R-ACES
Energy Cooperation Platform

R-ACES Guide to EU Law

AUTHORS: UCO JOUSTRA, MALIN ANDREASSON, RENE VAN DER VEGT

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1 General principles of EU Electricity law

1.1 Unbundling

One of the most important requirements of the EU Electricity Directive (E-Directive) is to enforce structural separation between network activities (transmission and/or distribution) and other activities (production and/or supply), which means that an undertaking owning a transmission and/or distribution system is not entitled to also exercise, directly or indirectly, control over an energy production or supply undertaking (Articles 1, 35 and 43 E-Directive).

The independence of transmission and distribution system operators is a key element of the EU energy market liberalisation programme. A market where producers, suppliers and customers can freely trade electricity depends on independent system operators providing non-discriminatory access. When an effective unbundling regime is absent there is an inherent risk that network operators exploit their dominant position by creating obstacles to access the network for third parties or establishing excessive tariffs to the detriment of customers (Recital 68 E-Directive).

1.2 Free choice of supplier

Market liberalisation on the EU level primarily entails market opening to provide customers the opportunity to choose their supplier. Member States must ensure that all customers are free to purchase electricity from the supplier of their choice and that they are free to have more than one electricity supply contract at the same time, provided that the required connection and metering points are established (Article 4 E-Directive).[1]

There may be several reasons for a customer to switch supplier such as price and/or service level. When it comes to electricity supply, the primary energy source used may be a decisive factor, especially if customers wish to promote renewable energy sources. Switching supplier shall be carried out within the shortest possible time. Member States must ensure that a customer wishing to switch suppliers, while respecting contractual conditions, is entitled to such a switch within a maximum of three weeks from the date of the request (Article 12(1) E-Directive).

1.3 Designation of system operators

The E-Directive does not provide clear definitions of transmission and distribution systems, since both activities are a type of transport: transmission of electricity is transport via the extra high-voltage or high-voltage networks (Article 2(28) E-Directive) and distribution is electricity transport via high, medium or low voltage networks (Article

[1] While industrial customers have easily adapted to the regime where they can choose their supplier, small and household customers have been more hesitant to make use of the possibility to switch supplier. The provisions in the E-Directive governing such switching are therefore more directed at small and household customers than large industrial customers.

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2(34) E-Directive). These definitions leave to each Member State the possibility of classifying a network as being part of the transmission or distribution system. Whichever definition is used, these systems need to be operated independently from production and supply activities.

Member states must designate, or require undertakings that own or are responsible for distribution systems to designate, one or more distribution system operators for a period of time taking into consideration efficiency and economic balance (Article 30 E-Directive). Member States also need to ensure that each transmission system is operated by an operator which is independent. Member States are thus required to appoint one or more transmission system operators for the electricity transmission network (Article 43 – 45 E-Directive).

1.4 Third-Party Access (TPA)

It is important to distinguish between access and connection for third parties to the transmission and distribution networks. Despite being synonyms in everyday language, the terms 'access' and 'connection' are used for different purposes in the context of electricity law. Access is used when referring to de facto access to the network in terms of 'using' the network for, inter alia, supplying purposes, whilst connection to energy networks is the actual physical connection.[2]

Article 6 of the E-Directive require owners and operators of electricity networks to provide a non-discriminatory and transparent access to their networks for third parties. Access for third parties can either be regulated or negotiated.[3] The E-Directive requires Member States to adopt a regulated TPA by which operators of transmission and distribution networks must allow any electricity producer, supplier or customer non-discriminatory access to the network on the same terms.

1.5 Tariff Regulation

The E-Directive require Member States to take appropriate measures to ensure transparent and non-discriminatory tariffs for access to electricity networks (Article 6 of the E-Directive). Thus, access to the transmission or distribution systems should be based on published tariffs, applied objectively on a non-discriminatory basis to all network users.

Member States must ensure that the national regulatory authority approves tariffs or the methodology underlying their calculation, prior to their entry into force. As such, the Directive leaves room for Member States to develop their own network tariff methodology reflecting particularities of their national electricity system.

[2] C-393/192 Gemeente Almelo and Others v Energiebedrijf IJsselmij [1994] ECR, I-1477.
[3] In a regulated TPA regime, customers have access rights under pre-established terms and an external authority sets the conditions. In a negotiated TPA regime, competitors must instead negotiate directly with incumbents. These negotiations must be undertaken in good faith without discriminatory treatment. The latter regime is subjected to the freedom of contracts and if a party is dissatisfied with the outcome, it usually has to turn to national authorities to bring forward its complaint.

