REPORT

SUPPORT_ERS

WP 2: Overview of existing support instruments for heat generation from renewables and policy recommendations concerning the development of RES-H support instruments

WP leader: AEA

AUSTRIAN ENERGY AGENCY

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Executive Summary

Regarding the total energy consumption the EU has set an indicative target of 20 % renewable by 2020. So far all EU countries have established RES-E support mechanisms to meet the targets and to boost the use of RES in Europe. In the field of RES-H the lack of consistent support instruments contributes to a slow market development. Therefore the overall aim of the present report is to increase the awareness regarding possible support schemes for RES-H/C and to help the partners from the new Member States to develop their own efficient support schemes for heating and cooling on the basis of RES by providing best practice examples and recommendations.

As almost 50 % of the final energy consumption of the EU is used for heating and cooling, RES-Heat and Cooling technologies have the potential to gain a greater share of this large market. Efficient support schemes for RES-H/C can help to stimulate the market.

The overview of the existing support schemes for RES-H shows that several of the project countries have already taken strong action with respect to policy development that supports RES-H technologies. The implemented instruments include financial incentive schemes, regulatory schemes and educationally based schemes. The following table gives an overview about the categories of support schemes implemented in the different project partner countries.

Table 1: Categories of support schemes available in the different project partner countries.

	Austria	Bulgaria	Croatia*	Estonia	Germany	Latvia	Romania	Slovakia	Spain
Financial incentive schemes	yes	yes	yes	yes	yes	yes		yes	yes
Direct grants	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Tax incentives	*yes*	*yes*	*no*	*yes*	*yes*	*no*	*no*	*no*	*yes*
Soft loans/Loan guarantees	*no*	*no*	*yes*	*no*	*yes*	*yes*	*no*	*yes*	*yes*
Incentives linked to housing subsidies	*yes*	*yes*	*no*	*yes*	*yes*	*no*	*no*	*no**	*no*
Regulatory schemes	yes	yes	no	yes	yes	no	no	yes	yes
Educationally based schemes	yes	no	yes	yes	yes	no	no	no	yes

In some of the countries energy policy is conducted only at federal level (e.g. Bulgaria, Romania) while in other countries also the regional governments have responsibility in this field (e.g. Austria, Germany, Spain). The target group of the support instruments mentioned in the report cover all kinds of actors (e.g. companies, households, municipalities, etc.)

The best practice examples from other countries show that most of the policies are financial incentive schemes, even if the allocated budget can vary significantly for each policy as well as the time-spans, technologies applicable, and eligible parties.

The most important lessons learned by current policies are listed in the following table including the information about the level of realiszation in each project partner country.

Table 2: Implementation of “lessons learned” from current policies in the different project parnter countries *(possible answers: good, medium, bad, neither)*

	Austria	Bulgaria	Croatia	Estonia	Germany	Latvia	Romania	Slovakia	Spain
Each country and state has a unique set of circumstances, needs, and resources that play an important role in the design and success of policies for RES-H/C and may influence the appropri-ateness of a policy for a given area.	good	good	good	good	good	good	medium	good	good
The success of a support scheme depends on its design and the supporting levels of enforcement. In order to promote strong, substantial growth in each renewable sector, policies must be reliable and long-term. Targets for definitive quantities or percentages of renewable energy should be clearly outlined and verifiable.	good	good	good	good	good	bad	medium	medium	good
Policy targets should be based on the actual generation of heat rather than on total capacity or number of installations. This ensures that the specific goal of the policy is to promote renewable heat. Basing incentives in terms of plant capacity alone may risk the installation of RES-H/C technologies that are not actually utilized.	good	good	good	good	good	medium	neither	good	bad
A mix of instruments is essential for success: Increasing supply-side confidence may have a positive impact on deployment. Private investment in facilities, marketing and distribution structures and the training of installers tends to accompany stable, predictable and long term policies. In the medium term this leads to a higher market presence, economies of scale, lower costs and improved product quality. Poor quality systems and inferior installations compromise the reputation of the technology and can produce a lack of consumer confidence.	good	good	medium	good	good	neither	bad	good	good
Support schemes for RES-H/C need to address the specific challenge of the distributed nature of local heat demand and variability of use, especially for hot water. In contrast to large scale renewable electricity projects, policies in support of renewable heating should address to a geater extent the availability of local information, the success of local projects, and local circumstances.	good	good	good	good	good	good	medium	medium	good
Bureaucratic and administrative barriers, such as needing	good	good	medium	medium	good	good	medium	medium	medium

planning permission even for simple solar collector roof installations, or mining rights for geothermal heat extraction, may inhibit deployment and should be minimized.									
Continuity should be considered as the most important single element of a well designed and managed financial incentive scheme. Several examples from different countries and RES-H technologies show that discontinous financial incentives can damage the development of healthy market structures by creating a stop & go market dynamic. Under such conditions the supply side and the professional groups (e.g. installers, heating engineers, architects) are discouraged from investing.	good	good	good	good	good	bad	medium	good	good
To avoid creating an incentive to postpone installation of RES-H/C systems, the introduction of new support schemes or the increase of an existing financial incentive system should not be announced before they become valid.	good	good	good	good	good	medium	medium	bad	good
Within a support scheme to last some years, adjustments of certain conditions should be possible to adapt the support scheme to the market development. The adjustments should be discussed with market experts and be introduced aiming at minimizing any negative impact on the market development.	good	medium	medium	medium	good	medium	medium	good	good
The procedures of a support scheme should be simple, both for the applicant and for the public administration.	good	good	bad	medium	good	medium	medium	bad	medium
Financial incentive schemes should not create barriers to trade within the EU. Any technical parameter linked to the eligibility for financial incentive schemes should be strictly oriented to European standards and certification procedures, when they are available. Otherwise it can contribute to create “isolated markets” at national or even regional level, thereby increasing the costs for the users.	good	good	good	good	good	good	good	good	good
Applying the “polluter pays principle”: The costs of the support scheme should be financed by users of non renewable energy.	bad	good	good	medium	good	neither	bad	medium	good
An accurate national data collection relating to heating and cooling supply is necessary to understand the outcome of policies. Due to the distributed nature of heat supply and the local demand, this may be difficult to achieve without extensive user surveys or national sales figures.	medium	medium	bad	bad	medium	medium	bad	medium	vey bad

1 Introduction

The overall aim of the present report - in the frame of the SUPPORT_ERS project[1] - is to increase the awareness regarding possible support schemes for RES-H/C and to help the partners from the new Member States to develop their own efficient support schemes for heating and cooling on the basis of RES by providing best practice examples and recommendations.

Starting from renewable energy targets and legislative initiatives in the partner countries the report gives a systematic overview of existing support instruments for the increased use of RES for the supply of heat and cooling energy. It covers the wide range of instruments implemented on national, regional and local level and addressing different target groups.

The overview of the existing support instruments is followed by best practice examples from Sweden, Switzerland, Denmark, Belgium, France and Italy.

Chapter 3 of this report contains general policy recommendations concerning the development of RES-H support instruments based on lessons learned from current policies as well as country specific recommendations concerning the development and improvement of RES-H support instruments.

1 The IEE-funded project “Optimisation of Support Schemes for Renewable Energy Sources for Electricity Generation, Heating and Cooling” (http://www.support-ers.eu) contributes to the reduction of administrative barriers for the use of RES in the new EU member states and candidate countries, shows political decision makers in the new EU member states and candidate countries options to support RES-Heat, and increases the awareness of regional stakeholders for the benefits of RES. The consortium consists of 12 partners. Ministries and national energy agencies with a direct link to RES policy processes form the core of the consortium. A network of municipalities and a European interest group are involved in order to ensure the link to the regional level and to the European RES industry. SUPPORT_ERS helps to optimise support mechanisms to speed up RES market development and to intensify the cooperation among political decision makers and policy consultants in energy agencies to meet the ambitious RES targets of 2020. The project started in November 2007 and the implementation period will end in January 2010.

2 Existing support instruments for RES-H in the project partner countries

2.1 AUSTRIA

2.1.1 Renewable energy targets

2.1.1.1 The Kyoto target and the Austrian Climate Strategy

The main environmental challenge facing Austria is the achievement of its Kyoto commitment. Austria has to reduce its greenhouse gas emissions by 13 % until the period of 2008-2012 compared to 1990. The Austrian Climate Strategy, published by the Ministry of Agriculture, Forestry, Environment and Water Management, includes a long list of cost-efficient climate protection measures necessary for reaching the Kyoto target. These measures include:

- Regulatory measures
- Fiscal measures
- Subsidisation and public investments
- Flexible mechanism such as Joint Implementation projects, Clean Development measures and EU emissions trading

Renewable energy sources do also have an important role for reaching the climate targets. . Further on the Austrian government has established the klima:aktiv programme to support the achievement of the targets in the strategy. This is a commendable programme addressing all sectors of the economy and supporting energy efficiency and renewables at the same time.

2.1.1.2 Renewable energy targets based on EU-Directives and the programme of the Austrian Federal Government

Since Austria's entry to the European Union in 1995, renewable energy policy has been driven to some extent by EU policies. In line with the Communication of the European Commission on a Biomass Action Plan (Doc. 15741/05) and the Commission Communication on an EU Strategy for Biofuels (Doc. 6153/06), Austria's energy policy is putting a strong focus on increasing the use of biomass as an energy source. The Austrian government sees increased use of renewables in general and biomass in particular as contributing to the three main objectives of energy policy by:

- Enhancing security of supply through the diversification of energy supply sources and the reduction of dependence on external energy sources.
- Enhancing competitiveness through the development of new and efficient technologies and providing economic growth and employment opportunities in rural areas.
- Promoting environmental sustainability through the reduction of GHG emissions and an increase of the share of renewable energy sources, while respecting other environmental policy objectives.

Austria adopted or reaffirmed targets for renewables in 2006, which were set as follows:

- To raise the share of renewables in primary energy demand, and in particular to raise biomass utilisation, but without setting a numerical share.
- To raise the share of renewables in electricity production from 70 % (1997) to 78,1 % (2010) according to the EU Directive 2001/77/EC.
- To reach a share of renewables in the transport sector of 5.75 % by 2008 according to the EU Biofuels Directive.

According to the Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources, Austria`s national objective is a share of 34 % renewables.

In 2005 21.3 % of Austria's primary energy supply was covered from renewables. In 2006 that share increased to 22.4 %.The most important renewable energy sources in Austria are large-scale hydro for electricity production and biomass for electricity and heat production.

2.1.2 Overview of existing support instruments for RES-H

2.1.2.1 General information about Austrian legislation

Austria's energy policy is simultaneously conducted at two levels, the federal and the regional level. The federal Constitution allocates responsibilities either to the federal level or to the regional level. Further more energy policy is formulated and implemented in close co-operation with the social partner organisations, which represent important groups of society (employers, employees, agriculture), and in dialogue with non-governmental organisations (NGOs) and the public.

The most important Austrian energy policy making institutions at the federal level are:

- Federal Ministry of Economics and Labour: the main government institution responsible for energy matters at the federal level
- Federal Ministry of Agriculture, Forestry, Environment and Water Management: responsible for environmental protection, including climate change and emissions from combustion.
- Federal Ministry of Transport, Innovation and Technology: responsible for transport policy and energy R&D
- Federal Ministry of Finance: responsible of setting energy taxes

At the regional level, the governments of the nine provinces also have responsibility for policy making, setting subsidy levels, and implementing regulatory control of energy companies.

At a local level, municipalities or cities also have some possibilities for implementing energy measures. Examples are land-use planning activities, measures concerning energy supply, mobility and internal organisation. Further, cities have a big responsibility regarding awareness raising. They can for example start information campaigns, organise special energy events or publish brochures to inform their inhabitants.

2.1.2.2 Existing support instruments for RES-H

2.1.2.2.1 National

Name of policy	**Environmental Support Scheme for Austrian Enterprises**
Year of implementation	2001
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. biomass, geothermal, solar thermal)
Policy Type	financial incentive
Target Group	companies
Funding	in 2006: € 75.7 million; in 2007: € 92.2 million
Responsible Institution	Federal Ministry of Agriculture, Forestry, Environment and Water Management
URL	www.public-consulting.at
Description	In the frame of the Environmental Support Act the Environmental Support Scheme for Austrian Enterprises offers subsidies to companies. Companies can obtain subsidies for the use of renewable energies (precondition: standards of heating and cooling equipment have to be met), for the enhancement of energy efficiency and for other climate related measures. In the field of renewable energies the fund supports: • biomass (individual plants, local heat, CHP) • heat distribution • geothermal installations • energy recovery from organic waste • solarthermal systems • electricity producing plants The fund is managed by Kommunalkredit Public Consulting GmbH on behalf of the Federal Ministry of Agriculture and Forestry, Environment and Water Management. In 2006 2,333 projects with a total investment volume of € 437.6 million and a total funding of € 75.7 million were supported.

Name of policy	**Federal Promotion of Extraordinary Efficiency in Residential Buildings (according to Art. 15a of the Federal Constitution)**
Year of implementation	2006
Current Status	in force
Policy Type	regulatory instrument
Target Group	households
Responsible Institution	Regional Governments
URL	www.presse.lebensministerium.at/artiche/articleview/43042/
Description	The programme to reduce the climate impacts of housing was announced by Austria´s federal and regional governments. Under the deal, residential buildings must clearly exceed regulatory standards to qualify for the Support Scheme for Residential Buildings. The agreement includes an initial insulation standard of 65 kWh per square metre, falling to 25-45 kWh/m² by 2010. It also introduces new incentives for using renewable heating systems.

Name of policy	**klima:aktiv**
Year of implementation	2004
Current Status	in force
Policy Target	support in achieving the Kyoto target
Policy Type	awareness raising
Target Group	all different kinds of actors
Funding	The government provides about 5 million € per year to the klima:aktiv programmes.
Responsible Institution	Federal Ministry of Agriculture, Forestry, Environment and Water Management
URL	http://www.klimaaktiv.at/article/archive/13182/
Description	In 2004 the Federal Ministry of Agriculture, Forestry, Environment and Water Management launched an eight-year initiative programme for active climate protection. klima:aktiv is an innovative add-on to common instruments of the Austrian Climate Strategy, introducing target-group oriented programmes in the areas energy efficiency & buildings, mobility, communities and renewable energy sources. In the area of renewable energy sources the programmes of today are: • heating pumps • solar thermal • biomass heating plants • biogas • heat from wood • energy wood

	klima:aktiv combines various market-constituent measures and effectuates target-oriented implementation, by providing easier access to target groups and resources for attaining the commonly set targets, by enhanced know how-transfer with support in vocational training and networking of important actors, by the organisation and development of quality assurance and standards as well as by target group-specific information and marketing. The overall objective is to reduce energy consumption and to enforce CO_2-neutral usage of energy. klima:aktiv seeks to bring about a breakthrough in the use of climate-friendly technologies and services in the field of energy-efficiency and renewable energy. Furthermore klima:aktiv wants to accrue their market shares in different areas. The initiative aims at enhancing quality and accelerating the introduction of climate friendly technologies and services, which shall become common alternatives for companies and for private end-users as soon as possible. Networking will help to activate all relevant actors so that the business location of Austria will be strengthened in a sustainable and innovative way. Klima:aktiv programmes educate investors in climate-relevant areas (e.g. promoters of residential housing projects, companies, and home builders) by developing expertise of the providers of respective services (master builders, architects) and by promoting experienced workers in their relevant markets.

Name of policy	**Tax Incentives for Investment in Residential Renewable Generation and Residential Efficiency**
Current Status	in force
Policy Target	solar thermal and heat pumps
Policy Type	financial incentive
Target Group	households
Responsible Institution	Ministry of Finance
URL	http://www.solarwaerme.at/EFH/Foerderungen/
Description	The personal income tax law specifies a variety of special expenses, such as the purchase of solar or heat pump technologies for residences that can be deducted from the income. This is capped at € 2 920 per year for ordinary tax payers. An additional deduction of € 2 920 for single income households, and € 1 460 is granted if there are at least three children living in the household. Only 25 % of the amount may be deducted from the income.

Name of policy	**Subsidy Campaign for Biomass Heating Plants for Residential Use**
Year of implementation	2008 (valid between April 8th and Feb. 28th 2009)
Current Status	in force
Policy Target	small biomass heating plants (< 50 kW)
Policy Type	financial incentive
Target Group	households
Funding	9 Million € for the period of validity
Responsible Institution	Climate and Energy Fund
URL	http://www.public-consulting.at/de/portal/umweltfrderungen/klimaundenergiefonds/frderaktionholzheizungen/
Description	All persons who buy a biomass heating plant for private use only can obtain a subsidy of € 800,- (pellets) or of € 400,- (other biomass).

