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R-ACES
Energy Cooperation Platform

D 6.3 Concept Video

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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
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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 eco-Regions 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 eco-Regions that achieve at least a 10% reduction in emissions. They do so by exchanging surplus energy, making extensive use of renewables, and bringing everything together with smart energy management systems. An eco-region is a geographic area where energy and information exchanges occur between various companies and actors to reduce waste and energy consumption. Eco-region 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 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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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	https://www.pomantwerpen.be/
ESCI European Science Communication Institute	https://www.esci.eu

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Executive Summary

Summary of Deliverable

This deliverable D6.3 Concept Video is produced by ESCI. The video has a duration of 2 minutes 15 seconds. It explains the concept of the R-ACES project, as well as its services and support for the industry cluster and business parks managers and other European stakeholders, but for the economy at large. The video was produced at the beginning of the project (M6) to ensure maximum visibility of the project.

The video will be featured on the project website, shown at workshops, webinars, fairs, conferences, or other relevant events and upon request. It will be posted on the social media channels for the R-ACES project on LinkedIn and Twitter. When appropriate, R-ACES partners will also promote and distribute this video via their corporate channels.

The video is accessible on the YouTube under
https://www.youtube.com/watch?v=wcyBi_4GEwE&feature=youtu.be

Key Words

Key words

Concept video, ecoregion(s), tools, pledge function

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Table of Contents

1 VIDEO CONCEPT 7
1.1 VIDEO STRUCTURE 7
1.2 VISUAL IDENTITY 9
1.3 AUDIO CONCEPT 10
1.4 VIDEO MATERIAL 10
1.5 LINK TO THE VIDEO 10
2 ANNEX 11

Table of figures

Figure 1 Visual elements of the concept video 9
Figure 2 Icons for the R-ACES of the three practical tools 10

Table of tables

Table 1 Structure of the R-ACES concept video 7

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1 Video Concept

Present introductory video aims to be a teaser, which provides the general framework and basic information about the project, building general awareness about the project and its goals. By using a non-technical language, the video aims to reach various stakeholders and thus have a wide outreach.

The length of the video is kept below 2 minutes and 20 seconds to ensure its maximum effectiveness. The final call to action of the video directs viewers to the project website (www.r-aces.eu), which has more detailed information about the project.

1.1 Video Structure

The structure of the video is detailed below:

Table 1 Structure of the R-ACES concept video

Time Code	Image	Message
0:00-0:24	Climate Problem Visuals Images of industry areas with high emissions, and excess heat/steam. EU Footage from talks about the EU Green Deal, including o-tones from Charles Michel, Ursula von der Leyen and Frans Timmermans	Putting the R-ACES project in the frame of the European Green Deal. Highlighting that the EU wants to be the first climate neutral continent. That there is an urgency to act now, and respective policies must be implemented. The EU needs to do everything they can to keep temperatures down.
0:24-0:40	Footage from the pilot ecoregions of POM Antwerpen with different shots of industrial clusters and business parks, also depicting daily live in such areas.	Explaining the vision of R-ACES to support high-potential industrial parks and clusters in becoming an ecoregion to reduce their CO_2 emissions at a minimum of 10% through energy cooperation. In the R-ACES project an ecoregion is a geographic area where energy and information exchanges occur between stakeholders of various types to reduce energy consumption. Each ecoregion is centered on an industrial cluster or business park linked to a 4^{th} or 5^{th} generation district heating /cooling network.
0:41-0:54	Stock images of meetings and were managers and people interact.	The images show the support character of the R-ACES were the projects offers stakeholders the opportunity to investigate solutions for energy cooperation and ways to manage their management streams for saving costs and CO2.
0:54-1:19	First image: Animation of the EU map in R-ACES with the 3 pilot ecoregions depicted as red pins.	In R-ACES in a first step the 3 pilot ecoregions are validated. In a second step 7 additional ecoregions are

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	Second image: Popping up 7 more pins in blue with a smaller size indicating the exact locations of the 7 additional ecoregions in R-ACES. Third image: Popping up of approximately 90vdots in grey all over the map of Europe starting to connect with the R-Aces in style of the Homepage	included in the R-ACES project. In the third step the project tools and capacity building support will be distributes to additional 90 high-impact regions to be included in the energy cooperation and actions beyond the project.
1:19-1:52	ICON Animation: ICON 1: Zoom in, showing energy usage of industry parks ICON 2: Transition Showing People signing a paper during a meeting ICON 3: Transition Showing Drone Flight over Industry Park – Animating lines for data and energy exchange between businesses Short Break with Shots from Ecoregions	R-ACES develops three practical tools to make energy corporations as easy as possible: A self-assessment tool validating the energy streams and scan for reusing surplus energy. A legal decision support tool, helping with the setting-up of contracts that needs to be signed between participants. And an energy management platform, for running, settling, and optimising the energy exchanges between companies made simple.
1:52-2:02	Animation for the R-ACES website: 1: Start fly over landing page of the website 2: Stopping at the Ecoregion area on the landing page 3: Zooming in to "Let's get in touch" 4: Clicking on the grey box indicating "share your commitment"	Call for action of all interested stakeholders and potential participants in energy cooperation. After filling in the pledge form in the R-ACES portal in which way they want to share their commitment, industry clusters and business parks can easily establish energy cooperation.
2:02-2:20	R-Aces animated logo Disclaimer with EU Social Media and Homepage	Attracting people with the animated project logo. Acknowledging the funding of the European Commission and showing the project number of R-ACES, under which the project receives funding. Showing the addresses of the project website and social media channels, where stakeholders and interested audiences can find additional information about the R-ACES project.

