

Saving Energy in Industrial Parks

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Keywords

Industrial parks, saving energy in companies, joint industrial projects to save energy, webtool for energy analysis, Quick- and Detail-Check

Motivation and problem

Resource scarcity, rising energy prices and carbon dioxide (CO₂) mitigation goals are the main reason why the topic of energy saving potentials in industrial parks is currently the focus of several discussions.

Since the industry and the commerce, trade and service sectors have a high energy consumption, especially in terms of heat, these sectors show great potential to save energy and increase efficiency. [1], [2]

Previous energy efficiency projects have been limited to individual companies, whereas the project GET.Min (Gewerbepark, Energie-, Technologie- und Managementinformationsnetzwerk) analysed whole industrial parks. Synergies in various business areas have been identified and thereby stimulated companies to establish joint projects to save energy and therefore reduce CO₂ emissions. [3], [4]

Methodical approach

To identify cross-company efficiency potentials in industrial parks the methodical approach has been divided into three areas: the implementation of an information platform, the Parkranger for Energy and programming a webtool to identify cross-company energy synergies.

The information platform was used to bundle and transfer information and in addition as an access point for the webtool. The Parkranger for Energy served as a contact person for four industrial parks, which participated in the project. In joint meetings, the participants learned about various energy-related topics and analysed the energy consumption of their company.

Together with the Parkranger for Energy, energy saving potentials for the individual company were not only defined, but also possible cross-company waste heat utilization or energy generation were discussed.

The third part of the project, the modular developed webtool, was used for an energetic analysis of the industrial parks. Business developers are able to use the webtool to display industrial parks, define boundary conditions and examine if and where potentials exist, to minimise energy consumption. In a two-stage process (Quick- and Detail-Check), an analysis was carried out to determine whether waste heat can be used among the companies within an industrial park, or if the joint acquisition of a photovoltaic plant or a combined heat and power (CHP) unit is profitable. Another aspect was the examination if joint waste recycling options were possible. The webtool analyses if and between which companies synergies are possible according to the previous entered boundary conditions and specific company data (electricity and heat demand, load profiles, number of employees, branch of industry, etc.). [4]

Results and conclusion

Within the framework of the GET.Min project, it was concluded that currently the topic of energy savings is very important for the entrepreneurs, but they usually do not have time to deal with it in detail. The results of the Parkranger for Energy vary because they depend on the respective industrial park. Examples include a common used truck scale (saving 60 km per delivery) or the possible use of waste heat to supply an indoor swimming pool via a latent heat storage tank. These examples show that especially through a personal dialog small and large measures can be identified to improve the energy efficiency and reduce CO₂ emissions. In addition, the project highlighted the fact that industrial parks, which had already existing contacts among each other (i.e. through regular meetings), are more likely to exchange information and participate in a network.

The webtool was completed and tested during the project period by some business developers. This test showed that it was sometimes difficult to obtain data from the companies. However, the input options, the menu navigation and visualization of the industrial parks were assessed positively. The webtool identified energy optimisation potentials for several companies. [4]

References

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