R-ACES
Energy Cooperation Platform

D5.3 Online and categorized capacity building blocks: A use case library

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[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

[2] R = Document, report
DEC = Websites, patent fillings, video, etc.
DEM = Demonstrator, pilot, prototype
OTHER = other

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Project Summary

The R-ACES project is an initiative promoted by 8 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 tool and a smart energy management platform. 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 ecoregion 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 ecoregions, 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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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/

LE2C LOMBARDY ENERGY CLEANTECH CLUSTER

http://www.energycluster.it/en

pom antwerpen

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ESCI European Science Communication Institute

https://www.esci.eu

EUROHEAT & POWER

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Executive Summary

A lot of knowledge on energy cooperation projects is already out there. However, the information is not easily accessible at the moment. The R-ACES Use Case Library aims to make concrete energy cooperation examples available to practitioners to inspire them and to facilitate them with the knowledge and skills necessary for the realization of concrete energy cooperation projects. In this report, we describe the way this Use Case Library is constructed and the way it will continue to develop in the future.

Keywords

R-ACES keywords

Industrial Symbiosis, Energy System Integration, District Heating and Cooling, Energy Cooperation, Ecoregion, Eco-Industrial Parks

Deliverable keywords

Use cases, Use Case Library, Search functions, Practical examples

Disclaimer

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1 Introduction

1.1 Objective of Dissemination Activities

The R-ACES project intends to pave the road for effective energy exchange in industrial clusters and business parks in Europe. We develop a methodology to come to concrete energy cooperation activities. To make a significant impact, we aim to disseminate the project results to a wide extend of 90 so-called ecoregions across Europe.

> "Our ambition is to equip practitioners with capacities, knowledge and skills, to make them confident and well informed about the possibilities with energy cooperation as well as to support them with an implementation approach that fits their specific needs."

Our dissemination activities aim at enhancing the uptake and the extension of energy cooperation activities within the industrial clusters and/ or business parks. The tools and methods developed by R-ACES that could facilitate the uptake of these activities are:

- **The R-ACES Toolkit consisting of three practical tools:**
  - **The Self-Assessment Tool helps to identify and start up new energy cooperation activities within an ecoregion.**
  - **The Legal Decision Support Tool helps to deal with legal issues related to the development of energy cooperation activities.**
  - **The Energy Management Platform helps to optimize and manage energy and waste streams within an ecoregion.**
- **The R-ACES Serious Game "Heatopoly" makes stakeholders familiar with the concept of energy cooperation and serves as a way to get to know stakeholders within an ecoregion.**
- **An educational environment containing materials that enable students and experts to obtain knowledge on various aspects of energy cooperation.**
- **A Use Case Library containing inspiring examples of energy cooperation projects.**

The ecoregion concept

An ecoregion is a geographic area where energy and information exchanges occur between stakeholders of various types to reduce energy consumption. Geographical size does not matter (the size can be as small as a business park or as large as a city). Important is that an ecoregion relies on an anchor organization responsible for managing the area. Another aspect is the proximity of stakeholders to ensure interconnected energy flows. Within an ecoregion, a wide range of assets could be involved: office parks, data centers, multimodal centers, technological centers, agro-centers, science parks, brain parks, lighthouse parks, chemical parks, eco-industrial parks, and cluster/business parks. Also residential areas could be considered.

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We spread the materials and the R-ACES approach through national and European orientated webinars and other dissemination activities. All these activities will be focussed on the needs of stakeholders within ecoregions: What knowledge and skills do they need to further develop energy cooperation activities? The identification of these needs is an iterative process of talking to stakeholders. Based on the outcome of these talks the dissemination materials are developed. For a more information, see the R-ACES dissemination roadmap[1].