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1.2Visual Identity

All the graphic elements of the video, such as animations, captions, and final credits are in line with the visual identity of the project, using the project colour palette and icons, which reinforces the project recognition.

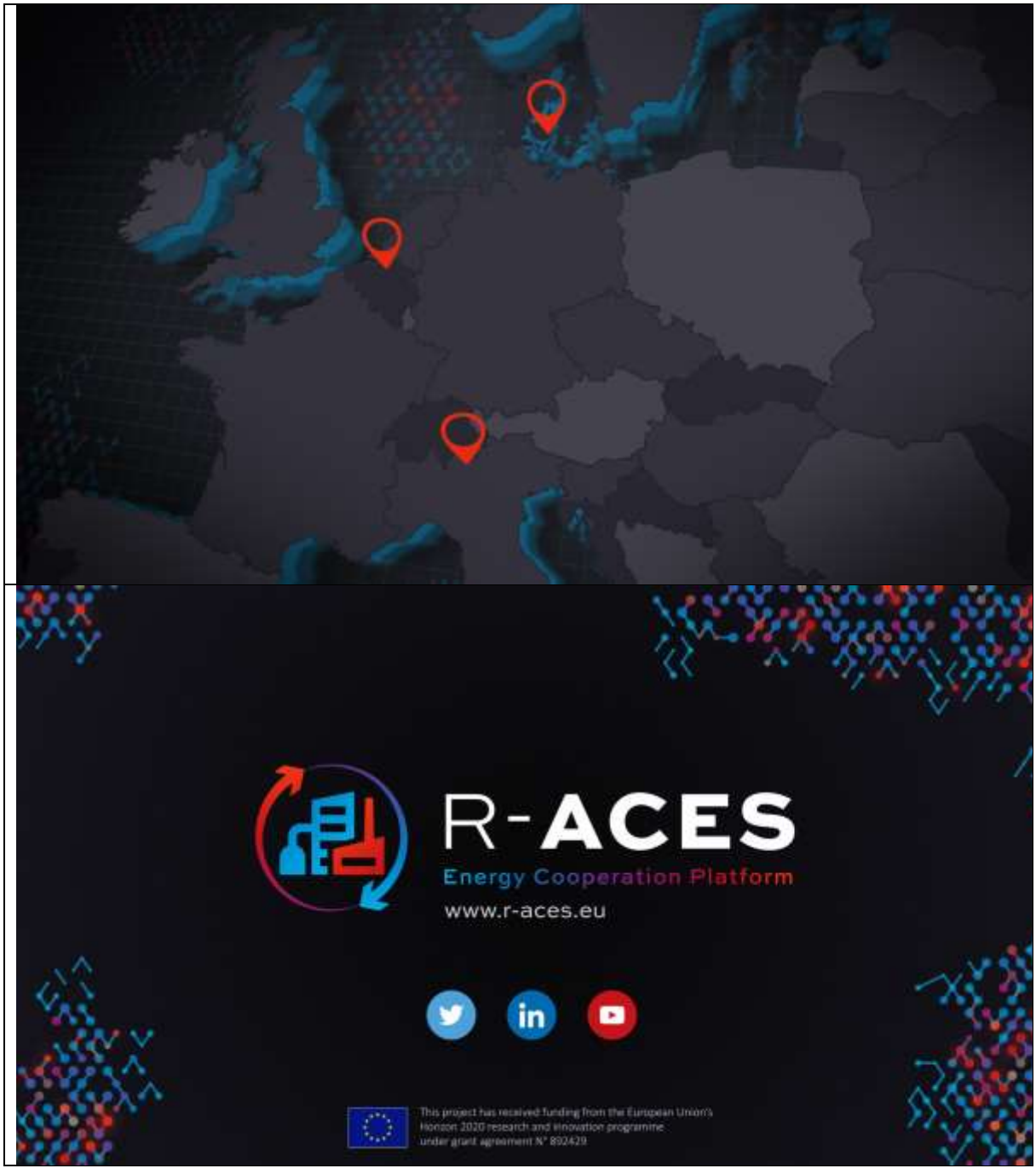

Figure 1 Visual elements of the concept video

Figure 2 Icons of the three practical tools in R-ACES

1.3 Audio Concept

For the narration, a male European voice was selected. Additionally, the video includes subtitles, ensuring the video is inclusive and reaches those who watch the video muted.

