Core Theme 3

## Core Theme 3

# RES Heat

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CA-RES CONCERTED ACTION RENEWABLE ENERGY SOURCES DIRECTIVE

# 1 In a Nutshell

The Concerted Action for the Renewable Energy Sources Directive (CA-RES) is a structured and confidential dialogue between national authorities (or their nominated representatives) responsible for the implementation of the European Directive on Renewable Energy Sources (2009/28/EC) (hereafter RES Directive). In the CA-RES, participating countries exchange experiences and best practices, participate in a cross-learning process and develop common approaches. The CA-RES is organised around seven core themes in the areas of support schemes for electricity, cooperation mechanisms, renewable (RES) heat, electricity networks, Guarantees of Origin and disclosure, biomass mobilisation and sustainability and RES in transport. For more information on CA-RES see www.ca-res.eu.

This report outlines the topics covered by Core Theme 3, RES Heat, during the course of the second phase of CA-RES (CA-RES II, 2013-16) and summarises the main insights and lessons learned.

*Core Theme 3 covers heating or cooling as well as renewable district heating and cooling in buildings. It covers various aspects of this, such as policies to address financial barriers, non-financial barriers and regulation. With regards to Article 3 of the RES Directive, support schemes for RES, this Core Theme only deals with support schemes for RES heating and cooling.*

It is worth emphasising that Core Theme 3 covers on-site renewable heating and cooling energy as well as district heating and cooling (DHC). As regards renewable heating and cooling, all scales are covered since all renewable heating and cooling (both large and small) will either serve on-site heat demand or be exported to other sites (i.e. DHC). We use the term "on-site generation" to mean any situation where some energy is both generated and consumed on a particular site. All building types and tenure, domestic and non-domestic, public and private, owner occupied and rented, existing or new fall within the scope of Core Theme 3 – at all levels – national, regional and local.

Core Theme 3 also deals with the issues of information and training that were previously addressed under a separate Core Theme in the first phase of CA-RES, 2010-13. In particular the topics of information and awareness of RES (amongst all relevant actors) and the certification and / or qualification of RES installers are within its scope.

The articles within the RES Directive covered by Core Theme 3 are as follows, where they apply to renewable heating or cooling:

- Article 3 – Mandatory national overall targets and measures for the use of energy from renewable sources
- Article 13 – Administrative procedures, regulations and codes
- Article 14 – Information and training
- Article 16 – Access to and operation of the grids

With regards to **Article 3** discussions have related mainly to the provision of support schemes for renewable heat. A review of support schemes in Member States (MS) revealed a shift away from subsidy with MS increasingly taking more sophisticated approaches when designing interventions in order to minimise the risks of market distortion and enable a more stable and sustainable level of support to be provided. Innovative financial mechanisms are less commonly used for the uptake of renewable heat technologies. Through the exploration of this topic we took advice from peers working in the field of energy efficiency where innovative financial mechanisms are more commonly used.

**Article 13** specifies that MS "shall introduce in their building regulations and codes appropriate measures in order to increase the share of all kinds of energy from renewable sources in the building sector". This includes requiring minimum levels of energy from renewables in new buildings and those undergoing major renovation (Art 13.4). Through discussions we examined the interlinkages between the RES Directive and the Energy Performance of Buildings Directive (2010/31/EU) (hereafter EPBD), in particular the Nearly Zero Energy Building (nZEB) requirements therein.

**Article 14** requires MS to establish a certification or qualification scheme for installers of small scale renewable energy technologies and, furthermore, requires that MS recognise these certifications across country borders. The deadline for implementing this aspect of the RES Directive was 31 December 2012. Through our research and discussions on this topic it was clear that many MS were uncertain about how to meet the requirements for mutual recognition. Discussions within Core Theme 3 have focussed on developing a common understanding of the requirements and common approaches for meeting the requirements of the Directive. A Task Force was established to investigate the issue in depth. This taskforce developed a framework and guidance for MS to follow when evaluating requests for mutual recognition.

**Article 16** requires MS to take steps to assess the necessity to build new infrastructure for DHC from renewable sources in order to meet their 2020 renewables targets. This is an area where the situation across MS differs widely. Broad agreement was reached that there is a need for clear, long-term national policy frameworks, complemented by local level policy and support in order to reduce the risks and barriers associated with renewable DHC.

# 2 Topic in the Spotlight: Renewable Energy Installer Certification

The topic of installer certification has been an ongoing discussion point during both the first (2010-13) and this phase (2013-16) of CA RES. According to Article 14.3, of the RES Directive:

"Member States shall ensure that certification schemes or equivalent qualification schemes become or are available by 31 December 2012 for installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps. Those schemes may take into account existing schemes and structures as appropriate, and shall be based on the criteria laid down in Annex IV. Each Member State shall recognise certification awarded by other Member States in accordance with those criteria."