1.2 Objective of the capacity building blocks

Within R-ACES capacity building blocks are developed as a part of the dissemination activities. Capacity building is the process during which individuals and organizations obtain and improve their skills, knowledge, tools, and other equipment to perform at a greater capacity[2]. For R-ACES, capacity building means facilitating stakeholders within ecoregions to obtain and improve energy cooperation skills and knowledge. By bringing the knowledge and skills of local stakeholders to a higher level, we aim to contribute to the realization of concrete energy cooperation projects. To fulfill this goal, it is important that the content of the capacity building matches the needs of professionals in the energy sector. During the first few months, several of these practitioners asked us questions:

- **What is the benefit of energy cooperation projects?**
- **Whether we had good examples of the use of heat of data centers or supermarkets?**
- **Whether we could tell something more about the way district heating was organized in Denmark?**
- **Whether we had some examples of the application of hydrogen in industrial parks?**
- **Whether we had knowledge on the application of smart grids in small business parks?**

These questions triggered us to think about the optimal way to fill in the capacity building blocks we had to develop in the course of the R-ACES projects. Apparently, there was a great desire among several stakeholders to easily get access to concrete examples of energy cooperation projects. Some research on the web taught us that this knowledge is largely available online, but difficult to access due to the fact that there is not one comprehensive and structured place where one can find these different use cases. The different places that do have a collection of energy cooperation examples (Euroheat & Power/ Celsius project) lack methods, e.g. search filters or tags, to easily find the example that suits your interest.

[1] Can be downloaded on : https://r-aces.eu/downloads/
[2] Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Capacity_building

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Therefore, it was decided to build a Use Case Library containing examples of energy cooperation projects. Through the application of search filters and keywords, the different cases should be easily accessible for practitioners, students, educators, and others. In this document, we will describe the process of building the Use Case Library, the result, and some reflecting conclusions.

2 A Use Case Library as a capacity building block

In this chapter, the process of building the Use Case Library will be described. First, we describe the need of practitioners. Afterwards, we will describe the search filters and the collection of use cases. We will conclude with some remarks regarding the implementation process.

2.1 The need of practitioners

Energy cooperation projects start with inspiration, an idea of how things can be approached differently; A way to change the status quo. Often energy supply is already organized. Organizations burn gas to create heat for their processes or use electricity from the national electricity grid. However, these practices often lead to a (regional) sub-optimal situation. Instead of using the excess waste heat of a neighboring fermentation company, a candle company burns gas in its own gas instillations causing unnecessary CO2-emissions. Energy managers, park managers, energy brokers, and local authorities are often, but not always, well-aware of the suboptimum use of energy resources. Changing the current situation is not always easy. It requires awareness raising, specific knowledge and creative ideas that are often lacking on a local scale. The way to retrieve heat from data centers or supermarkets is, for example, investigated by multiple local communities. The lack of an open online environment makes it difficult to learn from each other. This is unfortunate. A project realized in one region in Europe should have the opportunity to serve as an example for other ecoregions.

Gathering inspiring stories and making them publicly available for practitioners could serve as a way to trigger local energy cooperation projects. To realize this potential, the following requirements should be kept in mind:

- Cases cover real-life stories of realized energy cooperation projects/ feasibility studies/ energy planning studies.
- Practitioners can easily find the cases applicable to their situation.

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- Cases should, on the one hand, give a short description so that practitioners can decide whether this application is useful for their situation, and on the other hand give access to more detailed information for the ones interested in the case.

With these requirements kept in mind, a Use Case Library is developed by the R-ACES consortium.

2.2 Search functions for the Use Case Library

2.2.1 Technical options

To make the cases in the Use Case Library easily accessible for practitioners, the use of search functions is important. Search functions enable a user to look for content that fits their specific situation. A user could for example search for cases in which the excess heat of data centers is used or cases regarding the application of hydrogen. Nowadays, there are a lot of technical options to establish search options:

- **Filter: all countries > one country**
- **Tag (key word): #solar**
- **Sort: sort by newest**
- **Search: search for tags or search for parsed text, use of Boolean operators ("AND" "OR")**
- **'Similar to': click on the tag #solar to find other cases with the same tag.**
- **Search Engine Optimization: add tags and summary to a SEO application for Google search.**

For the R-ACES Use Case Library we decided to use the following options: filters, tags (key words), search, and 'similar to'. Sort was, for now, found to be less interesting for content of the Use Case Library, but it might be that this function is added in the future to distinguish older cases from newer cases. The Search Engine Optimization option was out of budget scope.