There are two music tracks in the video. The first one transmits the need of action and the second one supports the positive outlook of the project and the video.

1.4 Video Material

Since the Corona pandemic started in March 2020 in Europe, travel has been very restricted. With the project start in June 2020, it was still not clear when the ESCI video team would have been able to travel to fulfil video production, for example at the coordinator's location in the Netherlands or the pilot ecoregions in Belgium, Denmark and Italy. To be able to gather sufficient video footage for the concept video, project partners, especially the ones from the pilot ecoregions, were asked to send ccO free video footage to ESCI for making the concept video.
Parts of the footage from the partners are used in the concept video now, mainly from POM Antwerpen.
The rest of the footage was selected and acquired from the Envato platform (https://envato.com/) and the Audiovisual Service of the European Commission (EC AV Portal: https://audiovisual.ec.europa.eu/en/video/I-198526) to be able to transmit the message of the video in the most appealing way.
Additionally, ESCI developed different animations, which presents the ecoregions of the project and shows their geographical distribution, as well as the animation of the tool icons and the R-ACES logo at the end of the video.

1.5 Link to the video

The R-ACES concept video is published in YouTube under the following link:
https://www.youtube.com/watch?v=wcyBi_4GEwE&feature=youtu.be

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2 Annex

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. 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

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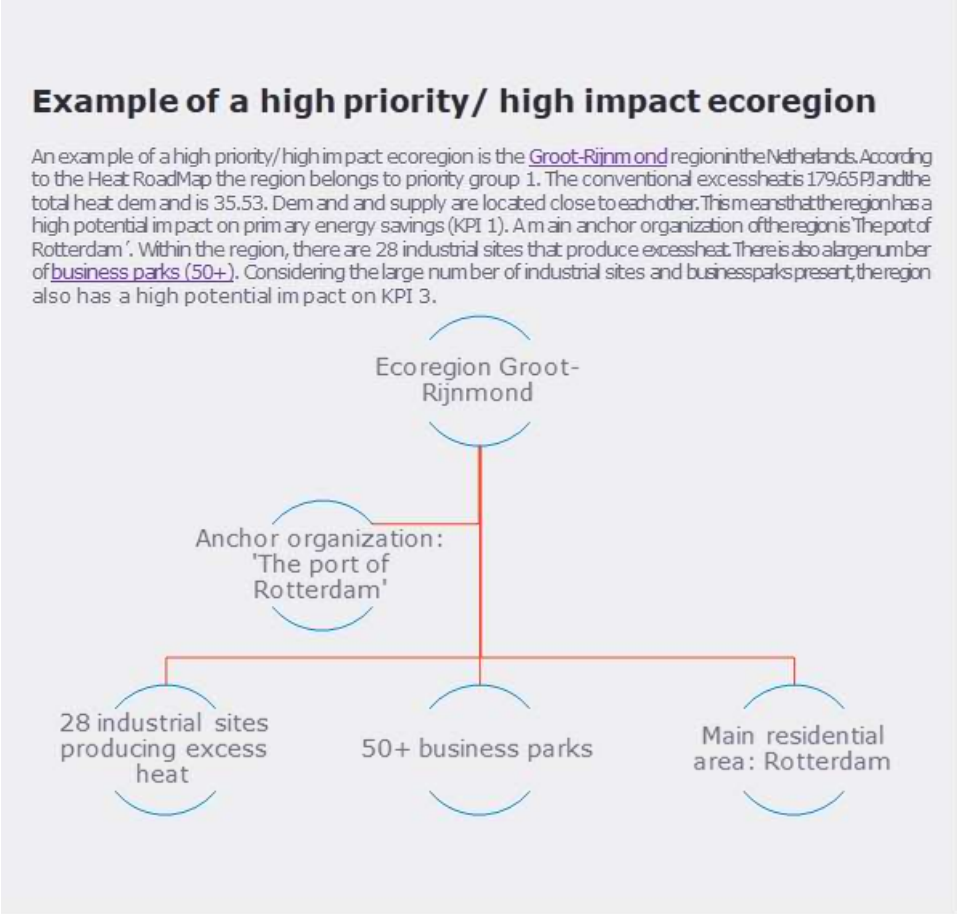
managing the area (for example park management). Another aspect is the proximity of stakeholders in order to ensure interconnected energy flows (continuity of supply, quality of supply, quantity). Within an ecoregion, a wide range of assets could be involved: office parks, data centers, multimodal centers, 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'.



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.

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.

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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.

(R-ACES) Legal 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

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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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