The issue of recognition of certification awarded by other MS (referred to in this report as **mutual recognition**) was a key topic of discussion between MS during the first phase of CA RES (2010-13).

*An important outcome of the work during this first phase was the production of basic competency frameworks for the five Renewable Energy Technologies (small scale biomass and stoves, solar photo-voltaic, solar thermal, shallow geothermal and heat pumps).*

During this phase of the CA RES (2013-16) it was agreed to make these frameworks public. They are available on the public CA RES website.

In this phase of CA RES (2013-16), Core Theme 3 has continued to build on the work on mutual recognition from the first phase. As a first step, a series of posters were developed in late 2013 / early 2014. The aim of these posters was to provide basic information about certification schemes across MS and compile this information in a comparable and accessible format. These posters capture information about the schemes' structure, scale of technologies covered and whether the scheme is linked to any financial incentives or specific government policy drivers. They are available to view and download for 18 MS on the public CA RES website.

Through the research and discussions MS raised questions about how mutual recognition can take place on a practical level given the variation in competencies, particularly in those MS that have competency requirements that go beyond the minimum levels stated in the RES Directive. Early discussions focussed on whether harmonisation of certification schemes across countries was possible. In mid-2014 participants of Core Theme 3 completed a competency table for their solar PV certification schemes. Comparing the information across MS indicated that the majority of schemes broadly require the same skills, but the exercise also highlighted that a number of differences between schemes exist.

As the certification schemes within MS have, in many cases, been established for a number of years and are often linked to other financial incentives or standards within a given MS, there is little appetite amongst MS to revisit their scheme criteria. In the short to medium term harmonisation of schemes across MS is not realistic. Nevertheless, many MS remained uncertain about what they should do to meet the requirements for the mutual recognition of certification awarded by another MS. Participants discussed the need for a process to enable MS to compare schemes and assess whether a request for further information was necessary.

Within the group we reviewed how this is achieved within other regulated professions, as set out in the Professional Qualifications Directive (2005/36/EC) (hereafter PQD)[1]. In addition to the PQD it was necessary to investigate the overlap with the European Directive on Services in the Internal Market (2006/123/EC) (hereafter SD)[2].

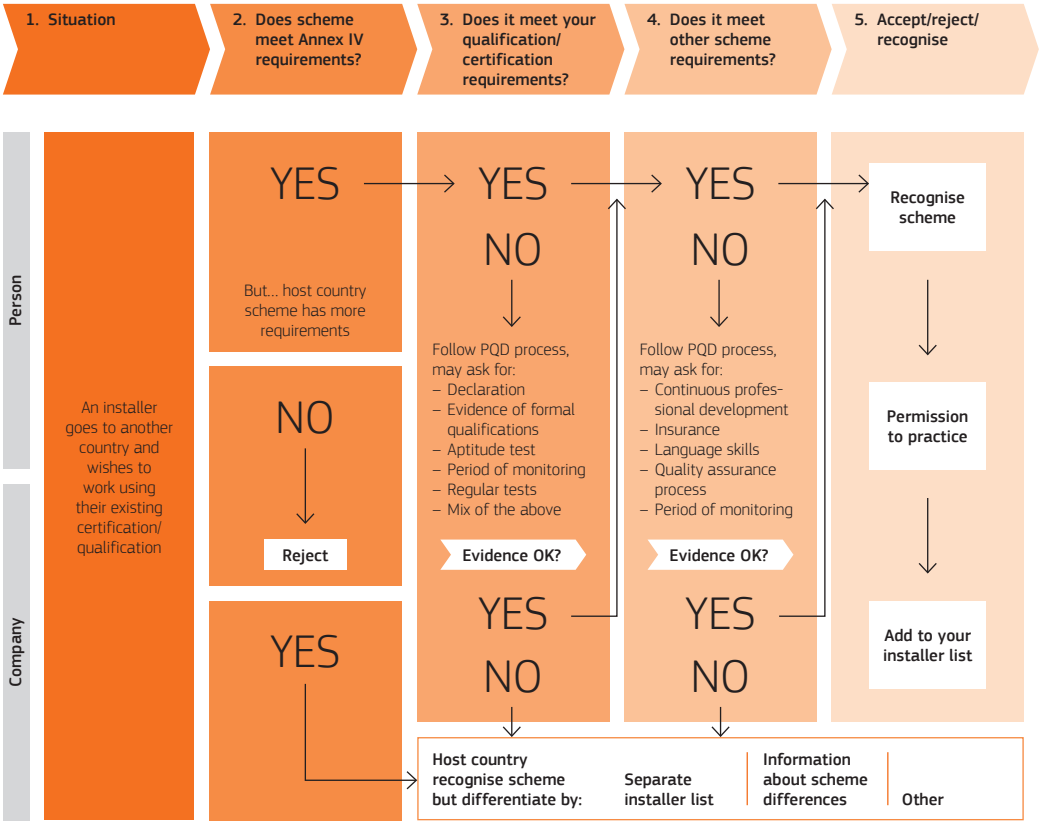
*Overlaying all three directives is the Treaty on the Functioning of the EU. It sets out the four freedoms of the European Union which all subsequent legislation must also withhold. This includes the freedom of movement for workers – allowing EU citizens the right to work in another MS and the freedom to provide services – which covers the provision of cross border services.*

