KeepWarm
Renewing district heating

EU DIRECTIVE: MORE RENEWABLE ENERGY FOR (DISTRICT) HEATING & COOLING

KeepWarm Policy Spotlight N°1
by ICLEI Europe (March 2019)

The revised Renewable Energy Directive requires a 1% increase of renewables in district heating and cooling per year

The new policy framework for renewables[i]:

- Continues Europe's global leadership role with a **target of at least 32% by 2030**
- Provides long-term certainty for investors and speeds up procedures to receive permits for projects
- Puts the **consumer at the centre of the energy transition** with a clear right to produce own renewable energy
- Increases **competition and market integration** of renewable energy projects
- Accelerates the **uptake of renewables in the heating/ cooling and transport sectors**
- Strengthens the sustainability of bio-energy and promotes innovative technologies

Purpose

*The aim of this briefing is to inform **district heating operators, national, regional and local policy makers, renewable energy and excess heat suppliers** as well as other stakeholders working in district heating related sectors, on recent changes in EU energy legislation that have been launched with a view of raising EU climate and energy goals and adjusting them to achieving the goals of the Paris Agreement. The main directive elements for Member States on further development of the (district) heating and cooling sector are covered in Articles 23 and 24 of the revised Renewable Energy Directive (REDII).*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°784966. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the EU.

Introduction

Heating and cooling accounts for almost half of the energy consumed in Europe. In 2017 19.5% of heating and cooling in European Union was generated from renewable energy sources (RES)[ii]. However, the share is growing much slower in comparison to renewable electricity. More recently, this 'neglected sector' is gaining more and more importance, especially after the EU Heating and Cooling Strategy, launched in 2016, provided a framework and policy push for the integration of heating and cooling into EU energy policies.

District heating, currently providing 12% of the Europe´s heating[iii], is considered to have **enormous potential for decarbonisation** of the EU's heating and cooling sector. The **older district heating and cooling systems must evolve** to accommodate the increase of renewable energy supply. However, the current investment framework in district heating and cooling does still not fully support transition to efficient and renewable energy supply. At the same time, there is a huge potential for **deployment of new district heating systems**. To give one example, over 25%[iv] of the EU population live in areas suitable for geothermal district heating.

