

Support Measures for DHC

Country

Germany

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
1	Combined Heat and Power Act (KWKModG)	Law (B)	Federal Ministry of Economics and Technology	Existing

Quotations from the measure

Unofficial, legally not binding translation

Article 1

Purpose of the Act

The purpose of the Act is to contribute to the objective of increasing the share of electricity produced in combined heat and power plants in the Federal Republic of Germany to 25% by protecting for a restricted period, modernising and constructing new combined heat and power plants (CHP plants), supporting the launch of fuel cells on the market as well as promoting the construction of new and expanding existing heat networks which supply heat from combined heat and power plants, in the interests of saving energy, environmental protection and achieving the government's climate protection targets.

Article 3

Definition of terms

(...)

(4) CHP electricity is the arithmetical product of useful heat and the power to heat ratio of the CHP plant. All the net electricity generated by plants which do not have facilities for the removal of waste heat is CHP electricity.

(5) Net electricity generation is the electricity generated by a plant, measured at the generator terminals, less internal consumption required for its own operations.

(6) Useful heat is the heat decoupled from a CHP process and used outside the CHP plant for space heating or warm water preparation, cooling production or as process heat.

(...)

(13) Heating networks within the meaning of this Act are facilities for a piped supply of heat which extend horizontally beyond the boundary of the site of the supplying CHP plant and to which an unspecified number of customers may be connected, as they form a public network. At least one customer who is not the owner or operator of the CHP plant supplying the network must be connected to said network.

(14) Within the meaning of this Act, heating network operators are those who supply third parties with heat via a network. The characteristic of operator does not require ownership of the heating network.

(15) The route means all the components which are required to transmit heat from the site of the supplying CHP plants to the consumer's outlet.

(...)

(17) The consumer outlet is the transfer point in accordance with Article 10, paragraph 1 of the Order on General Conditions for the Supply of District Heating of 20 June 1980 (BGBl I p. 742) as most recently amended by Article 20 of the Act of 9 December 2004 (BGBl. I p. 3214).

Article 5a

New and extended heating networks entitled to premiums

(1) Heating network operators are entitled to payment of a premium by the grid operator for new or extended heating networks if

1. The new heating network or extension is commenced no earlier than 1 January 2009 and the new or extended heating network is commissioned no later than 31 December 2020;
2. The supply of consumers connected to the new or extended heating network predominantly with cogenerated heat from CHP plants takes place within the scope of application of this Act in accordance with Article 2 hereof and a proportion of at least 60% of cogenerated heat is substantiated for the planned final status of the network coverage;
3. A licence has been granted in accordance with Article 6a.

(2) New construction means the initial establishment of a heating network including all the components required for transmission of heat from the site of the supplying CHP plant to the consumer outlet in a territory in which heat was not previously supplied by heating networks.

(3) Extension means that expansion of an existing heating network for the connection of consumers not hitherto supplied by heating networks by the erection of new heating network with all the components necessary for the transmission of heat from the existing heating network to the consumer outlet. Network enhancement measures which entail an increase in the transportable volumetric heat current of at least 50% over the part of the route in question, and the combination of existing networks, are equivalent.

(4) Should the new or expanded heating network extend through the territory of more than one network operators, the network operator to whose network the CHP plant with the greatest installed electrical capacity is connected and which supplies the heating network is obliged to make payment. Article 4, paragraph 3, sentence 2 applies analogously. In the case of more than one CHP plants of the same size, the first to enter operation will be applicable.

Article 6a

Licensing of new and extended heating networks

(1) The heating network operator must be granted a licence if the new or extended heating network fulfils the requirements of Article 5a, paragraphs 1 to 2. The application must include:

1. Details of the applicant and network operator;
2. A detailed description of the project, including details of the length of the new or extended heating network (route length), the planned minimum heat flow, a schedule of the investment costs and the date of commissioning;
3. Certification by an auditor or sworn accountant that the requirements of Article 5a, paragraph 1, Nos. 1 and 2 and of the details in accordance with Article 7a, paragraph 1, sentences 2 and 3 have been fulfilled and the amounts deducted in accordance with Article 7a, paragraph 3.

(2) The licence application may be submitted up to 28 February of the calendar year following the year of commissioning of the new or extended heating network. The time of initial commencement of a continuous supply of heat will be deemed commissioning.

(3) Article 6, paragraphs 4 and 5 will apply analogously.

Article 7a

Payment of premiums for new and extended heating networks

(1) The responsible authority sets the premium for new and extended heating networks under Article 5a. The premium is one Euro per metre of route for each millimetre of the nominal diameter of newly-laid heating pipe. The premium in sentence 1 may not exceed 20% of the qualifying investment cost of the new or extended network, or five million Euros per project.

(2) Qualifying investment costs are all the costs actually incurred for necessary services by third parties within the scope of new or extended heating networks. They do not include the internal costs of design, planning, calculation, property, insurance and finance. Reductions in investment costs and payments by third parties must be deducted.

(3) The proportion of the premium attributable to the connection between the distribution network and the consumer outlet must be deducted from the amount invoiced to the consumer for connection costs.

(4) The total paid in premiums for heating networks must not exceed 150 million Euros per calendar year. Annual premium payments will be made in the order of licensing, in accordance with Article 6a, subparagraph 1, up to the amount specified in sentence 1. Amounts above this level will be paid in

subsequent years, allowing for sentence 2.

The Purpose of the measure

Why was it introduced?

Taken directly from the Act (unofficial translation by AGFW):

“The purpose of the Combined Heat and Power Act is to contribute to the objective of increasing the share of electricity produced in combined heat and power plants in the Federal Republic of Germany to 25 % by protecting for a restricted period, modernising and constructing new combined heat and power plants (CHP plants), supporting the launch of fuel cells on the market as well as promoting the construction of new and expanding existing heat networks which supply heat from combined heat and power plants, in the interests of saving energy, environmental protection and achieving the government's climate protection targets.”

As a basic instrument the Combined Heat and Power Act obliges grid operators to connect CHP plants to their grid and give priority to buying electricity from cogeneration. A similar priority exists for electricity from renewable energy sources, so the Combined Heat and Power Act clarifies that both these obligations are equal before the law.

For electricity from cogeneration a premium is paid by the grid operator on top of the market price for electricity or the price the CHP plant operator achieved by marketing the electricity from cogeneration himself. By means of a management system the costs for this premium are shifted towards and divided upon all electricity customers. The premium is granted for a limited time only and serves to offset higher investment costs for CHP plants in comparison to condensing power plants.

In order to produce electricity from cogeneration sufficient heat sinks are needed. In order to reach the target of 25 % of electricity from cogeneration the government realised, that incentives had to be granted for opening up new heat sinks. Therefore the aforementioned premium now applies to new and extended heating networks as well, if they are supplied mainly by heat from cogeneration. The premium is one Euro per metre of route for each millimetre of the nominal diameter of the newly-build heating pipe. The premium may not exceed 20 % of the investment cost of the new or extended network, or five million Euros per project.

For which target groups? National or regional?

The target groups are national CHP plant operators and heating network operators.

Which activities does it aim to stimulate?

In general the Act tries to stimulate the production of electricity from cogeneration. And in order to stimulate the production it also aims to stimulate the creation of additional heat sinks by incentivizing the building of new and the extension of existing heating grids.

What results does it expect?

The result is 25 % of electricity from cogeneration by 2020. That translates to almost doubling the current share of electricity from cogeneration of 13 %.

Is it related to Germany's implementation of any EC Directive?

The Act also serves as the implementation of Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market (Cogeneration Directive).

Eligibility Criteria

In order to qualify for the premium paid for new and extending District Heating networks the networks have to fulfil certain eligibility criteria as laid out in the Act.

The new or extended networks need to be licensed by the responsible administrative body. An application for a licence can be filled out after the commissioning of the new or extended network. The administrative body is obliged to licence the network if the following criteria are met:

- The new heating network or extension is commenced no earlier than 1 January 2009 and the new or extended heating network is commissioned no later than 31 December 2020;
- The supply of consumers connected to the new or extended heating network predominantly with cogenerated heat from CHP plants takes place within the scope of application of this Act in accordance with § 2 hereof and a proportion of at least 60% of cogenerated heat is substantiated for the planned final status of the network coverage.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	x	x	x	x	
Negative					

Planning:

The Act has a positive effect on planning because grid operators are obliged to connect CHP plants to the grid and buy electricity from cogeneration with priority over conventional electricity. In this context the legal equality between electricity from cogeneration and electricity from renewable energy sources also has a positive effect because electricity from renewable energy sources and electricity from cogeneration block out conventional electricity and can not be used to block each other out. This gives plant operators more certainty in regards their investments and future developments.

Generation:

The Act also has a positive effect on generation because of the premium being paid for electricity from cogeneration. This premium has been extended in the newly amended Act and was introduced to offset higher investment costs for CHP plants. Because of the ecological and climate change benefits CHP has over the separated generation of heat and electricity, CHP and District Heating are natural allies. The connection between the development of CHP and the development of District Heating is finally being acknowledged by the legislative body, when Heating networks can now apply for a payment of the premium used for electricity from cogeneration exclusively before. In this sense District Heating serves as a heat sink for CHP and on top of that provides valuable infrastructure for renewable energy sources and/or heat that would otherwise be wasted.