The installation of renewable technologies is not a regulated profession in most MS. However when a request for mutual recognition of installer certification is made it is up to the host MS to ensure that the requirements of the Treaty on the Functioning of the EU, the PQD, the SD and the RES Directives are all met. Through discussions between participating MS a high level process was developed, as illustrated in **Figure 1**.

1 The PQD came into force in 2007 and applies to all MS nationals wishing to practice a regulated profession (one where qualifications/certifications are required to practice that profession) in any MS other than the one in which they obtained their professional qualifications. The PQD is primarily concerned with the free movement of services and the free movement of people.

2 The SD is concerned with the free movement of services. It differs from the PQD in that it applies to both individuals and to companies offering services across Europe.

**FIGURE 1** High level process for comparing MS installer certification schemes




Although the number of requests for mutual recognition is currently low, there is recognition amongst MS that this could increase in the future and that a clear process should therefore be established. Broad agreement was reached on the need for (and value of) further work on this topic and a Task Force was therefore established (DK, PT, UK). The Task Force, with input from Core Theme 3 participants, DG ENER and DG GROW developed a "Framework and guidance for MS assessing requests for mutual recognition of installers of small scale renewable energy systems across EU Member States".

The RES Directive requires MS to make available public information on their certification or equivalent qualification schemes and this has also been the focus of discussions on the topic of mutual recognition. Facilitating the exchange of information between MS and market actors was also identified as an important barrier to the implementation of mutual recognition and discussed by Core Theme 3.

The European Commission was actively engaged in these discussions and, in the summer of 2015, launched a tender to establish a web-based European database of certification schemes. This publicly accessible (web-based) database will be launched in autumn 2016. It will present key national measures on certification schemes, or equivalent qualification schemes, for installers of small-scale renewable technologies, including a detailed and exhaustive database of the respective schemes (for the technologies listed in the RES Directive) and the market access regime and process for recognition of installers from other MS.

# 3 Challenge Meets Solution

## Highlights from the Discussions and Good Practice

In addition to the topic of renewable energy installer certification the following topics were addressed within Core Theme 3 during the course of CA RES II (2013-16):

- Tracking MS progress and the remaining barriers to uptake of on-site renewable heat / cool
- Innovative financial mechanisms for renewables in buildings and DHC
- Renewable district heating and cooling
- Renewables in new and existing buildings

The following provides a summary of and highlights from these discussions and presents some good practice examples from MS exchanges on these topics.

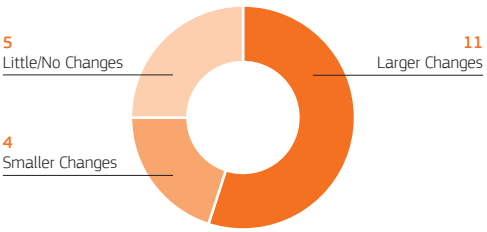
### Tracking Progress

During the course of the first (2010-13) and this (2013-16) phase of CA-RES Core Theme 3 has undertaken regular reviews of progress, tracking the remaining / evolving barriers and solutions to renewable heat and cool uptake in buildings across Europe. These reviews were conducted in 2010, 2013 and 2015. They aimed to assess the main financial and non-financial barriers for increasing the uptake of on-site renewable energy as well as collect and enable the sharing of examples of good practice to overcome these amongst participating MS.

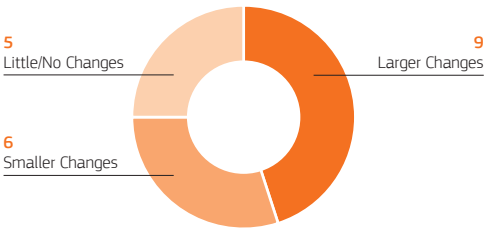
By comparing the results of these reviews we can see that there have been changes and improvements. In our 2015 survey around 50% of responding MS (20) reported significant progress in addressing the barriers to renewable heat uptake in their countries, as illustrated in **Figure 2** below. Changes in the market and economic pressures at the MS and European level mean that challenges have shifted and evolved over the course of the past five years and MS have had to adjust to these.