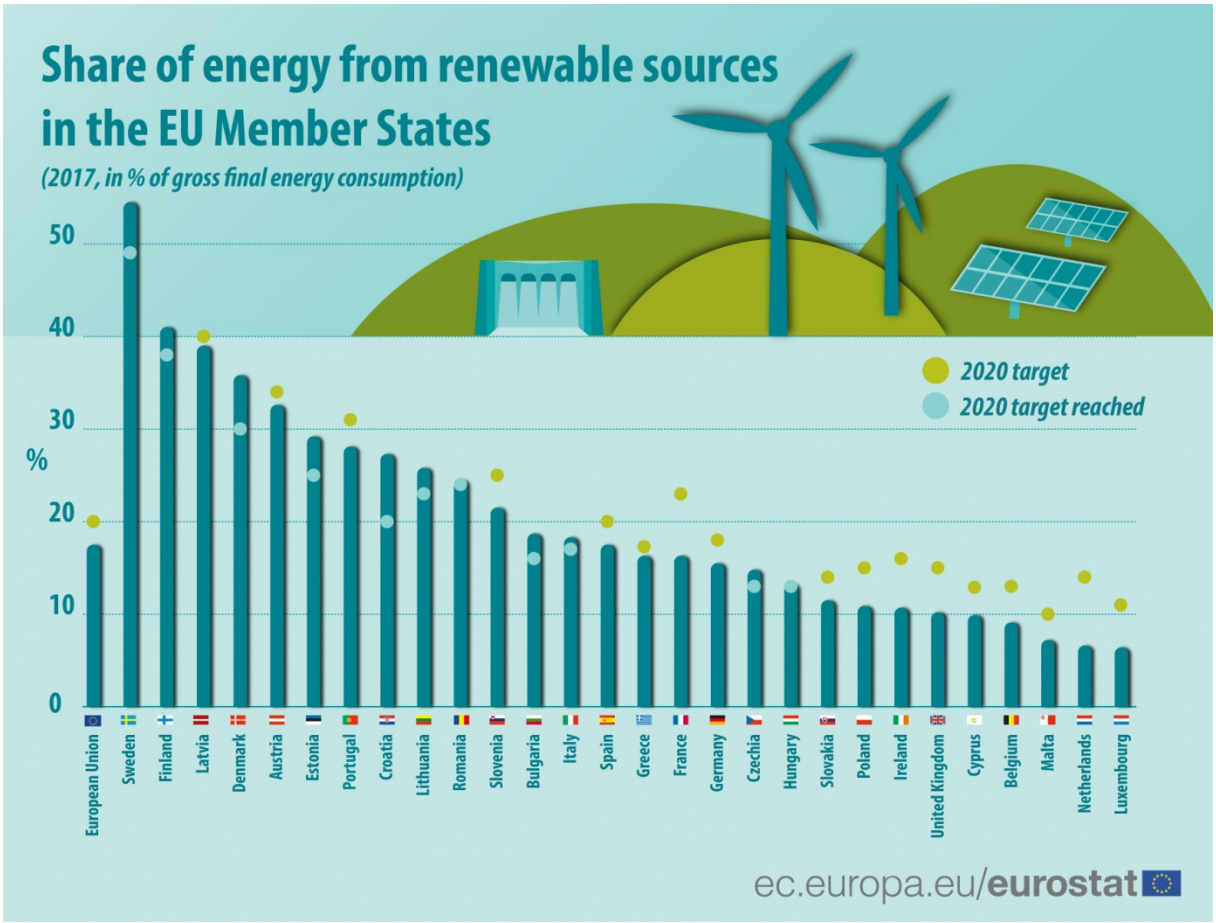

Figure 1: Current share of RES in EU Member States (2017)[v]

How is the revised RE Directive impacting the district heating and cooling sector?

In November 2016, the Commission revealed its Clean Energy for all Europeans package, which among others, aims to adapt and align EU energy legislation with the 2030 energy and climate goals, and contribute to the delivery of the Energy Union strategy goals. The revised Renewable Energy Directive (REDII), which entered into force in December 2018, stipulates the new 32% binding renewable energy target to be achieved by 2030. Since the old RED was strongly focused on renewable electricity, the new one **includes important provisions for decarbonisation of heat supply**. For the first time, a **renewable heating and cooling target** was introduced in Europe - a 1.3% increase of renewable share in heating and cooling annually for each Member State.

