat meters in all heating substations. The purpose of this measure is to improve the regulation of district heating systems as well as to fulfil the obligation to charge the consumers according to the actual consumption (at least on the building level), which was not the case in all of the DH systems at the time.

With Article 36, item (1) a good practice from the time that district heating was a communal service is continued, and was under Law on Utility Services. To understand this, it should be mentioned that the majority of the existing household users of district heat are in the old buildings with vertical distribution lines making individual metering very difficult. This measure makes sure that the new consumers (new buildings) connected to district heating networks have individual heat metering which allows billing according to the actual heat consumption.

## Eligibility Criteria

All distributors of district heating in Croatia. All new connections to the district heating distribution systems.

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	■
Negative					

Overall impact of these measures is positive. It provides a good start for the improvement of DH systems and introduction of individual metering of heat consumption for all newly connected users.

## Effectiveness of the measure

This measure can be considered positive as all of the district heating companies have installed the required equipment into heating substations and for all new buildings that became district heating customers, each consumer has installed equipment allowing a separate regulation and metering and consequently billing on the consumer level.

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
5	Heat Tariff System	legislative	CERA prescribes Tariff System, Government determines and verifies new tariff items at the Proposal of the competent Ministry	existing

## Quotations from the measure

Heat Tariff System for Services of Energy Activities of Heat Production, Distribution and Supply, without the Amounts of Tariff items for the energy activities of heat production, distribution and supply determines:

- methodology for the calculation of tariff items for heat production, with the exception of eligible customers, for heat distribution and heat supply , with the exception of eligible customers,
- matrix of the tariff models and elements for determining a regulated maximum income, and prescribes the tables for cost follow-up,
- formula for calculating the total income with the help of tariff items,
- process of submitting proposals for determining the amounts of tariff items and the data authenticity statement form.

This regulation is in force since June 2008.

## The Purpose of the measure

This measure is set on the national level.

Prices, i.e. tariffs for heat supply which were in force during 2007 and for a significant part of 2008 had been set up in line with the procedure and in the manner prescribed by the Utility Services Act. Pursuant to the provisions of this Act, the price of the utility service of heat supply and the method of payment had been regulated by the service provider and for each change in price or tariff of its services the supplier had to obtain a prior approval from the local government unit of the area covered by this service. This resulted in various prices and methods of calculation and collection for delivered heat in towns in the Republic of Croatia.

Since the quantity of supplied heat had not been metered by the most energy operators, the customers usually paid a certain monthly fixed amount per square meter of residential area (HRK/m<sup>2</sup>).

In the Heat Tariff System the Republic of Croatia opted for regulation of the heat energy sector that is based on principle of regulated revenue cap in a regulatory period. The revenue-cap regulation is such a regulatory method where a maximum amount of revenues that an energy entity is permitted to receive from performing a regulated energy activity is set out.

In accordance with the provision of the Heat Tariff System, without the Amounts of Tariff Items, energy operators were obliged to submit their proposals for determining the amount of tariff items after they gathered data on the delivered heat at billing metering points for 12 months starting from the day of the legal obligation for the installation of devices for measurement of heat consumption at all heat substations.

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After the prescribed period for gathering respective data expired followed another six-month period, in which the energy operator which carries out the energy activities of heat production, distribution and supply had to submit appropriate proposals for determining the amount of tariff items to the respective Ministry.

### Eligibility Criteria

All producers/distributors/suppliers of district heating in Croatia.

### Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	■
Negative					

The most of the energy operators submitted their proposals for modification of the amount of tariff items to the Ministry. The Ministry obtained the opinion of the Agency regarding the submitted proposals and forwarded the proposed tariff item amounts to the Government of the Republic of Croatia.

In the Decision on the Amounts of Tariff Items from December 2008 the Government of the Republic of Croatia prescribed the amounts of tariff items for energy activities of heat production, distribution and supply. The energy operators are obliged to apply the amount of tariff items according to the Decision on the Amount of Tariff Items from December 2008 as of January 1, 2009.

### Effectiveness of the measure

Since the main goal of this measure was to introduce a unique methodology for the determination of prices, i.e. tariffs for heating in all Croatian towns where DH exists and this was achieved, it can be said that the effect of the Heat Tariff System was positive.