Distribution:

The Act has a positive effect on distribution since it helps to offset high investment costs involved with the laying of pipelines.

Demand:

Since the Act provides incentives to connect more customers to District Heating networks it also helps the demand side. Connecting more customers to District Heating will secure or even raise heat sales.

Organization:

The Act has no direct effect on the organization side.

Effectiveness of the measure

III. SUPPORT MEASURES FOR DHC	
Country	Germany
<p><u>Could the measure be considered effective?</u> The Act can be considered effective.</p> <p><u>Due to which reasons? (quantifications if possible)</u> The Act has only been in force for about a year, making quantifications complicated at this time. AGFW is currently conducting a survey aimed at District Heating utilities and asking them about their plans for the development of District Heating in their company. Results are expected sometime next year. Although quantifications are complicated there are a lot of District Heating utilities currently planning and already beginning (due to the fact that work has to be finished before the network operator can apply for premium payment) with the further development of District Heating in their supply areas. The Act and its incentives have sparked interest in District Heating development strategies.</p> <p><u>How well does the measure suit the market conditions of your country?</u> The measure suits the market conditions in the sense that it aims to offset the relatively high investment costs in both production and distribution of District Heating from CHP.</p> <p><u>Are there any recommended changes to this measure?</u> There are certain clarifications that may be necessary in the context of administrative procedures but the District Heating branch is satisfied with the general direction of the Act.</p> <p><u>Is there any review process for this measure and if so what is it?</u> An interim audit is foreseen for 2011, involving the Federal Ministry for the Economy and Technology, in conjunction with the Federal Ministry for the Environment, Nature Protection and Reactor Safety and the involvement of German industrial and energy industry associations. The interim audit will deal with the development of electricity from cogeneration in Germany, particularly in respect of the achievement of the energy and climate policy objectives of the federal government, the conditions for cost-effective operation of CHP plants and the annual premium payments, taking past and emergent developments into consideration.</p>	

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
2	Act on the Promotion of Renewable Energies in the Heat Sector (EEWärmeG)	Law (B,C)	Federal Ministry for the Environment, Nature Protection and Reactor Safety	Existing

Quotations from the measure

Unofficial, legally not binding translation

Article 3

Obligation to use renewable energies

(1) Owners of newly constructed buildings pursuant to Article 4 (obligated parties) must cover a share of the thermal energy demand with renewable energies as stipulated in the provisions of Articles 5 and 6.

(2) The Länder can lay down an obligation to use renewable energies in existing buildings. Buildings pursuant to Article 19 (1) and (2) shall also be deemed to be existing buildings.

Article 7

Alternative measures

The obligation contained in Article 3 (1) shall be deemed to be met if the obligated parties

(...)

3. cover the thermal energy demand directly from a local or district heating grid as defined in No. VII of the Annex to this Act.

Article 8

Combining measures

(1) To meet the obligation contained in Article 3 (1), renewable energies and alternative measures pursuant to Article 7 can be used in any form of combination with each other.

(2) The percentage shares of actual use of the different renewable energies and alternative measures within the meaning of (1) must amount to 100 in relation to the respective use as prescribed by this Act for each energy type and measure.

Article 16

Compulsory connection and use

The municipalities and local authority associations can make use of a provision under Land law authorising them to establish compulsory connection and use regarding a local or district heating supply grid, also for the purpose of climate protection and resource conservation.

Annex (to Articles 5, 7, 10 and 15)

Requirements for the use of renewable energies, waste heat, combined heat and power and for energy saving measures and heat grids

(...)

II. Biomass

1. Gaseous biomass

a) The use of gaseous biomass shall only be deemed to fulfil the obligation contained in Article 3 (1) if the biomass is used in a CHP installation.

b) The use of gaseous biomass which is processed to natural gas quality and fed into a grid shall only be deemed to meet the obligation contained in Article 3 (1) if

aa) the processing and feed-in of the biogas reduces, according to the relevant best available technology,

- methane emissions into the atmosphere and

- electricity consumption

and

bb) the process heat needed for the generation and processing of the gaseous biomass is extracted from renewable energies or waste heat. For sentence 1 aa) first indent, compliance with the best available technology shall be presumed if the quality requirements for biogas pursuant to Article 41f (1) of the Gas Grid Access Ordinance of 25 July 2005, as amended by Article 1 of the Act of April 2008 in the version applicable at the time, are complied with.

c) For letter (a), proof within the meaning of Article 10 (3) shall be certification from an expert, the installation manufacturer or the specialist firm which assembled the installation, and for letter (b), certification from the fuel supplier.

(...)

V. Combined heat and power

1. The use of heat from CHP installations shall only be deemed to meet the obligation contained in Article 3 (1) and to be an alternative measure pursuant to Article 7 No. 1 (b) if the installation is a high-efficiency cogeneration plant within the meaning of Directive 2004/8/EC of the European Parliament and of the Council on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/94/EEC. CHP installations with an electrical capacity below one Megawatt are deemed to be high-efficiency cogeneration plants if they achieve primary energy savings within the meaning of Annex III of Directive 2004/8/EC.

2. For the use of heat from CHP installations, proof within the meaning of Article 10 (3) shall be

a) for installations operated by the obligated party, certification from an expert, the installation manufacturer or the specialist firm which assembled the installation,

b) for installations not operated by the obligated party, certification from the installation operator.

(...)

VII. Heat grids

1. The use of heat from a local or district heating supply shall only be deemed to be an alternative measure pursuant to Article 7 No. 3 if

a) a substantial share of the heat comes from renewable energies,

b) at least 50 percent of the heat comes from installations for the use of waste heat,

c) at least 50 percent of the heat comes from CHP installations or

d) at least 50 percent of the heat comes from a combination of the measures named in (a) to (c). Nos. I to V shall apply accordingly.

2. Proof within the meaning of Article 10 (3) shall be certification from the heat grid operator.

The Purpose of the measure

Why was it introduced?

Taken directly from the Act (unofficial translation by the Federal Ministry for the Environment, Nature Protection and Reactor Safety):

“The purpose of the Act is to facilitate sustainable development of the energy supply and promote the further development of technologies for the generation of heat from renewable energies, especially with a view to climate protection, efficient use of fossil resources and the reduction of import dependence. In order to fulfil this purpose while maintaining economic feasibility, the aim of this Act is to contribute to increasing the renewable energies' share in final energy consumption for heat (space heat, cooling and process heat and hot water) to 14 percent by 2020.”

The basic instrument is an obligation to use energy from renewable sources to a certain extent in newly built buildings (or existing buildings if the federal states so desire, see below). District Heating is not considered a renewable energy source per se but if the heat is produced by a substantial share of renewable energy sources, by a share of at least 50 % of CHP or a combination of both District Heating is considered an alternative measure and the obligations to use renewable energy sources deemed to be met.

For which target groups? National or regional?

The Act targets owners of newly built buildings on a national level. The federal states are empowered to extent the scope of the Act to cover existing buildings as well.

Which activities does it aim to stimulate?

Saving fossil fuels and substantially reduce emissions of harmful greenhouse gases by significantly increasing the share of renewable energy sources or alternative measures used for meeting the heat demand of buildings.

What results does it expect?

Increasing the share of renewable energy sources in the final energy consumption for heat to 14 %.

Is it related to Germany's implementation of any EC Directive?

A lot of the criteria set out in Directive 2009/28/EC on the promotion of the use of energy from renewable

sources (RES Directive) are pre-emptively introduced in this Act.

Eligibility Criteria

In order to qualify as an alternative measure the heat grid must fulfil certain eligibility criteria. The heat supplied by the heat grid must come from either a substantial share of renewable energies, 50 percent of waste heat, CHP or a combination of the above. At this moment it is not clear what amount on renewable energy sources would constitute for a substantial share but since the legislative body has not used the term 50 percent as in the other criteria set out in this part of the Annex, it can be concluded that the share must be below 50 percent, otherwise the term predominantly would have been used in this context.

If the heat comes from CHP plants, then these plants will have to be high-efficient in accordance with the CHP Directive.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	x		x		
Negative					

Planning:

The Act has a positive impact on planning since it creates a balance between the use of renewable energy sources and the use of CHP based on fossil fuels. Both help reduce primary energy demand and greenhouse gas emissions and are therefore considered equal. While District Heating from CHP based on fossil fuels is not considered to be a renewable energy source it does help companies with investment decisions because they can be sure that the benefit of CHP is acknowledged in regards to the increased use of renewable energy sources as well.

Furthermore the clarification that mandatory heat planning of municipalities is viable for global climate change and energy security considerations provides municipalities and District Heating utilities with a voluntary tool to tackle climate change, which can be an appropriate way of securing feasibility for District Heating in certain areas.

Generation:

The Act has no direct influence on the generation side. There are certain criteria for heat grids to be considered. Heat grids based solely on heat plants with no significant amount of either renewable energy sources or CHP being used will not be able to fulfil these criteria. But since around 84 % of the heat supplied to District Heating networks in Germany comes from CHP this will in all probability not be a deciding factor. First and foremost it was necessary to include District Heating as an alternative measure for the mandatory use of renewable energy sources to further develop in both directions, which is vital to tackle the challenges in climate change, energy security and energy efficiency.

Distribution:

The Act has a positive impact on distribution since it acknowledges heat grids to be important infrastructure and therefore raises the value of these installations.