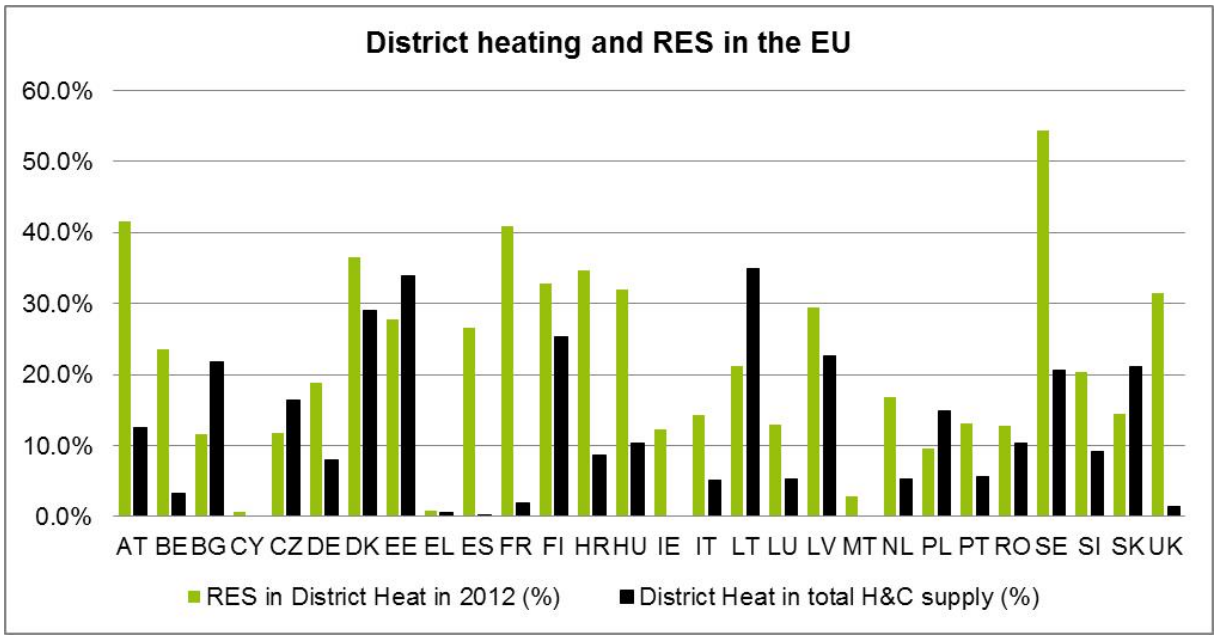

Figure 2: RES in district heat and district heat in total H&C supply (2012); Source: Fraunhofer ISI[vi]

When it comes to **district heating and cooling**, each Member State should **increase the share of energy from renewable sources and from waste heat and cold by at least 1% annually**, starting from 2020. Some of the measures expected to trigger this transition in the district heating and cooling sector include, amongst others, the **right to disconnect from inefficient heating and cooling networks**, the **right to be informed about the fuels used** or the **obligation to offer third party suppliers access to district heating systems**, in case they are producing energy from renewable energy sources or excess heat and cold.

Specific provisions related to heating and cooling*

Article 23

Mainstreaming renewable energy in heating and cooling

Paragraph 1

- *"In order to promote the use of renewable energy in the heating and cooling sector, **each Member State shall endeavour to increase the share of renewable energy in that sector** by an indicative **1.3 percentage points as an annual average** calculated for the periods 2021 to 2025 and 2026 to 2030, starting from the share of renewable energy in the heating and cooling sector in 2020 […]*
- *That increase shall be limited to an indicative 1,1 percentage points for Member States where waste heat and cold is not used.*
- *Member States shall, where appropriate, prioritise the best available technologies."*

Paragraph 2

- *"For the purposes of §1, when calculating its share of renewable energy in the heating and cooling sector and its average annual increase in accordance with that paragraph, each Member State:*
  - *(a) may count waste heat and cold, subject to a limit of 40 % of the average annual increase;*
  - *(b) where its share of renewable energy in the heating and cooling sector is above 60 %, may count any such share as fulfilling the average annual increase; and*
  - *(c) where its share of renewable energy in the heating and cooling sector is above 50 % and up to 60 %, may count any such share as fulfilling half of the average annual increase.*
- *When deciding which measures to adopt for deploying energy from renewable sources in the heating and cooling sector, Member States may take into account cost-effectiveness reflecting structural barriers arising from the high share of natural gas or cooling, or from a dispersed settlement structure with low population density." […]*

Paragraph 3

- *"Member States may establish and **make public a list of measures and may designate and make public the implementing entities**, such as fuel suppliers, public or professional bodies, which are to contribute to the average annual increase referred to in §1."*

Paragraph 4

- *"Member States may implement the average annual increase referred to in §1 by one or more of the following options:*
  - *(a) **physical incorporation of renewable energy or waste heat and cold in the energy and energy fuel supplied for heating and cooling**;*
  - *(b) **direct mitigation measures such as the installation of highly efficient renewable heating and cooling systems in buildings, or the use of renewable energy or waste heat and cold in industrial heating and cooling processes**;*
  - *(c) indirect mitigation measures covered by tradable certificates proving compliance with the obligation laid down in §1 through support to indirect mitigation measures, carried out by another economic operator such as an independent renewable technology installer or energy service company providing renewable installation services;*
  - *(d) other policy measures, with an equivalent effect, to reach the average annual increase referred to in §1, including fiscal measures or other financial incentives.*
- *When adopting and implementing the measures mentioned above, Member States shall aim to **ensure the accessibility of measures to all consumers, in particular those in low-income or vulnerable households**."*

[...]