Name of policy	**Financial Incentives for Rural Biomass Energy Generation**
Current Status	in force
Policy Target	rural biomass energy projects (e.g. biogas, solid biomass)
Policy Type	financial incentive
Target Group	agricultural companies
Responsible Institution	Federal Ministry of Agriculture, Forestry, Environment and Water Management
Description	Rural biomass energy projects such as district heating from wood chips and biogas CHPs receive an investment grant.

2.1.2.2.2 Regional

Name of policy	**Support Scheme for Residential Buildings**
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. biomass, solar thermal, heat pumps)
Policy Type	financial incentive
Target Group	households
Responsible Institution	Regional Government
Description	Through the Subsidy Scheme for Residential Buildings measures on renewable energy and energy efficiency are financed. These subsidies are granted for newly built houses as well as for the renovation of existing houses. While the initial purpose of these subsidies goes back to social thoughts, renewable energies and energy efficiency have become a more and more important criteria for the eligibility of these funds. Minimum standards on the building's energy consumption are nowadays a prerequisite for receiving these subsidies. Measures financed through these subsidies are for instance: • Insulation of buildings (e.g. thermal insulation of windows, exterior walls, roofs, etc.) • Heating systems based on renewable energies or district heating (from renewables or CHP): e.g. solar thermal installations, heat pumps, biomass heating, etc. • Ecological building material • High-density housing: possible reduction of urban sprawl and transport intensity The Subsidy Scheme for Residential Buildings is subject to regional law ("provinces"). Therefore there are different subsidy schemes in each of the 9 provinces. Approximately 2.5 bill. € (20 % for renovation and 80 % for new buildings) are granted every year in the context of this subsidy scheme (not exclusively for energy measures). The financial support allocated to the Subsidy Scheme for Residential Buildings is guaranteed by the Financial Distribution Act (allocating federal tax revenues to executive bodies on federal, provincial and municipal level).

Name of policy	**Direct or loophole subsidies**
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. biomass, solar thermal, heat pumps)
Policy Type	financial Incentive
Target Group	households
Responsible Institution	Regional Governments
Description	In case that no Support Scheme for Residential Buildings is offered, some provinces offer a "loophole" subsidy. This kind of subsidy is for all plants which do not meet the minimum investment volume requested by the Support Scheme for Residential Buildings.

Name of policy	**Subsidies for Biomass District Heating Plants**
Current Status	in force
Policy Target	biomass district heating
Policy Type	financial incentive
Target Group	companies or agricultural cooperative societies
Responsible Institution	Regional Governments
Description	An investment grant is offered to companies or agricultural cooperative societies that produce district heat from biomass.

Name of policy	**Subsidies for Private Companies**
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. biomass, solar thermal)
Policy Type	financial incentive
Target Group	private companies
Responsible Institution	Regional Governments
Description	In some provinces companies which invest in renewable energy sources for heating are supported by investment grants.

Name of policy	**Subsidies for sports complexes**
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. solar thermal, heat pumps)
Policy Type	financial incentive
Target Group	owner of sports complexes
Responsible Institution	Regional Government
Description	In the frame of the building or renovation of sports complexes Austrian provinces offer investment grants for renewable energy plants.

Name of policy	**Programme for Municipalities**
Current Status	in force
Policy Target	the use of renewable energy sources
Policy Type	awareness raising financial incentive
Target Group	Municipalities
Responsible Institution	Regional Government (Upper Austria)
Description	Upper Austria supports their municipalities in realising activities regarding energy efficiency, renewable energy sources and energy concepts. The subsidy is limited with 20,000 €. Subsidies are for example granted for the realisation of energy concepts. Subsidies are not offered for investments in energy plants or labour costs.

Name of policy	**Energy Consulting Service**
Policy Type	awareness raising
Target Group	households, companies, municipalities,…
Responsible Institution	Regional Governments
Description	All Austrian provinces offer energy consulting services.

2.1.2.2.3 Local

Name of policy	**Support for Renewable Energy Plants**
Policy Target	multiple renewable energy sources (e.g. solar thermal, heat pumps, biomass)
Policy Type	financial incentive
Target Group	households, companies, others
Responsible Institution	municipalities
Description	In addition to the federal and the regional support instruments, a lot of Austrian municipalities do offer investment grants for the use of renewable energy sources (e.g. solar thermal, heat pumps) for heating.

2.1.2.2.4 Others

Name of policy	**Subsidies granted by energy supplying companies**
Policy Target	heat pumps
Policy Type	financial incentive
Target Group	clients of the energy supplying companies
Responsible Institution	Energy supplying company
Description	Some Austrian energy supplying companies do offer subsidies for heat pumps.

2.2 BULGARIA

2.2.1 Renewable energy targets

The Kyoto target for Bulgaria is 8 % reduction on the GHG emissions comparable to the basis year 1988 for the period 2008-2012 and 20 % reduction in 2020.

The renewable energy target for Bulgaria is to reach 11 % electricity produced from RES in 2010 and 16 % in 2020.

2.2.2 Overview of existing support instruments for RES-H

2.2.2.1 Existing support instruments for RES-H

2.2.2.1.1 National

Name of policy	**Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL)**
Year of implementation	2004 – 2008 (and second extensions until 30.06.2011)
Current Status	in force
Policy Target	multiple renewable energy sources
Policy Type	financial incentive (loans, incentive grants)
Target Group	industrial companies
Funding	The financial support is provided by EBRD (loans) and KIDSF (Kozloduy International Decommissioning Support Fund) incentive grants plus free of charge technical assistance.
Responsible Institution	http://www.beerecl.com/
URL	The Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL) was developed by the European Bank for Reconstruction and Development (EBRD) in 2004 in close co-operation with the Bulgarian Government and the European Union. The facility extends loans to participating banks for on-lending to private sector companies for industrial energy efficiency and small renewable projects. Bulgarian banks participating in the BEERECL: • Bulgarian Postbank • DSK Bank) • Raiffeisen Bank • UniCredit Bulbank • Unionbank • United Bulgarian Bank • Piraeus Bank The BEERECL will help to significantly reduce emissions and will generate considerable amounts of tradable Green Certificates. The facility is also supported by the Kozloduy International Decommissioning Support Fund (KIDSF), which undertakes safety and decommissioning activities related to the closure of the Kozloduy nuclear power plant. The European Union, a number of member countries and Switzerland have contributed to the Fund that also promotes energy efficiency and renewable energy.

	The EBRD contracted DAI Europe which in co-operation with EnCon Services, will provide consultancy services to project developers in preparing business plans (rational energy utilization plans), loan applications and implementation. The EBRD furthermore contracted ESBI as Independent Energy Expert, which will verify the project after completion, on whether it meets the objectives of the facility, which will be the basis for the decision to pay the project developer an incentive, being a percentage (15 % for energy efficiency or 20 % for renewable energy) of the loan given to the developer under the BEERECL facility. Projects eligible for loans from the participating Banks under the BEERECL Facility are: Industrial Energy Efficiency, such as: • co-generation • heat and steam recovery • automation and control systems • upgrade/replacement of utilities • fuel switching (coal/mazut to gas) • process optimization Renewable Energy, such as: • biomass • biogas • wind • run-of-the-river hydro • geothermal • solar

Regulatory schemes

The increasing petrol prices, electricity problems in major geographical areas, the ambitious environmental goals of Europe and the need of new energy sources are only some of the preconditions which have led to the idea to elaborate a new law on renewable and alternative energy sources and biofuels. The law has been in force since June 2007.

The law regulates the public relations related to the production and consumption of electrical, heating and cooling energy from RES and alternative energy sources (AES), as well as the production and consumption of biofuels.

The main goals of the law are as follows:

- Support of the development and utilization of technologies for production and consumption of RES and AES energy and consumption of biofuels;
- Reduction of the expenses for energy resources import;
- Increase of the capacity of the small and medium enterprises, RES and AES energy producers and biofuels producers;
- Diversification of energy supply;
- Creation of conditions for achievement of sustainable development on local and regional level and
- Environmental protection.

In order to support the RES electricity production a 15 year period for obligatory purchase of this electricity on feed-in tariffs set by the State Energy and Water Regulatory Commission has been established. This will allow investors to calculate more reliable and accurate forecasts and cash flows for many years in advance and respectively will help to compile a better forecast on the return rate, as the period covers a full investment cycle for construction of an installation.

The new RES installations are obligatorily connected to the electricity grid with a high priority. This means that the RES producer will be preferentially connected to the electricity grid before the producer of any other conventional electricity.

So far the Commission has set the feed-in tariffs for hydro power plants, biomass electricity, wind power energy and photovoltaic energy. The state regulatory commission will set up the feed-in tariffs for other sources when the request from an investor has been made.

Table 3: Feed-in-tariffs

Resource	Technology	Support level [€cents/ kWh]	Feed-in tariff or premium?	Start year	Duration [years that an investor is entitled to support]
Wind	onshore	145 лв./MWh.	feed- in	2006	15 years
Wind	New wind plants in operation after 01.01.2006 with installed capacity over 800 kW:• With working hours per year up to 2250	189 лв./MWh.			15 years
Wind	New wind plants in operation after 01.01.2006 with installed capacity over 800 kW:• With working hours per year over 2250	172 лв./MWh.			15 years
Solar PV	installed capacity up to 5kW	823 лв./MWh.	feed in	2006	25 years
Solar PV	With installed capacity over 5kW	755 лв./MWh.	feed in	2006	25 years
Small Hydropower plant up to 10 MW	up to 10 MW	105 лв./MWh.	feed in	2006	15 years
Biomass for producing electricity		between 166 and 217 лв./MWh., depending on the art of used biomass.			15 years
Heat power produced by CHP installation		125 – 195 лв./MWh, depending on the producer.			

Comment: The exchange rate is following - 1 Euro - 1,9583 Bg leva. VAT is excluded from the above prices.

Source: Ministry of Economy

From 01.06.2009 the Commission has set the feed-in tariffs for small hydro power plants with installed capacity up to 5 MW as following:

- For low pressure axes hydro power plants - 149 лв./MWh, without VAT or around 76 Евро/MWh.
- For low pressure apron hydro power plants - 199 лв./MWh, without VAT or around 100 Евро/MWh.

The exchange rate is following - 1 Euro - 1, 95583 Bg leva. VAT is excluded from the above prices.

For the first time of the legislative history in Bulgaria, a supporting mechanism for the heat and cooling energy from RES has been introduced by law. Provision is made for the issuing of guarantees of origin which can at a later stage be used as a trading document that proves the production of green energy.

By this means a complex utilization of the RES will be achieved, not only for electricity but for heat and cooling energy production also. The replacement of the conventional fuels thus will lead to a significant reduction of the harmful emissions by conventional heat production, which will subsequently lead to an improvement of the environment and life quality.

Awareness raising schemes

Conferences and seminars at a national, regional and local level.

About 10-15 events on RES are organized in Bulgaria by different state- and NGO institutions. The state policy on RES is managed by the Ministry of Economy and Energy Department and Environmental Protection. Every year the Energy Efficiency Agency organises a traditional international conference on the results of EE and RES implementation during the past year.

2.3 CROATIA

2.3.1 Renewable energy targets

2.3.1.1 Kyoto Protocol

Croatian Parliament ratified the Kyoto Protocol in April 2007. As an Annex I party of the Climate Change Convention (UNFCCC) and Annex B party of the Kyoto protocol, the Republic of Croatia has an obligation to reduce its greenhouse gas emissions by 5 % in the first commitment period between 2008 and 2012 compared to the base year (1990).

In 2007, the Republic of Croatia prepared the National Strategy for Implementation of UNFCCC and the Kyoto Protocol with an action plan, which constitutes significant implementation of renewable energy sources in order to meet the Kyoto target.

2.3.1.2 RES Electricity

Package of five sublaws on RES electricity and cogeneration was adopted in 2007, as follows:

- Tariff system for the production of electricity from renewable energy sources and cogeneration (Official Gazette, 33/07);
- Regulation on the fee for the promotion of the electricity production from renewable energy sources and cogeneration (Official Gazette, 33/07);
- Regulation on a minimum share of electricity produced from renewable energy sources and cogeneration in the electricity supply (Official Gazette, 33/07);
- Ordinance on the usage of renewable energy sources and cogeneration (Official Gazette, 67/07);
- Ordinance on the obtaining of the eligible electricity producer status (Official Gazette, 67/07).

Regulation on the minimum share of electricity produced from renewable energy sources and cogeneration in the electricity supply:

- **2007: 1.8 % electricity from RES, 0.6 % cogeneration (of total electricity consumption)**
- **2010: 5.8 % electricity from RES, 2.0 % cogeneration (of forecasted electricity consumption)**

Table 4: Feed-in-tariffs

Resource	Technology	Support level [€cents/kWh]
PV	<10 kW	46.58
	10-30 kW	41.10
	>30 kW	28.77
Small Hydro (<1 MW)	<1 MW	9.45
Small Hydro (>1 M)	< 5000 Gwh/year	9.45
	5000-15000 GWh/yr	7.53
	>15000 GWh/y	5.75
Wind	<1 MW	8.77
	>1 MW	8.90
Biomass	Forestry and Agriculture<1 MW	16.44
	Forestry and Agriculture>1 MW	14.25
	Wood Industry<1 MW	13.01
	Wood Industry>1 MW	11.37
Geothermal	<1 MW	17.26
	>1 MW	17.26
Biogas	<1 MW	16.44
	>1 MW	14.25
Liquid Biofuels	<1 MW	4.93
	>1 MW	4.93
Landfil gas	<1 MW	4.93
	>1 MW	4.93
Others (wave, tidal, etc)	<1 MW	8.22
	>1 MW	6.85

2.3.1.3 RES Transport

- Regulation of quality standards for biofuels (Official Gazette, 141/05): defines quality standards and requirements and national indicative target
- There are no incentives (or tax exemption) regulation.
- Plans for putting biofuels on the national market for 2007, 2008 and 2009 were prepared.
- Preparation of a new Biofuels Law, should be in place by mid 2009.

The national indicative target is defined in the regulation of quality standards for biofuels:

- **2010: 5.75 % of biofuels in total fuel consumption of transport sector**

2.3.1.4 RES Heating and Cooling

Law on production, distribution and supply of heat was adopted in 2005.

Sub-laws on RES-H are in preparation phase:

- Rulebook defining the status of subsidised RES heatin&cooling producer
- Regulation on the minimum share of RES heating&cooling and financial incentives for subsidized RES heating&cooling producer

Work on the concept was finished in 2008.

Sub-laws should be in place in 2009.

National targets for the production of heating and cooling from RES have not yet been determined.

2.3.1.5 Share of RES in primary energy supply

- Croatia currently imports 53 % of its energy consumption.
- Total Primary Energy Supply (TPES) in 2007: 417 PJ.
  - Share of RES other then fuelwood and hydro power in TPES: 0.17 %
- Gross electricity consumption in 2007: 18 606.2 GWh.
  - Share of RES in gross electricity consumption: 0.70 % (0.45 % small hydro, 0.19% wind and 0.04 % landfill gas)

There is a significant potential for wind, biomass and solar energy.