**FIGURE 2** Perceived changes in financial and non-financial barriers to uptake of heat / cool in buildings

**Perceived changes in the non-financial barriers**




**Perceived changes in the financial barriers**



In terms of the non-financial barriers, MS were asked to identify the five most important barriers. Responses were analysed and grouped into the following broad categories:

1. Lack of information to and awareness of consumers and the supply chain
2. Underdeveloped supply chain
3. Imperfect and / or complex legislative / policy frameworks
4. Other (including geographical / environmental, technology, space, lack of research)

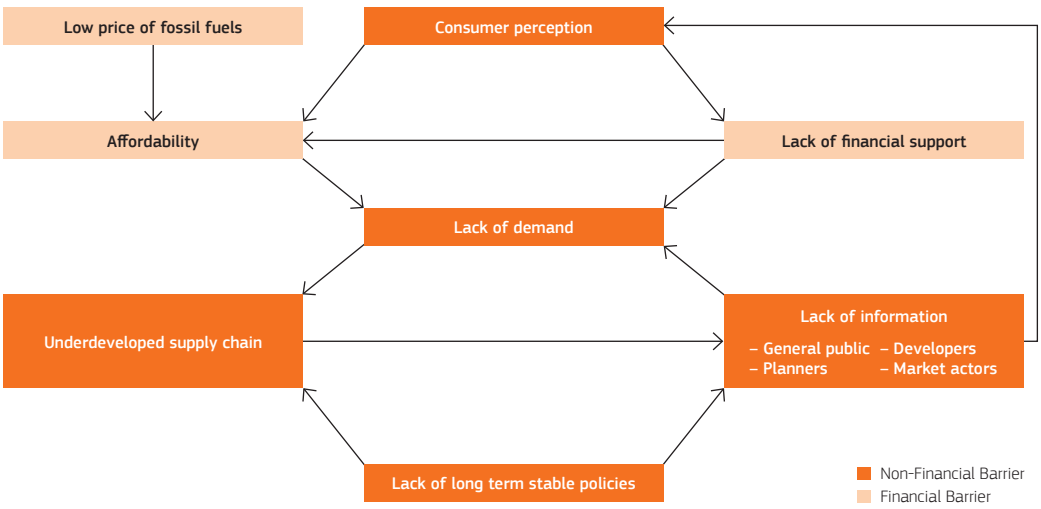
Respondents to the 2015 survey were also asked to name the five most important financial barriers in their MS. Responses were analysed and grouped into the following broad categories:

1. Lack of financial support or incentives
2. Affordability
3. Low price of fossil fuels
4. Other (including lack of funding for research, split incentives, reduced heat consumption as a result of the financial crisis)

Through discussions participants sought to identify the most important barriers (from the perspective of the MS participating in these discussions). They concluded that the most important non-financial barrier currently impacting the uptake of RES heat technologies is a **lack of long term stable policies**, a theme that is repeated across many of the topic areas covered by Core Theme 3 during the course of CA RES II (2013-16). On the financial side **affordability** was identified as the most important barrier.

Through discussions participants of Core Theme 3 explored the interlinkages between the financial and non-financial barriers identified through our research. **Figure 3** presents one view of how the many barriers are interlinked.

**FIGURE 3** One view of how the barriers to RES heat / cool uptake are interlinked



Reviewing these links can help policymakers to develop more appropriate approaches to address the multiple and linked barriers within MS. We have already seen this learning process in practice. For example, in relation to support scheme design, there is evidence of learning from the approaches taken by first mover MS. A shift away from subsidy based schemes has been observed, with MS increasingly taking more sophisticated approaches when designing interventions in order to minimise the risks of market distortion and enable a more stable and sustainable level of support to be provided. These include blending loans, subsidies and other forms of finance alongside non-financial measures.

### Good Practice Example: Poland

The aim of the National Fund for Environmental Protection and Water Management is to support dispersed, renewable energy sources by providing financing for the purchase and installation of RES micro-installations. The programme, with the aim of decreasing $CO_2$ emissions and increasing overall share of RES heat and electricity, promotes new RES technologies and prosumer behaviour, affects the development of the equipment suppliers and installers market, increasing the number of employment opportunities in this sector.