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2 Exemptions Electricity

The most important networks in the electricity market are the transmission and distribution grids as they directly act as an intermediary between producers, suppliers and customers. Apart from these networks, other infrastructure such as *direct lines* and *closed distribution systems* play a role in the electricity market. Given the different position of these networks in the market, they are regulated differently from the transmission and distribution systems.

2.1 Direct lines

Article 2(41) of the E-Directive defines a direct line as "either an electricity line linking an isolated generation site with an isolated customer or an electricity line linking a producer and an electricity supply undertaking to supply directly their own premises, subsidiaries and customers". The Directive thus identifies direct lines as a type of network that differs from transmission and distribution networks. It is to some extent complementary to the interconnected system, but operates on a much smaller scale. Direct lines are therefore subject to other rules than the transmission and distribution systems. This means that the rules on unbundling do not apply and TPA can be based on negotiations. Nevertheless, in order to avoid an operator of a direct line abusing its dominant position, Article 6(3) of the E-Directive explicitly states that the freedom to contract electricity cannot be affected.

2.2 Closed distribution system

The concept of a closed distribution system refers to a system distributing electricity within a geographically confined industrial, commercial or shared-services site (Article 38(1) E-Directive). Closed distribution systems do not supply household customers, except for some incidental use if, for example, the household have employment or similar associations with the owner of the distribution system and are located within the area (Article 38(4) E-Directive). In addition, the operation or production process of the system users must for technical and safety reasons either be integrated or distribute energy primarily to the owner or operator of the system or their related undertakings (Article 38(1) E-Directive).

Although the closed distribution system in principle is a distribution grid, it can be treated differently from the public distribution grid, given its characteristics of being located at a geographically confined site and serving industrial, commercial or shared-services functions sites. It is therefore up to the Member State to apply a regime of unbundling. Furthermore, Member States may also decide to provide for national regulatory authorities to exempt the operator of a closed distribution system from the requirement that tariffs, or the methodologies underlying their calculation are approved prior to their entry into force (Article 38(2) E-Directive). This means that tariffs may be negotiated. However, the national regulatory authority must review the tariffs in line with the powers and duties provided to them upon request by a user of the closed distribution system (Article 38(3) E-Directive).

Member States may provide for regulatory authorities or other competent authorities to classify a system as a closed distribution system (Article 38 E-Directive). Recital 66 of

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the E-Directive prescribes that "where a closed distribution system is used to ensure the optimal efficiency of an integrated supply that requires specific operational standards, or where a closed distribution system is maintained primarily for the use of the owner of the system, it should be possible to exempt the distribution system operator from obligations which would constitute an unnecessary administrative burden because of the particular nature of the relationship between the distribution system operator and the system users […]."

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3 Licensing (Electricity Directive)

Whereas Article 4(1) of the Natural Gas Directive explicitly states that Member States may decide to grant authorisations for the supply of natural gas, such a provision is not included in the E-Directive. Given the wording, it seems likely that the same competence would apply with regard to electricity supply as long as the Member State takes into account basic principles of non-discrimination and transparency. Less doubt exists with regard to the competence of Member States to issue authorisation for the production of electricity. The E-Directive stipulates that Member States shall adopt an authorisation procedure for the construction of new generating capacity, which pursuant to Article 8 of the E-Directive must be conducted in accordance with objective, transparent and non-discriminatory criteria.

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4 Heat Supply (no EU law)

4.1 Supply of heat (district heating)

Electricity and gas sectors are network-bound energy sectors dependent on fixed networks. These networks represent natural or de facto monopolies, and it is deemed inconvenient and expensive to expand parallel networks. To ensure competition in the electricity and gas markets it is necessary to guarantee non-discriminatory access to the networks, as well as interconnection of the networks, to safeguard the possibility for newcomers to supply electricity and gas. These characteristics distinguish the electricity and gas sectors from other energy sectors. As such, the EU has adopted a special regulatory regime governing the supply of electricity and gas. To increase competition in these network-bound energy markets, they are subject to comprehensive liberalisation efforts. In theory, this decreases electricity and gas prices and ensures higher quality of the services provided. The liberalisation process has thus changed these markets from a regulated structure of, predominantly, publicly owned monopolies controlling the entire supply chain, into a market where private and public generators and retailers compete on a regulated and unbundled system of transport infrastructure.