Total Primary Energy Supply in 2007:

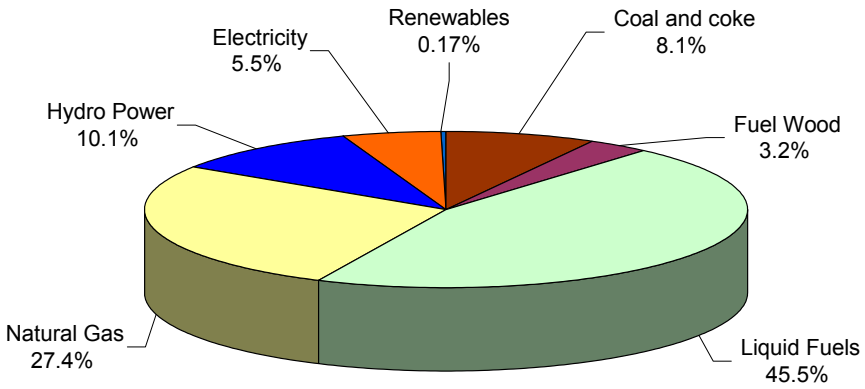

Table 5: RES in 2007

	Th. capacity	Th. production	El. capacity	El. production
Solar	45.5 MW	26.10 TJ	49.96 kW	52.65 MWh
Wind	0	0	17.15 MW	34.91 GWh
Biomass	512.0* MW	13 380** TJ	2.00 MW	7,02 GWh
Small hydro	0	0	32.76 MW	83.00 GWh
Geothermal	113.9 MW	562.81 TJ	0	0

*Only industrial heating plants

**Total, includes fuelwood for households heating

2.3.2 Overview of existing support instruments for RES-H

2.3.2.1 General information about the future legislation of Croatian

Work on the concept for supporting the production of heat and cool from RES was finished in April 2008. Sub-laws should be developed in 2009:

- Rulebook defining the status of subsidized RES heating & cooling energy producers - should define eligible RES heating&cooling technology and technical criteria for each technology
- Regulation on the minimum share of RES heating&cooling and financial incentives for subsidized RES heating&cooling producer - should define the share of subsidized RES heating & cooling energy production in final energy consumption and total primary energy supply for 2010 and 2020, as well as the amount of financial incentives for different kinds of RES technology

2.3.2.2 Existing support instruments for RES-H

2.3.2.2.1 National

Name of policy	**Support of RES usage by Fund's annual tenders**
Year of implementation	2004 - 2008
Current Status	in force (new tenders are expected for coming years)
Policy Target	financing projects, programmes and measures for the purpose of environmental protection, energy efficiency and the use of RES
Policy Type	financial incentive
Target Group	companies, local/regional self-government and other institutions
Funding	in 2006: € 5.6 million (for RES)
Responsible Institution	Environmental Protection and Energy Efficiency Fund

URL	http://www.fzoeu.hr
Description	Environmental Protection and Energy Efficiency Fund is an extra-budgetary fund that finances projects, programmes and measures for the purpose of environmental protection, increase of energy efficiency and the usage of RES in Croatia. There are four financial instruments: • Soft Loan: up to 40 % of eligible costs, max 230 000 EUR, zero interest rate, repayment (grace period 2 years, payback 5 years) • Interest Subsidy: 2 % decrease of the stipulated interest rate • Financial Aid (i.e. grant): for units of local/regional self-government 40 %/60 %/80 % of eligible costs depending on the location (island/mountain, assisted regions) • Donation: up to 27 000 EUR, for promotion, research and development Till now the fund support was limited to companies, local/regional self-governments and other institutions. The scheme for financing natural persons is being developed at the moment and should start in 2009.

2.3.2.2.2 Regional

Name of policy	**Support for installation of solar thermal collectors in Sisacko-moslavacka county**
Year of implementation	2008
Current Status	tender closed
Policy Target	multiple solar thermal collectors
Policy Type	financial incentive
Target Group	households
Funding	grant: 20 % of investment and installation costs (max. 1 370 EUR) per solar thermal collector
Responsible Institution	Sisacko-moslavacka county
URL	http://www.smz.hr
Description	The purpose of the tender was to multiple solar thermal collector installations in Sisacko-moslavacka county. Only natural persons (households) could apply on the tender for financial incentives for solar thermal collectors. Financial incentives were 20 % of investment and installation costs (max. 1 370 EUR). Incentives could be received only after installation of collector and audit by county committee.

Name of policy	**Support for liquid petrol gas (LPG) or LPG in combination with solar thermal collectors on unbridged islands**
Year of implementation	2008
Current Status	tender closed
Policy Target	increase of usage of LPG and solar thermal collectors
Policy Type	financial incentive
Target Group	households and public sector on unbridged islands
Funding	soft loan (credit without interest rates) for natural persons (max. 2 740 EUR) grant: 60 % of investment costs for public sector (max 116 440 EUR)

Responsible Institution	Ministry of Economy, Labour and Entrepreneurship and Environmental Protection and Energy Efficiency Fund
URL	http://www.fzoeu.hr
Description	The purpose of the tenders (two tenders: households and for public sector) were to increase usage of liquid petrol gas and solar thermal collector installations on unbridged islands.

2.3.2.3 Renewable Energy Sources Project

RES Project started in 2005. International Bank for Reconstruction and Development - IBRD (GEF implementing agency) awarded a grant (5.5 million USD) to Croatia. The Fund for Environmental Protection and Energy Efficiency (EPEEF) has co-financed the project. The Croatian Reconstruction and Development Bank (HBOR) is the Implementing Agency that administers the grant funds.

RES Project has two components:

- RES market development
- Support in preparation of RES projects

Objectives:

- develop an economically and ecologically sustainable market of renewable sources of energy in Croatia,
- reduce the dependence of the Croatian economy on imports of electricity and fossil fuels,
- reduce GHG emission,
- create conditions necessary for attracting private investments in renewable energy sources,
- promote the development of industry at the local level,
- promote employment.

2.4 ESTONIA

2.4.1 Renewable energy targets

2.4.1.1 The Kyoto targets

In 1998, Estonia became a party to the Protocol signed at the Kyoto conference according to which between 2008–2012 the emission of greenhouse gases must be reduced by 8 % as compared to 1990. In accordance with the objective, the total CO_2 emission in Estonia between 2008–2012 must be reduced to the level of 34 494 thousand tonnes of CO_2 annually. The actual level of emission has been reduced down to 52.6 % by 2005.

2.4.1.2 Renewable energy targets based on EU-Directives

The strategic objectives of the Estonian fuel and energy sector have resulted from EU policies and regulations. According to the Long-term Public Fuel and Energy Sector Development Plan the RES related objectives until 2015 are to:

- ensure that by 2010 renewable electricity share will be 5.1 % of the gross consumption;
- ensure that by 2020 electricity produced in combined heat and power production stations accounts for 20 % of the gross consumption;
- ensure compliance with the environmental requirements established by the state;
- increase the efficiency of the energy consumption in the heat, energy and fuel sector;
- until 2010: maintain the volume of primary energy consumption at the level of the year 2003;
- develop measures which enable the use of renewable liquid fuels, particularly biodiesel, in the transport sector;
- ensure that modern know-how and specialists are constantly available in all fields of the fuel and energy sector to promote technology development within the state and enable transfer of the modern energy technology;

Specified targets for the Estonian fuel and energy sector:

- 440 GWh electricity produced from renewable energy sources by year 2010 and 491 GWh by 2015 (110 GWh in 2005);
- 1294 GWh electricity produced in combined heat and power stations by 2010 and 1733 GWh by 2015 (1038 GWh in 2005);
- 3154 GWh heat produced from renewable energy sources and CHPs by 2010 and 3680 GWh by 2015 (2246 GWh in 2005);
- Increase the share of bio-fuels in the transport sector by 5.75 % until 2010 and by 8 % until 2015 (0% in 2005).

2.4.1.3 Share of RES in primary energy supply

In 2006, domestic fuels accounted for 65 % of the total primary energy supply, the break-up of supplies of primary energy was as follows: oil shale formed 59.8 % and wood & peat together 10.7 % of the supplies. 43 % of primary energy was used for the production of electricity and 24 % was used for the production of heat.

In 2006, 37.1 % of heat was produced in power plants and 62.9 % in boiler houses.

The proportion of renewables in primary energy supplies was 18 % in 2005, the target is 25 % by 2020.

The proportion of renewables in electricity production was 1.31 % in 2006, the target was 5.1 % by 2010

The proportion of combined heat production was 31.1 % in 2006, the target was 35–40 % by 2010.

The Estonian heat production from renewable energy primarily derives from combined heat and power production based on biofuel.

2.4.2 Overview of existing support instruments

2.4.1.4 General information

The Estonian fuel and energy market is organised analogously to the other EU Member States and the fuel and energy supply, as a whole, meets the essential needs of the consumers. In order to implement the strategic objectives and principles of the fuel and energy sector, the state may use the following measures:

- regulative or legislative measures (including price formation mechanisms),
- the tax system,
- investment support,
- National programmes (including education, research and technology development).

Regulations that affect power engineering are prepared in several ministries. The Ministry of Economic Affairs and Communications is responsible for providing the regulation of the energy market and the technical requirements for the energy related equipment. Regulations which significantly affect power engineering are also developed by the Ministry of the Environment (use of mineral resources, pollution charges, environmental requirements etc.) and by the Minister of Finance (excise duties, principles of value added tax, use of state budget funds etc.).

The Energy Regulatory Division of the Estonian Competition Authority (Energy Market Inspectorate) supervises the energy market. Supervision over the liquid fuel market is also exercised by the Tax and Customs Board. The Technical Inspectorate checks the technical condition of the equipment used. The Competition Division of the Estonian Competition Authority (Consumer Protection Board) represents the interests of consumers in relations with energy undertakings.

2.4.2.1.1 National

Name of policy	**Environmental Programme**
Year of implementation	2000
Current Status	in force
Policy Target	Ambient air protection Renewable energy: thermal, geothermal, biomass
Policy Type	Financial incentives: capital grants, soft loans, co-financing grants Financing of awareness raising activities: labelling of appliances, information distribution (marketing campaigns, brochures, newsletters), training programmes (in schools, universities or amongst key professional groups) etc.
Target Group	Municipalities, private companies, institutions scientific research and education, non-profit organisations and foundations, governmental organisations related to environmental protection
Funding	Environmental Programme mediates state budget funds received from the environmental fees through the environmental programme (amount of annual funding depends on environmental fees gathered).
Responsible Institution	Ministry of the Environment
URL	www.kik.ee
Description	The Environmental Investments Centre (EIC) was founded pursuant to the Use of Proceeds from Exploitation of the Environment Act. The main activities of the EIC are to channel the proceeds from the exploitation of the environment into environmental projects and to lend money for the implementation of environmental projects.

Name of policy	**Operational programme for the development of the living environment**
Year of implementation	2007
Current Status	in force
Policy Target	Wider use of renewable energy sources and ambient air protection: Fuel-switch of boiler houses to biomass; energy conservation actions in boilerhouses; building of infrastructures for connection of new producers; adjusting public transport to bio-fuels and hydrogen.
Policy Type	Financial incentives: capital grants
Target Group	Local municipalities and private companies
Funding	2007-2013 € 68 million in total (€ 11.3 million per year)
Responsible Institution	Ministry of the Environment, The Ministry of Economic Affairs and Communications
URL	www.kik.ee

Description	During the period of 2007-2013, the EIC acts as an implementing agency of environmental measures financed from the ERDF, CF and the ESF and intermediates the total of € 163 million in the years 2007-2013. The EIC processes the received applications, monitors the implementation of projects and verifies the expenses and realisation of the projects. The priority axes of the operational programme for the development of the living environment are: 1) Development of water and waste management infrastructures (from the Cohesion Fund) 2) Development of infrastructures and support systems for sustainable use of the environment (from the ERDF, CF and the ESF) 3) Development of energy sector (from the ERDF, CF) 4) Development of infrastructures and support systems for sustainable use of the environment from the ERDF, CF and the ESF

Name of policy	**Biomass and bioenergy development**
Year of imple-mentation	2007
Current Status	in force
Policy Target	Bioenergy, biofuels
Policy Type	Financial incentives: grants, soft loans, co-financing grants Grants to promote public awareness: exhibitions; seminars and conferences; study trips; consulting and training; collecting, analysing, translating, designing, and publishing relevant information on the bioenergy homepage (www.bioenergybaltic.eu) Funding of research and development: assessing land resources available for energy production; assessing available biomass resources; energy crop studies; technology studies; analysing of bioenergy policy tools
Target Group	Farmers, private companies
Funding	on the bases of the concluded studies specific activities and a budget are drawn up on an annual basis
Responsible Institution	Ministry of Agriculture
URL	www.mes.ee
Description	The Rural Development Foundation (RDF) was founded by Ministry of Agriculture in 1996. The foundation issues guarantees to banks for credits granted to farmers and other entrepreneurs in the Estonian rural areas. It acts as the implementing agency for the “Biomass and bioenergy develop-ment plan for the years 2007- 2013”.

2.5 GERMANY

2.5.1 Renewable Energy Targets

2.5.1.1 Going beyond the Kyoto targets – the German Climate Strategy

The Kyoto commitment of the European Union (EUR15) is to reduce its green house gas emissions by 8 % until the period 2008-2012 compared to 1990. Through a balancing of burden agreement between the Member States of the European Union (EUR15), Germany's commitment resulting from the Kyoto protocol is to reduce green house gases by 21 % until the period 2008-2012 compared to 1990.

The German Strategy on Climate Protection has been based upon this ambitious internationally binding commitment since the Germany ratification of the Kyoto Protocol. At the end of 2003, Germany had already reduced its green house gas emissions by 18.5 % compared to 1990, already contributing to a major share of >60 % green house gas reductions throughout the European Union (EUR15).

At the European level, Germany launched an initiative to commit the European Union to ambitious targets regarding climate protection in the post-Kyoto era. Germany, in this situation, offered to commit itself to a reduction of its own green house gas emissions by 40 % until 2020 compared to 1990 if the European Union would commit itself to an overall reduction of green house gas emissions by 30 % in the same period of time.

As a result, the European Council decided in March 2007 to commit the European Union to a reduction of at least 20 % of greenhouse gases (GHG) by 2020 – rising to 30 % if there is an international agreement committing other developed countries to "comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities".

Seeing itself in the lead regarding climate protection in Europe, the German government put the subject of climate protection also on the Agenda of the G8 Summit in Heiligendamm in 2007. The compromise found between the leading industrial nations was to half the green house gas emissions until 2050.

2.5.1.2 Renewable Energy Targets based on EU Directives and the programme of the German Federal Government

On 23rd January 2008, the European Commission launched its proposal for an EU Directive on the Promotion of the Use of Energy from Renewable Sources (COM(2008) 19 final).

The proposed Directive lays down the principles according to which member states need to ensure that the share of renewable energy in the EU final energy consumption reaches at least 20 % by 2020, and to establish national overall targets for each member state.

Three sectors are concerned in renewable energy: electricity, heating and cooling and transport. The overall approach for member states is to retain discretion as to the mix of these sectors in reaching their national target. However, it is proposed that each member

state shall achieve at least a 10 % share of renewable energy (primarily biofuels) in the transport sector by 2020.

On 23rd/24th August 2007, the German government published its corner points for an Integrated Climate and Energy Programme. This programme was jointly developed by the

- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

  and the

- Federal Ministry of Economics and Technology (BMWI)
- Federal Ministry of Transport, Building and Urban Affairs (BMVBS)
- Federal Ministry of Finance (BMF)
- Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)
- Federal Ministry of Education and Research (BMBF)
- Federal Ministry of Economic Cooperation and Development (BMZ)

The most important actions included in the programme are focusing on:

- **Kraft-Wärme-Kopplungsgesetz - Combined Heat and Power Law (BMWI)**
  In order to increase energy efficiency, the share of combined heat and power plants in power generation shall be duplicated from approximately 12 % in 2007 to approximately 25 % in 2020. This target shall be promoted by means of an amendment of the CHP-law "Kraft-Wärme-Kopplungsgesetz", establishing support instruments for the construction of combined heat and power plants as well as of district heating networks.
- **Erneuerbare-Energien-Gesetz - *Renewable Energies Law* (BMU)**
  The Federal Government is aiming at increasing the share of renewable energies in power generation from approximately 13 % in 2007 to 25-30 % in 2020 with a continuous further increase afterwards. The amendment of the Renewable Energies Law, which is among other things going to alter the feed-in tariffs for off shore wind parks, is supporting this target.
- **Erneuerbare-Energien-Wärmegesetz – *Reneable Energies Heat Law* (BMU)**
  The Federal Government wants to increase the share of renewable energies in heat supply to 14% in 2020. In order to promote this target, for new buildings the new law will make the use of renewable energies for heating purposes mandatory.
- **Feed-in of biogas into the gas grid (BMWI)**
  Currently existing legal barriers regarding the feed-in of biogas shall be removed by amended relevant regulations.
- **Energieleitungsausbaugesetz – *Energy Line Development Law (*BMWI)**
  Measures shall be taken to improve the grid integration of renewable energies. The new Energy Line Development Law will set priorities for most urgent line construction projects and implement a bundled procedure of admission for ocean cables linking offshore wind parks.