Financing is available for installations producing renewable heat (up to 300 kWth) or renewable electric energy (up to 40 kWe). The financing includes a mix of grants and soft loans. The planned value for the indicator is at least 130 thousand MWh/annually that will be generated as a result of this programme. Overall the program has a budget of 717,000 thousand PLN including up to 35% for non-repayable forms of financing and 65% for repayable forms of financing. The programme is being implemented in three ways:

a) Through local government entities, their associations and unions, and commercial companies in which local government entities hold 100% of the shares.
b) Through banks.
c) Through the Voivodship Fund for Environmental Protection and Water Management.

The Prosumer programme sets the eligible costs of RES installations at a low level with the aim of pushing the market towards decreasing these costs and promotes own consumption of auto-generated electricity. This holistic approach gives consumers the choice between different technologies and importantly provides information about the cost/benefit of different options.

## Innovative Financial Mechanisms for Renewables in Buildings and DHC

If Member States are to maximise the potential for RES heat in buildings attracting private sector investment is essential, given the limited public funds available as a result of the economic crisis. MS are looking towards solutions that make use of innovative finance mechanisms that help to leverage private sector investment and / or increase the impact of available public funds.

Discussions on this topic took place in late 2013 and focussed on the use of public private partnerships (PPP) - the European Commission's understanding of which is "partnership between the public sector and the private sector for the purpose of delivering a project or a service traditionally provided by the public sector" [3]. Three types of PPP, as identified by the International Energy Agency[4], were presented and discussed. These related to the use of PPP in the energy efficiency sector, but could also be applied to the renewable heating and cooling sector:

- Dedicated credit lines
- Risk-sharing facilities
- Energy Saving Performance contracts (ESPc)

Benefits of PPP include increasing the level of private financing available, distributing the risk between the public and private sectors, ensuring the levels of energy performance are reached and providing clarity around costs and deadlines. There was a strong interest from participants to learn more about PPP, how they are put in place, how they are funded and what impact they have had.

Fewer examples of the use of innovative finance existed for RES heating and cooling at the time of discussions, however this was changing and the number of examples was growing. Innovative funding mechanisms, such as PPP, were more widely exploited in the energy efficiency sector. Core Theme 3 therefore collaborated with experts from our sister initiative - the Concerted Action for the Energy Efficiency Directive (hereafter CA EED) - to share knowledge and understand how the experience from the energy efficiency sector could inform developments in the renewables sector.

The results of the discussions on the topic of innovative finance support the (now widely) acknowledged need to build the capacity of and dialogue between MS representatives and financial institutions. Innovative financing mechanisms are generally more widely exploited in energy efficiency and there are clear advantages to developing projects that integrate RES and energy efficiency in order to make projects more profitable and therefore attractive for investors.

3 Guidelines for successful PPP-European Commission, March 2003

4 IEA (2011) - http://www.iea.org/publications/freepublications/publication/finance.pdf

### Good Practice Example: RE:FIT London

RE:FIT London is the Greater London Authority's (GLA) programme to help make London's non-domestic public buildings and assets more energy efficient. Established in 2008, the programme not only reduces carbon emissions, but also results in large guaranteed cost savings for the public sector (typically around 28 per cent). It is helping to achieve the GLA's ambitious target to cut emissions in the capital by 60 per cent by 2025.

RE:FIT London helps a range of organisations, including London boroughs, National Health Service bodies, central government departments, schools and other educational establishments and cultural and heritage organisations to implement retrofit projects. It does this through:

- **the RE:FIT London Programme Delivery Unit**, an expert team providing free of charge, end to end support needed to get projects up, running and successfully implemented
- **the easy to use RE:FIT framework of energy service companies**, which saves time and resources for organisations that are procuring retrofit services and works and – because it is an energy performance contracting framework - guarantees energy and cost savings

The RE:FIT London Programme Delivery Unit was initially set up in 2011 with support from Intelligent Energy Europe ELENA facility and is now jointly funded by the GLA and European Union European Regional Development Funds.

At the end of February 2016, RE:FIT London had worked with over 200 organisations and supported the retrofit of over 600 of London's public buildings, generating around £92m in investment, saving around 103,000 tonnes of $CO_2$ and cutting energy bills by around £6m a year.

For more information visit: https://www.london.gov.uk/what-we-do/environment/energy/energy-buildings/refit/refit-london-services

### Good Practice Example: High Schools in the French Alsace Region

An example of a successful PPP scheme for energy efficiency and renewable energy is the refurbishment of 14 high schools in the Alsace region in France. The region aimed to reduce $CO_2$ emissions by at least 30% and as part of this they piloted a PPP scheme where 14 schools were chosen, both older and newer buildings that had high energy consumption and no upcoming refurbishment plans. The region aimed to have a quick and large investment in energy savings that would not have otherwise been included in the budget of the region; it wanted no risk on the work taken and wanted guaranteed energy savings.

