



EREC

European Renewable Energy Council



**JOINT DECLARATION  
FOR A EUROPEAN DIRECTIVE  
TO PROMOTE RENEWABLE  
HEATING AND COOLING**

**25% of the EU heating & cooling supply  
by renewables in 2020**

TO PROMOTE RENEWABLE HEATING AND COOLING

## Introduction

Europe is at the forefront of renewable energy development worldwide and has significant experience in the formulation of proactive policy measures in this area.

Renewable energy sources make a major contribution to the security of energy supply, the mitigation of climate change and environmental protection. Renewables are a key element for sustainable development, including the creation of jobs and wealth oriented to the future.

The renewable energy industry is one of Europe's fastest growing sectors. Any long-term vision for European economic development must include renewables, to save finite energy sources and to build up an industry of strategic importance.

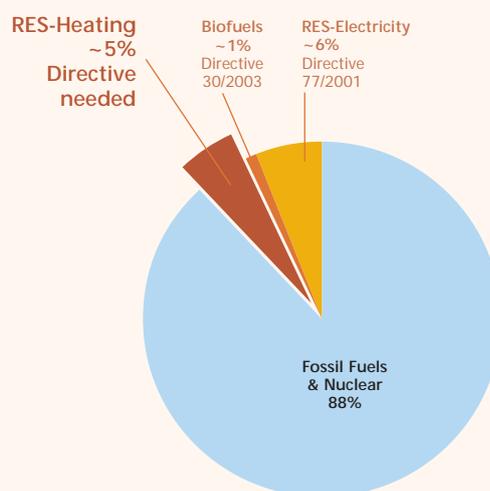
In the White Paper of 1997, the EU laid down clear objectives for renewable energy by 2010: a share of 12% of renewables in gross inland energy consumption. In the electricity and transport sectors, EU-wide legislation has been adopted to promote renewables. The Directives include specific national targets, respectively summing up to 21% for renewable electricity and 5.75% for biofuels. The implementation of these Directives in the Member States is significantly supporting the growth of renewable energy technologies.

However the heating and cooling sector is missing in the policy framework. Specific sectoral targets were included in the White Paper, but they were never included in European legislation. This policy hole is jeopardising the chances of the EU to reach its overall target for renewable energies, as recently stated by the European Commission.

*"The shortfall compared to the 12% target is caused by sluggish growth of renewable energy markets for heating and cooling (...) considerable extra action is needed in this sector to enable the full 12% target to be reached."*

European Commission,  
Communication to the Council and Parliament,  
26.5.04 [COM(2004) 366 final]

In fact, almost half of the EU's overall target for renewable energies can be covered by renewable heating and cooling alone:



Fact is that almost 50% of the final energy consumption in Europe is used for the heating needs of buildings, for domestic hot water production and for heating in industrial processes. Heat is the largest consumer of energy, being greater than electricity or transport. Renewable heating sources (solar thermal, geothermal, biomass) have a huge potential for growth and can replace substantial amounts of fossil fuels and electricity currently used for heating purposes.

Europe needs to develop stronger policies to promote renewable heating and cooling. **Europe needs a Directive to promote heating and cooling from renewables.**

## The heating sector - a neglected giant

Over the last decade, energy policy focused very much on the liberalisation of the electricity markets. Citizens and the media often portray energy and electricity as one and the same thing. Most people, including many decision makers, underestimate the share of energy used for heating purposes. The heating sector is a neglected giant.

Given these facts, it is no surprise that renewable heating (RES-H) so far received less political attention than renewable electricity (RES-E), both at EU level and in most Member States. Another reason may be that RES-H products are sold mainly by small and medium sized enterprises (SMEs), which have not yet a strong visibility in the EU energy market.

### **SUPPORTING RES-H: a special challenge that needs a focused approach**

For policy makers, designing support schemes for RES-H is a more complex challenge than in the case of RES-E. Heat, unlike electricity, is not distributed through national and European networks. As a result, many more actors are involved at the local level. Financial incentives or regulations must address millions of owners of heating devices in the residential sector, offices, industry, agriculture and in the services sector. It is important to allocate sufficient effort to awareness raising campaigns and to the integration of renewables into the mainstream heating and construction industry.