Demand:

There is no impact on the demand side, there is a possibility to fulfil the criteria for an obligatory use of renewable energy sources through insulation measures, driving demand even further down but these criteria are only one of the alternative measures and District Heating is therefore able to compete as an alternative measure on equal ground.

Organization:

There is no impact on organization.

Effectiveness of the measure

Could the measure be considered effective?

The measure can be considered effective.

Due to which reasons? (quantifications if possible)

There are no quantifications possible at this point but the Act serves as a good argument for District Heating as a future-proof heat supply from a legal perspective and has a positive effect on the image and perception of District Heating as an environmentally friendly and flexible heat supply.

How well does the measure suit the market conditions of your country?

The measure in general suits the market conditions of Germany, with the exception of the issue mentioned below regarding the use of District Cooling.

Are there any recommended changes to this measure?

The DH industry is in general satisfied with what has been achieved, DH based on renewable energy sources and/or CHP as an alternative measure demonstrate that DH and renewable energy sources complement each other. The DH industry would welcome a clarification that District Heating must not necessarily cover the total thermal energy demand, consisting of heat and cold demand. This would leave room for district cooling solutions with central absorption chillers and on-site district cooling solutions based on a combination of absorption and compression chillers for peak demands.

Is there any review process for this measure and if so what is it?

A review could incorporate potential changes that might be involved with the transformation the Directive 2009/28/EC into national law. An expert report on the subject deemed the system as an appropriate measure in terms of the transformation of the RES Directive. From this legal perspective, the system of acknowledging District Heating based on fossil CHP as an alternative measure for the obligatory use of renewable energy sources does not collide with the regulations required in the RES Directive. Certain other regulations of the RES Directive may need to be transformed into national law though and therefore may prompt a review.

Country

Germany

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
3	Ordinance on General Conditions for the Supply of District Heating (AVBFernwärmeV)	Ordinance (A)	Federal Ministry of Economics and Technology	Existing

Quotations from the measure

Unofficial, legally not binding translation

Article 1

Purpose of the ordinance

(1) Articles 2 through 34 apply, if a District Heating utility uses contractual terms for the connection to and the supply of District Heating, which have been drafted in advance for a multitude of contracts. Articles 2 through 34 are part of the utility supply contract, unless otherwise stated in paragraph 3 or Article 35.

(2) The ordinance does not apply to the connection and supply of industrial customers.

(...)

Article 3

Fulfilment of demand

(...)The customer is obliged to fulfil his heat demand out of the grid of the District Heating utility to the agreed extent. (...)

Article 4

Type of supply

(...)

(2) Changes of the supply terms will take effect after they have been publicly announced.

(3) For the contractual relationship the heat carrier that has been agreed upon is decisive. The District Heating utility can change the agreed heat carrier if it is necessary for economical or technical reasons. (...)

(...)

Article 17

Technical connecting conditions

(1) The District Heating utility can define further technical conditions for the house service connection, other parts of the system and the operation of the installation, if it is necessary for a secure and undisturbed supply, especially concerning the distribution grid and the production installations. These conditions may not be contradictory to generally recognised codes of practice. (...)

(2) The District Heating utility must notify the competent authority of further technical conditions. The competent authority may object to further technical conditions if they are not reconcilable with the spirit and purpose of the ordinance.

Article 24

Billing, price amendment clauses

(...)

(3) Price amendment clauses must, in a suitable way, take into account both the development of costs in District Heating production and supply of the District Heating utility and the respective developments of the heating market in general. They have to include the relevant calculation methods completely and in a generally understandable way. When applying price amendment clauses the percentage of the factor used for the development of fuel prices in comparison to the price alteration in general must be disclosed

separately.

Article 32

Contract duration, termination

(1) The duration of supply contracts, which are concluded according to this ordinance, must not exceed 10 years. If the contract is not terminated by either party nine months before the contract expires, the contract is automatically renewed for a duration of five years.

(...)

(5) If the customer is also the property owner of the supplied space, he is obliged report the sale of the property to the District Heating utility as soon as possible. If the sale occurs during the expressly agreed contract duration, the customer is obliged to impose the entry into the contract upon the acquirer. (...)

(...)

(7) The contract can only be terminated in written form.

The Purpose of the measure

Why was it introduced?

The “normal” framework for the relation between customers and companies was deemed inappropriate to handle the specific technical and economical features of District Heating supply on the one hand and customers’ needs on the other.

Therefore the ordinance sets a general framework for standard business conditions for the supply of District Heating to consumers. The supply of industrial customers with District Heating does not fall under the scope of the ordinance.

Customers which are connected to the District Heating grid have the right to be supplied according to the general conditions laid out in the ordinance if standard business conditions are being used. The District Heating utilities on the other hand can only deviate from these conditions with the explicit consent of the customer.

For which target groups? National or regional?

The ordinance targets both customers and companies on a national level.

Which activities does it aim to stimulate?

There is no certain activity that is supposed to be achieved. The ordinance aims to set a contractual framework to the benefit of both the customer and the development of District Heating.

What results does it expect?

Legal certainty and customer protection.

Is it related to Germany’s implementation of any EC Directive?

Eligibility Criteria

The ordinance applies, if a District Heating utility uses contractual terms for the connection to and the supply of District Heating, which have been drafted in advance for a multitude of contracts. If this is the case the ordinance becomes part of the supply contract. It does however not apply to the connection and supply of industrial customers since the purpose of the measure is customer protection. Industrial customers are not deemed to be in the same need of protection as other customers.

Impact of Measure

Planning:

Due to the prolonged contract duration the planning of District Heating utilities is impacted in a positive way. Legal certainty and the balance between customer protection and interests of the utilities also has a positive effect on the planning stages.

	Planning	Generation	Distribution	Demand	Organization
Positive	x		x	x	
Negative					

Generation:

Distribution:

The same applies for the generation.

Demand:

Demand is indirectly influenced by the ordinance as well. A stable contractual framework provides benefits for both the consumer and the District Heating utilities.

Organization:

Effectiveness of the measure

Could the measure be considered effective?

The ordinance can be considered effective.

Due to which reasons? (quantifications if possible)

The ordinance was introduced in 1980 and has been “surviving” all these years, without any major complaints from either the consumers or the District Heating utilities. It is widely accepted and the benefits for both parties have a positive effect on its acceptance.

How well does the measure suit the market conditions of your country?

The measure is suited to the market conditions in Germany. The ordinance provides for a high level of customer protection while also enabling District Heating utilities to operate in a liberated heat market. Especially transparent automatic price amendment clauses, which work in both ways, are for the benefit of the customer.

Are there any recommended changes to this measure?

Is there any review process for this measure and if so what is it?

III. SUPPORT MEASURES FOR DHC				
Country			Germany	
#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
4	Act on Granting Priority to Renewable Energy Sources (EEG)	Law (C)	Federal Ministry for the Environment, Nature Protection and Reactor Safety	Existing

Quotations from the measure

Unofficial, legally not binding translation

Article 3

Definitions

Within the meaning of this Act

10. "electricity from combined heat and power generation" within the meaning of section 3(4) of the Combined Heat and Power Act of 19 March 2002 (Federal Law Gazette I p. 1092), as last amended by Article 170 of the Ordinance of 31 October 2006 (Federal Law Gazette I p. 2407), shall mean electricity generated in installations within the meaning of section 5 of the Combined Heat and Power Act,

Article 27

Biomass

(1) The tariff paid for electricity from biomass within the meaning of section 64(1) first sentence no. 2 of the Biomass Ordinance shall amount to

1. 11.67 cents per kilowatt-hour for the first 150 kilowatts of output,
2. 9.18 cents per kilowatt-hour for output between 150 and 500 kilowatts,
3. 8.25 cents per kilowatt-hour for output between 500 kilowatts and 5 megawatts, and
4. 7.79 cents per kilowatt-hour for output between 5 and 20 megawatts.

Those quantities of vegetable oil methyl ester required as start-up, priming and supporting fuel shall be deemed to be biomass.

(3) The entitlement to payment of a tariff shall exist for electricity

1. from installations with a capacity of over 5 megawatts insofar as the electricity is from combined heat and power generation pursuant to Annex 3 to this Act,
3. from installations which use gas withdrawn from a gas network within the meaning of subsection (2) above only insofar as the electricity is from combined heat and power generation pursuant to Annex 3 to this Act.

(4) The tariffs shall increase for electricity in accordance with subsection (1) above which is generated 3. in combined heat and power generation pursuant to Annex 3 to this Act by 3.0 cents per kilowatt-hour (CHP bonus).

Article 28

Geothermal energy

(1) The tariff paid for electricity from geothermal energy shall amount to

1. 16.0 cents per kilowatt-hour for the first 10 megawatts of output, and
2. 10.5 cents per kilowatt-hour for output over 10 megawatts.

(2) The tariffs shall increase by 3.0 cents per kilowatt-hour for electricity in accordance with subsection (1)

no. 1 above generated in combination with the use of heat pursuant to Annex 4 (heat use bonus).