However, bearing in mind the very effectiveness, it is also worth mentioning that the current system of tariff determination is complicated; it involves long administrative procedures and the tariff amounts are changed approximately once a year i.e. it does not allow a fast response to the changes in input fuel prices. Consequently it can be said that there is still place for significant improvement within the Heat Tariff System.

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
6	Ordinance on Allocation and Calculation of Costs for Supplied Heat	legislative	Ministry of Economy, Labour and Entrepreneurship	existing

## Quotations from the measure

The Ordinance on the Allocation and Calculation of Costs for Supplied Heat prescribes the installation of devices for internal distribution of supplied heat (heat cost allocators), devices for regulating heat emission (thermostatic valves) and devices for metering the consumption of heat.

It also prescribes the models of allocation and calculation of costs for the supplied heat on a common heat meter for customers that own separate parts of facilities representing independent usage units and they record heat consumption via devices for local distribution of supplied heat or by measuring it via a separate device for measuring the consumption of heat.

This regulation applies to the buildings that were built prior to the enforcement of the Law on District Heat.

The Ordinance, inter alia, regulates that:

- 1) the installation of heat cost allocators is possible if such a decision is brought by the co-owners of housing facilities, provided that more than 50% of the co-owners agree;
- 2) DH distributor gives consent to the decision on the introduction of heat cost allocators made by the co-owners, provided that the conditions from the General conditions for the supply of heat are fulfilled;
- 3) heat cost allocators must correspond to technical standards HRN EN 834:2003 (EN834: 1994);
- 4) a representative of the tenants, or the person authorised by the tenants to represent them, provides information about the reading of the heat cost allocator in electronic writing format no later than 7 days before the deadline for the issuance of heating bill;
- 5) DH distributor conducts heat calculations in accordance with the formulas of the Ordinance, based on readings from the heat cost allocator, which were delivered to by tenant representative or authorized person.

This regulation is in force since November 19<sup>th</sup> 2008.

## The Purpose of the measure

This measure is set on the national level. The purpose of this measure is to provide models of allocation and calculation of costs for the supplied heat on a common heat meter.

## Eligibility Criteria

All distributors/suppliers of district heating in Croatia. All tariff customers of district heating.

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**Impact of Measure**

	Planning	Generation	Distribution	Demand	Organization
Positive	■			■	
Negative					

Overall impact of this measure is positive. It allows introduction of heat cost allocators and provides options for both district heating customers and DH suppliers in choosing the model of allocation, and calculation of heat costs accordingly in cases where individual metering of heat consumption is not an option.

**Effectiveness of the measure**

This measure has only recently been introduced, and there are no quantifiable results on a large scale yet. A number of pilot projects have been carried out in a few towns. It could be debated by some that the effectiveness has not really reached its full potential since there is a limited impact of saving energy and heat costs and this does not have a stimulating effect on the decision to use a heat cost allocator systems since this regulation allows individual consumers to remain on the current system of billing (per heated area), and those who choose to install heat cost allocators pay, in the most favourable case, 50% according to consumption, while the rest remain similar to the current system.

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
7	Support for renewable energy sources and energy efficiency	financial	Environmental protection and Energy efficiency Fund	existing

**Quotations from the measure**

Fund allocates funds to legal and natural persons in order to finance programs, projects and other activities, determined in accordance with the provisions of Law on the Environmental protection and Energy efficiency Fund, through four financial instruments:

- Soft Loan:
  - up to 40 percent of eligible costs
  - zero interest rate
  - repayment: grace period 2 years, payback 5 years
  - up to 1.7 million HRK
- Interest Subsidy:
  - 2% decrease of the stipulated interest rate

- up to 1 million HRK
- Financial Aid (i.e. grant)
  - for local/regional governments
  - 40%/60%/80% of eligible costs depending on the location (island/mountain, assisted regions)
  - up to 1.7 million HRK
- Donation:
  - for promotion, research and development for research institutions and individuals, non-profit institutions and organisations
  - up to 200,000 HRK

Funds are allocated on the basis of public tenders.

Assets of the Fund are primarily used for funding programs, projects and similar activities determined in accordance with the National Environmental Strategy and National Environmental Action Plan, the Strategy of Energy Development and Program Implementation of the Energy Development strategy and National Energy Programs.

Assets of the Fund may only be used for the purposes for which they are assigned.