- **Amendment of the Energiewirtschaftsgesetz (EnWG) – *Power Industry Law* - for the liberalisation of power metering (BMWI)**
  Admission of innovative metering systems for the facilitation of load-depending and time-variable tariffs.
- **Amendment of the Energieeinsparverordnung (EnEV) – Energy Saving Regulation (BMVBS / BMWI)**
  The energetic standards for buildings will be improved (by 30 % in 2009 and in a comparable dimension again after the year 2012).
- **Supporting programmes for the energetic renovation of buildings and social infrastructure (BMVBS)**
  The existing CO_2 building renovation programme will be enhanced and prolonged until 2011. Existing energy saving potentials in urban structures and in social infrastructure shall be used more consequently. 200 million € of funds are available for the reduction of interest on loans provided to municipalities.
  The existing programme for the modernisation of federal buildings will be prolonged until 2011.
  A joint investment programme will be launched in 2008 by the federal government, the federal states and the municipalities for the energetic renovation of social infrastructure. Available funds will amount to a total of 600 million €.
- **Administrative rules and directives for the procurement of energy efficient products and services (BMWI)**
  New procurement rules and guidelines of the federal government are aiming the preferred procurement of energy efficient products and services. In this way, the federal government wants to set the trend for the promotion of energy efficient products and services in general.
- **Increase of the share of bio fuels (BMU, BMF, BMELV)**
  An amendment of the Biokraftstoffquotengesetz – *bio fuel ratio law* – shall increase the share of bio fuels to approximately 20 % in volume (equivalent to 17% in energy content) until 2020.
- **Adaptation of the tax on motor vehicles to specific emission rates (BMF)**
  Tax on new vehicles will be adapted to the specific emission of pollutants and CO_2 of the vehicle.
- **PKW-Energieverbrauchskennzeichnungsverordnung – *Vehicle's Energy Consumption Marking Regulation* (BMWI)**
  Creation of incentives for the purchasing of less energy consuming cars.
- **Improvement of effectiveness of the motor way fee for trucks (BMVBS)**
  Lower fees for low-emission trucks.
- **Energy research and innovation (BMWI, BMU, BMBF, BMVBS, BMELV)**
  Federal Government is going to start new initiatives in energy research focussing on climate protection, energy efficiency, renewable energies and CO_2 storage.
- **Financial subsidies from the federal budget (BMVBS, BMU, BMZ, BMWI, BMBF, BMELV, BMF)**
  The total spending for the Integrated Climate and Energy Policy amounts to 3.3 billion € in 2008 which is 1.8 billion more than in 2005.

Legal procedures regarding most of the announced initiatives are planned to be finalised in 2008.

On 5th December 2007 the federal government launched its new market incentives programme for renewable energies in order to promote RES-H in the heat market (see 5.2.1).

2.5.1.3 Share of RES in total energy supply

Table 6: Renewable Energy Sources as a Share of Energy Supply in Germany (%)

Renewable Energy Sources as a Share of Energy Supply in Germany (%)				
	Electricity generation	Heat supply	Fuel consumption	Total
1998	0.8	1.3	0.03	2.1 %
2002	1.4	1.5	0.1	3.0 %
2006	2.4	2.1	1.0	5.5 %
2007	3.2	2.3	1.2	6.7%

Provisional figures, version: March 2008

Share of primary energy consumption (PEC) calculated according to the efficiency method; acc. to the substitution method: 9.1 %

Source: BMU according to Working Group on Renewable Energies / Statistics (AGEE-Stat)

Table 7: Contribution of Renewable Energy Sources to Germany´s Energy Supply in 2007

Contribution of Renewable Energy Sources to Germany's Energy Supply in 2007		
Share of Renewable Energy Sources		
in total final energy consumption	%	8.5
in total gross electricity consumption		14.2
in total heat supply *		6.6
in total road traffic		6.9
in total primary energy consumption		6.7

Share in total final energy consumption for heat

Version: March 2008; provisional figures,

Source: BMU according to Working Group on Renewable Energies / Statistics (AGEE-Stat)

2.5.1.4 Share of RES-E in power supply

Table 8: Contribution of Renewable Energy Sources to Electricity Generation in Germany 1990-2007

Contribution of Renewable Energy Sources to Electricity Generation in Germany 1990-2007								
	Hydro-power [1]	Wind energy	Bio-mass [2]	Bio-mass share of waste [3]	Photo-voltaics	Geo-thermal energy	Total Electricity generated	**Share of gross electricity consump-tion**
	GWh	GWh	GWh	GWh	GWh	GWh	GWh	**%**
1990	17,000	40	222	1,200	1	0	18,463	**3.4**
1991	15,900	140	250	1,200	2	0.0	17,492	**3.2**
1992	18,600	230	295	1,250	3	0.0	20,378	**3.8**
1993	19,000	670	370	1,200	6	0.0	21,246	**4.0**
1994	20,200	940	570	1,300	8	0.0	23,018	**4.3**
1995	21,600	1,800	670	1,350	11	0.0	25,431	**4.7**
1996	18,800	2,200	853	1,350	16	0.0	23,219	**4.2**
1997	19,000	3,000	1,079	1,400	26	0.0	24,505	**4.5**
1998	19,000	4,489	1,642	1,750	32	0.0	26,913	**4.8**
1999	21,300	5,528	1,791	1,850	42	0.0	30,511	**5.5**
2000	24,936	7,550	2,279	1,850	64	0.0	36,679	**6.3**
2001	23,383	10,509	3,206	1,859	116	0.0	39,073	**6.7**
2002	23,824	15,786	4,017	1,945	188	0.0	45,760	**7.8**
2003	20,350	18,859	6,970	2,162	313	0.0	48,654	**7.9**
2004	21,000	25,509	8,347	2,116	557	0.2	57,529	**9.3**
2005	21,524	27,229	10,495	3,039	1,282	0.2	63,569	**10.4**
2006	20,000	30,700	15,490	3,639	2,220	0.4	72,049	**11.7**
2007	20,700	39,500	19,500	4,250	3,500	0.4	87,450	**14.2**

[1] In the case of pump storage power plants, electricity generated from natural inflow only

[2] Until 1998 only feed-in to the general supply grid

[3] Share of biogenic waste in incineration plants estimated at 50 %

Version: March 2008; provisional figures;

Source: BMU according to Working Group on Renewable Energies / Statistics (AGEE-Stat)

2.5.1.5 Heat supply from renewable energy sources

Table 9: Heat Supply from Renewable Energy Sources in Germany in 2007

Heat Supply from Renewable Energy Sources in Germany in 2007 (Total: 90.2 TWh)		
Solid biofuels (households)	64.1 %	Total biomass ~ 93 %
Solid biofuels (industry)	12.5 %	
Solid biofuels (cogeneration power installations and heating installations)	2.5 %	
Liquid biofuels	5.0 %	
Gaseous biofules	3.8 %	
Bio-waste	5.4 %	
Solar-thermal Energy	4.1 %	
Deep geothermal energy	0.2 %	
Near-surface geo-thermal energy	2.4 %	

Version: March 2008; provisional figures;

Source: BMU according to Working Group on Renewable Energies / Statistics (AGEE-Stat)

2.5.2 Overview of existing support instruments for RES-H

2.5.2.1 Existing support instruments for RES-H at a National level

The most important instruments supporting the application of RES-H in Germany at the National level are listed in the following tables.

Name of policy	**Erneuerbare-Energien-Wärmegesetz - EEWärmeG** *Renewable Energies Heat Law*
Year of implementation	2009
Current Status	Draft
Policy Target	Increase the share of renewable energies for heating, hot water, process heat and cooling to 14 % until 2020 in order to pursue the targets of: • Climate protection • Saving of fossil resources • Reduction of dependence on energy imports • Sustainable development of energy supply • Further development of technologies for heat generation from renewable energies
Policy Type	Legal mandate to use renewable resources Financial incentives Administrative support
Target Group	All buildings with more than 50 m² which are being heated or cooled by means of energy input.
Funding	This law provides the reasoning for the € 500 million market incentive programme
Responsible Institution	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
URL	www.bmu.de/erneuerbare_energien/gesetze/waermegesetz/das_gesetz/doc/40512.php

Description	The legal provisions of the EEWäremG promoting the utilisation of renewable energies for heating and cooling purposes are built upon three columns: • Obligation to use: Owners of newly built buildings are obliged to use renewable energies for heat supply. This obligation is binding all owners, be it private, state or commercial. All kinds of renewable energy or combinations of such may be used, for example: - solar collectors: a minimum of 0.04 m² per 1 m² of usable surface; or - wood pellets: supplying a minimum of 50 % of total heat demand. Those who can definitely not use renewable energies may take other climate protecting measures such as building isolation above standards, connection to district heating networks or combined heat and power units. • Financial incentives: The existing market incentives programme will be prolonged and increased to a total volume of € 500 million p.a. from 2009 on. • District heating networks: The law is facilitating the installation and extension of district heating networks. Municipalities may issue an obligation to connect to district heating networks and to use the provided heat.

Name of policy	**Richtlinien zur Förderung von Maßnahmen zur Nutzung erneuerbarer Energien im Wärmemarkt vom 5. Dezember 2007** *Market Incentives Programme for Renewable Energies on the Heat Market*
Year of implementation	2008
Current Status	in force
Policy Target	multiple renewable energy sources (e.g. biomass, geothermal, solar thermal)
Policy Type	financial incentive (investment subsidies -grants)
Target Group	private individuals, self-employed professionals, SMEs, municipalities, non-profit organisations (large-scale enterprises only in specific cases related to deep geothermal energy, large-scale solar thermal energy, heat distribution networks)
Funding	in 2008: € 350 million; in 2009: € 500 million
Responsible Institution	Bundesamt für Wirtschaft und Ausfuhrkontrolle BAFA Federal Office of Economics and Export Control on behalf of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
URL	www.erneuerbare-energien.de

Name of policy	**Richtlinien zur Förderung von Maßnahmen zur Nutzung erneuerbarer Energien im Wärmemarkt vom 5. Dezember 2007** *Market Incentives Programme for Renewable Energies on the Heat Market*
Description	In the framework of the Integrated Energy and Climate Programme of the federal government, the Market Incentives Programme is providing financial incentives for the investment in new plants or in the extension of existing plants of the following types: • Solar collector plants up to 40 m² collector surface • Solar collector plants with more than 40 m² collector surface on single- or double-family homes if they are providing a large heat storage volume • Automatically fed plants for the incineration of solid biomass for heat supply up to 100 kW heat power • Manually fed plants for the incineration of solid biomass for heat supply between 15 and 50 kW heat power • Efficient heat pumps • Specific innovative technologies for heat and cold supply from renewable resources - large solar collector plants (20 - 40 m² collector surface) - secondary measures for the reduction of emissions and for the increase of efficiency in plants for the incineration of solid biomass up to 100 kW heat power. Special bonus is given for efficient combination of technologies.

Name of policy	**KfW Renewable Energies Programme**
Current Status	in force
Policy Target	Installation and expansion of automatically fed systems for the combustion of solid biomass for thermal use. Installation and expansion of systems for the use of deep geothermics for thermal use and installation and expansion of large solar collector systems for thermal use. In addition, financing may be provided in the context of the eligible investment for setting up or expanding a heating network. Financed systems must be operated for the designated purpose for at least seven years. During this time a financed system may not be closed down and may only be sold if evidence is furnished proving that the system will remain in operation.
Policy Type	Financial incentive (long-term, low-interest loan with a fixed interest rate and redemption-free grace years and an additional repayment bonus financed from federal funds). Up to 100 % of the eligible net investment costs. Maximum loan amount: Usually 5 million €.
Target Group	Private individuals and private foundations that use the produced energy solely to meet their own needs. Self-employed professionals. Small and medium-sized private commercial enterprises. Other public-sector applicants. Municipalities, legally dependent enterprises owned by the municipally, special-purpose associations, other institutions under public law and registered associations have to publicly present their project and mention the support they received
Funding	Covered in the total of the Market Incentives Programme for Renewable Energies in the Heat Market (see above)
Responsible Institution	Kreditanstalt für Wiederaufbau KfW on behalf of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
URL	www.kfw-foerderbank.de/EN_Home/index.jsp
Description	In the framework of the Market Incentives Programme for Renewable Energies in the Heat Market (see above) of the federal government, the KfW Renewable Energies Programme is providing loans and repayment subsidies for various kinds of investment in renewable energies and relevant infrastructure (e.g. heat transmission networks)

Name of policy	**Energieberatung vor Ort** *Energy counselling on site*
Current Status	In force
Policy Target	Increase the knowledge of potentials for energy savings and for the application of renewable energies in buildings.
Policy Type	financial incentive; awareness rising
Target Group	All natural and legal persons, independent commercial enterprises including housing industry and agriculture, all kinds of non-profit organisations and churches. Tenants may apply if the owner of the building agrees in writing.
Funding	max. € 175 for a single- or double-family home max. € 250 for homes with at least 3 apartments
Responsible Institution	Bundesamt für Wirtschaft und Ausfuhrkontrolle BAFA Federal Office of Economics and Export Control
URL	www.bafa.de
Description	The programme supports the on-site counselling focussing on constructive heat savings as well as on heat generation and distribution including hot water supply and the utilization of renewable energies. The counselling must be performed by an engineer or an architect. The results must be provided by means of a written report.

Name of policy	**Energieberatung der Verbraucherzentralen** *Energy conselling of the consumer information centers*
Current Status	In force
Policy Target	Provide private individuals with the required know how in order to invest properly in energy efficiency and renewable energies in their homes.
Policy Type	financial incentive; awareness rising
Target Group	Private consumers, owners, builders, buyers, tenants
Funding	Direct funding for the consumer information centres for the provision of energy counselling in their offices (minimum contribution of consumers per counselling: € 5). Up to € 188 per case study on site (minimum contribution of consumers per counselling on site: € 45)
Responsible Institution	Consumer information centres
URL	www.verbraucherzentrale-energieberatung.de
Description	Subsidies are provided for: 1. Energy counselling in consumer information centres • Constructive energy saving • Building services (heat supply, control, heat distribution, ventilation) • Renewable energies (biomass, solar thermal, PV) • consumer behaviour (proper heating and ventilation) • Power saving • Available subsidies • Implementation of measures in do-it-yourself Appointments are made directly with consumer information centres. (consumers own contribution is a fee of € 5) 2. Case management on site Extended advice regarding specific measures on site. (consumers own contribution is a minimum of € 45)

Name of policy	**Ecologic Building (KfW)**
Current Status	in force
Policy Target	Energy efficiency, renewable energies
Policy Type	Financial incentive
Target Group	Private individuals, housing industry, municipalities and all kinds of public institutions
Funding	Low-interest loans: max. 50.000 per unit (per apartment)
Responsible Institution	Kreditanstalt für Wiederaufbau (KfW)
URL	www.kfw-foerderbank.de
Description	Promotion of low-energy houses KfW40 • primary energy consumption less than 40 kWh per m2 p.a. • transmission heat losses through the surface of the building 45 % • below legal limits or lower. Promotion low-energy houses KfW60 • primary energy consumption less than 60 kWh per m2 p.a. • transmission heat losses through the surface of the building 30 % • below legal limits or lower. • Compliance must be certified by an authorized expert. Installation of heating technologies based on renewable energies, including: • solar thermal • biomass • heat pumps • geothermal energy • active ventilation and heat recovery • combined heat and power • connections to district heating systems Requirements of the Energy Savings ordinance EnEV must be fulfilled.

2.5.2.2 Existing support instruments for RES-H at a regional level

Some of the Federal States of Germany developed their own schemes of supporting instruments for RES-H, most of them as financial incentive programmes and some of them complementary to the above presented national instruments. A few examples are listed in the following table.

Federal State	Name of policy / policy target	Responsible institution	URL
Baden-Württemberg	Demonstration projects in the fields of energy savings and renewable energies	State Ministry for Economic Affairs, Stuttgart	www.wm.baden-wuerttemberg.de
Bayern	Promotion of biomass heating plants with a minimum of 500 MWh primary annual energy demand within the framework of the programme "Regenerative Re-sources in Bavaria"	Competence Centre for Regenerative Resources, Straubing	www.tfz.bayern.de
Hamburg	Climate Protection Programme "Solar Thermal Energy"	Innung Sanitär Heizung Klempner, Hamburg	www.shk-hamburg.de
Hessen	Promotion of the efficient use of energy as well as of the utilisation of renewable energies in Hessen	State Ministry of Economic Affairs, Wiesbaden	www.wirtschaft.hessen.de
Nordrhein-Westfalen	Solar Building – 5 Solar Settlements in NRW	State Ministry of Economic Affairs, Düsseldorf	www.50-solarsiedlungen.de
Nordrhein-Westfalen	Solar Check NRW	Energieagentur NRW, Wuppertal	www.energieagentur.nrw.de
Nordrhein-Westfalen	Rational use of Energy, Renewable Energies and Energy Saving (progress.nrw)	District of Ansberg, Dept. for Mining and Energy	www.progress.nrw.de
Nordrhein-Westfalen	Promotion Programme of the Working Group Solar NRW	Forschungszentrum Jülich	www.fz-juelich.de/etn
Sachsen	Promotion of emission control and climate protection as well as of renewable energies	Sächsisches Landesamt für Umwelt und Geologie, Energieeffizienzzentrum, Dresden	www.umwelt.sachsen.de/lfug
Schleswig-holstein	Promotion of Projects in the Energy Sector	Investitionsbank Schleswig-Holstein, Kiel	www.ib-sh.de

2.5.2.3 Existing support instruments for RES-H at a local level

There are hundreds of local initiatives of municipalities or of public utilities, aiming at the promotion of renewable energies, some of them focussing on RES-H. Most of these programmes are based upon financial incentives, which may be complementary to federal and regional promotion programmes in some cases.

