



Introduction to the Handbook

How can this handbook help you?

This handbook is designed to help any organization or individual who wants to support SMEs in their efforts to improve energy efficiency. The handbook explains a coordinated approach for addressing energy efficiency in SMEs, and aims to inspire you and provide you with practical insights on this approach.

This handbook should be useful for you, if you:

- Represent an organization that has the interest to inspire and establish energy efficiency initiatives in SMEs and the capacity to communicate and scale up the experiences on the regional or national level, for instance an SME association, energy authority, (local) government, NGO or research organization.
- Have, or intend to take on, a coordinating role in relation to a local cluster of SMEs. You may be, for example, a business park manager, an operator of local business or industry association, or a local energy and climate advisor that want to increasingly address energy efficiency in your collaboration with SMEs, and
 - are just starting to focus on energy aspects within the group of SMEs;
 - need inspiration and guidance to further developing and continuously follow up and make improvements in your work with energy efficiency in the SMEs; and/or
 - need to know more about what your SMEs might need support with, in order for them to take the next steps towards improved energy efficiency.
- Represent a company that sells energy audits, energy efficient equipment, or other energy services, and you see that your services towards SMEs could be improved, by reaching many potential and co-located customers in a coordinated approach.

The following introductory sections provide an important starting point, regardless of which above-mentioned stakeholder group(s) you belong to. Here, you will find arguments for why it is important and beneficial to improve the energy efficiency in SMEs, and information about why the proposed collective approach has proven to be successful. This is followed by five chapters that give concrete advice on how to develop the work with energy efficiency in SMEs, from a collective approach. This includes:

- Establishment and long-term support to local SME energy collectives (Chapter A),
- Defining the scope and stakeholder network of a local SME energy collective (Chapter B),
- Activities for the SMEs in the collective (Chapter C),
- Monitoring and following up on results (Chapter D), and
- Areas in which SMEs may need support related to energy efficiency (Chapter E).



Why energy efficiency in SMEs?

Addressing energy use, increasing energy efficiency and renewable energy in SMEs can be of great benefit to both the SMEs and to society.

For SMEs, increased awareness about energy use and improvements in energy efficiency will of course save energy and reduce energy cost. On top of that, there are more potential benefits, which could even be the main drivers for the SME. **Table 1** includes a range of potential **multiple benefits**¹ that may contribute to the overall motivation for energy efficiency.

Table 1. Examples of potential multiple benefits for an SME from increasing energy efficiency²

Multiple benefits of energy efficiency for the SMEs	
Energy cost savings	Decreased energy costs are a direct effect from implementing measures that improve energy efficiency.
Higher productivity and less maintenance	Adoption of new, more energy efficient, technologies often bring benefits in terms of overall productivity and less maintenance stops.
Improved competitiveness, robustness and independency	Higher productivity and reduced operational costs improve overall competitiveness. Further, the sensitivity to, e.g., varying energy prices decrease.
Improved work environment	Better ventilation, lighting and routines may improve work environment and employee safety as new energy-efficient technologies are often cleaner and quieter.
Reduced environmental impact and increased sustainability	Many companies have internal environmental goals, requirements from regulators and/or from customers. Energy efficiency helps to reach these goals and requirements. The market demands for such goals are also expected to increase.
Improved company image	The image and trademarks of the company may be strengthened by taking a societal responsibility to lower the environmental footprint, which may be important for increasing demands from customers.

¹ Also often referred to as non-energy benefits (or co-benefits, ancillary benefits) (Rasmussen, 2014)

² Learn more about multiple benefits from other European projects (e.g. Multiple Benefits project, 2021; Odyssee-Mure, 2021), or find more information in recent academic reviews (Killip et al., 2019; Nehler, 2019)



For society, more energy efficient SMEs contribute to³:

- **Increased sustainability** – Energy is a resource that we need to use efficiently to achieve a sustainable future. Production of electricity and combustion of fuels affect the environment in different ways. Use of fossil energy has direct negative impacts on the climate. Increased energy efficiency and use of renewable energy thus contributes to sustainability.
- **Growth and viable economy** – SMEs represent more than 95% of the number of companies in most countries. Consequently, the SME sector is a major driver for the European economy in terms of investments, economic growth and exports. SMEs also contribute significantly to innovation and development. Energy efficient SMEs are also more economically viable.
- **Employment** – Economically viable SMEs that can grow and prosper. They can also employ more people, in more qualified roles, and spend resources on developing competences and skills. In many countries, SMEs represent the majority of employees in the industrial and tertiary sector.