RES-H has a large untapped potential. In many cases, its costs are already comparable with those of conventional heating. Decisive barriers to growth are lack of awareness and unexploited economies of scale. Europe needs a focused approach to tackle these challenges.



The heating sector - a neglected giant

## Security of Supply

The EU already imports 50% of its energy needs. Import dependency is predicted to increase to 70% by 2030 due to the depletion of most domestic oil and natural gas reserves. Dramatic growth of demand in countries like India and China is increasing international competition for scarce energy sources. The heating sector is particularly vulnerable, as it is largely based on imported oil and gas. It is a non-sense to burn precious fossil fuels or to use high-quality energy in form of electricity for heating up water to temperatures that can easily be obtained by solar thermal, geothermal technologies or bioheat.

*"The finiteness of oil and gas resources gives cause for concern. And political instabilities in the main supply countries of carbon fuels cause additional risks for the security of supply."*

Norbert Walter,  
Chief Economist, Deutsche Bank



## Climate Change

Growing costs of climate change are becoming more apparent now. Large re-insurance companies estimate the costs at more than € 500 billion in the years between 1990 and 1999 with an increasing tendency. The conventional heating sector is responsible for a substantial share of greenhouse gas emissions.

### The Growth and Costs of major climate-related natural disasters

Decade	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999
Number	20	27	47	63	89
Costs in Billion €	32,7	58,7	105,6	164	505,6

Source: Muenchner Rueck Versicherungsgruppe

The human origin of climate change is now widely acknowledged. No large energy-consuming sector can be ignored if we want to tackle this challenge. Solar thermal, geothermal energy and biomass offer heating at virtually zero CO<sub>2</sub> emissions.



## The need for an EU-wide effort to promote RES-H

*"An EU Directive on renewable heating and cooling is absolutely crucial for building a sustainable future. We reached a lot in the EU, but there is more to do. The next step must be to close the gap in legislation and establish such a Directive".*

Mechtild Rothe,  
Member of the European Parliament

Many EU Member States have support mechanisms for at least some RES-H technologies. Support ranges from public awareness campaigns, to demonstration projects and direct financial incentives. Spain is leading a new trend towards binding solar regulations. The application of these support measures has not only resulted in enhanced public awareness. Public policy support to promote RES-H has also shown its positive effects on the RES-H markets in certain countries.

### Transform the growth of a few countries into a European success

The development of RES-H markets in Europe is strikingly unbalanced. Very few countries have a very large share of



Wood chipping for biomass heating, Jindřichovice pod Smrkem, Czech Republic

the installed capacity at EU level, a fact that cannot be explained by the distribution of natural resources. If this was the case then why would Austria have 30 times more solar thermal collectors per head installed than Italy? Three countries together have a share of nearly 70% in geothermal heat pumps. The difference in RES-H development in the Member States is reflected in the different national policy frameworks, e.g. in Swe-



The need  
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den the small-scale pellet heating system is already economical due to the taxation of fossil fuel while in Austria significant investment subsidies (up to 35%) for modern wood-energy residential heating systems have been successfully introduced. Other Member States have been less supportive so far. If successful measures were adopted throughout the Union, RES-H could grow towards its full potential.

### The gap in the policy framework needs to be closed

EU Directives to promote renewables in the electricity and in the transport sector already exist, a Directive to promote RES heating and cooling is still missing. The Directive on the Energy Performance of Buildings will support RES-H development, but it is not focused enough. The Directive does not apply to existing buildings < 1000 m<sup>2</sup>, where a large potential for RES-H lies. It will substantially support energy efficiency measures in the next decade. However, sustainability in the heating and cooling sector cannot be achieved only by reducing consumption. It is also necessary to switch production to renewables as soon as possible. Every drop of oil used for space heating could be used more meaningfully elsewhere. It is high time for bolder steps: the European Union must act united to speed up growth of renewable energies in heating and cooling.