Annex 3

CHP bonus

I. Eligibility criteria

Entitlement to the CHP bonus in accordance with section 27(4) no. 3 shall apply to a maximum capacity within the meaning of section 18 of 20 megawatts, where

1. the electricity is electricity within the meaning of section 3(4) of the Combined Heat and Power Act, and
2. the heat is used within the meaning of the Positive List no. III, or
3. the heat use demonstrably replaces fossil energies with an energy equivalent comparable to the quantity of fossil heat used and proof can be furnished of the additional costs arising from the supply of the heat, which amount to at least EUR 100 per kilowatt of heat capacity.

II. Required proof

1. Proof that the criteria in accordance with no. I.1 are met shall be furnished to the grid system operator in accordance with the generally accepted rules of technology; the generally accepted rules of technology shall be assumed to have been complied with where the requirements of Worksheet FW 308 - *Zertifizierung von KWK-Anlagen - Ermittlung des KWK-Stromes* (Certification of CHP Installations - Determining the CHP Electricity) in the applicable version as published by the *Arbeitsgemeinschaft für Wärme und Heizkraftwirtschaft (AGFW)* are met. Such proof must be furnished each year by presenting a certificate issued by an environmental verifier. Instead of the proof in accordance with the first sentence above, CHP installations produced in series with a maximum capacity of 2 megawatts may present appropriate documentation from the manufacturer which indicates the thermal and electrical capacity and the electricity coefficient.
2. Proof that the criteria in accordance with nos. I.2 and I.3 are met shall be furnished by presenting a technical expert opinion by an environmental verifier when the CHP bonus is claimed.

III. Positive List

The following shall be categorised as the use of heat within the meaning of no. I.2:

1. the heating, hot water supply or cooling of buildings within the meaning of section 1(1) no. 1 of the Energy Saving Ordinance up to a heating capacity of 200 kilowatt-hours per square metre of useable floor area per annum,
2. the feeding of heat into a network of at least 400 metres in length and with losses due to heat distribution and transmission of below 25 per cent of the useful heat demand of heat customers,
3. the use of process heat for industrial processes within the meaning of nos. 2 to 6, 7.2 to 7.34, 10.1 to 10.10 and 10.20 to 10.23 of the Annex to the Fourth Ordinance Implementing the Federal Immission Control Act of 14 March 1997 (Federal Law Gazette I p. 504), as last amended by Article 3 of the Act of 23 October 2007 (Federal Law Gazette I p. 2470), and the manufacturing of wood pellets for use as fuel,

IV. Negative List

The following shall not be categorised as the use of heat within the meaning of nos. I.2 and I.3:

1. the heating of buildings which, in accordance with section 1(2) of the Energy Saving Ordinance, are not the subject matter of the Ordinance, with the exception of buildings covered by nos. III.4 to III.6,
2. the use of waste heat from biomass installations for electricity generation, in particular in organic Rankine and Kalina-cycle processes, and
3. the use of heat from biomass installations which utilise fossil fuels, for example to cover their own heat needs.

Annex 4

Heat use bonus

I. Eligibility criteria

Entitlement to the heat use bonus in accordance with section 28(2) shall apply where

1. at least one fifth of the available heat capacity is decoupled, and
2. the heat use demonstrably replaces fossil energies with an energy equivalent comparable to the quantity of fossil heat used.

II. Required proof

Proof that the criteria in accordance with no. I are met shall be furnished by presenting a technical expert opinion by an environmental verifier as soon as the bonus is claimed for the first time.

III. Positive List

The following shall be categorised as the use of heat within the meaning of no. I:

1. the heating, hot water supply or cooling of buildings within the meaning of section 1(1) no. 1 of the Energy Saving Ordinance up to a heating capacity of 200 kilowatt-hours per square metre of useable floor area per annum,
2. the feeding of heat into a network of at least 400 metres in length and with losses due to heat distribution and transmission of below 25 per cent of the useful heat demand of heat customers,
3. the use of process heat for industrial processes within the meaning of nos. 2 to 6, 7.2 to 7.34, 10.1 to 10.10 and 10.20 to 10.23 of the Annex to the Fourth Ordinance Implementing the Federal Immission Control Act, as last amended by Article 3 of the Act of 23 October 2007 (Federal Law Gazette I p. 2470), and the manufacturing of wood pellets for use as fuel.

IV. Negative List

The following shall not be categorised as the use of heat within the meaning of no. I:

1. the heating of buildings which, in accordance with section 1(2) of the Energy Saving Ordinance, are not the subject matter of the Ordinance,
2. the use of heat for the supply, conversion and residue treatment of biogenic raw materials utilised energetically, with the exception of the production of wood pellets for use as fuel,
3. the loading of heat stores without proof of utilisation pursuant to the Positive List.

The Purpose of the measure

Why was it introduced?

Taken directly from the Act (unofficial translation of the Federal Ministry for the Environment, Nature Protection and Reactor Safety):

“The purpose of this Act is to facilitate a sustainable development of energy supply, particularly for the sake of protecting our climate and the environment, to reduce the costs of energy supply to the national economy, also by incorporating external long-term effects, to conserve fossil fuels and to promote the further development of technologies for the generation of electricity from renewable energy sources. To achieve this purpose, this Act aims to increase the share of renewable energy sources in electricity supply to at least 30 percent by the year 2020 and to continuously increase that share thereafter.”

As a basic instrument the Act obliges grid operators to connect power plants producing electricity from renewable energy sources to their grid and give priority to buying their electricity.

For electricity from energy sources a feed-in tariff system is introduced by the Act. Grid operators are obliged to buy the electricity from renewable energy sources at this fixed tariff. Alternatively the power plant operator can sell his electricity directly on a month-to-month basis. By means of a management system the costs for these feed-in tariffs are shifted towards and divided upon all electricity customers. The tariff depends on the type of renewable energy source and is by far the highest for electricity from photovoltaic, although it only provides a very low amount of electricity overall.

For which target groups? National or regional?

The Act targets power plant and grid operators on the national level.

Which activities does it aim to stimulate?

The use of more renewable energy sources in electricity production.

What results does it expect?

A share of 30 % of electricity from renewable energy sources by 2020.

Is it related to Germany's implementation of any EC Directive?

It is an implementation of Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market.

Eligibility Criteria

There is a bonus payment for the use of CHP when using biomass for electricity production. As a first and foremost eligibility criterion the electricity must be considered electricity from cogeneration in accordance with the KWKMDOG. That means useful heat has to be decoupled from the process, which includes space heating, warm water preparation, cooling production or process heat. On top of that the Act introduces additional eligibility criteria to define what the heat is used for in order for the electricity to be applicable for the CHP bonus. The type of building, heat network and industrial process is described in more detail. Background for this regulation is that there were issues in the past with agricultural holdings maximizing the CHP bonus of their biogas installations by using it to heating barns etc. that did not need heating or use networks to provide heat that had very high losses in order to raise the amount of heat decoupled from the process. It was therefore necessary to tighten the system for the CHP bonus.

The bonus payment for heat decoupled from geothermal electricity production follows a similar pattern, although it is not necessary to use CHP in this context due to technical reasons. There are installations that use “true” CHP in geothermal processes but this is not practiced on a broader scale yet. To be applicable the heat just needs to be decoupled in the process without the need to produce electricity from cogeneration. The heat use has to fulfil the same eligibility criteria as the heat used for the CHP bonus (refer to above).

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	x	x	x		
Negative					

Planning:

The measure has a positive effect on the planning stages since the feed-in tariff is guaranteed for a certain period.

Generation:

Due to the CHP bonus now being tied to a stricter use of heat decoupled from the process the measure has a positive effect on the generation.

Distribution:

The same reason also applies to the distributional side, since it is now necessary to use heat in a meaningful way distributional infrastructure will be developed and expanded.

Demand:

Organization:

Effectiveness of the measure

III. SUPPORT MEASURES FOR DHC	
Country	Germany
<p><u>Could the measure be considered effective?</u> The EEG has helped raising the share of renewable energy in the electricity production, in this sense the measure could be considered effective. On the other hand the measure is also very cost-intensive and efficiency is not a main driver in the allocation system.</p> <p><u>Due to which reasons? (quantifications if possible)</u> From the introduction of the EEG in 2000 through 2008 the share of electricity from renewable energy sources more than doubled from 6.3% to 15.1%. Although it is being questioned whether the same development could have been achieved with less financial burden for the electricity consumers. Especially high feed-in tariffs for electricity from photovoltaic has been the topic of discussions, although such electricity receives the highest feed-in tariffs the contribution towards the electricity production have been very low with less than 1% of the electricity coming from photovoltaic.</p> <p><u>How well does the measure suit the market conditions of your country?</u> The EEG does not incorporate a market element. It is based solely on fixed tariffs, unlike the KWKModG, which grants a premium to the market price of electricity.</p> <p><u>Are there any recommended changes to this measure?</u> There are two major flaws which put District Heating based on CHP at a disadvantage. The first is the so called "exclusivity-criterion". Only installations that use renewable energy sources exclusively benefit from feed-in tariffs. That is a barrier to the most efficient use of biomass in bigger CHP plants. Another criterion that proves to be a barrier for the use of biomass in bigger CHP plants and therefore in District Heating as well is the limitation of the feed-in tariff system for the use of biomass to 20 MW.</p> <p>Therefore both the exclusivity criterion as well as the limitation for the system to 20 MW should be revised to encourage the efficient use of biomass in large scale CHP plants.</p> <p><u>Is there any review process for this measure and if so what is it?</u> A review on the feed-in tariff regarding the tariff for electricity from photovoltaic is currently being conducted. The costs for the feed-in tariff have been climbing steadily and the very high tariffs for photovoltaic play a very big role in this. Both industry and consumer groups have been complaining about rising costs for electricity. As a consequence the tariff for electricity from photovoltaic will be decreased, but not significantly.</p>	

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
5	Energy Saving Ordinance (EnEV)	Law (A)	Federal Ministry for Economics and Technology; Federal Ministry of Transport, Building and Urban Development	Existing

Quotations from the measure

Unofficial, legally not binding translation

Article 1

Scope

(1) This ordinance applies to

1. buildings, if they are heated or cooled using energy, and
2. heating, cooling, ventilation, lighting and warm water installations and appliances of buildings according to No. 1.