The funds are, inter alia, used specifically for: implementation of national energy programs (district heating is one of the National energy programs), encouraging use of renewable energy sources, encouraging sustainable construction, promotion of sustainable economic activities and sustainable economic development, promotion of educational, research and development studies, programs, projects and other activities, including demonstration activities.

## The Purpose of the measure

Environmental Protection and Energy Efficiency Fund is an extra-budgetary fund that finances projects, programmes and measures for the purpose of environmental protection, increase of energy efficiency and the usage of RES in Croatia.

The purpose of the measure is to provide a financial incentive within the scope of the Fund. It is a part of national policy framework for encouragement of environmental protection, energy efficiency and use of RES. It has a wide scope, but also in terms of District heating, it is to promote energy efficiency and use of RES.

Here are examples of projects related to District heating:

- Replacements and reconstruction of worn out and inefficient plants and technologies
- Introduction of more efficient technologies of fuel combustion, change to alternative and additional fuel supply (natural gas, waste heat), including RES into system (waste, biomass)
- Optimisation of heat production plants and use of heat accumulators
- Encouragement of cogeneration
- Standardisation of installations, equipment, devices and procedures
- Decrease of water losses and heat losses in transport and distribution
- Rational use and reduction in heat consumption on consumer side (demand side)
- Introduction of heat metering and heat allocation at every consumer, as well as calculation of heat costs according to the actually measured values.

## Eligibility Criteria

The Fund's assets are allocated based on announced public tenders. Local and regional governments, companies and craftsmen, other legal persons and natural person can apply for the assets. The project proposed needs to be within the scope of the public tender.

There are additional criteria for allocation of funds, such as:

1. preparedness of the project
2. degree of positive impact to the environment and energy efficiency
3. quality of a proposed technical solution
4. degree of environment threat
5. financial capability of fund user and return of assets (in case of agreed return of assets)

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	
Negative					

Overall impact of the Fund is good, although majority of the projects have been in the landfill rehabilitation. It represents a good opportunity for all those involved to get financial support for a range of projects including demonstrations, education and promotion.

During the period since the establishment of the Fund (2004-today), the following was achieved:

- greenhouse gas emission reductions for almost 800,000 tonnes per year
- reduction of light pollution
- savings in the budgets of local/regional governments, public sector and commercial companies
- encouragement of sustainable economic development and greater competitiveness of companies in the market
- environmental protection and conservation of natural resources.

## Effectiveness of the measure

This measure can be considered effective despite the fact that within the heating sector not many projects have been proposed, but all that have been proposed were also accepted.

Until today (during the period 2004- today) out of total 850 approved projects (almost 329 million HRK) there were:

- 251 projects of improvement in energy efficiency (137 million HRK)
- 73 programs and projects for use of RES (77.6 million HRK)
- 118 energy audits and demonstration activities (3.6 million HRK)
- 74 educational projects, research and development studies (9 million HRK)

A part of these programs and projects is closely related to district heating.

To make better use of the existing mechanisms, the interested parties need to follow the public tenders,

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prepare projects and apply for the funds.

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
8	Loan Programme for the Financing of Projects of Environmental Protection, Energy Efficiency and Renewable Energy Sources	Financial support for investments	Croatian Bank for Reconstruction and Development (HBOR)	existing

### Quotations from the measure

Purpose of loans is to finance the fixed assets:

- initial funding
- land plots
- buildings
- equipment and devices

The following are not eligible for financing:

- purchase of real estate and immovable property from associated persons
- financing of wind farms
- purchase or construction of office premises
- investments already started and investments under way, the refund of already invested funds

The loans can be implemented either by direct lending or financing borrowers via commercial banks.

Loan Amount, Disbursement Period and Repayment

- The loan amount is not limited – it depends on HBOR's financing capabilities, the investment project, the creditworthiness of the borrower and quality of security offered; generally, loan applications lower than HRK 100,000.00 are not considered.
- HBOR finances up to 50% of the estimated investment value, VAT not included
- Disbursement period up to 12 months
- Grace period – up to 2 years
- Repayment period – up to 12 years, including grace period

#### Interest rate

- 4% p.a – borrowers investing in a region of special state concern or hill or mountain area or the islands or borrowers having proven their competitiveness by successful sales figures in domestic and/or foreign markets or SMEs
- 6% p.a. or three-month EURIBOR + 2% b.p. annually – all other borrowers

*Note: Should the Environmental Protection and Energy Efficiency Fund approve the interest subsidy, the above interest rate is reduced by 2% or by the amount of the approved subsidy.*

Loan Application Fee is 0.8% one-off, charged on the committed loan amount.