*“Develop regulatory frameworks for accelerating the growth of markets for renewable energy heating and cooling.”*

Key Recommendations, conclusions of the European Conference for Renewable Energy (January 2004, European preparatory event for the World Conference renewables2004)

*“Fulfilment of the 12% target for 2010 will require a step change in national policies towards the use of renewable energy in heating”*

European Commission,  
Communication to the Council and Parliament,  
26.5.04 [COM(2004) 366 final]

*“...the EC target for renewables can only be met if the deployment of RES heat can be increased, surpassing current trends substantially. Together with successful transition management approaches stimulating RES in the heat market, a renewable heat Directive could be the solution to assure the necessary immediate growth rates.”*

Best practice policies for Renewable Heat Markets, REACT study  
[www.react.novem.nl](http://www.react.novem.nl)

## RES-H Technologies - a short presentation

Huge amounts of renewable heating and cooling can be supplied by solar thermal, geothermal and biomass to satisfy the entire heating and cooling needs of many buildings and to satisfy in parts the needs of the industry in Europe. All buildings in Europe have the potential to be independent or less dependant on fossil fuels or electricity for heating and cooling.

In many cases, RES-H is already economic today, as the payback times are considerably shorter than the lifetime of the devices. The main barriers to growth are higher investment costs, lack of awareness among citizens and in the building sector as well as the limitedness of the markets in many countries of the EU. RES-H technologies have a substantial potential for growth and for economies of scales. Promoting RES-H technologies today will benefit societies even more tomorrow by reducing costs.

### Solar thermal heating and cooling

Solar thermal provides renewable heating at a very convenient price. The most common applications are domestic hot water and space heating. Modern systems are on the market also for swimming pool heating, desalination and process heat for tertiary, agricultural or industrial purposes. The solar thermal capacity in operation (kWth/1.000 capita) varies from 608 in Cyprus, to 166 in Austria, 5 in Italy and 3 in France. These gaps, obviously not linked to natural resources, show the huge potential for growth at EU level: solar thermal alone could replace more than 30% of the EU's oil imports from the Middle East. Solar assisted cooling is an extremely promising technology, as peak cooling consumption coincides with peak solar radiation. A number of

### Renewable cooling

Energy consumption for cooling is growing dramatically. In the last years, electricity peak consumption grew significantly, switching from winter to summer in many EU countries. This is endangering the stability of electricity grids.

Cooling can also be delivered by thermal driven devices, or directly from the ground in shallow geothermal systems. A number of RES-H based cooling plants have been successfully demonstrated.

On this basis experts see a huge potential for growth of renewables in the cooling sector, if the necessary support for developing these markets is provided. Cooling demand creates a new challenge to sustainable development. It can only be met if renewables are deployed in large-scale.

large-scale solar cooling systems have been successfully demonstrated: it is now necessary to support wide market introduction. Small-scale solar cooling systems could be ready within a decade, if R&D support is provided.

RENEWABLE COOLING

RES-H  
Technologies -  
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presentation