(...)

Article 3

Residential building standards

(1) New residential buildings must not exceed the yearly primary energy demand for heating, warm water production, ventilation and cooling of a reference building with the same geometry, usable building area and orientation and with the technical reference design according to Annex 1 Table 1.

(...)

(3) The yearly primary energy demand of the new residential building as well as the reference building is to be calculated according to a method contemplated in Annex 1 No. 2. The new residential building and the reference building have to be calculated according to the same method.

(...)

Annex 1 (to Articles 3 and 9)

Residential building standards

1 Maximum value of the yearly primary energy demand and the specific transmission heat loss (to Article 3 Paragraph 1 and 2

1.1 Maximum value of the yearly primary energy demand

The maximum value of the yearly primary energy demand of new residential buildings is the yearly primary energy demand calculated according to a method contemplated in No. 2.1 and relating to the usable building area of a reference building with the same geometry, usable building area and orientation and with the technical reference design according to Table 1.

(...)

Table 1

Technical reference design of the reference building

(...)

5 Heating System

- Calorific value boiler (enhanced), domestic fuel oil, (...)

6 Warm water installation

- Central warm water production
- Combined warm water production in heating system according to line 5

- Solar system (...)
- Storage system (...)
- (...)

7 Cooling

- No cooling
- (...)

2 Calculation method for residential buildings (to Article 3 Paragraph 3, Article 9 Paragraph 2 and 5)

2.1 Calculation of the yearly primary energy demand

2.1.1 The yearly primary energy demand of residential buildings Q_p is calculated according to DIN V 18599 : 2007-02. Primary energy factors are the values for the non-renewable share according to DIN V 18599-1 : 2007-02. (...)

For various reasons the technical standards referenced by the EnEV can not be translated.

The Purpose of the measure

Why was it introduced?

Buildings play a big role in combating climate change. In order to lift the potential the ordinance aims to reduce the primary energy demand of buildings to reduce use of resources and greenhouse gas emissions. The target is to reduce the primary energy demand for heating and warm water consumption by 30 % in the building sector.

The ordinance has a holistic approach on the building envelope, the systems engineering and the primary energy sources which are being utilised. Balancing the different measures is possible. For instance the obligations can be fulfilled by either using more insulation or more efficient systems engineering or primary energy sources. The system in general therefore reflects the efficiency benefits of District Heating based on CHP.

For which target groups? National or regional?

The ordinance targets building owners on the national level.

Which activities does it aim to stimulate?

Further reduction of the primary energy demand of buildings.

What results does it expect?

A reduction of the primary energy demand of buildings by 30 %.

Is it related to Germany's implementation of any EC Directive?

The Act serves as the implementation of Directive 2002/91/EC on the energy performance of buildings, Council Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels, amended by Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council

Eligibility Criteria

There are no certain eligibility criteria for District Heating, since the ordinance is targeted at building owners. If buildings are connected to a District Heating grid the calculation method for the yearly primary energy demand takes into account the respective attributes of the system the building is connected to.

Since it is possible to achieve a low yearly primary energy demand on both the demand (insulation etc.) and supply side a low primary energy factor is beneficial for building owners since the primary energy factor is part of the calculation of the yearly primary energy demand. A low primary energy factor on the supply side will therefore drive down the yearly primary energy demand of the building. In order to achieve a low primary energy factor in District Heating the supply has to be based on CHP and/or

renewable energy sources.

III. SUPPORT MEASURES FOR DHC

Country

Germany

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive		x			
Negative	x			x	

Planning:

Since the EnEV is changed on a regular basis and it also has an effect on heat demand it has a negative effect on the planning stages since it is harder to estimate heat demands and plan production units accordingly.

Generation:

The EnEV effects heat demand in a negative way, but heating supply with a low primary energy factor, especially district heating based on combined heat and power also benefits from the act, making such a heat supply more attractive for consumers.

Distribution:

Demand:

The EnEV has a negative effect on the demand side. The heat demand of buildings is decreasing over the time.

Organization:

Effectiveness of the measure

Could the measure be considered effective?

The measure is effective in the sense that it is driving down heat demand in new and renovated buildings.

Due to which reasons? (quantifications if possible)

The yearly primary energy demand criteria are tightened more and more, therefore driving down the heat demand.

How well does the measure suit the market conditions of your country?

The fact that both the demand and the supply side are incorporated into the calculation of building efficiency is in general the right direction to suit the market conditions in Germany. There is also a market mechanism integrated since customers are free to choose, within the criteria set by the regulation, how to achieve the yearly primary energy demand. But the problems in building stock resulting from lack of energy efficient heating supply are not tackled by the ordinance. Cost efficiency is also not taken into account, which is a driving factor since the ratio of new buildings is comparatively low in Germany.

Are there any recommended changes to this measure?

Is there any review process for this measure and if so what is it?

In 2012 another review is planned, which aims to reduce the primary energy demand by another 30 %.

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
6	Future Investment Programme I and II (ZIP I and II)	Incentive Scheme		Existing

Quotations from the measure

ZIP I and II are incentive schemes which have been concluded a very long time ago. Therefore the actual texts, which lay the foundation to the scheme, are not well documented. The outcomes of the scheme have been well documented though and therefore it was chosen to be part of the 10 measures for this project, since the outcomes of the other measures can not be evaluated as thoroughly as this scheme and because the effects were significant and are still visible in the present time.

The state aid for district heating within the scope of ZIP I and II amounted to approximately DM 1.6 B. In the ZIP I and II support amounted to a maximum of 35% of the investment costs.

The Purpose of the measure

Why was it introduced?

The ZIP I and II were introduced to fight the negative effects the oil price crises from 1973 and 1978 had on the economy. On the occasion of the Jom Kippur war, respectively the Shah being overthrown in Iran oil prices reached record-breaking heights in a short amount of time, revealing the dependency of Germany on oil imports. In order to become more independent from oil imports there was a focus nuclear power, on domestic resources like hard coal and lignite and on natural gas regarding energy policy. AGFW was commissioned to conduct an all-encompassing study on district heating by the government, showing the potential of district heating in Germany. Based on this study the development of district heating was accelerated by ZIP I and II.

For which target groups? National or regional?

National.

Which activities does it aim to stimulate?

Investments in heat supply and distribution in urban areas in order to reduce energy consumption, contribute to environmental protection, security of supply and fuel diversification. Especially the ZIP II had a strong focus on domestic resources like hard coal and lignite as a substitution for heating oil.

What results does it expect?

Positive effects on the economy while at the same time encouraging sustainable and environmental friendly development through the efficient use of resources.

Is it related to Germany's implementation of any EC Directive?

No.

Eligibility Criteria

During the time of the ZIP I after the first oil price crisis, swift reaction was a necessity to combat the negative effects on economy. After AGFW had been commissioned to conduct the aforementioned study on the potential of district heating in Germany, only those utilities were supported, which could deliver the targets in regards to potential and heat supply concept in a timely fashion.

As has been mentioned above, the focus of the ZIP II were domestic resources and the corresponding generation and distribution facilities.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive		x	x	x	
Negative					

Planning:

Generation:

The measure had a positive impact on the generation, since generation facilities were directly supported in this scheme. There is no project list available for the effects of the ZIP I but during the ZIP II 6 new coal based CHP-plants, 6 new waste-to-energy CHP-plants and 7 new industrial CHP-plants were commissioned, 7 CHP-plants and 8 waste-to-energy CHP-plants were enlarged, 5 CHP-plants were retrofitted to use coal, 8 conventional power-plants were retrofitted into CHP-plants and 39 peak demand boilers were either constructed or enlarged.

Distribution:

The same applies to distribution. Once again there is no project list available for the ZIP I but during the time of the ZIP II 88 new district heating grids were developed and 146 district heating grids were enlarged.

Demand:

The impact on demand was positive as well. During the ZIP I the connected load increased by over 6,000 MW. During the ZIP II the connected load increased by approximately 8,000 MW.

Organization:

Effectiveness of the measure

Could the measure be considered effective?

Yes.

Due to which reasons? (quantifications if possible)

During ZIP I DM 680 M support was distributed among district heating utilities. Eligible investments amounted to DM 3.7 B with approximately DM 6 B of total investments.

In 1980 reductions in energy consumption which can be attributed to the effects of the ZIP I amounted to 156,900 t coal equivalent, in 1981 the reductions amounted to 313,800 t of coal equivalent.

Based on the figures for 1981 the effect on employment triggered by the investments in district heating amounted to 18,000 man-years.