In many towns and cities, there is a discussion how to use the regulatory instruments of construction master planning (Bauleitplanung) for the promotion of renewable energies, particularly solar thermal energy for heating purposes.

The City of Marburg is currently pioneering by means of its planned Solar Statute.

Name of policy	**Statute of the university town Marburg for the obligatory use of solar energy in buildings (solar statute)**
Year of imple-mentation	2008
Current Status	draft published on 30th April 2008
Policy Target	Promotion of solar thermal applications at local level.
Policy Type	Administrative/regulatory measures
Target Group	Owners / builders of all kind of buildings
Funding	No funding from the municipality.
Responsible Institution	City of Marburg
URL	http://www.marburg.de/detail/70999
Description	Following the requirements of this statute, solar thermal installations have to be built in any case of new construction or extension of buildings. The mandate to integrate of solar thermal energy in buildings shall also include all cases of: • replacement and/or new construction of roofs • replacement and or new construction of the roof cover • replacement of heating vessels and/or change of fossil fuel Up to 1000 € fine in case of misconduct.

2.6 ROMANIA

2.6.1 Renewable energy targets

2.6.1.1 The Kyoto target and the Romanian Climate Strategy

In terms of climate change's worldwide policy, Romania was part of the group that established and promoted the main directions to be followed in order to minimise the human impact on the environment. As a consequence, in 1992 Romania signed the United Nations Framework Convention on Climate Changes (UNFCCC) and ratified it through the law no. 24/1994.

The main environmental challenge for Romania was established through the Kyoto Protocol, which was ratified by the Romanian law no. 3/2001.

The Romanian National Strategy regarding the Climate Changes (NSCC) establishes the politics to be follow by Romania in order to rich the international requirements defined by UNFCCC and Kyoto Protocol. According to Kyoto Protocol provisions, Romania has to reduce its GHG emissions by 8 % until the period of 2008 – 2012 compared to 1989.

NSCC presents also the environmental and economical benefits that Romania could have by using the flexible mechanisms of Kyoto Protocol, respectively, Joint Implementation and Emission Trading. NSCC establishes the main approach of Romania in order to participate to the EU-ETS. Based on NSCC, it was established the National Action Plan regarding the Climate Changes (NAPCC), which presents the specific measures for implementing the strategy.

There are two main objectives of the NSCC:

- to meet the requirements assumed by Romania, based on UNFCCC, Kyoto Protocol and EU legislation.
- to assumed its own targets and activities regarding the impact of climate changes.

In order to implement the necessary policy and measures to achieve the Kyoto commitment, an institutional framework for climate changes and Kyoto Protocol mechanisms promotion was created, respectively:

- Inter-ministerial committee to integrate the environmental policy into the national strategies. The main goals of the committee are:
  - Approval of programmes and policies related to the environment
  - Monitoring of the strategies and implementation plans
  - Establishing the priorities in the environment field in order to assure project financing.
- National Committee for Climate Changes – subordinated to the Ministry of Environment and Sustainable Development. The main goal of the committee is to promote the necessary measures and to action for UNFCCC and Kyoto Protocol objectives implementation in Romania.

- National Agency for Energy Conservation – subordinated to Ministry of Economy. The main goals of the Agency are:
  - To promote the energy efficiency use
  - Based on the companie's energy balance sheets identification of the suitable measures to increase energy efficiency
  - To promote measures for increasing the rational use of primary energy resources.

2.6.1.2 Renewable energy targets based on EU-Directives and the programme of the Romanian Government

Based on EU Directives related to RES utilisation, the Romanian Government set up the Strategy for Renewable Energy Sources Promotion.

The main provisions of the Romanian RES Strategy are the following:

- Integration of the renewable energy resources (RES) in the National Energy System.
- Decreasing the technical, operational and social barriers in the promotion process of RES and identification of the costs and economic efficiency.
- Promotion of the private investments and creating the facilities for the foreign capital on the RES market.
- Enhancing security of supply and reducing the energy dependence on external energy sources.
- Assuring the energy supply for the isolated communities by using local RES.
- Creating the conditions for the Romanian participation to the European "Green Certificates" market for RES.

According to the Romanian RES Strategy, the main targets are:

- RES will achieve a share of 11 % from the total primary energy sources up to 2010
- RES – E will achieve a share of 33 % from the total generated electricity up to 2010
- RES will achieve a share of 15 % from the total primary energy sources up to 2015

2.6.1.3 Share of RES - E generated in gross electricity consumption

The share of RES – E generated in gross electricity consumption will have the following evolution:

- In 2006 a share of 2.22 %
- In 2007 a share of 3.74 %
- In 2008 a share of 5.26 %
- In 2009 a share of 6.28 %
- In 2010 a share of 8.30 %
- In 2011 a share of 8.30 %
- In 2012 a share of 8.30 %

- In 2013 a share of 9.00 %
- In 2014 a share of 10.00 %
- In 2015 a share of 10.80 %
- In 2016 a share of 12.00 %
- In 2017 a share of 13.20 %
- In 2018 a share of 14.40 %
- In 2019 a share of 15.60 %
- In 2020 a share of 16.80 %

According to the „Energy Strategy of Romania, for the period 2007-2020", the annual RES potential is as foloows:

Source	Annual potential
Solar	
heat	60 PJ
electricity	1.2 TWh
Wind	23 TWh
Hidro, out of which	36 TWh
<10 MW	3.6 TWh
Biomass	318 PJ
Geothermal	7 PJ

2.6.2 Overview of existing support instruments for RES-H

2.6.2.1 General information about the legislation

Institutions

The most important institutions for the Romanian energy policy at the National level are:

Ministry of Economy (ME) - the main central institution responsible for:

- elaboration of strategies in the energy field
- elaboration of regulations regarding fuel's quality,
- elaboration of a specific legislative frame, including issues regarding transposition of Acquis Communautaire in the Romanian economy,
- approval programmes for energy efficiency improvement and utilisation of RES.

Romanian Agency for Energy Conservation (ARCE) - subordinated to the Ministry of Economy. The main goals of the Agency are:

- To promote the use of energy efficiency
- Based on companie's energy balance sheets, identification of suitable measures to increase energy efficiency.
- To promote measures for increasing the rational use of primary energy resources.

Romanian Energy Regulatory Authority (ANRE) - According to the Government Emergency Decision No. 29/1998, the Romanian Energy Regulatory Authority (ANRE) is a public institution under the co-ordination of the Ministry of Economy. ANRE has the role to create and implement the appropriate regulatory system to ensure the proper functioning of the electricity and heat sector and market in terms of efficiency, competition, transparency and consumer protection.

ANRE has the following main competences:

- the establishment of its own operational regulation and personnel responsibilities, according to the legislation in force
- the issue and withdrawal of licenses and authorisations for existing or new companies in the electricity and heat sector
- the development of methods for the calculation of electricity and heat tariffs
- the establishments of standard contracts for purchase, sale and supply of electricity and heat
- the establishment of eligibility criteria for electricity consumers
- the establishment of the technical and commercial rules for an efficient and transparent operation of the National Power Grid
- the provision and emitation of rules for electricity and heat efficiency use
- approval of the National Power Grid programming and dispatching regulation
- approval the technical code for transmission and distribution networks
- execution of other mandates established by law

ANRE regulations are compulsory for the companies involved in electricity and heat production, co-generation, transmission and distribution at the National level.

Romanian Local Services Regulatory Authority (ANRSC) regulates the companies involved in local electricity production, heat production, transmission and distribution. ANRSC is a public institution under the co-ordination of the Ministry of Administration and Interior. ANRSC has the role of regulating and to controlling the public services that are working as a natural monopoly.

Legal framework

In Romania there is no a specific legislation regarding the RES-H, but a common legislation for all kind of RES.

The legal framework regarding the Romanian legislation for RES, are as follows:

Primary legislation

- The Law no.220/2008, that establishes the system for promotion of the electricity produced from renewable energy sources
- GD no.750/2008, that aproves the state support scheme regardind the valorization of renewable energy sources
- The Electricity Law no. 13/2007 that establishes the regulation framework for all the activities in the energy field

- GD no.958/2005 that modifies the GD no.443/2003 regarding the promotion of electricity produced from renewable energy sources and completes the GD no.1892/2004 that establishes the system of promotion of electricity produced from renewable energy sources
- GD no. 1429/2004 regarding the approval of the Regulation of guarantee the origin of electricity produced from renewable energy sources
- GD no. 1892/2004 regarding the system for promotion of electricity produced from renewable energy sources
- GD no. 443/2003 regarding the promotion of electricity produced from renewable energy sources
- GD no.890/2003 for aproving the Road Map in the energy field
- GD no. 1535/2003 regarding the approval of the strategy of use of renewable energy sources

Secondary legislation

- ANRE Order no.44/2007 for establishing the way of commercing the electricity produced from renewable energy sources
- ANRE Order no.38/2006, regarding the procedure of monitoring of green certificates market
- ANRE Order no. 37/2006 for the approval of the modification of the mandatory quotas for acquisition of GC by the electricity suppliers for 2006
- ANRE Order no. 22/2006 for the ap[roval of the regulation of organisation and functioning of the green certificates market
- ANRE Order no. 52/2005 for establishing the acquisition tariff for the electricity produced by hydroelectric producers with no portfolio contracts and by the producers which benefit, according to the law, of the E-RES promotion system
    - Procedure for monitoring the green certificates market, approved by ANRE Order no. 38/2006
    - The Regulation for qualification of the electricity priority production from renewable energy sources, approved by ANRE Order no. 39/3006
- ANRE Order no. 46/2005 for the approval of the modification of the mandatory quotas for acquisition of GC by the electricity suppliers for 2005
- ANRE Order no. 45/2005 for approving the Procedure for allocating the amount of money collected from the suppliers for quota non-compliance
- ANRE Order no.40/2005, regarding the organizing and operating regulation of green certificates market
- ANRE Order no.39/2004 regarding the aproval of the Regulation for the qualification of the prioritare production of electricity produced form renewable energy sources
- ANRE Order no.23/2004 that establishes the procedure of monitoring the issuance of guaranty of origine for the electricity produced from renewable energy sources

2.6.2.2 Existing support instruments for RES-H

2.6.2.2.1 National

Name of policy	**Environmental projects promotion**
Year of imple-mentation	2005
Current Status	In force
Policy Target	Improving the environment
Policy Type	Loans, grants
Target Group	Commercial Companies, local authorities.
Funding	Approved by the Government yearly. For 2008 the maximum budget is around 154 mill. EUR, out of which 33 mill. EUR for increasing the energy (heat and electricity) produced from RES. Financial limits: minimum 50,000 lei (aprox. 14,000 EUR), maximum 20,000,000 lei (aprox.5,600,000 EUR)
Responsible Institution	Administration of Environment Fund (AEF)
URL	www.afm.ro
Description	AEF is a public institution set up as a legal entity, financed from own sources, under the coordination of the Ministry of Environment and Sustainable Development. AEF is responsible for managing the environmental fund, according to the Governmental Emergency Ordinance (GEO) no. 196/2005. The environmental fund is a financial instrument to support the projects for environmental protection. Eligible projects under AEF financing: • Pollution prevention • Reducing the impact on the air, water and soil • Reducing the level of noise • Using the clean technologies • Wastes management, including dangerous wastes • Water management at the local and national level • Protection of natural areas • Biodiversity conservation • Increase the production of energy from renewable energy sources • Reduce the greenhouse gas effect

Name of policy	**Structural Funds**
Year of imple-mentation	2008
Current Status	in force
Policy Target	Increasing the competitiveness
Policy Type	Financial support
Target Group	Local authorities, small and medium enterprises, micro enterprises from urban area.
Funding	Grants
Responsible Institution	Ministry of Economy and Finance
URL	www.minind.ro
Description	Under Operational Programme Competitiveness and Economic Growth – Priority Axis IV – Increasing the energy efficiency and security of supply, measure 4.2 – RES use for energy production, can be financed the following projects: Implementation of new capacities for electricity and heat production using RES (biomass, bio fuels, wind, small hydro, geothermal) Modernizstion of the existing capacities using RES

Name of policy	**National programme for reducing the energy cost for residential consumers**
Year of implementation	2006, 2007
Current Status	
Policy Target	Increasing the energy efficiency and renewable energy sources using
Policy Type	Financial support
Target Group	Local authorities
Funding	Grants, up to 30 % of the investment.
Responsible Institution	Romanian Agency for Energy Conservation
URL	www.arceonline.ro
Description	The programme ensured co-financing up to 30 % for the following types of projects: • rehabilitation of existing district heating systems (DHS) • promotion of RES using for heat production (solar, geothermal, biomass, heating pumps) • promotion of cogeneration The main objectives of the programme were: • decreasing the value of heat bills for population • increasing the security of heat supply • developing the market for energy services in Romania • promotion of RES using at the local level for heat supply and reducing the quantities of fossil fuel used • reducing the GHG emission in urban areas

2.7 SLOVAKIA

2.7.1 Renewable energy targets

2.7.1.1 The Kyoto target and the Slovak Strategy to meet the Kyoto commitment

The Kyoto Protocol is a protocol to the international Framework Convention on Climate Change with the objective of reducing greenhouse gases that cause climate change. It was agreed in 1997 and entered into force in 2005. Slovakia ratified the document in 2002.

The main mid-term challenge for Slovakia resulting from the protocol is to reduce its greenhouse gas emissions between 2008 and 2012 by 8 % compared to the year 1990. In the long-term period Slovakia will prepare the basis for the next greenhouse gas emission reduction by 5 %.

In 2002 the Slovak government adopted the Strategy to meet the Kyoto commitment and Action plan to meet the Kyoto protocol commitment.

Defined measures to meet the Kyoto objectives –

- legislative measures (legislation, strategies, directives adaptation),
- regulatory measures,
- fiscal and financial measures,
- technical measures,
- subsidies.

Currently Slovakia complies with commitments of the Kyoto Protocol. The fulfilling of these obligations is possible thanks to the centrally planned economy restructuring initiated in the 90s. Changes in the economy, especially the transition from heavy to light industry and services resulted in an increase of efficiency in all sectors as well as the lower emissions.

Concerning the energy efficiency, according to the Energy Efficiency Concept of the Slovak Republic, Slovakia is obliged to reduce the final energy consumption by 4 135 TJ annually. That means to reduce the final energy consumption by 9 % between 2008 and 2016 (1 % per annum). This indicative target is expressed in the Directive 2006/32/EC on end-use efficiency and energy services.

2.7.1.2 Renewable energy sources targets

Slovakia is fully aware of the objective defined by the European Commission called 20/20/20 by 2020. It means to raise the share of RES on the final consumption to 20 % by 2020, to raise the energy efficiency by 20 % and to reduce the production of greenhouse gas emissions by 20 %. This commitment is set for the European Union as a whole. For national targets we have to take into account the current national situation and future development.

In the field of final energy consumption, the Slovak national target for the RES share is set to 6 % in 2010. According to the latest data in 2006 the share represents 4,6 % of gross inland consumption of energy. The long-term objective is set to 14 % share of energy from

renewable sources in gross final consumption of energy in 2020, according to proposed directive on RES.

Concerning the share of RES on gross electricity consumption, for Slovakia the indicative target of 31 % till 2010 was defined. This was based on the EU Directive 2001/77/EC and adopted during the accession to the EU. As this target is not realistic and not reachable, a new target was set to 19 %. The majority of electricity produced from RES origins in the large-scale hydro plants (90 %) and therefore it is influenced by the geographical and hydrological conditions. That is why the share of the production on final consumption decreased between 1997 and 2004 from 17,9 % to 14,6 %.