How to address energy efficiency in SMEs?

To increase energy efficiency in SMEs, the first step is often to help them find the interest and motivation to start working with energy-related matters in the company – to be aware of the multiple benefits that energy efficiency can provide. A second step would be to identify and provide required support.

SMEs commonly lack capacity, time and resources to work systematically with energy efficiency. They may need support to raise awareness about energy, find someone that can make an energy audit, to apply for audit subsidies, to interpret the result of the audit, and guidance on how to finance measures. These difficulties form a barrier for implementing energy efficiency and renewable energy measures⁴. Therefore, there is still a large potential for cost-effective efficiency improvements in SMEs.

Such support is typically offered by Energy Service Suppliers. However, the SME may have limited trust in the Energy Service Suppliers, especially if they do not have a previous business relation or if they have links with specific technologies causing doubt about their role and independency. At the same time, Energy Service Suppliers do not always have the capabilities, tools and organizational approach necessary to adapt to the needs of SMEs. For example, some energy consultants focus mainly on energy aspects, which are generally low on the strategic business agenda of the SMEs. Furthermore, they may

³ See e.g. Thema et al. (2019)

⁴ Read more about barriers to energy efficiency in Thollander and Palm (2013) and Thollander et al. (2020).



not have enough knowledge about the energy maturity of the SME, what type of service the SME needs or how the service can be communicated to be understood by the SME⁵.

Altogether, this creates a need to bridge and overcome the gap between the needs of SMEs and the services provided by the Energy Service Suppliers. One proven method for bridging this gap for clusters of SMEs is to use a [coordinated – or collective – approach](#) in which a person or organization that is already trusted by the SMEs (a [Trusted Partner](#)) serves as a link to such support. Trust has been shown to be an important factor for well-functioning energy efficiency networks⁶ and this includes mutual trust between the SMEs themselves as well as between the SMEs, the project leader (i.e. the Trusted Partner) and the energy experts (i.e. the Energy Service Suppliers). The collective approach enables resources and efforts to be coordinated to minimize the costs and time required by individual companies and the Trusted Partner can match and connect the energy services provided by Energy Service Suppliers to the business strategy and interests of the SMEs.

What do we mean by a collective approach?

By working with increasing energy efficiency in SMEs from a collective approach we mean:

- offering the same [coordinated services and activities](#) (such as an energy scan or seminars about energy efficient equipment) to effectively support a group of SMEs; and
- designing and planning these activities to [increase communication](#) about good examples, [exchange experience and networking](#), in order to spur motivation and results.

The clusters of SMEs that we address here are typically located in close proximity, for example, in the same industrial area or business park. However, the methodology can also be applied to SMEs that are spread over a larger region, especially if they belong to the same business sector or utilize the same type of processes. The collective approach is more effective if it is embedded in existing structures of, for example, a local area or a certain sector.

Similar to individual SMEs, a local cluster of SMEs generally needs motivation and support to become more energy efficient and sustainable. A so-called [Trusted Partner](#) (described below) can provide such support, coordinate activities and act as an intermediary between the SMEs and other stakeholders, such as the Energy Service Suppliers. In this handbook, we refer to the group of SMEs together with their Trusted Partner as a [local SME energy collective](#).⁷

⁵ See e.g. Palm and Backman (2020).

⁶ The importance of trust in this context is described in e.g. Palm and Backman (2020).

⁷ When clear from context, this may be shortened to a “local energy collective” or even “energy collective”.



The activities of a local SME energy collective are typically organized by a Trusted Partner and can for instance be to (see also the table in Chapter C, for more detail):

- arrange regular meetings, workshops and networking events to spread knowledge and share experiences between the SMEs;
- update and communicate energy achievements to the SME collective;
- provide coordinated support to individual SMEs, e.g., to scan their energy use to identify potential energy efficiency measures, take steps to implement measures and to finance their actions;
- support the SMEs to jointly hire consultants to conduct energy audits or to pursue other types of collective energy projects.

