European Commission

EUROPEAN **COVENANT OF COMPANIES** FOR CLIMATE AND ENERGY

ANALYSIS OF E-TOOLS SUPPORTING SMEs IN REDUCING GREENHOUSE GAS EMISSIONS

June 2023

CONTENTS

EXECUTIVE SUMMARY

One of the key contributors to global climate change is the industrial sector, where small and medium enterprises (SMEs) play a significant role in terms of Greenhouse Gas (GHG) emissions. There is a need for external support for SMEs in reducing their GHG emissions. Therefore, the European Commission's Directorate-General for Energy (DG ENER) has initiated the Covenant of Companies for Climate and Energy (CCCE), which aims to support companies and organisations, with a focus on but not limited to SMEs, in reducing their GHG emissions. This report is part of the CCCE project and includes both explanatory information and a criteria-based assessment of software tools that support SMEs in reducing their GHG emissions. Companies can use the tool to calculate current emissions, to get a better insight into energy savings and emission reduction and to develop a tailored clean energy plan.

EXECUTIVE SUMMARY Continued.

In this report, the software tools are assessed against a set of criteria. These criteria cover aspects such as accessibility, expertise requirement, scope, model, output, and support. A short overview of the tools and their main characteristics is included in Table 1.

- The first column covers the tool name.
- The second column mentions the organisations that developed the tools.
- The column 'Geographical Scope' refers to the inclusion of country specific data needed for the calculation of emissions.
- The column 'Accessibility, applicability, and expertise requirement' offers a summary assessment of generic criteria, including the tool's open and/or free accessibility; applicability of the tool in terms of language, country-specific variables used in the tool, and focus on SMEs; and expertise requirement necessary for using the tool.
- The column 'Scope' offers a summary assessment of criteria such as coverage of emission types (scope 1,2,3), energy sources, and compliance with legislation.
- The column 'Model' offers a summary assessment of model specifications. This includes an assessment of the model structure, monitoring function, the use of scenarios, and reporting formats.
- The column 'Output' offers a summary assessment of outputs covered from current emissions, information on emission reduction measures, and benchmarking.
- The column 'Support' offers a summary assessment of support provided by the tools available for its users, including guidance documents and other tool support.

The 🟢 indicates a coverage of most/all subjects, 🔺 indicate a partial coverage and 🟥 a limited coverage.

We recommend that SMEs seeking guidance generally choose those tools with the highest score. However, it should be noted that those tools that score highest may not best suit their specific needs (such as language).

Table 1 Summary table characteristics and tools of selected initiatives

TOOL NAME	ORGANISATION	LANGUAGE	GEOGRAPHICAL SCOPE	ACCESSIBILITY, APPLICABILITY, AND EXPERTISE REQUIREMENT	SCOPE	MODEL	OUTPUT	SUPPORT
Business Carbon Calculator by Normative	SME Climate Hub	English	Global	🟢	🟢	🔺	🔺	🟢
E-tool	ZDH	German	Germany	🟢	🟢	🟢	🟢	🟢
Net Zero Now platform	Net Zero Now	English	UK	🟥	🟢	🟢	🟢	🟢
KWA Triple C Tool	RVO Dutch Energy Agency	Dutch	The Netherlands	🟥	🟢	🟢	🟢	🟢
DEB tool	MKB-Netherlands	Dutch	The Netherlands	🟢	🔺	🟥	🔺	🟢
PSB Quickscan Energiebesparing	Platform Duurzame Huisvesting	Dutch	The Netherlands	🔺	🟥	🟥	🔺	🔺
SBTi SME route	Science Based Targets Initiative	English	Global	🔺	🟢	🟥	🟥	🔺
Business Emissions Calculator	Carbonfund	English	Global	🔺	🔺	🟥	🟥	🟢
RETScreen Expert software	Government of Canada	Multi	Global	🔺	🟢	🟢	🟢	🟢

INTRODUCTION

Industry is one of the main contributors to global climate change, with a substantial subset of industry consisting of SMEs. In the European Union there are 24 million SMEs, which make up 99% of the businesses in the EU. In terms of GHG emissions, SMEs contribute to 63.3% of industrial pollution in Europe[1]. Therefore, it is crucial that SMEs contribute greatly to mitigating GHG emissions if the climate reduction target of 55% GHG emission reduction below 1990 levels by 2030 is to be met.

To support SMEs in their journey to reduce GHG emissions, the Directorate-General for Energy (DG ENER) has set up the Covenant of Companies for Climate and Energy (CCCE). The objective of the CCCE is to support companies and organisations, more specifically SMEs, in decarbonising their organisation, by becoming more sustainable and energy efficient. Part of the CCCE project is providing SMEs with practical step-by-step guidance documents to help them set science- based GHG emission reduction targets and develop a tailored clean energy plan, which will be referred to as the GHG emission reduction plan in this report.

