



## D.T2.5.7

# Summary report on Pilot Action to assess Industrial sectors RE projects in Germany

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WP T2: Activity 2.5 PA 2: Improving energy efficiency in Industry Sector

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Date, venue	21.08.2020, Leipzig



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## Introduction

The FIRECE project aims to contribute to the achievements of targeted results of Regional Energy Plans through an increased use of (innovative) financial instruments in the Central Europe area. The particular focus is on public support to industry to invest into energy efficiency and renewable energy sources.

The activity 2.5 *Improving energy efficiency in Industry Sector* includes Pilot Actions carried out in five partner countries to assess Industrial sector RE projects using the Project level tool developed in WP T1 (O.T1.4) and updated in WP T2 (O.T2.2). The goal is to assess the public investments to support Industry low carbon transition: analysis of projects/investment plans elaborated by SMEs on EE/RES to verify their quality and quantity contribute to achieve the Energy Plans' targets.

This report summarizes the activities and results made during Pilot Action 2 in the region of Leipzig, Germany.



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## EXECUTIVE SUMMARY

### Country / region / PA2 Implementation area

Germany, Region of Leipzig

### Relevant energy saving funds:

Operational Programme Saxony 2014-2020 (ERDF) - Priority: Reduction of CO2 emissions

### Target group - SMEs involved: *micro / small / medium-sized*

*SMEs are the main target group of the Pilot Action 2. Under Regulation (EU) No 651/2014 of the European Commission, micro, small and medium-sized enterprises (SMEs) are enterprises with fewer than 250 persons and whose annual turnover does not exceed EUR 50 million and / or \ their annual balance sheet total does not exceed EUR 43 million.*

### Number of SME's involved:

### Type of projects:

176 implemented energy efficiency projects which were accompanied by regional energy agency and subsidized by grants of the Operational Programme Saxony 2014-2020 (ERDF).

### Energy saving measures / type of investments analysed

LED, compressing air, heat recovery, cooling, ventilation, heater, furnace, other

### Involved stakeholders

SAENA (Saxon Energy Agency)



## 1. Summary of the results obtained from the IT tool calculation

The IT tool provides a useful and comprehensive opportunity for SME's to assess and plan investments in energy efficiency and renewable energy projects. Companies can estimate potential energy savings regarding costs but also regarding emissions. The function of selecting different financial source as loan, own resources or subsidies allows the SMEs to find a suitable combination of financial instruments for their investment. In relation to the saved energy costs by the project, companies can predict the cumulative cash flow for future years with the tool and therefore e.g. have the possibility to extract financial options which are more profitable in the long run. The tool delivers a variety of simulation options which makes it useful for every SME.

The tool was introduced to a broad number of SMEs during a local seminar in May 2019. There, companies had the chance to simulate considered energy efficiency measures with the IT tool for the first time. In general, a positive feedback of the companies was kept within limits as the testing version hadn't been finalized for Germany at that point. An additional obstacle is the fact that Germany established regional energy agencies which already offer calculation tools in combination with applying for public funding. Therefore, the IT tool hasn't been off much relevance for the companies.

In the following months, the adaption of the tool with German emission values was targeted. Unfortunately, providing the data for the multiple parameters of the tool turned out to be a bigger challenge. The German emission data was very detailed for many industrial branches and industrial processes available, but not in the format the tool is using. Trying to adapt the values took a long time without a satisfying result and therefore, approaching SMEs for piloting was not feasible. This all got further affected with personnel shortages within the NEU e.V. in the second half of 2019. Additional interference came along then with the COVID-19 pandemic and the economic struggle of many SMEs.

Therefore, in the meantime, NEU e.V. tried to generate alternative ways to test the tool. It got in contact with the regional energy agency SAENA. The agency is accompanying SMEs in implementing energy efficiency measures from finding and planning the right measure to granting public funds for the implementation.