Electricity production from RES is highly dependent on the production in large-scale hydro plants. This was the reason why there is another target for the electricity production, for other than large hydro plants. Short-term goal till 2010 is set to 4 % of the final electricity consumption (1240 GWh), mid-term till 2015 is set to 7 % (2300 GWh) and long-term 11 % in 2030. Current status represents the share of cca. 1 %.

The share of alternative fuels will reach 5,75 % in 2010 and 10 % in 2020.

Main documents dealing with the RES and energy security are the Strategy for higher utilisation of RES (adopted in 2007) and the Strategy of energy security for the Slovak Republic until 2030 (adopted in 2008). The documents define the targets, measures, the implementation and monitoring.

2.7.2 Overview of existing support instruments for RES-H

2.7.2.1 General information about Slovak legislation

The legislation concerning the energy sector in Slovakia is carried out only at the national level. Slovakia is a unitary state and the regions do not have delegated competences and responsibilities in this area.

All documents are formulated in close cooperation between the particular ministries, state agencies and research institutions, universities, interest groups, investors and involved major companies and social partners (trade unions, representatives of employers).

The ministries dealing with the energy sector –

- Ministry of Economy of the Slovak Republic – main institutional body for energy issues,
- Ministry of Environment of the Slovak Republic – environmental aspects of energy issues,
- Ministry of Transport, Posts and Telecommunications of the Slovak Republic – transportation,
- Ministry of Finance of the Slovak Republic – financial issues, setting taxes, subsidies.

Slovakia is divided into 8 regions (corresponding to the EU's NUTS 3 level) and 79 districts. The regions have the responsibilities in spatial planning. They have to take into account the local conditions for RES utilisation. The regions do not have enough financial resources to

subsidise the projects and its main activity is in awareness raising. Therefore there are no support instruments on a regional or local level.

2.7.2.2 Existing support instruments for RES-H

2.7.2.2.1 National

Name of policy	**Act No. 657/2004 Coll. on Heat Energy, amended by Act No. 99/2007. Coll.**
Year of implementation	2004
Current Status	in force
Policy Target	Hydro, wind, solar thermal, geothermal, biomass
Policy Type	Regulatory schemes Awareness raising
Target Group	Participants on the heat market
Funding	none
Responsible Institution	Ministry of Economy of the Slovak Republic; Regulatory Office for Network Industries;
URL	http://www.siea.gov.sk/energeticke_aktivity/legislativa_predpisy_sr/zak_657_2004.pdf http://www.siea.gov.sk/energeticke_aktivity/legislativa_predpisy_sr/zak_99_2007.pdf
Description	The person with the licence to distribute the heat is obliged to take it off from the licensed producer, who is producing the heat from RES or in a CHP plant, except • the distributor himself is producing or buying the heat from RES or from a CHP plant, • the final price of the heat will rise, • the heat carrier of the RES-H producer is different from the heat carrier in the distribution system, • the heat from other producers is more economically effective than the heat from RES or a CHP plant

Name of policy	**Public notice of the Regulatory Office for Network Industries No. 2/2008 amended by public notice of the Regulatory Office for Network Industries No. 7/2008**
Year of implementation	2008
Current Status	in force
Policy Target	Hydro, wind, solar PV, geothermal, biomass, biogas
Policy Type	Financial Regulatory schemes Awareness raising
Target Group	Producers/industry
Funding	Feed-in tariffs
Responsible Institution	Regulatory Office for Network Industries
URL	http://www.urso.gov.sk/
Description	The notice indicates the feed-in tariffs for the electricity produced from RES and in the CHP plants. The tariffs are calculated every year therefore the notices are issued every year – this is a negative point of the notice, because the potential investors cannot calculate the future revenues. The tariffs for the electricity produced from RES*) for the year 2009: • hydro energy for installations up to 1 MW – the price is between 82,98 and 132,78 EUR/MWh, • hydro energy for installations from 1 MW to 5 MW – the price is between 74,67 and 119,50 EUR/MWh, • solar energy – the price is between 398,33 and 448,12 EUR/MWh • wind energy – the price is between 84,64 and 101,57 EUR/MWh • geothermal energy – the price is 195,84 EUR/MWh, • biomass used for firing – the price is between 106,22 to 129,46 EUR/MWh, • biomass used for co-firing with other fossile fuel – the price is between 102,90 to 132,78 EUR/MWh, • biogas – the price is between 102,90 to 177,59 EUR/MWh. • CHP plants – the price is between 79,67 to 136,92 EUR/MWh *) feed-in tariffs for RES apply only if they are based on Guarantees of Origin

Name of policy	**Structural Funds**
Year of implementation	2007 ÷ 2013
Current Status	in force
Policy Target	Hydro, wind, solar thermal & PV, geothermal, biogas, biomass, heat pumps, low carbon resources
Policy Type	Financial, Regulatory schemes, awareness raising
Target Group	Public administration, Legal persons, Municipalities, SMEs
Funding	198 631 059 EUR (for the time frame 2007 ÷ 2013)
Responsible Institution	Ministry of Environment of the Slovak Republic, Ministry of Economy of the Slovak Republic, Slovak Innovation and Energy Agency, Ministry of Construction and Regional Development of Slovak Republic
URL	http://www.siea.gov.sk, http://www.strukturalnefondy.sk/
Description	**Operational Programme "Environment"** – Priority Axis 3 "Atmosphere Protection and the Mitigation of unfavourable Impact of the Climate Change": Measure 3.2 – "Mitigation of unfavourable impact of the climate change together with the RES support" • change of the fuel base in favour of low carbon resources and RES (in the heat production sector) – building thermal insulation, exchange of windows, exchange of thermal insulation in the heat distribution networks) • change of the fuel base in favour of low carbon resources and RES (in the heat production, cogeneration) • building and reconstruction of the heat delivery system for centralised heat delivery systems (centralised district heating) • heat pumps installations • eligible regions – all except the Bratislava region • eligible beneficiary – public administration, municipalities, legal persons **Operational Programme "Competitiveness and Economic Growth"** – Priority Axis 2 "Energy Sector": Measure 2.1 – "The rise of energy efficiency on the production and demand side and the introduction of progressive technologies in the energy sector" • RES utilization support – small hydro plants, biomass, biogas, biofuels, solar energy, geothermal energy • Eligible regions – all except the Bratislava region Measure 2.2 – "Building and renovation of public lighting in cities and villages and energy consultations for the energy sector" **Operational Programme "Bratislava Region"** Measure 2.1 – "Innovation and Technology Transfer" • introduction of progressive technologies and know-how with the aim to decrease the energy intensity • building facilities producing the energy from RES (hydro plants, biomass and biogas utilisation, biofuels, heat pumps, solar and geothermal energy utilisation) • eligible region – only the Bratislava Region • eligible beneficiary – small and medium enterprises **Regional Operational Programme** Priority Axis 1 "Development of public infrastructure" • public building reconstruction (insulation, windows and old heating systems exchange, reconstruction of heat, electricity and water delivery systems) • the aim is to rise energy efficiency

	• eligible beneficiary – municipalities, state institutions, private sector, NGOs • eligible regions – all except the Bratislava region

Name of policy	**Environmental Fund**
Year of implementation	2005
Current Status	in force
Policy Target	Hydro, wind, solar thermal, geothermal, biomass
Policy Type	Financial Awareness raising
Target Group	Natural persons, legal persons, public institutions
Funding	The amount is changing every year (cca. up to 66,38 mil. EUR annualy)
Responsible Institution	Environmental Fund
URL	http://www.envirofond.sk
Description	Fund provides: • Subsidies: co-financing from other sources at least 5 % of the project costs • Soft loans: 1 % interest rate, period of repayment max. 15 years, co-financing not necessary The Fund supports under Section A “Air protection and ozone layer of Earth protection”: • the production of heat and hot water from low-emission sources (support of the change of the combustion fuel, change of the combustion technology, aimed at the public advantage) (Activity A/1a), • the heat, hot water and electricity production from RES (the support focuses at the renewal or building of facilities for heat, hot water and electricity production for own use from RES. The support concerns mainly the biomass utilisation, solar systems and heat pumps and their combinations) (Activity A/1b), • the heat, hot water and electricity production from RES for natural persons (Activity A/1c)

Name of policy	**International programmes**
Current Status	in force
Policy Target	Hydro, wind, solar, geothermal, biomass, biogas
Policy Type	Financial Regulatory schemes Awareness raising
Target Group	Various groups (municipalities, public building owners, NGOs, state organisations, etc.)
Description	• Intelligent Energy – Europe • Financial mechanism of the European Economic Area and the Financial mechanism of the Kingdom of Norway • Swiss Contribution • Support for the protection of environment abroad (Kommunalkredit Austria) • UNDP • EIB • EBRD in cooperation with domestic financial institutions through Bohunice International Decommissioning Support Fund (BIDSF). EBRD is the administrator of the BIDSF. Cumulative financial resources in the Fund are 180 mil. EUR.

Name of policy	**Energy Efficiency Fund / Energy Efficiency Programme**
Current Status	Proposed in 2008
Policy Target	Energy efficiency measures
Policy Type	Financial Awareness raising
Target Group	Natural and legal persons
Funding	Proposed 19,91 mil. EUR for the periods 2008 – 2010 (from state budget) from 2010 onward financed by the active energy companies
Responsible Institution	Ministry of Economy of the Slovak Republic
URL	http://www.economy.gov.sk
Description	Energy efficiency monitoring Raising awareness about energy efficiency Energy audits support Support for heat pump installation Research and development support

Name of policy	**De-minimis support scheme DM-003/03**
Year of implementation	2001
Current Status	Expired in 2004
Policy Target	Hydro, wind, solar thermal, geothermal, biomass
Policy Type	Financial Awareness rising
Target Group	
Funding	100 000 € maximum per one project
Responsible Institution	Ministry of Economy
URL	www.economy.gov.sk
Description	The scheme supported the energy efficiency, energy conservation and the utilization of RES. The maximum subsidy for one project was 100 000 EUR. In 2004 there were no financial resources agreed for the state scheme.

Name of policy	**Different tax levels**
Year of implementation	1993
Current Status	expired
Policy Target	solar thermal, geothermal, biomass
Policy Type	Financial Awareness raising
Target Group	everyone
Funding	lower tax
Description	On 1st of January 2004 the tax flat rate was introduced – 19 %. Until than there were different tax levels and the RES were in the more attractive one. This partial advantage was diminished with the introduction of the flat rate.

2.7.2.2.2 Regional

Name of policy	**CITENERGO – Interest group**
Current Status	in force
Policy Target	Energy efficiency measures, RES development
Policy Type	Consultancy Awareness raising
Target Group	Municipalities
Responsible Institution	The Union of Towns and Cities of Slovakia, Energy Centre Bratislava
URL	www.unia-miest.sk, www.ecb.sk
Description	CITENERGO is an interest group gathering towns and cities of Slovakia. It was established by the Union of Towns and Cities of Slovakia and Energy Centre Bratislava under the framework of process BISE (Better Integration through Specific Exchanges /for Sustainable Energy). It does not provide financial support. The group offers consultancy to the municipalities in the areas of: • energy efficiency • education of municipal managers and professionals in RUE and RES • local energy conceptions preparation, energy audits • utilisation of local renewable energy sources • financial support options, schemes and mechanisms • concrete project realisation

2.8 SPAIN

2.8.1 Renewable energy targets

2.8.1.1 Spanish Renewable Energy Plan 2005-2010

For more than fifteen years Spain has been undergoing rapid growth in energy intensity. Spain's excessive, and growing, dependence on external energy supplies – around 80 % over the last few years – and the need to preserve the environment, make it essential to promote effective formulas for efficient use of energy and the use of clean sources of energy. Therefore, there are reasons of economic, social and environmental strategy for a substantial increase in the use of renewable sources of energy, together with a significant improvement in energy efficiency.

The Spanish Renewable Energy Plan (*Plan de Energías Renovables en España*, PER) for 2005-2010 represents a revision of the Spanish Promotion Plan for Renewable Energy (*Plan de Fomento de las Energías Renovables en España*) 2000-2010 in force up until now. The aim of this revision is to maintain the commitment to meet at least 12 % of total energy use from renewable sources by 2010, while incorporating other indicative targets – 29.4 % of electricity generated from renewable sources and 5.75 % of transport fuel needs to be met from biofuels by 2010 — adopted after the previous plan came into effect.

2.8.1.2 Share of RES in primary energy supply

In 2006 6.8 % of Spain´s primary energy supply was covered from renewables. In 2007 that share increased to 7.1 %.The most important renewable energy sources in Spain are biomass for heat and hydro and wind for electricity production.

2.8.1.3 Share of RES in electricity supply

In 2006 20.1 % of Spain´s electricity supply was covered from renewables. In 2007 that share increased to 20.5 %. Hydropower covered 9.8% of the total electricity production and wind reached 9.0 % of the share.

2.8.2 Overview of existing support instruments for RES-H

2.8.2.1 Existing support instruments for RES-H

2.8.2.1.1 National

Name of policy	**Technical Building Code**
Year of imple-mentation	2006
Current Status	in force
Policy Target	Implementation of renewable energies in new buildings.
Policy Type	Mandatory Technical Code
Target Group	All new buildings and old buildings highly refurbished.
Funding	
Responsible Institution	Ministry of Housing
URL	www.mviv.es
Description	Obligation for new buildings or those being renovated, where there is a demand for sanitary hot water. The energy demand should be met by the installation of systems for the capture, storage and use of solar energy at low-temperature. The obligation is also extended to climate-control for swimming pools. The percentage of solar energy contribution varies between 30-70 % and is calculated by using a table with two entries with the following variables: • Energy demand for the building • Climate zone where the building subject of the installation is located

Name of policy	**Agreement for the implementation of public aids measures considered in the Spanish Renewable Energy Plan 2005-2010**
Year of imple-mentation	2008
Current Status	in force
Policy Target	Production of thermal energy, for domestic and industrial use using biomass as a fuel.
Policy Type	Financial incentive
Target Group	People, private or public companies, organisations or Communities of neighbours.
Funding	In general, 30 % of the costs. It will be possible to increase the subsidy until 45 % of the cost in the case of automatic boilers for domestic use or in municipal facilities. In the case of hybrid facilities Biomass plus solar thermal usage of automatic boilers for domestic use or in municipal facilities, the aid for the part of biomass equipment will be able to be increased until 50% of the eligible costs.
Responsible Institution	Institute for Diversification of Energy and Saving of Energy
URL	www.idae.es
Description	They will form a part of the eligible cost the equipments, the needed facilities, civil work associated and project design. The principal equipment considered is: Biofuel pre-treatment and feeding system. If the system produces a quantity of fuel higher to the quantity consumed by the thermal installation, only will be considered to be eligible the fraction of the capacity corresponding to the percentage of supply of the own project. Combustion systems, Boilers defined as a system that transfers the thermal energy generated in the fireplace, pipeline system, cooling/heating system associated including absorption machines, distribution system in homes, buildings or district heating, electrical, of control and monitoring system.

Name of policy	**Agreement for the implementation of public aids measures considered in the Spanish Renewable Energy Plan 2005-2010**
Year of implementation	2008
Current Status	in force
Policy Target	Solar thermal
Policy Type	Financial incentive
Target Group	People, private or public companies, organisations or Communities of neighbours.
Funding	In general, 37 % of the cost. It will be possible to increase the subsidy until 50 % for innovative projects.
Responsible Institution	Institute for Diversification of Energy and Saving of Energy
URL	www.idae.es
Description	Subsidies for: Solar systems for captation of the solar radiation for heating water, by means of solar panels which global coefficient of losses is lower than 9 W / (m2 ºC); Solar cooling; Solar thermal for applications with temperatures over 60ºC with efficiency not lower than 40 %; Innovative projects.

Name of policy	**Renewable Energy Project's Loan Programme**
Year of imple-mentation	2008
Current Status	in force
Policy Target	Renewable Energies
Policy Type	Loan
Target Group	Individual person, SMEs, City councils, any public organism, as well as other legal forms; except big private companies.
Funding	The Loan finances 100 % of the investment cost of the project.
Responsible Institution	Institute for Diversification of Energy and Saving of Energy
URL	www.idae.es
Description	Finances up to 100 % of the costs of project with a maximum of 1.5 MEuros (VAT not included). Period of amortization is 11 years, (repayment holiday of one year and 10 years of amortization), and interest rate Euríbor +0.30 %; with a commission of opening of 0.30 %. Types of projects: Applications of solar thermal facilities, whose capacity is equal or higher to 20 kW. The use of the Co-generation, up to 2 MW(e) of installed power capacity. The use of thermal energy for domestic use or in buildings using biomass as fuel, in equipment with a maximum capacity of 3 MW(t).