## Geothermal

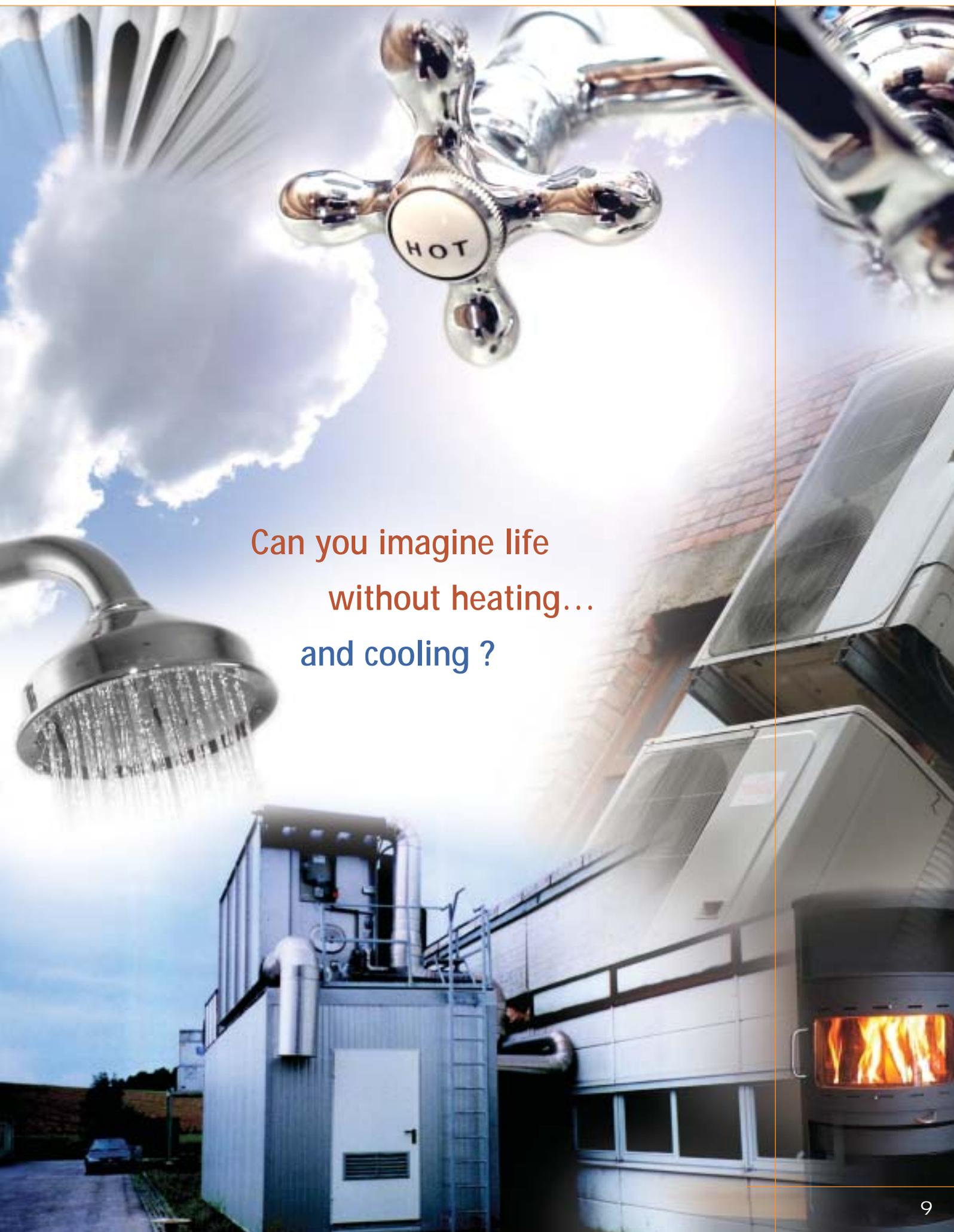
Per definition, geothermal energy is the energy in form of heat below the earth's surface. It has been used since antique times for heating, and for about 100 years also for electricity generation. Its potential is inexhaustible in human terms, comparable to that of the sun. Beside electric power generation, geothermal energy is today used for district heating, as well as for heating (and cooling) of individual buildings, including offices, shops, small residential houses, etc. The largest geothermal district heating systems within the EU can be found in the Paris area in France, with Austria, Germany, Hungary, Italy, Poland, Slovakia and others showing a substantial number of interesting geothermal district heating systems. Sweden, Germany and Austria are the leading countries in terms of market for geothermal heat pumps development within the EU. In 2003, a total of approximately 2 Mtoe has been supplied by geothermal heating alone.