2.2.2 Content search functions

After selecting the technical options, the content of the search functions had to be established. The content was discussed with several communication experts and practitioners.

Search filters

The content of the search filters is relatively fixed and not easily adjustable over time. Therefore, it is most suited for large and fixed categories of which the following ones are identified:

- Country

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- Date (end date of project)
- Type of case (project, energy planning)
- Size (local, regional, or national)
- Type of area (industrial, residential, or utility)

Key words

The use of key words is most suited for changing and case-specific terms related to energy cooperation. Also, keywords enable you to add categories that are not applicable to all cases, such as technological applications. To begin with, the following key words are thought to be relevant: heating, cooling, solar, geothermal, wind, biomass, hydrogen, excess energy, heat pump, energy storage, boiler, CHP, smart grid, smart metering, energy strategy, and action plan.

The list of key words can be updated in the course of the R-ACES project according to new insights.

Search button

The practitioners can enter any term they wish to search for in the Use Case Library. All the use cases containing this word will be displayed in the Use Case Library window.

2.3Collection of use cases

Practical examples of energy cooperation are plentiful, but they are sometimes hard to find. To fill the R-ACES Use Case Library, use cases has been collected using several techniques:

- **Collection of practical examples given in other European/ national projects. We checked the websites of other European projects to see whether these projects had interesting examples.**
- **Practical examples established in the R-ACES ecoregions. Within the R-ACES ecoregions, several energy cooperation projects were already successfully established in the past or are implemented now.**
- **Practical examples known by practitioners interviewed. The practitioners we talked to, told us a lot of stories about energy cooperation projects they participated in.**

All potentially relevant cases have been collected in an excel file. This Excel file covers over 150 examples of energy cooperation projects in Europe ranging from the implementation of heat pumps in industrial processes, to regional energy cooperation plans, to the implementation of smart grids on small business parks. After the collection phase, the

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cases are reviewed on usefulness and quality of information. This resulted in a priority list of use cases that are most relevant for the energy practitioners.

2.4Writing the use cases

To publish the use cases, they were put in a standard format. It makes the information in the use cases easily accessible for practitioners interested in the content. The R-ACES use case format has the following properties:

- **Use cases have a maximum of two pages describing the main characteristics of the energy cooperation example.**
- **Each use case has an introduction that briefly summarizes the project/ study.**
- **Most important characteristics of a case are summarized in a red box.**
- **One picture is added to visualize the project's results.**
- **Link is added to the original webpage, where more information ca be found.**
- **Links are added with more background information (websites/ technical reports/ evaluation reports/ videos).**

3 The result: a comprehensive Use Case Library

After the use cases had been collected, selected and written, they could be uploaded in the Use Case Library environment. It was decided to implement the Use Case Library in two environments simultaneously: the R-ACES website[3] and the Euroheat & Power website[4]. In this chapter, we will describe the reasons for this choice.

3.1R-ACES website

The Use Case Library is now functional on the R-ACES website covering 25 use cases. The R-ACES consortium will continue to update the number of use cases in the upcoming months. We aim to have at least 70 relevant use cases in the Use Case Library by the end of 2021. In the course of the R-ACES project, we will continue to add other examples of energy cooperation projects obtained through activities within the R-ACES ecoregions.