Name of policy	**Renewable Energy Project's Deposit Programme**
Year of imple-mentation	2008
Current Status	in force
Policy Target	Renewable Energies
Policy Type	Financial incentive
Target Group	They will be Beneficiaries the persons and small and medium companies (SMEs), and the micro-companies.
Funding	
Responsible Institution	Institute for Diversification of Energy and Saving of Energy
URL	www.idae.es
Description	The Beneficiary does a bank deposit with a minimum of 10 000 Euros and maximum of 300 000 Euros to be used as payment of the investment in renewables. The deadline of refund of the Deposit will be 2 years from the initial contribution. In no case, the realised contributions will be able to be for an amount superior to the investment of the project. Justified the accomplishment of the project, the received support consists of the fact that the interest rate of the deposit will be 7 % yearly.

2.8.2.1.2 Local

Name of policy	**Solar bylaws**
Year of imple-mentation	Since 2006
Current Status	in force
Policy Target	Implementation of renewable energies in new buildings.
Policy Type	Obligation
Target Group	All new buildings and old buildings highly refurbished.
Funding	
Responsible Institution	Municipalities
URL	
Description	The requirement for solar energy contribution established in the Technical Building Code may be increased by the existence or future approval of a Solar Bylaw in the town where the building is to be built. There are now more than 60 published bylaws in Spain affecting more than 20 % of the Spanish population.

2.8.2.1.3 Others

Name of policy	**Awareness campaigns**
Year of implementation	From 2005
Current Status	In force
Policy Target	Solar thermal for tertiary sector; Biomass for district heating
Policy Type	Awareness
Target Group	Tertiary sector and Municipalities
Funding	
Responsible Institution	Institute for Diversification of Energy and Saving of Energy
URL	www.idae.es
Description	IDAE has produced two DVDs, one to promote solar thermal energy in the tertiary sector (especially in hospitals) and a second to promote district heating with biomass. The DVDs were presented to the main stakeholders and 700 copies of each were delivered to targeted decision makers.

2.9 Best Practice Examples From Other Countries

2.9.1 Tax incentives on biomass in Sweden[2]

By exempting biomass from Swedish energy taxes, the government provided strong, indirect support for biomass heat.

In 2006 CO_2 tax levels were approximately €100/t CO_2, being around 250 % higher than when the policy was first introduced in 1991. These high taxes have had significant repercussions on the development of biomass because when used in district heating systems, it is exempt from the combination of oil, CO_2 and sulphur taxes. This situation has created a cost competitive advantage such that in district heating systems biomass-based heat can be produced at a much lower cost than heat produced from fossil fuels.

Besides that subsidies were offered for biomass installations, technology demonstrations, and long-term R&D efforts.

Due to the package of government incentives, for the existing forest industry infrastructure to produce biomass fuel sources and the adaptability of the district heating systems (facilitated by the 1982 Solid Fuel Act), Sweden is a global leader in biomass heat generation.

2.9.2 Supporting heat from geothermal heat pumps in Switzerland[3]

The Energy 2000 Action Plan (1991-2000) and its successor SwissEnergy programme (2001-present) have helped the expansion of the geothermal heat pump market in Switzerland. In addition to external influencing factors, such as increasing costs of electricity and heating oil, the combination of financial support, voluntary measures and marketing campaigns through the Swiss Heat Pump Promotion Group created a solid framework for growth of the market.

In concrete the Energy 2000 Action Plan aimed to increase the contribution of renewables for heat production by 3 %. At its conclusion in 2000, renewable heat had increased by 2.1 %, being 0.9 % short of its target. The SwissEnergy successor programme aims to increase the contribution of renewable heat by a further 3 % by 2010 compared to 2000 levels.

A Swiss Heat Pump Promotion Group was established as part of the marketing strategy of the Energy 2000 Action Plan and to lead promotional efforts such as training, quality assurance and after-sales service. Subsidies of € 200 per kW were offered.

The SwissEnergy programme builds a cooperation between the federal government, Swiss cantons and local authorities with industrial, consumer and environmental organisations and public and private sector agencies by implementing voluntary measures based on performance mandates. Based upon these performance mandates, target agreements are estab-

[2] See International Energy Agency, Renewables for Heating and Cooling, Untapped Potential, Paris, 2007

[3] ibidem

lished with companies and sectors specifying binding targets for each partner involved. In addition, Swiss Energy provides lump sum payments for Cantons, information campaigns and R&D programmes and continues many of the activities of the Energy 2000 Action Plan. Although all direct incentives for renewable energies available under the Energy 2000 Action Plan were eliminated, SwissEnergy established important voluntary financial contributions to Cantonal programmes for renewable heat.

Under SwissEnergy, the Swiss Geothermal Society was given the responsibility of promoting geothermal energy at the National level. The network of experts that was created under this framework aimed to target 4 main activity areas within its promotional scheme: information, marketing, education and quality assurance. As part of this national promotional scheme, various brochures on geothermal heat have been produced, Geothermal Newsletters have been published and a database created with people and organizations in Switzerland involved in geothermal energies as part of the information branch. Regular university lectures and various workshops have been organised as part of the education support. In addition, a quality label was introduced in 2002 for the entire geothermal heat pump system as part of the quality assurance activity requirements.

2.9.3 Biomass Agreement in Denmark[4]

In June 1993 the Danish government established the Biomass Agreement with the aim of expanding the use of biomass in centralized electricity and heat production. Utilities were obliged by this government degree to replace 6 % of their coal consumption with straw and wood and hence CHP facilities had to purchase and utilise biomass as an energy source.

Following the implementation of this Biomass Agreement, price hikes due to a limited biomass market complicated compliance with the policy. The agreement was therefore amended in July 1997 to provide greater flexibility in the ratio of straw to wood-chips in an attempt to mitigate pricing problems.

Other obstacles of a successful implementation of the Biomass Agreement were that - at the time the policy was first implemented in 1993 - CHP biomass-fired technology had not been developed for large scale implementation and the liberalisation of the electricity market in 1999. Lower electricity prices resulted, so biomass required additional support to remain cost-competitive. This was provided through the 2000 amendment to the Biomass Agreement.

Further amendments to the Biomass Agreement were made in March 2000 postponing the target date for biomass conversions to 2004. In addition, 2 or 3 new, large, biomass-compatible CHP plants were targeted for completion by the end of 2005. Finally in response to liberalisation of the electricity market, feed-in tariffs of € 0.04/kWh for the electricity generated from biomass in CHP facilities were set for a 10 year production period. A guaranteed minimum price for green certificates of € 0.01 was established. These amend-

[4] ibidem

ments, together with the introduction of the feed-in tariff for biomass, saw renewed growth of biomass heat generation.

2.9.4 Swedish geothermal heat pump procurement programme[5]

The Swedish Agency for Economic and Regional Growth (NUTEK) began a Technology Procurement programme for small, brine-water heat pumps in 1993. Although the Swedish market for heat pumps first began to grow in the 1980s, low quality, poorly performing heat pumps led to a negative public view of the technology's reliability. Consequently, the market declined in the late 1980s and early 1990s. In response, NUTEK sponsored the procurement programme with the aim of developing reliable, improved heat pumps for detached houses.

Procurement programmes can act as a starting engine for market transformation. As a first step, a contest was announced indicating a future market for manufacturers and a list of performance parameters and other requirements compiled from purchasers and energy experts. Examples of requirements for heat pump technology procurement included a special amount of minimum energy savings, chlorine-free refrigerants and price restrictions. Manufacturers then submitted model prototypes which were tested free of charge according to the specified requirements. The two models of geothermal heat pumps that won the competition were 30 % more efficient at 30 % less capital cost than previous models.

By the end of the programme in 1996 between 4,000-5,000 units had been sold and another 12,000 were sold in 1997. The market then grew to the extent that models are being exported to several Nordic countries, Switzerland, and the Netherlands. Manufacturers estimated that 30 % of their production was for export.

2.9.5 Green certificate system in Belgium[6]

In 2003 the regional government has implemented an original scheme for Green Certificates in the Wallon region. It is based on the avoided CO_2 emissions of a RE or energy efficiency power plant compared to a reference. 1 Green Certificate is acquired for each 456 kg CO_2 saved. The scheme is related to electricity from renewable and efficient fossil fuel based plants, but the calculation of the Green Certificates takes the heat production into account through the global CO_2 emission reduction. Heat only applications are not considered. The scheme is managed by a public organisation (http://www.cwape.be).

The Green Certificate system is one action initiated in the framework of the Walloon plan for sustainable energy. The number of allocated Green Certificates to producers has increased from 613,000 in 2003 to 715,000 in 2004 and almost 1 million in 2005. Existing hydro power received the majority of the Green Certificates at the beginning but biomass is favoured in new investments due to a higher potential and attractiveness.

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[5] ibidem

[6] See, AEBIOM, Report to project Key Issues for Renewable Heat in Europe – K4RES-H, Financial Incentive Schemes for BioHeat

2.9.6 Tax credit for sustainable development in France[7]

The French 2005 Finance Law has created a tax credit for sustainable development and rational use of energy. The goal is to favour equipments with high efficiencies and using renewable energies. The system is valid from beginning 2005 to end 2009 and covers a wide range of equipment such as

- heating equipment (low temperature boilers, condensation),
- insulation materials,
- equipment using renewable energies,
- heat pumps for heat production and
- equipment for connection to heat networks supplied with renewable energies or cogeneration installations.

The tax credit was 40 % for all expenses carried out in 2005. Starting 1 January 2006, the tax credit is 50 %. All tax payers are eligible for the tax credit. This credit is withdrawn from the tax payer declaration at the very end of the calculation. It means that it corresponds really with a 50 % subsidy of the installation cost.

2.9.7 White certificate system in Italy[8]

The so called “White Certificates” represent marketable documents issued by the Energy Market Administrator testifying the energy saved by the energy distribution companies – as well as by their controlled partnerships – and by the Energy Service Companies. All these companies must undertake and implement specific projects aimed at improving the energy conversion efficiency. As opposed to the Green Certificates concerning the electricity production, the White Certificates correspond to the units of primary energy saved rather than produced.

The system concerns projects aiming at:

- Improving the efficiency of current energy conversion plants,
- Replacing traditional devices with innovative ones, for example, substituting electric water heaters or fossil fuels space heating plants with biomass fed district heating plants, and solar thermal systems;
- Any other intervention which leads to energy saving.

The mechanism introduced by the White Certificates is directed to the energy and gas distribution companies with over 100,000 clients. The contribution is tailored to the overall goals based on the ratio between the energy distributed to final consumers connected to

[7] ibidem

[8] ibidem

their network and the total energy distributed throughout the national territory. At least 50 % of energy savings must be achieved through a corresponding reduction of consumption.

The White Certificates are issued after the Italian Regulatory Authority for Electricity and Gas (AEEG) had certified the occurrence of energy savings. AEEG has also the task to perform sampling inspections to ascertain the actual implementation of the projects and their compliance with the rules now in force.

The White Certificates can be exchanged by means of bilateral contracts, or in the frame of a specific market ruled by the Energy Market Administrator. By marketing the documents, the distributors – which are obliged by law to reach the stated targets – are able to buy them from specialised companies, achieving cost reduction and at the same time assuring the stated efficiency level.

Regarding the costs of implementing the financing scheme the AEEG will grant the distribution companies a contribution of 100 €/year for 5 years (2005-2009) for each toe saved directly or indirectly by the white certificate marketing. This grant will cover part of the costs met by the distribution companies to reach own targets of energy saving. The remaining part can be covered by other resources, such as, state or regional funds, clients participation shares, revenues from selling the surplus of white certification quotas with respect to the proper obligations.

3 POLICY RECOMMENDATIONS

3.1 General policy recommendations concerning the development of RES-H support instruments[9][10]

As RES-H/C technologies are often not competitive compared to conventional systems based on relatively cheap electricity, gas or coal, public support is necessary to ensure a growing deployment of RES-H/C.

Support schemes on RES-H/C can help to

- reduce the high investment costs compared to conventional heating and cooling systems,
- increase the market confidence (by a positive signal from a public authority) and
- balance the gap in market development between different European countries.

Furthermore an increasing use of RES-H/C would lead to

- a reduction of external costs,
- a decrease of dependency on imported energy sources,
- economical growth and job-creation (technological leadership of the EU-RES-H/C industry) and
- creation of economies of scale which reduce the price of RES-H/C in the medium term.

3.1.1 Policy instruments for renewable heating and cooling

The types of policy instruments useable to promote renewable energy sources for heating and cooling can be grouped into the following categories:

- Financial incentive schemes
- Regulatory schemes
- Educationally bases schemes

Policy instruments for renewable heating have also taken the form of voluntary agreements between the private sector and the public sector. These have been employed in all three categories, but typically involve the voluntary development and purchase of renewable energy technology installations or the purchase of “green energy”.

Most of the policies in place today to support renewable heat generation are **financial incentive schemes**. The budget allocated per capita can vary significantly for each policy

[9] See International Energy Agency, Renewables for Heating and Cooling, Untapped Potential, Paris, 2007

[10] See EREC, Report to project Key Issues for Renewable Heat in Europe – K4RES-H, Financial Incentives for Renewable Heating and Cooling

and national package of policies as do their time-spans, technologies applicable, and eligible parties. The main kinds of financial incentive schemes used so far in Europe to address the cost gap between renewable and conventional technologies include capital grants, operation grants, tax incentives, soft loans and loan guarantees and incentives linked to housing subsidies or regulations.

Capital grants are generally used for renewable heating installations (e.g. solar thermal, geothermal, biomass) which are usually a capital intensive with relatively low running costs. Capital grants are a straightforward incentive to reduce the up-front investment costs and they are easy to administer. Grants, or subsidies, may be offered either to the developers or owners of the renewable heating installations, or directly to the manufacturer of the renewable heating technologies. It is recommended that grants are offered in support of the demand-side market as grants for manufacturing may interfere with competition. For the plant owners, grants may be offered in terms of:

- capacity installed (e.g. €/MW) directly targeting the capital investment costs for plant and installation;
- subsidies set as percentage of total investment;
- a fixed payment incentive per installation;
- rebates in the form of the refund of a specific percentage of the cost of installation; or
- the refund of a certain amount of money per unit of capacity installed.

Where a budget limit is imposed, grants may be awarded on a first come, first served bases or auctioned. A risk lies in providing grant funding for the installation as this does not guarantee how much heat energy will be generated. Further on, limited funding per grant may provide a disincentive for investment in higher quality technologies.

Operation grants are provided as cash payments based on an energy generation basis, typically on a €/kWh basis for the production of renewable electricity. Payments based on energy generation and hence plant performance, rather than on capital investment, may place more emphasis on choosing better quality installations. Moreover, funding the energy generation ensures that renewable heat is actually generated. Nevertheless the distributed nature of heat supply complicates the implementation of operation grants due to a lack of cost-effective metering and monitoring procedures (often only cost-effective and practical for larger systems).

Tax incentives including tax credits, reductions, and accelerated depreciation, may be based on investment costs or energy production. This wide range of tax incentives increase the competitiveness of renewable heating. Fiscal incentives typically present a lower financial burden for administrating and transaction costs, but the overall level of fiscal incentive needs to be carefully established to achieve successful outcomes. Furthermore it has to be considered that schemes based on a reduction on direct taxes (e.g. income tax) are socially unequal and privilege high income households.

Soft loans and loan guarantees lower the costs of capital and can therefore bring down the average cost per unit and hence reduce the investment risk. Moreover this type of incentive is easily implemented by banking institutions that normally provide investment support to developers. Banks often hesitate to provide loans for equipment which is still developing a

market presence but when “bankability” by established institutions is assured, then this may pave the way for project developers to accrue additional funding sponsorship. The disadvantage of this incentive scheme is that it does not necessarily encourage investors to purchase the most reliable systems available or to maintain them adequately and produce as much heat as possible from RES.

Incentives linked to housing subsidies: In some countries or regions (e.g. in Austria) subsidies for the construction of new residential buildings or refurbishment of existing residential buildings provide incentives for renewable heating measures. The incentive can be in the form of additional amounts if certain requirements are met. Moreover for new buildings a certain share of heating from RES can be defined as a necessary condition for awarding the housing subsidy.

Regulatory schemes allow governments to intervene in the market by placing requirements on specified sectors. This type of instrument forces RES-H/C deployment by directly requiring the development of specified technologies. The legal and administrative costs of political incentives are often kept to a minimum for governments, although monitoring and enforcement may be required at the local or regional level.