This was achieved through an energy services contract with an energy services company (ESCo) who designed, financed and implemented the measures and will run, maintain and refurbish the equipment for 20 years. There is a dedicated team of technicians for this purpose, and a large scale communication and engagement programme with both teachers and students - user behaviours is key in that kind of PPP success. A global approach was used to reduce energy demand through:

- reducing heating needs (through insulation)
- reducing specific electricity needs (through the improvement of lighting, ventilation, the installation of presence sensors and globally through the implementation of large centralised technical management systems)
- improving the energy efficiency & carbon output of heating systems and supply: connection to district heating, optimising heat and ventilation, biomass heating plants and heat pump.

The ESCo have guaranteed a primary energy consumption reduction of 35% which is very close to being met. The total cost of refurbishment was €30m, with each school costing around €1 - €4m. In 2013, when this case study was presented, the first round of 7 schools to have measures installed (in 2010) were very close to reaching their guaranteed savings target of 26%. The energy performance guarantee has been kept simple through the following ways:

- Linked to energy consumption and NOT to energy costs (so not linked to fluctuating energy prices)
- Assessed from a baseline accepted by all
- Associated with a guarantee to maintain comfort
- Corrected annually depending on the number of occupants, new uses of the buildings, new buildings or equipment, and mostly, the annual heating degree-days

http://www.european-energy-service-initiative.net/eu/good-practice-examples/france.html

## Renewable District Heating and Cooling

MS and their local and regional bodies are required to recommend and encourage the installation of renewable DHC when planning, designing, building and renovating industrial and residential areas (Article 13.3).

The majority of MS are encouraging the use of renewable district heating and, in this respect, some MS are taking a very proactive approach. 85% (22/26) of the MS who responded to our survey have an

existing district heating network and for six of those MS this represents between 40-70% of their total heat demand. The proportion of this heat demand that is met through renewables is extremely variable across Europe. The majority of MS who responded to our survey have plans to expand their district heat networks and are actively considering how to incorporate renewable energy sources.

Less than 40% (10/26) of MS who responded to our survey have an existing district cooling network and very little (1%) of this cool demand is met by renewable sources. There is less active encouragement of district cooling and this is perhaps a reflection that the cooling market is considerably smaller than the heat market and the technologies are less well understood and utilised.

### SmartReFlex

The aim of the SmartReFlex project supported by the Intelligent Energy Europe (IEE) programme is to implement legislative frameworks to promote district heating based on a high share of renewable energy. Through the project, six regions in four countries (DE, IE, IT, ES) will implement legislative and organisational measures to promote high-RES DHC. The project aims to work across local, regional and national governments and use lessons learned from Denmark to provide a basis for advice and policy development. The SmartReFlex project aims to take best practice from Denmark and establish this in the partner countries to test how the model translates with the overall aim of addressing common risks and engaging with stakeholders.

The project is based on capacity building activities, aimed at involving key stakeholders in the regions and also at national level. These include governments, technical bodies, consumer groups and financiers. The main lessons for MS from the project to date are:

- The need for clear long term national policy goals and implementation plans
- That the role of local and municipal authorities is essential for:
  - Heat planning
  - Leadership
  - Development support
  - Stakeholder management

This need for a combined approach is one of the reasons why district heating is attracting less investment compared to other technologies, such as wind. Promoting wind technologies is something that can be undertaken at a national level. Once the policy is in place developers and investors can explore the risks and benefits with some certainty. However with district heating there is a clear need for national policy to dovetail with local policy and, vice-versa, for local policy to reflect national goals. This situation is rare and this is a barrier to investment in district heating – which takes a long time to pay back and therefore needs greater certainty for investors to back projects.

The SmartReFlex project has produced a useful guide for regional authorities that contains a number of case studies and best practice approaches: (www.smartreflex.eu/fileadmin/user_upload/20151012_SmartReFlex_Guide.pdf). These were presented and discussed by participants of Core Theme 3.