## Biomass heating

Biomass heat applications contribute to a 98% of renewable heat production in Europe. The main part of this contribution comes from domestic heating with fuelwood, followed by large-scale use of biomass wastes for industrial

process heat applications and biomass use in district heating plants. Biomass offers considerable flexibility of fuel supply due to the range and the diversity of fuels which can be produced at small or large scale, in a centralised or decentralised way. Co-generation applications allow to make particularly efficient use of biomass by combining the generation of heat and electricity from renewables in one process. Cost of heat production from biomass, or bio-heat, depends firstly on the bio-fuel cost. The cost depends on the country, the type and quality of the fuel, the demand, the organisation of the procurement chain, the quantity (individual user up to large industrial scale), etc. In the White Paper, biomass represents about 75% of the EU goal of doubling the RES share from 6% in 1998 to 12% in 2010. The Campaign for Take-Off includes installing 10,000 MWth of biomass by 2010 and 1 million dwellings heated from biomass.



Can you imagine life  
without heating...  
and cooling ?

# Joint declaration for a European Directive

The signatory groups, active in the fields of renewable energy, energy efficiency and environmental protection, call for strong and consistent action on the European level to promote renewable heating and cooling and ask the EU institutions to adopt a RES-H Directive.

## Motivation for action at EU level

Experience has shown that, without an EU policy framework, RES-H develops well only in a few Member States, and that this is not caused by the distribution of natural resources. If efforts to promote renewable heating and cooling will not take place in a coordinated way throughout the Union, the EU will miss its overall targets on renewables and will continue to dissipate precious fossil sources and electricity that could be used for other purposes.

## Purpose of the Directive

A Directive must have a clear purpose, namely to increase the share of renewable energy in the heating and cooling sector, and an aim, namely to contribute to attaining objectives such as reducing GHG emissions, environmental protection, sustainable development, security of energy supply and in this way producing economic growth with significant employment effects in future oriented sectors.

## Setting national targets for renewable heating and cooling

Targets represent an important step in policy making. The rapid market development and technological advancement of the renewable energy sector accelerated rapidly after the setting of concrete targets in the electricity



# to promote renewable heating and cooling

and biofuels Directives in recent years. Analogous targets for the heating and cooling sector will guide national and local policy makers in their decisions and send important signals to investors and the public.

An overall target for heating and cooling from renewable energy sources in the EU by 2020 shall be set for at least 25% of overall heating & cooling consumption. This must be broken down into binding national targets for each Member State, taking into account their natural resources and the capacity already in operation.

## National support mechanisms

It is at this stage not desirable to set up a European wide harmonised support mechanism for RES-H. Instead we call for the setting of positive framework conditions, encouraging the Member States to define their own instruments based on proven best practice options including awareness raising campaigns, direct financial incentives, tax exemptions, binding regulations and other measures as appropriate in each country or each RES-H technology.

National support mechanisms should ensure that the targets are reached, by delivering a stable framework for investments on the supply side and by guaranteeing an adequate return on investment for the user of renewable heating devices.

The encouragement of cogeneration from renewable energy sources will help Member States to make progress towards both renewable heat and electricity targets.

## Removing administrative barriers

In many countries, administrative barriers and unfavourable bureaucratic conditions limit the use of renewable heating and cooling. Often these barriers are due to esthetical, planning or safety regulations that have not been conceived keeping in mind the specific situations of RES-H applications. Where appropriate, Member States should enact improvements aimed at facilitating regulatory procedures for the installation of renewable heating and cooling installations.

## Reliable statistics and monitoring of the results

The whole heating sector is often neglected because of a lack of statistical information. This is particularly true for RES-H systems that in most cases are not directly monitored due to their small dimension and decentralised use. Some statistics report only the renewable energy production commercially sold to third parties, thereby excluding substantial parts of RES-H. As a consequence, public opinion and decision makers often heavily underestimate renewable heating and cooling.

The establishment of reliable statistics and monitoring procedures is essential to the development of RES-H. It will help motivating end users and investors, it will help local regional and national policy makers to set the right framework conditions and it will allow to measure the fulfilment of the targets.

**Joint declaration  
for a European  
Directive to  
promote  
renewable  
heating and  
cooling (RES-H)**