Educationally based schemes aim to enhance the awareness of the public. They can include technical assistance, financial advice, labelling of appliances or information distribution. Moreover training programmes may be established in schools, universities or amongst key professional groups.

3.1.2 Lessons learned from current policies

The most important lessons learned by current policies include the following points:

- Each country and state has a unique set of circumstances, needs, and resources that play an important role in the design and success of policies for RES-H/C and may influence the appropriateness of a policy for a given area.
- The success of a support scheme depends on its design and the supporting levels of enforcement. In order to promote strong, substantial growth in each renewable sector, policies must be reliable and long-term. Targets for definitive quantities or percentages of renewable energy should be clearly outlined and verifiable.
- Policy targets should be based on the actual generation of heat rather than on total capacity or number of installations. This ensures that the specific goal of the policy is to promote renewable heat. Basing incentives in terms of plant capacity alone may risk the installation of RES-H/C technologies that are not actually utilised.
- A mix of instruments is essential for success: Increasing supply-side confidence may have a positive impact on deployment. Private investment in facilities, marketing and distribution structures and the training of installers tends to accompany stable, predictable and long term policies. In the medium term this leads to a higher market presence, economies of scale, lower costs and improved product quality. Poor quality systems and inferior installations compromise the reputation of the technology and can produce a lack of consumer confidence.

- Support schemes for RES-H/C need to address the specific challenge of the distributed nature of local heat demand and variability of use, especially for hot water. In contrast to large scale renewable electricity projects, policies in support of renewable heating should address to a greater extent the availability of local information, the success of local projects, and local circumstances.
- Bureaucratic and administrative barriers, such as needing planning permission even for simple solar collector roof installations, or mining rights for geothermal heat extraction, may inhibit deployment and should be minimised.
- Continuity should be considered as the most important single element of a well designed and managed financial incentive scheme. Several examples from different countries and RES-H technologies show that discontinuous financial incentives can damage the development of healthy market structures by creating a stop & go market dynamic. Under such conditions the supply side and the professional groups (e.g. installers, heating engineers, architects) are discouraged from investing.
- To avoid creating an incentive to postpone installation of RES-H/C systems, the introduction of new support schemes or the increase of an existing financial incentive system should not be announced before they become valid.
- Within a support scheme to last some years, adjustments of certain conditions should be possible to adapt the support scheme to the market development. The adjustments should be discussed with market experts and be introduced aiming at minimising any negative impact on the market development.
- The procedures of a support scheme should be simple, both for the applicant and for the public administration.
- Financial incentive schemes should not create barriers to trade within the EU. Any technical parameter linked to the eligibility for financial incentive schemes should be strictly oriented to European standards and certification procedures, when they are available. Otherwise it can contribute to create “isolated markets” at a National or even regional level, thereby increasing the costs for the users.
- Applying the “polluter pays principle”: The costs of the support scheme should be financed by users of non renewable energy.
- An accurate national data collection relating to heating and cooling supply is necessary to understand the outcome of policies. Due to the distributed nature of heat supply and the local demand, this may be difficult to achieve without extensive user surveys or national sales figures.

3.2 Country specific policy recommendations concerning the development/improvement of RES-H support instruments

3.2.1 Austria

In general energy-relevant support schemes are well developed in Austria. Financial incentive schemes, regulatory schemes as well as educationally based schemes are used either on the national, regional or local level. Even if the number of support schemes for RES-H/C is high, they are complimentary to each other. Furthermore the Austrian specific circumstances (e.g. high potential of biomass for energy production) are well considered in the design of policies for RES-H/C. Nevertheless there are some recommendations for improving the current situation on support instruments for RES-H/C.

These include:

- The monitoring and evaluation system should be improved to better understand the contribution of the existing instruments to reach the national targets. A better understanding of the effectiveness of the existing instruments should also help to adapt the schemes if necessary.
- Improvements regarding balancing the predictability and long-term stability of the support system with the need to control the support cost at an acceptable level, while avoiding “stop & go” situations in funding.
- The statutory provisions regarding the building sector could be tightened. Stricter regulations for example in the building law or the subsidy scheme for residential buildings could help to further increase the use of renewable energy technologies.
- The gap of support schemes for the public building sector should be closed.
- As the private demand for RES-H/C technologies is an important element to stimulate the market for these technologies, more public awareness campaigns should be organised. Further on more independent information centres should be created.
- A selective public demand for RES-H/C technologies can help to stimulate the market.
- Educationally based schemes such as training seminars for professional groups (e.g. installers, heating engineers, architects) should be extended and the costs should be subsidised by the state.

3.2.2 Bulgaria

In Bulgaria the supporting schemes for electricity, produced by RES are well developed. In the new Energy act for the use of renewable, alternative energy sources and biofuels, adopted in 2007, on the basis of which the electricity generated by RES is sold at preferential prices, fixed periodically by the SEWRC – The State Regulatory Commission.

But there is a lack of supporting schemes for the heat energy, produced by RES. As mentioned above only the Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL) provides a 20 % grant for energy projects, using RES (for producing electricity or/and heat power). Nevertheless there are some policy recommendations for supporting RES H/C:

- Prolong the work on the (BEERECL).
- Development of new financial mechanisms especially for supporting the heat power, produced by RES.
- Development of new Sub- Act for RES heat with special supporting mechanisms given by the state depending on the market conditions.
- Popularisation and education campaigns for public and private bodies in the country focussed on the possibilities for generation of heat from RES with example of good practice in other counties
- Development of a national indicative target for heat power, produced by RES, similar to the one already done for RES generated electricity .

3.2.3 Croatia

Financial incentive schemes partly exist in Croatia on a national level, through annual tender for supporting usage of renewable energy sources (including RES-H/C) organised by the Environmental Protection and Energy Efficiency Fund. Part of the fund resources are also dedicated to the education, promotion, research and development of renewable energy sources. On the other hand, a regulatory scheme doesn't exist. The concept for supporting the production of heating and cooling energy from RES was finished in April 2008, while sub-laws for RES-H/C are expected to be developed in 2009.

There is a significant potential for the implementation RES-H/C projects (solar thermal, biomass and geothermal heat pumps) in Croatia, and the creation of comprehensive RES-H/C policies should increase the usage of RES-H/C. Nevertheless there is a lot of space for improvements of existing RES-H/C support schemes. Recommendations for improving the current situation for extensive RES-H/C projects implementation include:

- Government has to clearly define a national strategy and policy towards RES based on the introduction of a stable legislative framework which will define binding national targets in the fields of RES-H/C production.
- RES-H/C should be regulated by appropriate sub-laws, as soon as possible. The regulations should define: eligible RES-H/C technologies and minimum technical criteria for each technology; the minimum obligatory target share of subsidised RES-H/C production in final energy consumption and total primary energy supply for 2010 and 2020; financial incentives for subsidised RES technologies.
- National targets should be defined, and the monitoring/evaluation system should be established in order to evaluate the accomplishment of the national targets. Carrying it out in the residential sector will meet significant obstacles, due to difficulties in measuring/monitoring of RES-H/C energy generation throughout the large number of installations.
- Creation of stable, predictable and long-term supporting system (avoiding "stop & go" situations in funding). Financial incentives need to be periodically adjusted, based on market development and costs of conventional technologies and fuels.
- When the legal framework has been set, it will be necessary to organise stakeholder institutions and educate staff in order to enable each institution to take over its responsibility in RES-H/C projects implementation phase.

- RES assessment is connected to spatial planning, environmental issues, licensing and permit systems, banking and taxation systems etc. Therefore, networking in the preparation phase as well as in the continuous follow ups become necessary (on a technical, administrative, social and political level).
- Removing bureaucratic and administrative barriers, such as needing mandatory building permits even for solar collector roof installations, may enhance the deployment. Procedures for applying projects and receiving incentives should be simple and easy to evaluate, especially for natural persons.
- Involvement of natural persons in the RES-H/C supporting scheme. So far, the Croatian Fund support was limited to companies, local/regional self-government and other institutions, although the large RES-H/C potential belongs to residential sector and natural persons.
- Organisation of open tender for application of RES projects by Croatian Fund in cooperation with county and town self-government. The tender could be open until available resources exist. First well prepared projects should be supported (first come, first served).
- Receiving of subsidies should occur after the implementation of RES technologies by licensed installers, based on appropriate invoices. The Supporting system should cover only RES-H/C technologies of higher quality, above defined technical criteria for each technology.
- Public awareness campaigns should be organised to increase private and public demand for RES-H/C technologies and stimulate the market for these technologies. Furthermore, information centres, for technical assistance and financial advice, could be created on county and town level.
- Education of heating engineers, architects and installers in order to implement more strict regulations in the building sector. Educational schemes for pupils, students and their teachers, as well as training seminars for project developers, investors and decision makers on a national/local level should be extended.

3.2.4 Estonia

Implementation of similar to RES-H related targets has started in Estonia already from the beginning of the 1990´s onwards in order to achieve greater independence from imported fossil fuels. It was also economically viable for the heat producers to utilise biofuels. Energy saving campaigns started approximately at the same time. The support schemes are a relatively new topic for heat market participants although the regulatory schemes have been set and worked on for a relatively long time. The main recommendations for improvement of the RES-H/C related sector of Estonia are as follows:

- Facilitating an EU common energy policy (that would decrease dependency from imported fossil fuels from third countries) and improvement or elaboration of national long-term Management Plans regarding the RES-H related energy sector:
    1. Elaboration of the National Action Plan for utilising renewables in order to achieve the RES-H targets. The document would also deal with problems in the sector, analyse the gap and suggest appropriate support schemes;

2. Elaboration of District Heating Management Plans for all municipalities that would map all relevant problems, set targets and would give a proper gap analyses and price estimations of relevant actions.

- Modernize the methods and procedures/guidelines of National Regulation Authority. The Consumer Protection Board is guided from the average prices of primary energy and does not take into account local conditions. ROE (return on equity) should be increased for district heating producers (where competition is not possible). The Consumer Protection Board does not appreciate the initiative of producers to increase the efficiency – the basis for approval of price of heat is guided merely by "reasonable profit" considerations. The relevant procedures should be complemented and the guidelines modernized.
- Implementation of energy saving activities at all levels (incl. awareness campaigns addressed to households), improvement of building and procurement regulations for public buildings and housing. Large-scale employment of Green Procurement principles for public buildings.
- Improvement of new technologies for utilisation of renewable energy sources. In order to promote different technologies there should be individual support-schemes for different technology. Technology-based investment support schemes should be elaborated (newer-better technology = higher support).
- On county level, coordination of activities in the energy sector should be established. Promotion of national energy policies at a local level and training of local energy specialists. Energy policies of national level often do not expand to local level and there is not enough information about energy-related problems of local levels in the ministries. As the municipalities are often small, opportunities to absorb necessary competences on a local level might be limited, it is more beneficial to strengthen county-level administration or other bodies, that may support municipalities in energy sector development.

3.2.5 Germany

Germany has developed and applied a series of highly efficient regulatory instruments and financial support schemes for the promotion of renewable energies, during the past 20 years. Effective implementation and continuous enhancement of these supporting instruments are forming the basis for Germany's leading role regarding e.g. the application of renewable energies such as wind energy and photovoltaic energy as well as biomass and biogas for power supply to the public grid.

With regard to RES-E, the existing limitations in grid capacity to integrate larger shares of power from renewable sources, are going to become the limiting factor for further growth in the near future. Overcoming this barrier is a major challenge for energy policies in Germany in the next few years.

Specific instruments which have already been successfully applied for promoting and supporting RES-H are going to gain new momentum through the Renewable Energies Heat Law which is coming into force in the beginning of 2009. It is making the use of RES-H mandatory for almost all kinds of new-built buildings.

Additional instruments may be required to support the utilisation of RES-H also in existing buildings in a comparable way.

3.2.6 Romania

Generally speaking the RES-H/C supporting schemes in Romania are not very well represented. Until now only grants for investment are used in order to support RES-H/C projects implementation. In order to improve the current situation the following recommendations can be drawn:

- The Government has to make its policy clear in order to achieve the RES target assumed in the context of EU policy in the respective field.
- The support schemes for RES-H/C have to be improved in order to facilitate project sustainability after implementation.
- The “best practice” dissemination has to be improved at the level of local communities. There is a big potential at the level of local communities for RES-H use for heating and increasing energy efficiency.

3.2.7 Slovakia

Generally speaking, support schemes concerning the RES in Slovakia are less developed than in other EU member states. On the one hand there is a high RES potential (large and small hydro power plants, biomass utilisation, solar radiation comparable to the level in Germany, geothermal springs). On the other hand support schemes are a step behind the overall progress in the EU. There are many barriers, e.g. high share of population connected to the natural gas grid, low awareness of the population about RES, no real RES strategy of the state administration. Most of the identified targets and support schemes are based on the EU directives Slovakia has to implement. National schemes are limited mostly to the regulatory ones, as financial support is coming mostly from the EU Funds.

Administrative barriers are still high, it is necessary to reduce the number of involved institutions and permissions needed for particular projects. Together with this recommendation it is necessary to improve the support schemes and make them more simple for the beneficiary. The recommendation is to base the public awareness campaign on best practices and the presentation of examples.

Support schemes need to be stable, which does not mean that the conditions cannot be changed. A certain level of adjustment is necessary and needs to be done in cooperation with the market players, involved institutions and beneficiaries. It is important to assure the continuity of support schemes and avoid a stop&go situation, which leads to lower attractiveness of RES.

The long-term vision of RES development leads to higher stability. Involved public institutions are recommended to elaborate analyses for each renewable energy source with the aim to support local resources. In these analyses the RES potential, suitable regions and the generation capacity (to keep the transmission system stable and operational) need to be defined. Stability of the transmission and the distribution system (in case of e. g. wind energy), the local availability of resources and nature protection need to be reflected on.

As the most important financial support schemes in the next 6 years are the EU Funds (Structural Funds - SF), the high effectively of these schemes needs to be maintained. This is connected with the administration barriers. The processes of application and utilisation of the SF needs to be monitored and evaluated as well as adjusted if necessary.

An information campaign on a national and on a local level has to be developed. It has to encompass a wide range of media channels and needs to be sustainable in its duration. The

campaign has to target specific beneficiary groups (households, municipalities, SMEs, NGOs...) and has to stress local conditions. A broad campaign to stress the importance of RES and to rise awareness among the public is a key to higher RES utilisation.

Support schemes are better addressed, when they exist on the local or regional level. Therefore the municipalities should become rights and financial sources to support local actions. This is especially important in the RES-H support, as the local energy sources, with the economic realisation dependent on the distance, are utilised.

In Slovakia there are missing sufficient financial support schemes for natural persons. The importance of RES use needs to be disseminated among ordinary people, as RES decrease dependency on conventional fuels (e.g. domestic hot water production, heat production from biomass).

RES development contributes to the GDP rise, as new components and installations are necessary to be acquired and installed. They can be produced within the respective country. Therefore the government has to focus on the support of the industry and investors producing components for RES utilisation (heat-pump production, solar collectors production etc.)

3.2.8 Spain

Spain has been implementing renewable energy support mechanisms in a programmatic way since the first Spanish Renewable Energy Plan in 1999. The monitoring of the mechanisms put in place has lead to a continuous learning process and redesigning of the instruments. So we can affirm that presenly Spain is implementing the needed support schemes to correspond to the national targets on renewables for 2010. Theses support schemes cover all typologies (regulatory, financial and educational) and all geographical scopes (local, regional, national).

Nevertheless some of the implemented measures didn't reach the expected results. Furthermore new future commitments on renewables for the year 2020 were made and there are new renewable technologies available. Moreover there is also the need to coordinate the renewable energy policy with the demand side management policy framed in the Spanish Energy Efficiency Plan. Consequently, there is still room for recommendations:

- The monitoring system should be evaluated and improved. At present the information on the results is flowing from local to regional and to national level in a very slow and heterogeneous way.
- To target the mechanisms in a better way, there is a need in accurate national data collection of the potential resources, of the present use of renewables for heating but also of the heating and cooling supply chain.
- It can be very interesting to develop training plans on renewables. Taking into consideration that the renewable energy sector is booming in Spain the lack of qualified human resources could end in the impossibility to profit from the support mechanisms.
- It would be also important to implement a certification scheme for equipment and installers. The financial incentives some times bring bad practices of promoters into the market trying to benefit as much as possible in the short term, being careless in the quality of the installation.

- The public sector should implement more often better practices. When possible RES supply should be included as a condition in public procurement processes.
- There is a need for instruments to mobilise more sustainable biomass resources for heating purposes.

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