On the topic of district heating and cooling there is considerable overlap between the RES Directive, the Energy Efficiency Directive (2012/27/EU) (hereafter EED) and the EPBD (2010/31/EU), where the directives have the following priorities in relation to DHC:

- EED - ensuring energy efficiency is provided in cogeneration and DHC networks and the potential for DHC networks
- RES Directive - ensuring RES is considered, where appropriate, for DHC networks as a way of achieving MS renewables targets
- EPBD - ensuring the energy efficiency of buildings and the role of DHC in achieving nearly zero carbon buildings

Discussions within Core Theme 3 focussed on the links with EED, in collaboration with our sister initiative - the CA EED (Core Theme 7, CHP Heating and Cooling). MS are taking a joined up approach to the implementation of the RES Directive and EED – in many cases the same departments are responsible. The majority of MS who participated in discussions on this topic work closely with colleagues implementing Article 14 of the EED and are well aware of its' aims. However, at this stage few MS have made an assessment regarding the necessity to build new infrastructure for DHC from renewable energy sources.

The barriers that MS participants indicated have the greatest effect on their ability to plan for new DHC infrastructure relate predominantly to financing and market conditions. Specifically these include: lack of financial resources, energy market conditions and lack of economic incentives.

Participating MS also exchanged experience on the policy measures which MS could implement to encourage and support the installation of renewable district heating and cooling networks. These centred on policy measures to reduce the risk of investment for DHC networks. Developing policy frameworks which encourage DHC is a key area of interest for MS. Participants agreed that it is essential to ensure that national and regional/local policy complement each other. Through discussions the need for clear, long term national policy frameworks which are complemented by local level policy and support was highlighted. This would greatly reduce the risks and barriers for DHC, thereby unlocking investment and reducing the cost to the end consumer.

*Participating MS recognise the need for close working between those implementing all three directives at the national level to ensure a harmonised and efficient solution. Having looked at the links between the requirements under the RES Directive for DHC and Article 14 of the EED, there was interest from MS to review links with the EPBD in future discussions.*

## Renewables in New and Existing Buildings

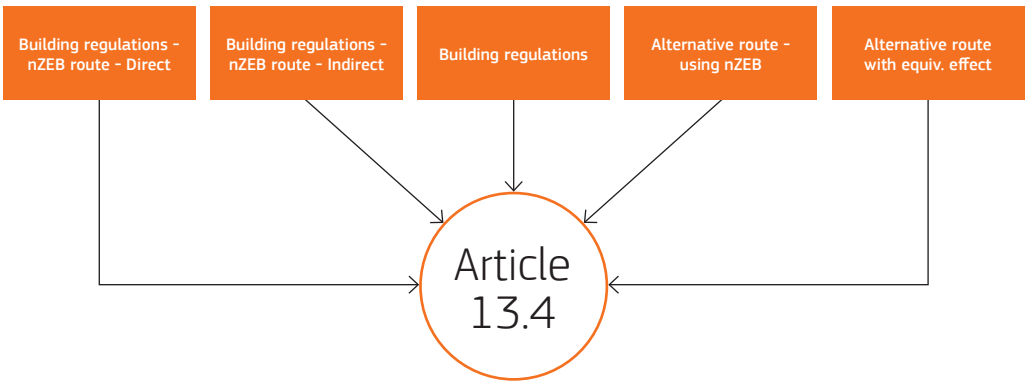
This topic centres on the implementation of Article 13.4, which specifies that MS should introduce in their building regulations or by other means with equivalent effect, minimum levels of energy from renewable energy sources in new and existing buildings undergoing major renovation.

Although CA-RES is focused on the implementation of the RES Directive, there are clear links with CA EPBD and CA EED in this area and many MS are taking an approach which combines implementation of the two directives.

This topic has been covered twice over the course of CA-RES II. Firstly, we took a very broad view of the approaches being taken by MS with reference to Article 13.4. We found that MS are taking a variety of different approaches to implementing Article 13.4, from regulation through to financial incentives, and the flexibility that the Directive affords MS in their implementation decisions is seen as positive.

Many MS reference their nearly zero energy buildings definition when describing their approach to implementation of Article 13.4 and this topic was explored in more detail though a specific discussion on the role of RES in Nearly Zero Energy Buildings (nZEB). These discussions were supported by collaboration with our sister initiative - the CA EPBD (Core Theme 2 - New Buildings).

A variety of approaches are being taken and there are multiple influencing factors – Article 13.4, wider RES Directive, nZEB, wider EPBD, EED, national initiatives. Through discussion with MS it is not clear which factor is the most influential, but in many cases convergence between the two directives (RES and EPBD) is evident.