This report presents a selection of tools that have potential to support companies in decarbonising their organisation. Each tool is accompanied with explanatory information, and evaluated against a set of criteria, thus SMEs can assess which option fits their organisation best.

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[1]European Commission. (2022). Annual Report on European SMEs 2021/2022: SMEs and environmental sustainability Background document.

CRITERIA-BASED ASSESSMENT

Methodology

The methodology applied to undertake the assessment consisted of the following steps:

1. Establish an assessment scale. For the purpose of this assessment a three-point scale was adopted with the following degrees: suboptimal (-1), better (0), best (+1).

2. Develop a rating scheme corresponding with the assessment scale. To rate each of the tools, criteria across seven categories were used:

     a. **Type (1 criterion):** the type of platform the tool is active on, such as a web-tool or software.

     b. **Analysis (1 criterion):** showing the reliability of the results of the assessment for the tools. Some results are less reliable than others because there was limited access to the tool and/or a lack of communication with the tool's organisation

     c. **Generic (6 criteria):** generic characteristics of the tool are rated, such as accessibility, language, applicability, cost, expertise requirement and coverage (all companies/all sectors).

     d. **Scope (5 criteria):** the scope of the tool is evaluated based on emissions scopes, energy vectors, organization levels, legislation, and sustainable energy. Including a wide range of aspects that influence GHG emissions can provide more reliable results.

     e. **Model (4 criteria):** Here, the possibilities of the model the tool is built on are rated, including modularity, monitoring, creating a GHG emissions reduction plan and flexible scenarios. A flexible model may fit a larger range of SME needs.

     f. **Output (7 criteria):** The total output of the tool is rated here, including reporting formats; current energy consumption and emissions; GHG reduction types, measures, and information; and benchmarking. An output assessed against a wide range of criteria can provide more detailed insights on a company's current and future potential.

     g. **Support (2 criteria):** The support of the tool is rated in terms of guidance documents and personal support. SMEs may require additional support, because reducing GHG emissions on their own may seem challenging. Providing solid support can motivate and accelerate SMEs in reducing their GHG emissions.

3. Identify a shortlist of tools. The tools covered in this report were identified during a quick scan (internet search and limited set of interviews) for potential tools developed or used in EU projects, the UK and in the six focus countries of the first phase of the CCCE project: Germany, The Netherlands, Italy, Poland, Croatia, and Finland. The goal of the quick scan was to identify at least 1 tool in the national languages and up to three tools in the English language. The links to the tools are presented in Table 2.

4. Create profiles of the tools through software testing and consultation with the tool providers.

5. Complete the assessment matrix using the experience gained via the previous step.

6. Provide a ranking of the tools, where a rating of 'suboptimal' is scored as -1, 'better' is scored as 0, and 'best' is scored as +1. The scores give an indication of the tools' potential for supporting SMEs in reducing their GHG emissions. The higher the score, the more potential is shown. Of course, different companies might assess the importance of some criteria higher than others. So, it is recommended that first the most important criteria are identified, and a preselection of tools is made that meet the user's expectations.

The rating scheme used to assess the tools is presented in Table 3.

CRITERIA-BASED ASSESSMENT Continued.

Table 2: Link to the websites of the analysed tools.

Tool name	Organisation	Link to tool
Business Carbon Calculator by Normative	SME Climate Hub	**https://smeclimatehub.org/start-measuring/**
E-tool	ZDH	**https://www.energie-tool.de/#!**
Net Zero Now platform	Net Zero Now	**https://netzeronow.org/***
KWA Triple C Tool	RVO Dutch Energy Agency	**https://www.kwa.nl/files/202007/raw/ 17ac215ce5270d3adfcfd280d97f561d.pdf****
DEB tool	MKB-Netherlands	**https://www.deb.nl/**
PSB Quickscan Energiebesparing	Platform Duurzame Huisvesting	**https://www.platformduurzamehuisvesting.nl/ quickscan-energiebesparing/app/**
Business Emissions Calculator	Carbonfund	**https://carbonfund.org/take-action/ businesses/business-calculators/**
SBTi SME route	Science Based Targets Initiative	**https://form.jotform.com/targets/ sme-target-validation**
RETScreen Expert software	Government of Canada	**https://www.nrcan.gc.ca/maps-tools- and-publications/tools/modelling-tools/ retscreen/7465**

*Link to website of Net Zero Now providing information on the tool. The tool itself is not openly accessible.