Commitment Fee is 0.25% p.a. charged on the committed undisbursed loan amount, starting 30 days after the loan contract date.

For securing due fulfilment of loan obligations, HBOR accepts:

- bills of exchange and debentures
- pledge of property
- bank guarantees
- guarantees issued by the Croatian Agency for Small Businesses, guarantees issued by the Republic of Croatia,
- other customary security in the banking operations.

## The Purpose of the measure

HBOR provides financial support to local and regional governments, utilities, companies, other legal entities and natural persons in order to encourage investments into projects that: .

- Encourage cleaner production, and avoiding and reducing waste and emissions in production process,
- Renovate landfills, encourage avoidance and reduction of waste,
- Protect and conserve biological and landscape diversity,
- Implement national energy programs (District Heating is a part),
- Encourage use of renewable energy sources (sun, biomass, etc.)
- Encourage cleaner transport,
- Encourage sustainable construction.

This measure is set on the national level.

The primary goal is a realization of investment projects that protect the environment, achieve energy efficiency and introduce renewable energy resources.

## Eligibility Criteria

Final Borrowers may be:

- units of local and regional self-government
- utility companies
- companies, craftsmen, other legal entities and natural persons.

The criteria for financing investment in energy efficiency projects and renewable energy sources are:

- Average increase energy efficiency by at least 20% for energy projects efficiency;
- Internal profitability rate of at least 8% for renewable energy projects.

Equipment and machinery which are procured with HBOR loans must be new in case of large business loans, and can not be older than 5 years in case of loans to small and medium enterprises. There is a set procedure for the application for a loan which depends on the legal status of the borrower. The most specific item needed when the local and regional governments apply is the Consent of the Croatian Government of debit for the loan. HBOR makes a special decision on each project proposal and approves/disapproves loan.

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	
Negative					

Overall impact of the HBOR financing scheme is good. It is a good opportunity for all those involved to get financial support for investments for a range of projects.

## Effectiveness of the measure

This measure can be considered effective in theory, since there is an opportunity to finance investments in district heating sector with low interest rates. In practice, there is not a single loan being realized within the district heating sector. There could be a number of reasons for this. First of all, the majority of district heating companies are owned by local governments. Local governments have a vast area of problems to solve, and often district heating is not a priority. Secondly, the local governments often do not have the necessary capacity for the preparation of complex investment projects needed for this type of projects, as well as the fact that they are obligated by public procurement which additionally complicates the procedure. Also, perhaps the most important issue is the need for the local government to obtain is the Consent from the Croatian Government of debit for the loan. All in all, it can be concluded that these may be the reasons why the opportunities for financing of investments are not being used by the district heating companies.

## IV. OTHER IMPORTANT INFLUENCES

Country	Croatia
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#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
1	District Heating Development Strategy in the Republic of Croatia (phase 1/3 and 2/3)	Study – support to local governments in planning and making business decisions related to the DH development	Ministry of Economy, Labour and Entrepreneurship	phase 1/3 – completed, Dec 2007 phase 2/3 – completed, Dec 2008 phase 3/3 - postponed

### Quotations from the measure

Upon the Government Decision from May 2006, the Ministry of Economy, Labour and Entrepreneurship initiated activities on the preparation of District heating development Strategy in the Republic of Croatia and started preparation of Methodology for planning, construction and management of district heating systems in the Republic of Croatia. This Methodology created a basis for the preparation of the DH Strategy divided into three phases in three years. Third phase of the DH Strategy is postponed and the project has not been realized to the extent it was envisaged.