District heating (DH) is a system for supply of heat produced at a central location for residential and commercial heating demands. In such a system, a number of buildings or dwellings are heated from a centralised source from where heated water or steam is distributed through a pipeline network to the final customers. DH systems are complex, as they vary in size and length and often cover large areas with many stations and customers connected. Heat can be supplied from various sources, including power stations, energy from waste facilities, industrial processes, biomass and biogas fuelled boilers, combined heat and power (CHP) plants, gas fired CHP units, heat pumps, geothermal sources, electric boilers and solar thermal arrays. Customers connected to DH systems are therefore not dependent upon a single generation source for the supply, which helps to guarantee reliability of heat supply and to introduce an element of competition into the supply chain.

Where DH is supplied to customers the structure of the market is, similar to the electricity and gas supply markets, dependent on sufficient and operational network infrastructure and capacity.[4] Despite this common denominator, the European energy policy does not encompass heat supply. Therefore, heat supply falls outside the EU energy market liberalisation process[5] and is not subject to similar legislative instruments as the downstream electricity and gas markets.

[4] European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – An EU Strategy on Heating and Cooling' SWD(2016) 24 final.
[5] Roggenkamp, M., 'Energy Law in the Netherlands' in Roggenkamp, M., Redgewell, C., Rønne, A., Del Guayo, I. (eds), *Energy Law in Europe: National, EU and International Regulation* (3rd edn, Oxford 2016) 787.

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4.2 Why heat supply is not regulated by EU law

There are several reasons why heat supply is not regulated by EU law, and the most prominent explanation is the local characteristics of the heat supply markets. Heat supply networks are usually not interconnected, rather operating as isolated systems with little exchange of heat between the systems.[6] This is due to the large heat losses occurring during transportation, which is a result of the difficulties associated with the insulation of the transportation pipelines.[7] Hence, the limitation of the transportation distance restricts the expansion of the market and no single heat supply market has emerged nationally or EU-wide.[8] Furthermore, where DH systems are not yet developed or deployed on a large-scale, individual heating systems are used for heating purposes, which are rather a commercial activity independent of integrated collective networks.[9] Accordingly, there is not a single European heat supply market and legislative instruments are adopted individually by the Member States.

[6] Rønne, A., 'Heat Supply in Denmark: Any Lessons to Be Learned?' in Roggenkamp, M., Banet, C. (eds) *European Energy Law Report* (Vol XI, Intersentia 2017) 253.
[7] Werner, S., 'Ecoheatcool Work Package 4: Possibilities with more district heating in Europe' (Euroheat&Power 12 2006) 10.
[8] European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – An EU Strategy on Heating and Cooling' SWD(2016) 24 final.
[9] Werner, S., 'Ecoheatcool Work Package 4: Possibilities with more district heating in Europe' (Euroheat&Power 12 2006) 23-24.

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5 Comparison of electricity and heat supply

5.1 Network regulation (Unbundling, TPA and tariff regulation)

The aim of the liberalisation of the electricity market has been to enable all customers to freely choose their suppliers and all suppliers to freely deliver to their customers. EU Members States are therefore required to implement provisions – in particular unbundling and TPA requirements – that ensure removal of obstacles to sell electricity on equal terms and without discrimination and disadvantages. By comparison, freedom of choice is not expressed as an aim for heat supply at the EU level. Although a sufficient heat demand incentivises external heat suppliers to enter the market, there is an inherent risk that they are denied access to the available networks to supply their customers. In theory, the lack of provisions requiring unbundling and statutory TPA deprive customers the possibility to easily switch heat supplier. Dependent on the rules adopted at the national level, there are theoretically higher barriers to enter the market for external heat suppliers than for external electricity suppliers. Furthermore, while measures are required by the EU to ensure transparent and non-discriminatory tariffs for access to electricity networks, tariff regulation for access to heat supply networks have not been adopted at the EU level. The possibility for heat network operators to exploit their dominant position through excessive pricing is therefore dependent on whether tariff regulation has been adopted in national heat (supply) legislation.