[3] https://r-aces.eu/use_case/

[4] https://www.euroheat.org/knowledge-hub/

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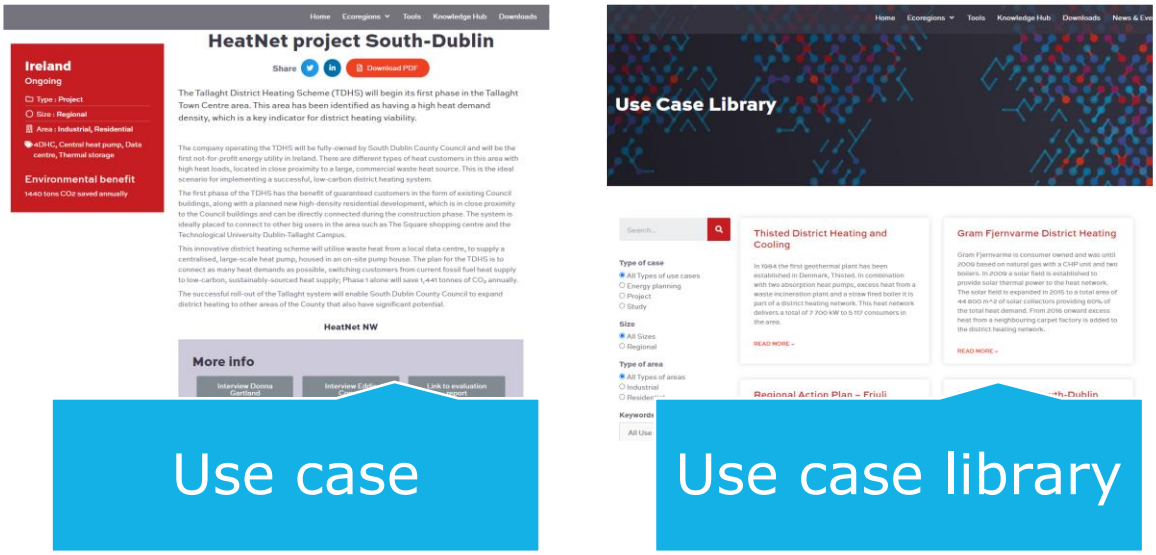

Figure 1: Visual representation of implementation of Use Case Library on R-ACES website

3.2 Euroheat & Power website

To guarantee access to the Use Case Library after the end of the R-ACES project, the use cases of R-ACES will be also uploaded on the the Euroheat & Power website.

4 Concluding remarks

A lot of knowledge on energy cooperation projects is already out there. However, the information is not easily accessible at the moment. The R-ACES Use Case Library aims to make concrete energy cooperation examples available to practitioners to inspire them and to facilitate them with the knowledge and skills necessary for the realization of concrete energy cooperation projects. In this report, we described the way this Use Case Library is constructed and the way it will continue to develop in the future.

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5 Annexes

Annex 01

R-ACES definitions

Project Glossary

Definition of Key Concepts in the R-ACES project

Business park: An area of land in which many office buildings are grouped together with a common infrastructure (Wikipedia). Business parks, like industrial sites, often have similarities in heating and cooling demand. Certain businesses may even have residual energy streams, for example data centers. As such, business parks may also organize as an ecosystem or eco business park (EBP) and become an important stakeholder within an ecoregion.

Eco Business Park: *"An eco-industrial park is a community of businesses located on a common property in which businesses seek to achieve enhanced environmental, economic and social performance through collaboration in managing environmental and resource issues. This is known as industrial symbiosis, which is a means by which companies can gain a competitive advantage through the physical exchange of materials, energy, water and by-products, thereby fostering inclusive and sustainable development."* (United Nations Industrial Development Organization)

Communicate: professional and public coverage of the project results and achievements, benefits and potential deployment. This will be realised via the adoption of a large variety of distribution channels, including already existing platforms focusing on energy cooperation in industrial sites and business parks and energy exchange/cooperation at large.

Disseminate: exploitation of the project results to relevant stakeholders in the regions. It intends to ensure a low threshold in accessibility, usage of R-ACES tools and methods. This includes access to the tools, to the use case libraries and to the training and capacity building material and related self-explanatory instruction manuals.

DHC: Abbreviation of District Heating and Cooling. A system for distributing heating/cooling generated in a centralized location through a system of insulated pipes for residential and commercial heating requirements such as space heating/cooling and water heating/cooling.