*In new buildings, a significant proportion of MS are taking the nZEB route for their implementation of Article 13.4. The actual approach and level of convergence between the two directives (RES and EPBD) varies significantly between MS. Taking a non-nZEB route to increasing the share of RES in new buildings, e.g. by demanding a certain minimum share of RES, is a more straightforward approach for implementing Article 13.4; however, different national contexts mean that this approach is not always suitable.*

Through work carried out under the CA EPBD 2, categories for the inclusion of RES within nZEB definitions were established. "Direct" – a clear direct specification for RES or "indirect" – where a very low primary energy requirement predicates the inclusion of RES. Article 13.4 has led to more of the MS participating in these discussions taking a "direct" approach to RES within their nZEB definitions for new buildings. This is most likely the result of the misaligned timelines for implementation of Article 13.4 and EPBD (nZEB) and this was one of the topics of discussions within Core Theme 3. The deadline for implementation of Article 13.4 was December 2014, whereas the nZEBs requirement in EPBD has a deadline of December 2018 for public buildings and December 2020 for all buildings. In response to this, some MS have "decoupled" their implementation of the two directives - requiring a minimum share of RES in new buildings ahead of the nZEB deadlines in order to meet the requirements of RES Article 13.4.

It is not possible to say whether RES Article 13.4 is speeding up implementation of EPBD or vice versa (EPBD is slowing implementation of Article 13.4). There are some doubts about the added value of Article 13.4 for new buildings where MS have taken early action and have ambitious definitions for nZEBs in new buildings, although in MS where this is not the case it was acknowledged that Article 13.4 has had a positive impact.

In existing buildings undergoing major renovation, there was general consensus in participating MS that building regulations and codes are not the most effective tool for ensuring a minimum share of RES in existing buildings. We discussed complementary and alternative approaches (to building regulations and codes) for implementing minimum levels of renewables in existing buildings undergoing major renovation. These included:

- Financial incentives/schemes
- Information/awareness campaigns
- Consumer advice
- Supply chain support
- Supply chain initiatives
- Local authority programmes

*These alternative measures were acknowledged to be more appropriate and therefore effective in terms of stimulating and influencing the renovation of existing buildings to include a minimum share of renewables.*

## Good Practice Example: Norway

In Norway, minimum requirements for energy supply for new buildings and buildings undergoing major renovation have been set. As of 1st January 2016:

- It is not permitted to install heating installations for fossil fuels (individual buildings)
- Buildings >1000 sq.m. must have energy flexible heating systems
- Small houses must have chimneys

Overall in Norway there has been a downward trend in the use of fossil oil for heating over the last few decades. In Norwegian households, 80% of energy needs are met through electricity. In Norway, electricity is a cheap and high proportion (98%) renewable energy carrier, with a large amount being generated through hydroelectricity.

There are taxes (on fossil oil and $CO_2$) in place that aim to encourage a move away from fossil oil. There are also grants available to switch heating systems from fossil oil to renewable heating systems, available from the state enterprise Enova (www.enova.no). The RES market in Norway is very well developed and the introduction of strict regulations on the use of fossil fuels for heating has not been controversial.

# 4 Abbreviations

Participating countries are referred to according to their two-letter country codes as defined by ISO 3166-1 alpha-2 standard (AT – Austria, BE – Belgium, etc.).

| Abbreviation | Meaning |
|---|---|
| **CA RES** | Concerted Action on the Renewable Energy Sources Directive |
| **CA EED** | Concerted Action for the Energy Efficiency Directive |
| **CA EPBD** | Concerted Action for the Energy Performance of Buildings Directive |
| **$CO_2$** | Carbon dioxide |
| **DG ENER** | Directorate General for Energy |
| **DG GROW** | Directorate General for Internal Market, Industry, Entrepreneurship and SMEs |
| **DHC** | District Heating and Cooling |
| **EC** | European Commission |
| **EED** | Energy Efficiency Directive (2012/27/EU) |
| **EPBD** | Energy Performance of Buildings Directive (2010/31/EU) |
| **ESCo** | Energy services company |
| **ESPc** | Energy Saving Performance contracts |
| **EU** | European Union |
| **GLA** | Greater London Authority |
| **IEE** | Intelligent Energy Europe Programme |
| **nZEB** | Nearly Zero Energy Building |
| **MS** | Member State |
| **PLN** | Polish Złoty |
| **PPP** | Public Private Partnerships |
| **PQD** | Professional Qualifications Directive (2005/36/EC) |
| **RES** | Renewables |
| **RES Directive** | European Directive on Renewable Energy Sources (2009/28/EC) |
| **SD** | European Directive on Services in the Internal Market (2006/123/EC) |

**This is a public CA-RES report**

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The Concerted Action to support the implementation of the RES Directive 2009/28/EC (CA-RES) was launched with the participation of the responsible authorities from 30 EU countries and supported by Intelligent Energy Europe (IEE) in July 2010 to provide a structured and confidential dialogue on how to address the cost-effective implementation of the RES Directive 2009/28/EC.

For further information please visit **www.ca-res.eu**