5.2 Competition

Whereas proper conditions for competition have been introduced in the electricity sector, competition seems to be weaker in the heat supply sector. The reason given for the lack of EU provisions enhancing competition is inadequacy of interconnection by which heat supply networks operate as "isolated islands". The possible distance to transport hot water or steam is limited owing to heat losses, which means that there is little or no exchange of heat between larger cities or countries. This restricts the possibility to enhance free trade. Nonetheless, Recital 49 of the Renewable Energy Directive states that it is appropriate to require that Member States promote competitive and efficient district heating and cooling (see Annex 2).

5.3 Potential future changes

The EU aims to promote effective competition in all sectors where it is considered necessary to ensure more choice and low prices for customers, better service quality and innovation. As such, one may potentially expect heat supply to be included in future EU liberalisation efforts. Due to increased use of excess heat, renewable energy and cogeneration, DH could provide an opportunity to establish a common heating market. Similar to the interconnection of the electricity market, heating markets could emerge from linking small-scale isolated markets in several municipalities. In this way, regional

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heating systems could be developed and ultimately justify new legislative efforts at the EU level.

Cross-border interconnection of local heat supply markets is feasible and likely to increase competition and such development urge a common EU heat supply framework to facilitate trade of heat between Member States. Nonetheless, integration of heat supply networks is problematic given the distance related limitation in the transport of hot water or steam. Therefore, the particular characteristics associated with the heat supply market may entail that the regulation of heat supply is better left to the individual Member States adapted to the specific local conditions of their own heat supply markets.

5.4 EU Taxonomy and Sustainable Finance

Regulation (EU) 2020/852 establishes the general framework for determining whether an economic activity qualifies as environmentally sustainable. That Regulation applies to measures adopted by the Union or by Member States that set out requirements for financial market participants or issuers in respect of financial products or corporate bonds that are made available as environmentally sustainable.
Regulation (EU) 2021/2139 establishes the technical screening criteria for determining whether an economic activity contributes substantially to climate change mitigation or climate change adaptation and does no significant harm to any of the environmental objectives.
If an investment meets these criteria it may be classified as "green" and thus have access to better financing options or subsidies, and may help achieving corporate objectives. See for instance article 4.25 of regulation 2021/2193 on the description of "Production of heat/cool using waste heat" and the technical screening criteria.

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6 Annexes

Annex 1: Contractual Requirements (Electricity Directive)

Definitions
Article 2(12) of the E-Directive provides a definition of the term '**supply**', which means "the sale, including resale, of electricity to customers".

The E-Directive does not include a definition of a '**supply undertaking**'. However, the term is defined in Article 2(8) of the Natural Gas Directive as "any natural or legal person who carries out the function of supply". Given the general nature of the provision it can be assumed that it applies *mutatis mutandis* to the electricity sector.

Article 2(1) of the E-Directive provides a definition of the term '**customer**', which means "a wholesale or final customer of electricity".
A list of the *different type of customers* defined by the E-Directive is provided below:

- 'wholesale customer' **means a "natural or legal person who purchases electricity for the purpose of resale inside or outside the system where that person is established" (Article 2(2) E-Directive)**
- 'final customer' **means "a customer who purchases electricity for own use" (Article 2(3) E-Directive).**
- 'household customer' **means "a customer who purchases electricity for the customer's own household consumption, excluding commercial or professional activities" (Article 2(4) E-Directive)**
- 'non-household customer' **means a "natural or legal person who purchases electricity that is not for own household use, including producers, industrial customers, small and medium-sized enterprises, businesses and wholesale customers" (Article 2(5) E-Directive)**

Article 2(13) of the E-Directive provides a definition of '**electricity supply contract**', which means "a contract for the supply of electricity, but does not include electricity derivatives".

Supply price
Electricity supply prices: suppliers shall be free to determine the price at which they supply electricity to customers (Article 5 E-Directive).

Basic contractual rights
Member States shall ensure that all final customers are entitled to have their electricity provided by a supplier, subject to the supplier's agreement (Article 10(1) E-Directive).

Final customers shall have the right to a contract with their supplier that specifies (Article 10(3) E-Directive):

(a) the identity and address of the supplier;

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(b) the services provided, the service quality levels offered, as well as the time for the initial connection;
(c) the types of maintenance service offered;
(d) the means by which up-to-date information on all applicable tariffs, maintenance charges and bundled products or services may be obtained;
(e) the duration of the contract, the conditions for renewal and termination of the contract and services, including products or services that are bundled with those services, and whether terminating the contract without charge is permitted;
(f) any compensation and the refund arrangements which apply if contracted service quality levels are not met, including inaccurate or delayed billing;
(g) the method of initiating an out-of-court dispute settlement procedure in accordance with Article 26;
(h) information relating to consumer rights, including information on complaint handling and all of the information referred to in this paragraph, that is clearly communicated on the bill or the electricity undertaking's web site.