> 4th generation DHCs: *"4GDH systems provide the heat supply of low-energy buildings with low grid losses in a way in which the use of low-temperature heat sources is integrated with the operation of smart thermal grids. Smart thermal grids consist of a network of pipes connecting the buildings in a neighbourhood, town centre or whole city, so that they can be served from centralised plants as well as from a number of distributed heating and cooling producing units (or decentralised units) including individual contributions from the connected buildings. The concept of smart thermal grids can be regarded as being parallel to smart electricity grids. Both concepts focus on the integration and efficient use of potential future renewable energy sources as well as the operation of a grid structure allowing for distributed generation which may involve interaction with consumers."* (adapted from Lund et al, Energy 68; 2014, p1-11).
>
> 5th generation DHCs: *"5GDHC is a highly optimized, demand-driven, self-regulating, energy management system for urban areas. Its key features are: 1) ultra-low temperature grid with decentralized energy plants; 2) closed thermal energy loops ensuring hot and cold exchange within and among buildings; 3) integration of thermal and electricity grids."* (D2grids, Interreg NWE)

Ecoregion: An ecoregion within the R-ACES project is a geographic area where energy and information exchanges occur between stakeholders of various types to reduce energy consumption.

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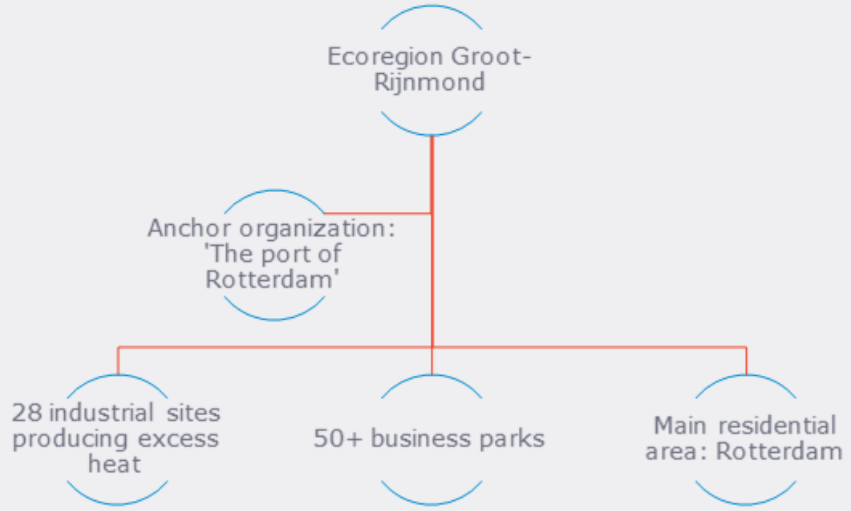
Geographical size does not matter (the size of an ecoregion can be as small as a business park or as large as a city). Important is that an ecoregion relies on an anchor organization responsible for managing the area (for example park management). Another aspect is the proximity of stakeholders to ensure interconnected energy flows (continuity of supply, quality of supply, quantity). Within an ecoregion, a wide range of assets could be involved: office parks, data centers, multimodal centers, technological centers, agro-centers, science parks, brain parks, lighthouse parks, chemical parks, eco-industrial parks, and cluster/business parks. For the demand of heat, also residential areas could be taken into account. As such, the term ecoregion functions as an 'umbrella term'.

Example of a high priority/ high impact ecoregion

An example of a high priority/high impact ecoregion is the Groot-Rijnmond region in the Netherlands. According to the Heat RoadMap the region belongs to priority group 1. The conventional excess heat is 179.65 PJ and the total heat demand is 35.53. Demand and supply are located close to each other. This means that the region has a high potential impact on primary energy savings (KPI 1). A main anchor organization of the region is 'The port of Rotterdam'. Within the region, there are 28 industrial sites that produce excess heat. There is also a large number of business parks (50+). Considering the large number of industrial sites and business parks present, the region also has a high potential impact on KPI 3.