During the ZIP II DM 1.2 B support was distributed among district heating utilities. Investments amounted to DM 5.8 B in total.

How well does the measure suit the market conditions of your country?

It suited the market conditions of the time very well, since investments were needed to keep the economy afloat. The focus on domestic resources is a topic that is still of interest, especially considering the dependency of Germany on Russian natural gas. Fuel diversification and security of supply still remain important aspects of today's energy policy. The approach of using resources in the most efficient way to reduce energy consumption is commendable by today's standards and factoring in the fact that demand for energy has been rising since the times of ZIP I and II, more important than ever.

Are there any recommended changes to this measure?

Is there any review process for this measure and if so what is it?

III. SUPPORT MEASURES FOR DHC	
Country	Germany

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
7	Programme for Rational Energy Use, Renewable Energy Sources and Energy Saving (progres.nrw)	Incentive scheme (B, C)	Federal State of NRW	Existing (continuation planned for 2010)

Quotations from the measure

Preliminary note

The Ministry of Economic Affairs and Energy has bundled all support policy activities regarding energy policy in the state of North Rhine-Westphalia in the programme progres.nrw. Part of this programme is the directive on the support of rational use of energy, energy from renewable sources and energy efficiency, which comprises henceforth the support of local and district heating. (...) In order to achieve a significant contribution towards climate protection and the reduction of CO₂ emissions, the programme shall accelerate the broad market penetration of many applicable technologies for the use of renewable energy sources and the rational use of energy. (...)

2 Subject of support

Costs related to the construction, reactivation and enlargement of the following, brand new installations are eligible for support:

(...)

2.5 Construction of biomass-, biogas and rape-oil-installations up to a maximum of 250 kW electrical power:

2.5.1 Biomass-, biogas- and rape-oil-installations with a connection to the public power grid,

(...)

2.9 Installations (sub station/consumer outlet) of the heat customer in conjunction with local and district heating grids supplied by heat from combined heat and power, industrial waste heat, waste-to-energy or renewable energy sources, if a primary energy factor of 0.7 is not exceeded.

2.10 Within the scope of a case-by-case evaluation installations for the decoupling and distribution of district heating in new district heating supply areas on the basis of combined heat and power, industrial waste heat, waste-to-energy and renewable energy sources, if the energy source's primary energy factor does not exceed 0.7.

(...)

3 Donees

3.1 Entitled to submit applications are:

(...)

- small and medium enterprises, according to the definition of the European Union,
- enterprises, which do not fulfil the criteria of a small and medium enterprise (only in the case of No. 2.10 of this directive)

4 Eligibility criteria

4.1 The support extends to projects within the state of North Rhine-Westphalia.

(...)

5 Form, scope and amount of support

5.1 The support is granted on a project basis.

5.2 The support is granted in form of a subsidy, namely:

5.2.1 Proportional financing in the cases of No. 2.1.2 through 2.3, 2.5, 2.6, 2.10 and 2.11

<p>5.2.2 Fixed amount financing in the cases of No. 2.1.1, 2.4, 2.7 through 2.9.</p> <p>5.2.3 No support will be granted if the amount is below EUR 500 (minimum support limit). In the case of No. 2.10 the minimum support limit is EUR 150,000 of eligible costs per project.</p> <p><u>5.3 Eligible costs</u></p> <p>Eligible are directly related, required, proven and adequate costs for</p> <p>5.3.1 the planning and permissions related to the project, however only if the project is realized and with a maximum of 20 per cent of the eligible costs,</p> <p>5.3.2 the investigation and preparation of the building-ground,</p> <p>5.3.3 investments for installations,</p> <p>(...)</p> <p><u>5.4 Amount of support</u></p> <p>The support according to No. 5.2 (subsidy) amounts to:</p> <p>(...)</p> <ul style="list-style-type: none"> - 15 per cent in the case of projects according to No. 2.5 (biomass installations) up to a maximum amount of EUR 50,000 <p>Plus additional 15 per cent up to a maximum amount of EUR 40,000 if a minimum of 30 per cent of the heat is used externally by third parties,</p> <p>(...)</p> <ul style="list-style-type: none"> - up to 25 per cent in the case of projects according to No. 2.10, <p>(...)</p> <ul style="list-style-type: none"> - EUR 1,000 in the case of projects according to No. 2.1.1 (...) a maximum of 20% of the eligible costs and for projects according to No. 2.9 (for sub stations with a connected load of more than 25 kW through 50 kW), <p>(...)</p> <ul style="list-style-type: none"> - EUR 1,500 in the case of projects according to 2.9 (for sub stations with a connected load of up to 25 kW), <p>(...)</p> <p><u>5.5 The sum of all public support and support of third parties may not exceed the eligible costs. The cumulation of support, which has been granted within the scope of this directive, and other public support is not allowed if it is granted within the scope of programme of the state of North Rhine-Westphalia (especially the programme for supporting investments in the agricultural sector -AFP-). The maximum amount of all public support is limited to 40 per cent of the eligible costs in the case of projects according to No. 2.7 (photovoltaics) and 2.11 (special installations) and 30 per cent of the eligible costs in all other cases.</u></p> <p>(...)</p> <p><u>6.9 In the case of sub stations/customer outlets support (according to No. 2.9) is only granted once per station and per building.</u></p>

The Purpose of the measure

Why was it introduced?

In order to achieve a significant contribution towards climate protection and the reduction of CO₂ emissions. The programme wants to accelerate the broad market penetration of many applicable technologies for the use of renewable energy sources and the rational use of energy.

For which target groups? National or regional?

Regional target groups.

Which activities does it aim to stimulate?

Investments and broad market penetration of the aforementioned technologies.

What results does it expect?

A broad market penetration of the aforementioned technologies.

Is it related to Germany's implementation of any EC Directive?

No.

Eligibility Criteria

The eligibility criteria are laid out in the quotations from the measure.

In the case of district and local heating support is limited to grids with a primary energy factor equal to the standard factor of fossil district heating – 0.7. The factor after certification may vary from this standard factor. A factor of 0.7 prevents heating grids based solely on fossil fuelled heat plants from being submitted to this programme.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive		x	x	x	
Negative					

Planning:

Generation:

The measure incorporates direct support for generation facilities, impacting this sector positively. This applies both to smaller generation units, as well as larger scale generation units, although only on a case-by-case basis.

Distribution:

The measure leaves the option to support grids directly under No. 2.10, if only on a case-by-case basis. Apart from that costs for sub stations can be a hurdle for the development of district heating since the market in Germany is still dominated by natural gas and heating oil, so measures that help lowering the costs of switching heat supply also have a positive impact on the distribution of district heating.

Demand:

Since the measure supports the broad market penetration of energy efficient heat supply it aims at driving demand for this type of heat supply up.

Organization:

Effectiveness of the measure

Could the measure be considered effective?

Yes.

Due to which reasons? (quantifications if possible)

Several projects, such as connections to new areas and the densification in areas already supplied with district heating but not on a larger scale have been realized under this programme and its predecessors.

How well does the measure suit the market conditions of your country?

Since the German heating market is in general dominated by natural gas and heating oil, incentives to switch to district heating from either natural gas or heating oil can prove to be very helpful in expanding district heating supply. The measure also takes into account that supporting enterprises of all sizes provides useful incentives to invest in energy efficient technologies.

Are there any recommended changes to this measure?

Is there any review process for this measure and if so what is it?

The programme's application phase has ended at the end of 2009. There are still open applications which have not yet been processed but it is not possible to submit applications anymore. The programme is planned to be continued in 2010 but no details are known at this point.

III. SUPPORT MEASURES FOR DHC	
Country	Germany

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
8	Loan Programme for Energy Efficiency	Incentive scheme	KfW Bank Group	Existing

Quotations from the measure

The loan programme for energy efficiency is not aimed directly at district heating but rather energy efficient buildings. Heat supply based on district heating and combined heat and power is a cornerstone in energy efficient buildings and therefore benefits from this incentive scheme as well.

The programme is not comprised of one single measure but rather a plethora of different plans. These different plans are aimed at different applicants and different activities. For instance there are plans for landlords, private persons and municipalities among others. Activities include energy efficient construction, refurbishment and others.

In most cases the KfW's support is handed out in form of a low interest loan. Since the KfW is a state owned bank, as has been mentioned above regarding the MAP, and interest rates below market prices are generally considered aids, the programme is listed here.

While these plans differ in details in general they all follow the same framework. The programme is linked closely to the EnEV, which defines mandatory criteria on energy efficiency. If the building reaches certain thresholds, the owner may apply for the programme. These thresholds differ but are generally tied to the yearly primary energy demand according to the EnEV. Depending on the plan the building may only use 70% of the yearly primary energy demand according to the EnEV, go even lower or in the case of certain refurbishments must "only" reach the yearly primary energy demand according to the EnEV.

Due to the plethora of different plans and the general similarity shared between them quotations will only include the definitions for passive house and two KfW "efficient houses".

Passive house

The yearly primary energy demand Q_p and the yearly heat demand Q_h have to be accounted for according to the passive house project planning package (PHPP) by a technical expert.

(...)

Pre-condition for support is that the yearly primary energy demand (Q_p) does not exceed 40 kWh per m² usable building area and year, and that the yearly heat demand Q_h does not exceed 15 kWh per m².