In a local area with limited knowledge on energy efficiency, the aim could be to motivate, inform, and unburden individual SMEs in the collective, and together they could gain knowledge about opportunities of working (collectively) to improve their energy efficiency. When the SMEs are more aware of the potential opportunities for energy efficiency and their benefits, the next step could be to agree on the aim and scope of a continued collective approach and which activities to pursue. And for a local area e.g. where the SMEs already have some general interest and awareness and, for example, have expressed the desire to invest in solar PV, the Trusted Partner could support these SMEs by helping them organize collective purchasing for the group of companies.

It should be emphasized that an individual SME does not have to be involved in all activities of the energy collective. For example, the Trusted Partner in a local area runs a campaign to make SMEs aware of the opportunities for energy saving and offers to jointly find the best solution. The SMEs who are activated by this can then choose to either implement a solution by themselves or to take the next step together.

This also means that a local energy collective should focus on different aspects of the collective approach and different activities depending on the interest and energy maturity of the SMEs. The services and activities offered, as well as their degree of “collectivity”, and the order in which they are carried out will differ between local energy collectives and depend on both the group of SMEs and the context. This will likely develop and change over time.



Key stakeholders in a collective approach

There are four roles or functions that are important to these local SME energy collectives. For simplicity, these four roles are described below as four different stakeholders, even though in reality, one stakeholder could function in more than one role or – vice versa – a group of stakeholders can together function in one role. The stakeholders are illustrated in Figure 1 and Figure 2.

The four types of key stakeholders are:

- **The local cluster of SMEs** that participates in the local energy collective to overcome barriers to implement energy efficiency measures. The cluster can be linked to for instance a local industrial area or a business park.
- **The Trusted Partner** that drives the development of the energy collective and functions as a neutral actor, which the SMEs trust. The Trusted Partner supports the SMEs and takes up the role of an independent intermediary between Energy Service Suppliers and SMEs. Further, the Trusted Partner brings together different stakeholders in the collective, initiates and organizes activities within the collective and inspires, develops and amplifies the implementation of energy audits and subsequent energy saving measures in SMEs. Most often, a non-commercial entity that is already known by the SMEs will serve as Trusted Partner, such as a business park manager, an independent local foundation for entrepreneurs, an association of SMEs, or a municipality.
- **Energy Service Suppliers**, such as energy consultants, ESCOs, grid operators and technology suppliers, that provide energy expertise and services for the local SME energy collective. The involvement depends on the local energy collective. Often, they are not a direct part of the collective, but rather involved in specific projects or activities. In some cases they have a more long-term collaboration, for instance, when there are Energy Service Suppliers that are themselves SMEs in the collective or if there is funding for external energy expertise or hiring of an energy manager working for the whole SMEs consortium. A local energy collective may even decide to establish an Energy Service Company (ESCO) and take up partnership with the supply side.



- **Multiplier Organizations**, who have an important role for establishment and scale-up of local energy collectives. Multipliers identify local areas that are suitable for organizing a local energy collective, identify suitable Trusted Partners and support the Trusted Partner in the establishment and operation of the local energy collective. Multiplier Organizations are generally non-profit organizations with a large potential to support and reach SMEs on the regional or national level. They have an ambition – as part of their purpose – to support SMEs in becoming more economically viable and/or to foster sustainability, reduction of climate change and energy efficiency. Examples are Federations for Industrial Business Parks, Chamber of Commerce, branch organizations and SME associations, but also public authorities such as national energy agencies, or universities or other research institutes.