High priority region: A high priority region is an Ecoregion, as defined above, that has balanced potential match of heating/cooling supply and heating/cooling demand in both quantitative (amount of heating/cooling) and qualitative (temperature, form of heat) terms. The region should be identified by heat roadmap studies (for example, the Heat RoadMap Europe or Stratego) or other research activities. In addition, the regions should have networking possibilities. The regions can include industrial sites, business parks and residential areas.

The table below gives an indication of the priorities. R-ACES will focus on priority group 1 +2.

Table 2.19. Excess heat ($E_{heat,o}$) and heat demand (Q_{tot}) characteristics for the definition of priority groups to identify heat synergy regions

	Characteristics			
Priority group	**Excess heat[a] [PJ/a]**	**Heat demand[b] [PJ/a]**	**Priority status**	**Comment**
1	$\Sigma E_{heat,o} > 10$	$Q_{tot} > 10$	Very high	High levels of both $E_{heat,o}$ and Q_{tot}
2	$1 < \Sigma E_{heat,o} < 10$	$Q_{tot} > 10$	High	Moderate levels of $E_{heat,o}$ and high Q_{tot}
3	$\Sigma E_{heat,o} > 10$	$1 < Q_{tot} < 10$	Moderate	High $E_{heat,o}$ and moderate levels of Q_{tot}
4	$1 < \Sigma E_{heat,o} < 10$	$1 < Q_{tot} < 10$	Low	Both $E_{heat,o}$ and Q_{tot} at moderate levels
0	$\Sigma E_{heat,o,max} < 2.5$	$Q_{tot,max} < 25$	No priority	Both $E_{heat,o}$ and Q_{tot} at low levels

[a] Maximal theoretical levels of annually available excess heat.
[b] Space heating and domestic hot water preparation in residential and service sectors.

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High potential region: Within the project proposal, sometimes the term high potential ecoregion is mentioned. From now on, this term will not be used within the scope of the R-ACES project.

High impact (in R-ACES terms): Regions that have a high potential impact on the R-ACES KPIs. More specifically, regions are meant that have a high potential impact on KPI 1: Primary energy savings, and KPI 3: Number of plant sites and number of industrial parks where businesses commit to energy cooperation.

Energy cooperation: Energy cooperation activities between industries, which include physical clustering (e.g., of buildings and processes, energy exchange, collective production) and/ or service clustering (e.g., joint contracting). Both can deliver a more stable cumulative demand, economy of scale for larger installations with higher efficiencies and smaller spatial footprint and an optimized demand response. Within R-ACES, the focus is mainly on energy cooperation through the exchange of heating and cooling.

Energy Management Platform: is an ICT-tool that makes energy flows transparent; allows energy consumption and production to be allocated to specific installations, stakeholders and nodes; and identifies anomalies and opportunities. A key feature is that it is very easy to use for a wide range of stakeholders. In this way, it is possible to deploy it in a cluster and give access to the different company and cluster managers – each at their level of detail and with the information they should have access to. On the ecoregion level, there will be a dashboard that shows different energy flows.

ESCO: Abbreviation for Energy Service Company. An ESCO is a business that provides a broad range of energy solutions including designs and implementation of energy savings projects, retrofitting, energy conservation, energy infrastructure outsourcing, power generation and energy supply, and risk management.

Facilitator: someone who helps to bring about an outcome (such as learning, productivity, or communication) by providing indirect or unobtrusive assistance, guidance, or supervision. This task does not include technical expert know-how, instead facilitators are trained to facilitate interaction between multiple actors.

Industrial cluster: Within the project proposal, sometimes the term Industrial cluster is used. From now on, this term will not be used within the scope of the R-ACES project.

Industrial park: Within the project proposal, sometimes the term Industrial park is used. From now on, this term will not be used within the scope of the R-ACES project.

Industrial region: Within the project proposal, sometimes the term Industrial region is used. From now on, this term will not be used within the scope of the R-ACES project.

Industrial site: An area zoned and planned for the purpose of industrial development. An industrial site can be thought of as a more "heavyweight" version of a business park or office park, which has offices and light industry, rather than heavy industry. They may contain oil refineries, ports, warehouses, distribution centres, factories, and companies that provide manufacturing, transportation, and storage facilities, such as chemical plants, airports, and beverage manufacturers (Wikipedia).