Conditions shall be fair and well known in advance. In any case, this information should be provided prior to the conclusion of confirmation of the contract (Article 10(3) E-Directive).

Final customers shall be given adequate notice of any intention to **modify contractual conditions** and shall be informed about their right to terminate the contract when the notice is given (Article 10(4) E-Directive).

Suppliers shall notify their customers, in a transparent and comprehensive manner, directly of any adjustment in the supply price and of the reasons and preconditions for the adjustment and its scope, at an appropriate time no later than two weeks before the adjustment comes into effect (Article 10(4) E-Directive).

Suppliers shall provide final customers with transparent information on applicable prices and tariffs and on standard terms and conditions, in respect of access to and use of electricity services (Article 10(5) E-Directive).

Suppliers shall offer final customers a wide choice of payment methods. Such payment methods shall not unduly discriminate between customers (Article 10(6) E-Directive).

Suppliers shall offer final customers fair and transparent general terms and conditions, which shall be provided in plain and unambiguous language and shall not include non-contractual barriers to the exercise of customers' rights, such as excessive contractual documentation (Article 10(8) E-Directive).

Final customers shall have the right to a good standard of service and **complaint handling** by their suppliers. Suppliers shall handle complaints in a simple, fair and prompt manner (Article 10(9) E-Directive).

Entitlement to a dynamic electricity price contract

'Dynamic electricity price contract' means an electricity supply contract between a supplier and a final customer that reflects the price variation in the spot markets,

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including in the day-ahead and intraday markets, at intervals at least equal to the market settlement frequency (Article 2(15) E-Directive).

Member States shall ensure that the national regulatory framework enables suppliers to offer dynamic electricity price contracts. Member States shall ensure that final customers are fully informed by the suppliers of the opportunities, costs and risks of such dynamic electricity price contracts, and shall ensure that suppliers are required to provide information to the final customers accordingly (Article 11 E-Directive).

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Annex 2: Regulation of District Heating in the Renewable Energy Directive

Definition

Article 2(19) of the RED provides a definition of the terms '**district heating**' and '**district cooling**', which means the distribution of thermal energy in the form of steam, hot water or chilled liquids, from central or decentralised sources of production through a network to multiple buildings or sites, for the use of space or process heating or cooling.

Competitive and efficient district heating and cooling

To promote energy from renewable sources in heating and cooling installations, and competitive and efficient heating and cooling, it is appropriate to require that Member States carry out an assessment of their potential of energy from renewable sources and the use of waste heat and cold in the heating and cooling sector (Recital 49 RED).

Prevention of regulatory and technology lock-in and lock-out

In DH it is crucial to enable fuel-switching to energy from renewable sources and prevent regulatory and technology lock-in and technology lock-out through reinforced rights for renewable energy producers and consumers. Final consumers should be given transparent and reliable information on the efficiency of district heating and cooling systems and the share of energy from renewable sources in their specific heating or cooling supply (Recital 78 RED).

Information to final consumers

Member States shall ensure that **information** on the energy performance and the share of renewable energy in their district heating and cooling systems is provided to final consumers in an easily accessible manner, such as **on the suppliers' websites, on annual bills or upon request** (Article 24(1) RED).

Right to disconnect by terminating or modifying contract

Member States shall lay down the necessary measures and conditions to **allow customers of district heating or cooling systems,** which are not efficient district heating and cooling systems, **to disconnect by terminating or modifying their contract** in order to produce heating or cooling from renewable sources themselves. Where **the termination of a contract is linked to physical disconnection**, such a termination may be made conditional on compensation for the costs directly incurred as a result of the physical disconnection and for the undepreciated portion of assets needed to provide heat and cold to that customer (Article 24(2) RED).

Member States **may restrict the right to disconnect by terminating or modifying a contract** to customers who can demonstrate that the planned alternative supply solution for heating or cooling results in a significantly better energy performance (Article 24(3) RED).

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District heating and cooling

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(1) of the RED[10] 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 implementing measures that can be expected to trigger an average annual increase (Article 24(4)(a) RED).

(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 (Article 24(4)(b) RED).

Where a Member State exercises the option referred to in point (b) above, 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: (Article 24(5) RED)

- 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;
- 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
- 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.