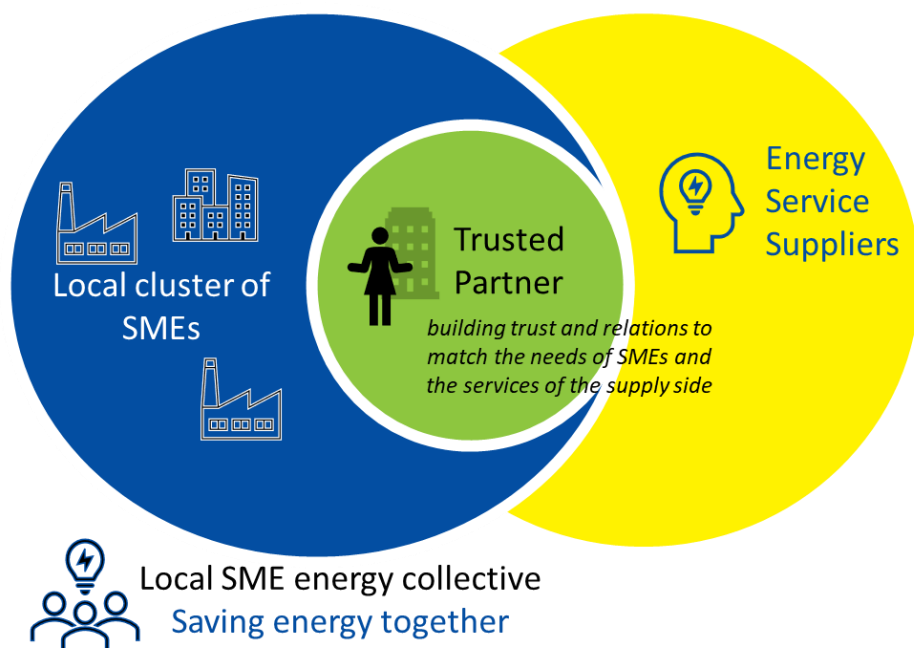


Figure 1. A local SME energy collective and its key stakeholders.

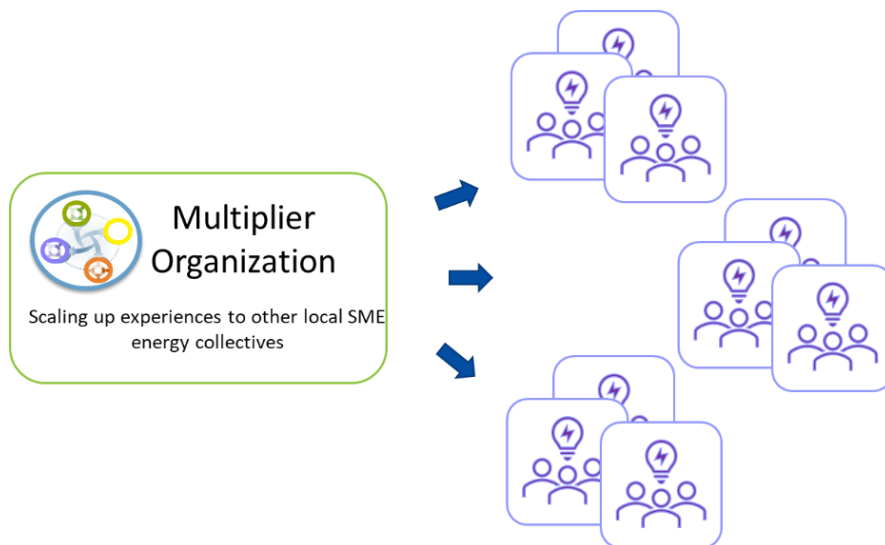


Figure 2. Role of Multiplier Organizations.

As mentioned, these roles or stakeholders are not fixed. The diversity in the local context of different areas leads to a diversity in role divisions. In some cases, the local energy collective is established and run by a Multiplier Organization, which means that their role merges with the role of the Trusted Partner. The same goes for the Energy Service Supplier. For example, an energy advisor can take up the role of Trusted Partner by bringing the SMEs of a local area together in a local energy collective. An energy collective may also be started by one or several SMEs, and their initiative then becomes the Trusted Partner – or the role of the Trusted Partner can be carried over to the group of SMEs.

Example: Local energy collectives in the Netherlands

In the Netherlands, SMEs in a business park are often linked to a local entrepreneurial organization with an appointed business park manager, who is responsible for overall park management, including, for instance, waste management, security, etc. Through park management, energy efficiency initiatives can be presented to all SMEs connected to the business park. These park managers take up the role of Trusted Partner and initiate energy projects for their members, thereby, creating a local energy collective. In addition to supporting individual energy audits, networking and enabling activities, these local energy collectives also aim to collectively invest in energy measures, such as purchasing green electricity or installation of solar photovoltaics.

There are also coordinated efforts towards developing sustainable – and more specifically energy efficient – business parks. An example of an initiative that coordinates the development of local energy collectives is the Business Parks energy positive (BE+) initiative (In Dutch: *Bedrijventerreinen Energie positief*). This organization brings the local park managers together to exchange experiences, identify lessons learned, and inspire new business parks. Thus, BE+ takes up the role of the Multiplier Organization.