Paragraph 6

- *"When entities are designated under §3, Member States shall ensure that their contribution is measurable and verifiable as they should report annually on:*
  - *a) the total amount of energy supplied for heating and cooling;*
  - *b) the total amount of renewable energy supplied for heating and cooling;*
  - *c) the amount of waste heat and cold supplied for heating and cooling;*
  - *d) the share of renewable energy and waste heat and cold in the total amount of energy supplied for heating and cooling; and*
  - *e) the type of renewable energy source."*

Article 24

District Heating and Cooling

Paragraph 1

- *"Member States shall ensure that the **information on the energy performance and the share of renewable energy in district heating and cooling systems is provided to final consumers** in an easily accessible manner, such as on the supplier's website, on annual bills or upon request."*

Paragraph 2

- *''Member States shall lay down the necessary measures and conditions to allow customers of district heating or cooling systems which are not efficient, or which are not efficient by 31 December 2025 on the basis of a plan approved by the competent authority, to disconnect by terminating or modifying their contract in order to produce heating or cooling from renewable sources themselves." [...]*

Paragraph 3

- *''Member States may restrict the right to disconnect by terminating or modifying a contract in accordance with §2 to customers who can demonstrate that the planned alternative supply solution for heating or cooling results in a significantly better energy performance. The energy-performance assessment of the alternative supply solution may be based on the energy performance certificate.''*

Paragraph 4

- *''**Member States shall lay down the necessary measures to ensure that district heating and cooling systems contribute to the increase referred to in Article 23 of this Directive by implementing** at least one of the two following options:*

*(a) endeavour to increase the share of energy from **renewable sources and from waste heat and cold in district heating and cooling by at least one percentage point as an annual average calculated for the period 2021 to 2025 and for the period 2026 to 2030**, starting from the share of energy from renewable sources and from waste heat and cold in district heating and cooling in 2020, expressed in terms of share of final energy consumption in district heating and cooling, **by implementing measures that can be expected to trigger that average annual increase in years with normal climatic conditions**. [...]*

(b) ensure that operators of district heating or cooling systems are obliged to connect suppliers of energy from renewable sources and from waste heat and cold or are obliged to offer to connect and purchase heat or cold from renewable sources and from waste heat and cold from third-party suppliers based on non-discriminatory criteria set by the competent authority of the Member State concerned, where they need to do one or more of the following:

(i) meet demand from new customers;

(ii) replace existing heat or cold generation capacity;

(iii) expand existing heat or cold generation capacity."

Paragraph 5

- *''Where a Member State exercises the option referred to in point (b) of §4, an operator of a district heating or cooling system may refuse to connect and to purchase heat or cold from a third-party supplier where:*

(a) the system lacks the necessary capacity due to other supplies of waste heat and cold, of heat or cold from renewable sources or of heat or cold produced by high-efficiency cogeneration;

(b) the heat or cold from the third-party supplier does not meet the technical parameters necessary to connect and ensure the reliable and safe operation of the district heating and cooling system; or

(c) the operator can demonstrate that providing access would lead to an excessive heat or cold cost increase for final customers compared to the cost of using the main local heat or cold supply with which the renewable source or waste heat and cold would compete." [...]

[...]

Paragraph 8

- *"Member States shall require electricity distribution system operators to assess at least every four years, in cooperation with the operators of district heating or cooling systems in their respective area, the potential for district heating or cooling systems to provide balancing and other system services, including demand response and storing of excess electricity from renewable sources, and whether the use of the identified potential would be more resource- and cost-efficient than alternative solutions."*

* Emphasis and formatting were added for the purpose of this briefing.

[i] https://ec.europa.eu/energy/sites/ener/files/documents/directive_renewable_factsheet.pdf

[ii] https://ec.europa.eu/info/news/energy-heating-cooling-renewable-sources-2019-mar-04_en

[iii] http://vbn.aau.dk/files/288075507/Heat_Roadmap_Europe_4_Quantifying_the_Impact_of_Low_Carbon_Heating_and_Cooling_Roadmaps..pdf

[iv] https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/geodh_final_publishable_results_oriented_report.pdf

[v] https://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics?fbclid=IwAR3fAAE4wZq3LhbZ-RGl0W2bJ_3Qp10JMvVIrDigOm8nAu59EzgnbQB9d1g

[vi] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016SC0418&from=EN#footnote126