KfW efficient houses 70 (EnEV₂₀₀₉)

may not exceed a yearly primary energy demand (Q_p) of 70% and a specific transmission heat loss (H_T') of 85% in comparison to the calculated values for the reference building according to table 1 of annex 1 of the EnEV₂₀₀₉. Simultaneously the specific transmission heat loss must not exceed the permitted value according to table 2 of annex 1 of the EnEV₂₀₀₉.

KfW efficient houses 85 (EnEV₂₀₀₉)

may not exceed a yearly primary energy demand (Q_p) of 85% and a specific transmission heat loss (H_T') of 100% in comparison to the calculated values for the reference building according to table 1 of annex 1 of the EnEV₂₀₀₉. Simultaneously the specific transmission heat loss must not exceed the permitted value according to table 2 of annex 1 of the EnEV₂₀₀₉.

The Purpose of the measure

Why was it introduced?

To increase energy efficiency in buildings by giving incentives for energy efficient construction and refurbishment.

For which target groups? National or regional?

National.

Which activities does it aim to stimulate?

The energy efficient construction and refurbishment of buildings in different sectors, private, public etc.

What results does it expect?

More investments in energy efficient technology in the buildings sector.

Is it related to Germany's implementation of any EC Directive?

No.

Eligibility Criteria

As already mentioned above the eligibility criteria are closely linked to the energy efficiency standards set by the EnEV. The eligibility criteria will differ from plan to plan but are in general linked to the criteria set out in the EnEV. District heating especially heat with a very low primary resource factor, which is based on combined heat and power can reduce the yearly primary energy demand of a building sufficiently. Therefore the lower the primary resource factor of the district heating supply is, the more benefits within the scope of this programme it will deliver for the customer.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive		X			
Negative	x			x	

Planning:

Since the programme is linked very closely to the EnEV the negative effect the EnEV has on the heat demand remain. The programme incentivizes lowering the heat demand even further. This will make it harder to estimate heat demands and plan production units accordingly.

Generation:

Due to the EnEV effecting heat demand it also has a negative effect on the generation, which out of the aforementioned reasons also applies to this programme. But heating supply with a low primary energy factor, especially district heating based on combined heat and power also benefits from the act, making such a heat supply more attractive for consumers.

Distribution:

Demand:

The EnEV has a negative effect on the demand side. The heat demand of buildings is decreasing over the time. As mentioned above this also has negative effects in regards to this programme.

Organization:

Effectiveness of the measure

III. SUPPORT MEASURES FOR DHC	
Country	Germany
<p><u>Could the measure be considered effective?</u> It is difficult to gauge the effectiveness of this measure. <u>Due to which reasons? (quantifications if possible)</u></p> <p><u>How well does the measure suit the market conditions of your country?</u> Since the market is very much price driven the programme aims at giving incentives to invest comparatively more money into energy efficient construction and refurbishment. <u>Are there any recommended changes to this measure?</u> When establishing new district heating supply installations there may be a certain transitional period where the final stage regarding the technical aspects is not reached. There should be more flexibility for the utilities to fulfil their goals and thus have the customers fulfil the criteria set out by the programme as well. This flexibility could be a certain timeframe where an assumed final stage regarding technical aspects has to be reached but where this final stage is taken into consideration from the beginning. <u>Is there any review process for this measure and if so what is it?</u> The programme's criteria will automatically change with the EnEV, since they are closely linked to each other. Since there is a review process of the EnEV involved with the recast of Directive 2002/91/EC the criteria set out in the programme will change accordingly. Apart from these automatic changes there may be other changes in the future, like additions to the programme but the fundamentals are not expected to be changed in the foreseeable future.</p>	

Template III

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
9	Mandatory heat planning	Law (A)		Existing

Quotations from the measure

All municipal codes in Germany enable municipalities to enforce mandatory heat planning for certain areas of their territory through byelaws.

In this regard the different municipal codes are very similar although they often do not share the same wording. Bavaria has a slightly different approach since it limits mandatory heat planning to properties which are subject of a construction or reconstruction of buildings. Following are three examples from different municipal codes:

Hessia

Article 19

Public institutions, mandatory connection and use
(...)

(2) In the case of public need, she (the municipality) may introduce the obligation to connect to the water grids, canalisation, street-cleaning, district heating and similar facilities that serve public health (mandatory connection) and the obligation to use these facilities and slaughterhouses (mandatory use) through byelaw for properties in her area. The byelaw may provide exceptions from the mandatory connection and use. She (the municipality) may restrict the obligation to certain parts of the municipal

area and certain groups of property or persons.

Baden-Württemberg

Article 11

(1) In the case of public need, the municipality may introduce the obligation to connect to the water grids, canalisation, street-cleaning, district heating and similar facilities that serve public health or the protection of the natural foundations of life, including climate and resource protection (mandatory connection) and the obligation to use these facilities as well as the slaughterhouses (mandatory use) through byelaw for properties in her area. (...)

(2) The byelaw may provide certain exceptions from the mandatory connection and use. It can restrict the obligation to certain groups of properties, business establishments or persons.

Bavaria

Article 24

(1) In byelaws the municipalities may

(...)

3. for properties that are subject to a construction or reconstruction of buildings introduce an obligation to connect and to use facilities for the supply of district heating if the connection is necessary regarding urban development or the protection from harmful environmental impact in terms of the Bundes-Immissionsschutzgesetz; properties with emission-free heating systems are exempt.

(...)

Due to the aforementioned similarities between the different municipal codes not all of them were quoted.

The Purpose of the measure

Why was it introduced?

In order to be able to act locally on issues such as environmental protection.

For which target groups? National or regional?

Regional.

Which activities does it aim to stimulate?

Initial investments necessary for District Heating supply are high due to the infrastructure needed on top of the production facilities. The heat can only be delivered to customers living in the proximity of the production facility, therefore effectively limiting potential customers. Because of these circumstances investors can be shielded away from investing in the technology. In order to deliver a stable environment for investments, offsetting the initial investment costs needed, mandatory heat planning can be used to secure District Heating supply for certain areas. Therefore the legislation serves as a toolset for municipalities to secure investments in District Heating, especially in areas which have not yet been connected to a District Heating grid.

What results does it expect?

There are no quantified results expected.

Is it related to Germany's implementation of any EC Directive?

No.

Eligibility Criteria

There are not a lot of eligibility criteria laid out in the municipal codes. District heating is a very broad term and the public need as has now been clarified may also refer to climate and resource protection considerations.

If a municipality uses mandatory heat planning for the District Heating supply it must fulfil certain criteria and secure a sufficient control over the District Heating utility.

It has now been clarified by the EEWärmeG that municipalities can choose to introduce mandatory heat planning for global climate and environmental policy reasons. It is not necessary to refer to the local

climate or environment as a justification.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive	x	x	x	x	
Negative					

Planning:

Since a connection to and the use of district heating facilities is mandatory planning stages benefit from mandatory heat planning. It is easier to plan every aspect of a district heating supply if it is known beforehand how many buildings will be connected.

Generation:

The same holds true for the generation. Through mandatory heat planning a certain number of customers can be secured. This is especially beneficial for new generation facilities and may in some cases have a significant impact on whether or not these facilities are being constructed.

Distribution:

Mandatory heat planning does not only apply to newly constructed district heating facilities but also established ones. Securing the supply of all properties in the affected area may provide beneficial for the distribution as well, for instance if a densification project is secured through mandatory heat planning.

Demand:

With the obligation to use district heating mandatory heat planning has a positive impact on the demand, securing the heat load of all affected properties.

Organization:

Effectiveness of the measure

Could the measure be considered effective?

Yes.

Due to which reasons? (quantifications if possible)

There are quite a few municipalities and utilities which have incorporated such a scheme successfully, although in comparison to the heat delivery, mandatory heat planning plays a rather small role. According to a representative survey conducted by AGFW approximately 12% of the district heat delivery originates from areas which are subject to mandatory heat planning. In regards to the heating market as a whole this would translate to 1.4%.

How well does the measure suit the market conditions of your country?

Due to the liberal heating market price is a main driver in the heat supply. A high number of customers can lower prices and establish a district heating supply initially.

Are there any recommended changes to this measure?

Is there any review process for this measure and if so what is it?

Since there was already a clarification on the subject of mandatory heat planning in the aforementioned EEWärmeG, no immediate review is expected.

III. SUPPORT MEASURES FOR DHC				
Country			Germany	
#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
10	Market Stimulus Package for Renewable Energy Sources (MAP)	Incentive scheme (C)	Federal Ministry for the Environment, Nature Protection and Reactor Safety	Existing

Quotations from the measure

Unofficial, legally not binding translation

1 Purpose

1.1 In the interest of a sustainable energy supply, taking into account the limited fossil energy resources and in order to protect the environment and the climate it is necessary to increase the development of renewable energy sources in the heating market. Incentives are needed to use this kind of technology. (...) A central goal for the support according to this directive is to incentivize investments in technology incorporating renewable energy sources in the heating market and therefore increasing the sales of said technology, contributing to lower costs and increased cost-effectiveness. (...) These instruments are used to contribute to the objective of increasing the share of renewable energy sources in end use energy consumption in the heating market to 14% until 2020.

According to Article 13 EEWärmeG the use of renewable energy sources for the production of heat will be supported with up to EUR 500 M per year. Details of the support mechanism are subject of this directive. (...)