SAENA was able to deliver a set of data of in total 176 projects (cleaned) implemented in the years 2014-2018. All these projects were subsidized with grants from the Operational Programme Saxony 2014-2020 (ERDF). Due to terms of privacy, the project information consisted of the following parameters:



- Branch/Sector of company (e.g. food production, Metal construction/mechanical engineering etc)
- Annual savings/consumption of CO2, Electricity, Natural Gas, Fuel Oil and others per project
- Annually saved costs caused by the project
- Investment costs and amount of subsidy per project
- Technical classification of implemented measures (e.g. LED, heat recovery, etc)

The data showed, that both tools, from SAENA and the project level tool of FIRECE, work and support SMEs in a similar way.

Therefore, in order to validate the developed IT tool, both are going to be compared with each other in the next chapter. This shall give an idea of the potential the IT tool of FIRECE can have and how it can contribute to meeting the targets of the regional energy plans.



## 2. Conclusion of the performance of the Project level tool (O.T1.4) to assess public investments for industry's low carbon transition

In this chapter, the potentials of the project level tool is summarized in comparison with the already established tool by the regional energy agency SAENA.

SAENA uses a database of a vast variety of energy efficiency measures (GEMIS - Global Emission Model of Integrated Systems), for which individual emission values have already been collected. This allows a very detailed calculation of the saved costs and energy consumption for the proposed measures. For example, it contains measured values for over 12,000 industrial processes, including different countries. Updating the database represents a major organizational effort. The current underlying parameters are therefore still from 2010.

In FIRECE's IT tool, the emission values are based on the various industrial sectors. The emission values for the respective industrial processes have been summarized there. The lower level of detail allows for easier updating of emission values.

Both tools differ primarily in the timing of their use. The tool provided by SAENA is tailored to measures that have already been defined and it only indicates the total investment costs for the respective project. Companies must therefore be clear in advance, which measures they are implementing in detail and that they are drawing on public funds for this.

The FIRECE IT tool, on the other hand, offers companies the opportunity to simulate various financing options and to evaluate the long-term nature of their investments by issuing cumulative cash flows. Therefore, it precedes the SAENA tool in its application. This enables SMEs to choose financing options that are better aligned with the general development of the company: Is it more sustainable for a company to implement long-term financing for its measures? Or do the efficiency measures generate such high cost savings that only short-term financing is necessary?

In summary, the FIRECE IT tool has the potential to closing a gap in implementing energy plans and measures by offering a service, which haven't been developed in this way so far. In order to be used by SMEs and regional actors as well as to blend and fit in with the existing tools, it would need adaptations in Germany. The IT tool would have to take in account the existing details of many industrial processes and energy efficiency measures. This would need the possibility to calculate financial options for a certain amount of different saving measures at once e.g. when a company wants to install LED lightning, a new ventilation system and heat recovery in one project.



### 3. Conclusion of the Industrial sector energy efficiency projects assessment analysis

The assessment of financial instruments for energy efficiency projects with the IT was in practice not feasible in the region of Leipzig. The mentioned obstacles made the piloting not feasible. Nevertheless, at this point the environmental and economical relevance of the energy efficiency measures supported by public grants shall be mentioned.

The 176 implemented projects by SAENA from 2014-2018 chose a variety of energy efficiency measure which were implemented in combination with each other in 16.7% of the projects. The most chosen efficiency measures are the installation of LED lightning (52.8% of projects), heat recovery (15.3%) and the replacement of boiler/heater (14.2%).

Energy Efficiency Measure	No. of projects where measure was implemented
Installation of LED lightning	93
Installation of cogeneration units	10
Installation/replacement of compressors	9
Decrease of losses in heat distribution (heat recovery)	27
Thermal insulation of technologies/Cooling processes	11
Improvement of ventilation system	4
Replacement of boiler/heater	25
Others	29

The projects were granted with funds between 2,100 and 200,000 Euro per project and generated an annual total CO<sub>2</sub> saving from 11,723.21t. This makes an average saving of around 66.6 t CO<sub>2</sub>/a per project. The values are varying between 3.74 t CO<sub>2</sub>/a and 773.86 t CO<sub>2</sub>/a which shows the variety and scope of the implemented measures.

The total investment costs of the projects are around 17.2 Mio. € and subsidized in average by 36.7%. The resulting cost savings are in total 3.1 Mio. € a year, which are around 17.5% of the total investment costs.