Member States shall ensure that, when an operator of a district heating or cooling system **refuses to connect a supplier** of heating or cooling, information on the reasons for the refusal, as well as the conditions to be met and measures to be taken in the system in order to enable the connection, is provided by that operator to the competent authority (Article 24(5) RED).

Where a Member State exercises the option referred to in point (b) above, it may exempt operators of the following district heating and cooling systems from the application of that point:

- efficient district heating and cooling;
- efficient district heating and cooling that exploits high-efficiency cogeneration;
- district heating and cooling that, on the basis of a plan approved by the competent authority, is efficient district heating and cooling by 31 December 2025;
- district heating and cooling with a total rated thermal input below 20 MW.

[10] Member States must endeavor to increase the share of renewable energy in the heating and cooling sector. For the predetermined indicative percentage points, see Article 23 RED.

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The **right to disconnect by terminating or modifying a contract may be exercised by** individual customers, by joint undertakings formed by customers or by parties acting on behalf of customers (Article 24(7) RED).

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(Article 24(8) RED).

Member States shall ensure that the rights of consumers and the **rules for operating district heating and cooling systems** in accordance with Article 24 of the RED **are clearly defined and enforced by the competent authority** Article 24(9) RED).

A Member State shall not be required to apply Article 24(2)-(9) of the RED where:

- its share of district heating and cooling is less than or equal to 2 % of the overall consumption of energy in heating and cooling on 24 December 2018;
- its share of district heating and cooling is increased above 2 % by developing new efficient district heating and cooling based on its integrated national energy and climate plan pursuant to Annex I to Regulation (EU) 2018/1999 or the assessment referred to in Article 15(7) of the RED;[11] or
- its share of systems referred to in paragraph 6 of this Article constitutes over 90 % of total sales of its district heating and cooling.

[11] Member States must carry out an assessment of their potential of energy from renewable sources and of the use of waste heat and cold in the heating and cooling sector. That assessment shall, where appropriate, include spatial analysis of areas suitable for low-ecological-risk deployment and the potential for small-scale household projects.

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Annex 3: Project Summary

The R-ACES project is an initiative promoted by 7 partners from 6 European countries, with the vision to support high-potential industry parks and clusters to become fully fledged ecoregions that reduce emissions by at least 10%. R-ACES means a step-change in the contribution of European Industry to the climate targets of the EU. The industry sector after all represents 25% of all energy demand – and 50% of the total cooling and heating demand on the continent; yet only 16% comes from renewables. By focusing on collective measures and clustering, the efficiency of industry can be drastically increased.

The focus of R-ACES therefore is to turn high-potential, high-impact industrial clusters into ecoregions that achieve at least a 10% reduction in emissions. They do so by exchanging surplus energy, making extensive use of renewables, and tying everything together with smart energy management systems. An ecoregion is a geographic area where energy and information exchanges occur between various companies and actors to reduce waste and energy consumption. Ecoregion can be centred on an (eco-)industrial park or (eco-) business park, linked to its surroundings by a 4th/5th generation district heating/cooling network.

R-ACES is the capping stone, condensing the knowledge and experience gathered throughout EU and national projects into a set of three focused tools, namely a self-assessment tool, a legal decision support tool, and a smart energy management platform for clusters. The tools are embedded in support actions built around peer-to-peer learning, more formal coursework and webinars, and serious games. Together they enable a cluster to really become an eco-region and set up meaningful energy collaboration. The entire package of tools and support is aimed at the high-potential clusters identified in the European Thermal Roadmap. It will be validated in three eco-regions, actively deployed in another seven regions, and disseminated to identified ninety regions European wide. In addition, the tools and support methodology will be made available to third parties in a sustainable way after the end of this project.

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Annex 4: Partners

Institute for Sustainable Process Technology https://ispt.eu/

Condugo https://www.condugo.com/

Spinergy http://www.spinergy.it/

energy CLUSTER DENMARK https://www.energycluster.dk/

L2C LOMBARDY ENERGY CLEANTECH CLUSTER http://www.energycluster.it/en

pom antwerpen https://www.pomantwerpen.be/

ESCI European Science Communication Institute https://www.esci.eu

EUROHEAT & POWER https://www.euroheat.org/

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Annex 5: Disclaimer

The dissemination of any results reflects only the author's view. The Agency and the European Commission are not responsible for any use that may be made of the information it contains.

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