3 Subject of the support measure

(...)

3.2 In the context of the KfW-programme Renewable Energy Sources (Premium) the following measures are eligible for support by the KfW:

The construction and enlargement of

(...)

b.) installations for combined heat and power production through the combustion of solid biomass, including buffer storage,

c.) installations for the use of deep geothermal energy (over 400m of drilling depth) (...)

d.) local heating grids, which are supplied with heat from renewable energy sources,

(...)

14 Specific prescriptions for support in the context of the KfW programme Renewable Energy Sources (Premium)

14.1 Extent and amount of support

In the context of the KfW-programme Renewable Energy Sources (Premium) the KfW may grant interest and redemption payment subsidies for the following measures. Redemption payment subsidies may be granted according to the following criteria:

14.1.1 Large scale biomass installations, biomass CHP

The construction and enlargement of automatically loaded installations for the combustion and gasification of solid biomass for the thermal use and combined heat and power production (CHP) with a nominal heat capacity of over 100 kW are eligible.

14.1.1.1 The basic support (redemption payment subsidies) for installations for the thermal use is EUR 20

per kW installed nominal heat capacity, with a maximum of EUR 50,000 per installation. (...)
(...)

14.1.1.2 Installations for combined heat and power production (CHP) are eligible up to an installed nominal heat capacity of 2,000 kW, if they are strictly heat led. (...)

The redemption payment subsidy is EUR 40 per kW installed nominal heat capacity, if the electrical efficiency is over 10% and the overall efficiency over 70%. (...)

14.1.2 Deep geothermal energy

14.1.2.1 Installations for the development and thermal use of deep geothermal energy (over 400m drilling depth) are supported by four separate measures:

a) Deep geothermal energy installation

(...) The redemption payment subsidy is EUR 200 per kW constructed respectively enlarged nominal heat capacity, with a maximum of EUR 2,000,000 per installation.

b) Deep drilling

The redemption payment subsidy for drilling depths of over 400m is

- for drilling depths starting with 400m through 1,000m below top ground surface EUR 375 per m of vertical depth (not drilling distance),

- for drilling depths starting with 1,000m through 2,500m below top ground surface EUR 500 per m of vertical depth,

- for drilling depths starting from 2,500m below top ground surface through end depth EUR 750 per m of vertical depth.

The redemption payment subsidy per drilling is EUR 2,500,000 at the most. Only drillings necessary for the construction of a doublet are eligible, therefore limiting maximum support for deep drilling to EUR 5 M per project. (...) Exploration drillings are not eligible.

(...)

c) Additional costs for deep drilling from 400m onwards

(...)

d) Risk coverage

(...)

The loans or redemption payment subsidies according to No. 14.1.2.1 Letters a, b, c or d are cumulative up to a maximum of 80% of the eligible costs. The remaining 20% must not be financed by public funds.

14.1.2.2 Installations for the development and use of deep geothermal energy (over 400m drilling depth) for combined heat and power production (CHP) are supported primarily by EEG or KWKMDOG. In addition to this support installations for the development and use of deep geothermal energy (over 400m drilling depth) for combined heat and power production (CHP) by two separate measures:

a) Additional costs for deep drilling from 400m onwards

(...) Support is measured according to the additional costs per drilling (net costs) and amounts to 50% of the proven additional costs, with a maximum of 50% of the initial planning costs respectively EUR 1,250,000 per drilling.

b) Risk coverage

The risk of not finding a suitable heat source after reaching the target horizon of the depth bore may be taken over by the KfW within the scope of a separate, individual contract loan indemnification clause for geothermal deep drilling, which are offered by KfW in a separate loan programme.

(...)

The loans or redemption payment subsidies according to No. 14.1.2.2 Letters a and b are cumulative up to a maximum of 80% of the eligible costs. The remaining 20% must not be financed by public funds.

14.1.4 Local Heating grids

14.1.4.1 The construction and enlargement of a heating grid is eligible, if

a) energy supply from solar radiation amounts to at least 20% and if otherwise heat from high efficient CHP or heat pumps is used almost exclusively, or if

b) energy supply from renewable energy sources amounts to at least 50%,

the installation of sub stations in heating grids according to letters a and b is eligible as well.

In the case described under letter a it is permitted to use heat from fossil fuelled peak demand boilers up

to a share of 10%.

The biogenic share of municipal waste is considered renewable within the scope of this regulation (heat use from waste incineration).

Local heating grids are only eligible, if on average a minimum heat delivery of 500 kWh per year and meter of pipeline length relating to the entire eligible heating grid has been accounted for. (...)

14.1.4.2 Redemption payment subsidies within the scope of a first-time development amount to EUR 60 per meter of newly constructed pipeline length and otherwise EUR 80 per meter of newly constructed or enlarged pipeline length, up to a maximum of EUR 1,000,000 (maximum support amount). The maximum support amount increases to EUR 1,500,000, if heat from thermal deep geothermal installations is being supplied to the heating grid exclusively.

The maximum support amount for local heating grids is halved if on average the heat delivery per year and meter pipeline length relating to the entire heating grid exceeds 3 MWh. This does not apply to local heating grids that are being constructed or enlarged in connection with deep geothermal installations.

The construction and enlargement of heating grids, which are supplied by heat from combined heat and power installations (CHP-installations), can be eligible for premium payment according to the KWKMDOG.

Therefore and in derogation from paragraph 1 heating grids of CHP-installations are only eligible for a lower level of support. The redemption payment subsidies amount to EUR 20 per meter of newly constructed or enlarged pipeline length. The maximum support amount is 30% of the maximum support amount described in paragraph 1. If it has been accounted for that an entitlement for premium payment according to Article 5 a KWKMDOG does not exist, support according to paragraph 1 may be granted.

14.1.4.3 Net investment costs for each sub station, for which, at the time of commissioning of the eligible local heating grid, a binding contract on the connection to the grid is concluded and for which no obligation to connect to the grid is in place. The redemption payment subsidies amount to EUR 1,800 per sub station. The applicant has to make sure that costs for connecting the residential or non-residential building to the grid which have to be paid by the house owner are being reduced by said amount.

The Purpose of the measure

Why was it introduced?

These instruments are used to contribute to the objective of increasing the share of renewable energy sources in end use energy consumption in the heating market to 14% until 2020.

For which target groups? National or regional?

The measure is aimed at national target groups.

Which activities does it aim to stimulate?

Investments in heating technology based on renewable energy sources.

What results does it expect?

Contributing to the objective of increasing the share of renewable energy sources in end use energy consumption in the heating market to 14% until 2020.

Is it related to Germany's implementation of any EC Directive?

No

Eligibility Criteria

There are certain eligibility criteria, which are laid out in the quotations from the measure.

Large scale biomass installations, deep geothermal installations and local heating grids are of interest for DHC.

In general the measure aims at small and medium enterprises, although bigger enterprises may also apply for a project, if it is of special quality. For instance if it can serve as "beacon" for other projects in the region.

The measure is administered by the KfW, a state owned bank, which actually hands out loans and redemption payment subsidies. It is a promotional bank under the ownership of the Federal Republic and the federal states, it offers support among others in the areas of small and medium-sized enterprise,

entrepreneurialship, environmental protection, housing, infrastructure, education finance, project and export finance, and development cooperation. The criteria and the related directive has been created under the lead management of the Federal Ministry for the Environment, Nature Protection and Reactor Safety, since the measure is corresponding directly to the EEWärmeG, a law, which has been lead managed by the Federal Ministry as well.

Impact of Measure

	Planning	Generation	Distribution	Demand	Organization
Positive		x	x		
Negative					

Planning:

Generation:

The measure has a section that deals specifically with generation facilities, namely so called large scale biomass installations. Although with a maximum support amount of EUR 100,000 for biomass installations and a maximum installed nominal heat capacity of 2,000 kW for biomass CHP “large scale” is a somewhat misleading wording. Nevertheless there are direct support measures foreseen for generation facilities. Although not granting support to any generation facilities the measure on heating grids does have a positive impact on this side of the DHC sector. Since heating grids are comparatively expensive and may stand in the way of an investment decision support towards heating grids can have a positive impact on the generation as well.

Distribution:

As mentioned above, there are direct measures concerning the distribution, namely in regards to local heating grids.

Demand:

Organization:

Effectiveness of the measure

Could the measure be considered effective?

It is not possible to gauge the effectiveness of this measure yet, although there are some doubts as to whether the measure can achieve its goals.

Due to which reasons? (quantifications if possible)

Although the Federal Ministry for the Environment, Nature Protection and Reactor Safety claims that in 2009 EUR 1.9 B have been invested in heating systems based on renewable energy sources, there is no way to verify these estimations. Taking a look at the maximum amount of support possible reveals that this is limited to EUR 500 M per year for all measures falling under the MAP. Costs involved with the EEG for feed-in tariffs in 2008 alone were EUR 4.5 B. Coupled with the fact that the MAP is aimed at smaller enterprises it remains to be seen whether the heating market impact will be of substantial dimensions.

How well does the measure suit the market conditions of your country?

The measure aims at smaller scale installations, but does not address the use of renewable energy sources on a broader scale.

Are there any recommended changes to this measure?

Measures should incorporate installations and enterprises of any size.

Is there any review process for this measure and if so what is it?