DH Strategy consists of five thematic units as follows:

- I. General
 

This thematic unit is also the first phase of the DH Strategy. It consists of the review of the general data and characteristics of the DH systems and collecting and recording of the current state of the DH supply in the towns and counties which are under scope. Analysis covered all counties of northern Croatia, Ličko-Senjska and Primorsko-Goranska County (regional governments) and towns of Karlovac, Čakovec, Varaždin, Koprivnica, Bjelovar, Virovitica, Slavonski Brod, Vinkovci, Vukovar, Rijeka and Split (local governments).
- II. Planning
 

The major part of this unit makes part of the phase two of the DH Strategy. Analyses relate to the planning of construction and development of DH systems and meteorological data necessary for these activities. In order to provide a good example on how to implement the given guidelines in actual cases, within the scope of the DH Strategy, the guidelines were applied to two cities chosen between the cities of Karlovac, Čakovec, Varaždin, Koprivnica, Bjelovar, Virovitica, Slavonski Brod, Vinkovci, Vukovar, Rijeka and Split. Cities that the proposed methodology was applied to were chosen based on the set criteria derived from the current state of the DH systems in all cities under consideration. The cities of Karlovac and Slavonski Brod were chosen as the best examples (pilot projects).
- III. Implementation/construction
 

This will be a part of the Phase 3. It will cover all required procedures when obtaining permits, preparation of technical documentation and construction works which are in accordance with the existing legislation.
- IV. Management
 

Most of this unit is already analysed in Phase 1, while the remaining part will be analysed in Phase 3. This unit describes the modern management of DH systems on the production side through O&M as well as on the demand side through the measures for rational use of energy and environmental benefits.
- V. Final guidelines

This unit is partially dealt with in Phase 1 and 2, while the final guidelines will be given after the completion of the Phase 3. Their goal is to facilitate cooperation between the state administration offices in the Counties responsible for energy affairs and representative bodies of local governments when developing physical planning documents.

## The Purpose of the measure

The purpose of this project, when completed, is to facilitate local government units, especially those responsible for the energy sector and DH systems, planning and making business decisions related to the DH development in their areas as well as defining technical, economic and legal basis for improvement of energy efficiency and optimisation of DH system development in urban areas.

Special emphasis is given on planning, implementation/construction and management of DH systems in smaller cities and heat production from renewable energy sources.

## Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	■	■	■	■	
Negative					

DH Strategy will, through proposed guidelines, have the most significant impact on planning. Planning implies planning modernisation, reconstruction and revitalisation of existing DH systems as well as planning of the future heat demand also by adjusting the system in order to provide the quality service and reliable heat supply.

Positive impact on the heat production is through the planning of construction of new heat sources by the least cost criterion, by minimizing adverse environmental impact and by selecting the most acceptable solution for the socially sensitive population categories. Positive impact on the distribution of heat results from the planned expansion of heat networks in parts of the urban environment where there is economic and social justification.

The proposed guidelines will have a positive impact on heat consumption in terms of increasing the motivation of the rational consumption of heat, fair distribution of heat consumption and ultimately the possibility of monitoring the heat consumption, thereby creating the new prerequisites for further development of DH systems.

## Effectiveness of the measure

The effect of this Study, with Phase 1 and 2 completed, is positive and can be seen through the DH guidelines, which also make part of the Strategy of Energy Development of the Republic of Croatia (OG 130/09):

- Energy efficiency will increase in the existing DH systems by improvement of the system management;
- At the regional and local government level, the obligations of the energy planning will improve and consistently be implemented;
- Heat demand in residential facilities larger than 1000 m<sup>2</sup>, should be supplied either from single building boiler plant or from DH system;
- With production units in district heating systems, incentives will be made for the use of renewable energy sources (biomass, municipal solid waste, solar energy) as well as a diversification of energy sources used.
- With production units in natural gas fired district heating systems, the use of replacement fuel will be ensured during periods of peak consumption in the natural gas supply system.
- In production units in the district heating system, construction of cogeneration units will be stimulated, if this proves to be economically viable regarding the external costs.

Extensive analyses of implemented pilot projects in DH supply in the cities of Karlovac and Slavonski Brod resulted in conclusions that will serve local governments in defining the guidelines for further development of heat supply in their area.

By applying the methodology of the energy planning, Karlovac confirmed its previous rating of the city with a great potential for further DH development. High degree of urban development of the existing infrastructure and a good spatial-planning conditions for the development (relatively high building density) in Karlovac, represent a quality basis for further expansion and open the possibility of application of cogeneration and highly efficient use of renewable energy sources.

If the systematic implementation of the District heating Law is continued and the planning of energy supply in cities becomes a common practice, it will create the basic conditions for the further development of DH supply.