Example: Local energy collectives in Italy

In Italy, examples include SMEs in industrial parks forming consortia to reduce energy costs and environmental impact. Representatives from the SMEs in the consortia or industrial park managers take on the role as Trusted Partner in these local energy collectives.

In the agri-food industrial district of Parma in Italy, more than 200 ham-producers are gathered together with local institutions in a consortium, aimed at reducing the environmental impact of the activities and improving economic and energy performance. Acting as a collective allows companies in the district to interact more directly with local authorities and to get access to financing and support.

In the ceramic district of Sassuolo in Italy, some of the local companies (40 out of 100) joined a consortium with the aim of collectively managing contracts with gas suppliers. As a result, local, highly efficient cogeneration plants now supply about 28% of the local energy demand. Furthermore, local authorities joined together with industrial associations to develop a district-level environmental management plan, which resulted in the definition of 134 actions for an overall investment of 800 million euros.

The Macrolotto of Prato textile Eco-Industrial Park in Italy houses about 380 SMEs, each one specialising in a specific activity of textile production. The area is managed by a private consortium of 240 enterprises located in the area, which also coordinates efforts to tackle sustainable mobility within the industrial park and, consequently, acts as a Trusted Partner. The park management consortium bought several electric and natural gas vehicles for the local collective, which the SMEs can use to transport goods and persons. As a result, about 104,500 km of private transport was spared, equivalent to 18 ton of CO₂ saved.

What are the benefits of a collective approach?

A proposed collective approach, in which a Trusted Partner reaches several SMEs with coordinated offers and services, can **reduce the costs and resources** required by individual companies. Further, **inspiration and guidance** for adopting energy management practices and implementing measures are convincingly provided by peers in similar situations. This **increases motivation, and results in energy efficiency improvements** and several added benefits to the SMEs. Finally, shared success makes the work more fun, and therefore more motivating to continue.

Research and experience from previous initiatives in several countries show that approaches involving collective elements, such as energy efficiency networks or sustainable business parks, add various benefits. These benefits are listed in **Table 2**.



Table 2. Potential benefits from using a collective approach towards energy efficiency in SMEs. These effects have been verified through research and experience in several countries.⁸

Benefits from a collective approach	
Significantly increased implementation rate of measures	SMEs that participate in, for example, energy networking programs implement a larger share of the energy efficiency improvements identified in an audit compared to those taking part in pure energy audit programs.
Reduce barriers to energy efficiency	Barriers to energy efficiency that many SMEs are facing as, for instance, lack of time, resources and knowledge can efficiently be addressed.
Provide linkage to Energy Service Suppliers	SMEs can, as a group, receive help to connect to appropriate energy experts and technology providers based on the SMEs' needs, thereby facilitating knowledge transfer as well as actual implementation.
Increase use of energy management practices	Help SMEs to adopt energy management practices that have proven to be important factors for realizing energy efficiency improvements. Examples of such success factors include long-term energy strategies, concrete energy targets, and clear responsibilities.
Provide basis for collective energy measures	A collective approach is necessary for efficiently implementing collective energy measures, such as local heat grids or common solar panels in a business park.
Increase cost efficiency	A collective offer can be more cost-efficient from the perspective of Energy Service Suppliers (and for the SMEs). SMEs are many and small, and it might not be worth-while to offer individual services – while a joint offer to several SMEs can be a good project for the supply companies.
Facilitate access to financing	Financing institutes and banks may be more willing to provide financing for e.g. collective purchases, since the activities of an individual SME may often be too small to spur interest.
Lead to benefits beyond energy efficiency	Examples include improved company image, establishment of new contacts and business relations (e.g. that SMEs find new customer relationships through the collective).

⁸ Based on experiences from, amongst other, three initiatives in the Netherlands (BE+, 2021; BEST Energy CheckUp, 2021; ECUB, 2021), various Energy Efficiency Network initiatives in Germany (see e.g. Initiative Energieeffizienz- und Klimaschutz-Netzwerke, 2021) and Sweden (see e.g. EENet, 2021), see also Odyssee-Mure (2016) for a policy brief on such programs. Further support for the claims can be found in research studies such as Johansson and Thollander (2019), Kalantzis and Revoltella (2019), Köwener et al. (2014) and Paramonova and Thollander (2016).



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