(R-ACES) Learning community: Local group of stakeholders that are (a) directly involved with the energy collaboration on a site; and (b) engaging in both organised and informal exchange of knowledge and best practices over the course of the project period. These groups are the first beneficiaries of instruments like serious gaming. Learning communities from different sites in this project will eventually be brought into contact with each other to further stimulate the exchange of best practices.

Learning network: *"Allow for enduring relationships built on trust to develop among companies within an industrial site. In turn these relationships encourage information sharing, creative solutions, long term planning and governance among stakeholders. Social aspects increase interactions among stakeholders and strengthen collaborations and partnerships including industrial ones"* (Scaler, 2018). To establish such learning networks, the R-ACES project will use learning communities.

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(R-ACES) Legal decision support tool: A tool that supports practitioners by giving the legal decision support for joint contracts. A low threshold for usage is a critical requirement. The tool is self-explanatory, application oriented, using well-defined and clear terminology. The tool should be able to deal with a high diversity of local situations. For practical reasons, the name of the legal tool might change during the R-ACES process. In this case, the consortium will be informed.

LESTS framework: Abbreviation for Legal, Economic, Spatial, Technical and Social/Managerial. LESTS is a framework that is used in the project to categorize barriers and drivers in ecoregions. The different categories include: Legal, e.g. liabilities, regulatory requirements, third party contracts, service agreements, rules; Economic, e.g. cost savings, waste/ resource recovery value, funding mechanism, taxes & environmental considerations; Spatial, including geographical proximity, planning rules and environmental considerations; Technical, e.g. sharing and cascading resources, system stability, facilities; Social/Managerial, e.g. with regard to workers, consumers, local communities employment, community engagement, and capacity building.

Lock-in: Exchange of by-products will lead to long term reliance on an outside company, which will restrict flexibility of the involved companies and possibility for innovation, or possibility to relocate the site.

Longlist (for example longlist of regions): Exists of lists of items (rows), for example regions, that have been selected on the basis of loose selection criteria (columns). The long list is a first step in creating a short list. The long list should cover all potential subjects that might be of interest to the short list. Example:

Region	Region	Country	Source	# DHCS	# Industrial sites	# Business parks	Contact person	Contact details
1	Maasvlakt	Nederland	...					
2	Chemelot	Nederland	...					
3	Terneuzen	Nederland	...					

Long-term: Long-term impact of R-ACES is gained after the end of the R-ACES project (in KPI terms).

Peer2peer: A network of peers (R-ACES stakeholders) that perceive each other as equal. The peers interact with each other in order to learn from each other. The peer2peer learning context is a formal or informal setting, in small groups or online. Pear learning manifests aspects of self-organization. By this is meant, that there is no hierarchical structure within a peer2peer network (Wikipedia).

(R-ACES) Self-assessment tool: A tool that helps ecoregions to determine the next steps they have to take in the energy cooperation process. The tool exists of a number of questions practitioners have to answer. Based on the answers, the practitioners will get a score and some practical considerations they should take into consideration.

Serious gaming: A method for learning-through-experience that presents participants with a case study in which they have to play pre-assigned roles to each reach a pre-defined objective as quickly as possible. The interactive & competitive gaming element increases the attractiveness and the learning outcome of the case study. Serious gaming addresses cooperation elements among a large variety of practitioners and focus at creating acceptance and awareness, where the learning communities focus at sharing experiences between peers.

Shortlist (for example shortlist of regions): List of items, for example regions, that have been selected from a long list on the basis of (strict) selection criteria. Hereby, the advantages and disadvantages of each item are considered (OpenLearn). The shortlist contains items that have a high potential and likelihood to contribute to the R-ACES goal.

Short-term: Short-term impact of R-ACES is gained during the R-ACES project.

Use case: A written description of the sequence of steps performed by an ecoregion to come to fruitful energy cooperation.

Use Case Library: A library that contains multiple use cases.

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