**Link that provides information on the KWA Triple C Tool. The tool itself is not openly accessible.

CRITERIA-BASED ASSESSMENT Continued.

Table 3: Rating scheme used to assess the tools.

THEME	CRITERION	DESCRIPTION	SUBOPTIMAL	BETTER	BEST
Assessment	Quality of evidence on which the assessment is grounded	What is the quality of the evidence on which the tool assessment is based?	Indicative, because of limited communication with the tool developers and limited accessibility to the tool	Spot checks. Analysis is based on own limited tests of the tool	Reliable, because of detailed communication with the tool's organisation and full access to the tool
Generic	Openly accessible	Is the tool accessible for everybody?	Closed until participation of program	-	Openly accessible for all organisations
Generic	Free	Is the tool free?	Paid membership or single payment required	Partly free	Completely free
Generic	Language	What language can the tool be used in?	No English version, nor version in focus country language	English version OR version in focus country language	English version AND version in focus country language
Generic	Applicability for focus countries	Is the tool applicable in the focus countries of this project (Poland, Croatia, Italy, Finland, the Netherlands), because country-specific variables, such as energy prices and emission factors, are included for multiple countries or can be altered to fit a specific country?	Applicable for one or two specific countries, which are not focus countries	Applicable for one focus country	Applicable for most or all EU countries
Generic	Expertise requirement	What kind of energy expertise is required for the tool?	Tool requires expert knowledge on GHG emissions, emission reduction measures, and building and energy system specifications	Tool provides some assistance, but still requires input on energy consumption, annual production, and basic processes and expenditures on energy, materials, and fuels	Tool is self-explanatory and requires only basic input on energy consumption and annual production (for benchmarking)
Generic	SME specific	Can the tool be used by SMEs and all sectors?	Only applicable for office buildings or non-SME organisations	Suitable for SMEs, but not all sectors are included	Built specifically for SMEs, in all sectors
Scope	Scope 1, 2 and 3 emissions*	What type of emission scopes are considered?	Emissions not included	Scope 1 and/or 2	Scope 1, 2 and 3 included
Scope	Energy vectors	Which energy vectors are taken into account	No energy vectors included	Only electricity & gas	All relevant energy vectors: electricity, gas, oil, biomass, heat, steam, propane, etc.
Scope	Levels	What company levels can be defined in/by the tool?	Company as a whole – company is a black box	Some levels but not all	Possible to go into all levels: company-wide, buildings, processes, installations, transport, etc.
Scope	Compliance with legislation	Is (inter)national legislation used as a guideline for the tool's calculations and prescribed measures?	Tool doesn't use legislation as a guideline for their calculations and/or prescribed measures	Tool is influenced by legislation, but is not guided by it	Tool uses (inter)national legislation and protocols as a guideline in its calculations and prescribed measures
Scope	Sustainable energy	Can (on site produced) sustainable energy be included in the tool?	Tool doesn't support input on sustainable energy	Tool input includes on site sustainable energy production OR sustainable energy consumption produced elsewhere	Tool input includes on site sustainable energy production AND sustainable energy consumption produced elsewhere

Table 3: Rating scheme used to assess the tools.

THEME	CRITERION	DESCRIPTION	SUBOPTIMAL	BETTER	BEST
Model	Modular structure	Does the tool have a modular structure? Does it work with little information on energy consumption, emissions, building characteristics, etc., but also with a lot of input information?	Rigid structure: the model only works when all variables are known and cannot be tweaked	Somewhat flexible structure, in which some variables can be altered and/or left out	Modular structure: model works with few and many variables and can be tweaked to own preference
Model	Monitoring progress (over time)	Is the tool accessible for everybody?	The tool doesn't allow tracking of progress	The tool allows for manual tracking of progress	The tool allows for (automated) monitoring over time via coupling with an organisation's project management system
Model	Creating a GHG emission reduction plan	Is it possible to create a plan that supports the businesses in implementing GHG emission reduction measures?	Not possible	Yes, but a basic one. For example, only dates can be assigned to measures	An extensive plan can be developed, including targets, measures, dates, etc. and tailored to own preference
Model	Flexible scenarios	Can the model create flexible scenarios, in which it takes int account country- and time-specific scenario variables, such as energy prices, emissions factors, and grid efficiency?	No flexible scenarios are possible	Few variables can be altered, such as energy prices, to create future scenarios	Many scenario variables can be altered to create realistic scenarios
Output	Reporting formats	What type of formats are available to report or get a report of the results?	No reporting options	Dashboard	Dashboard and reports (Excel, PDF, etc.)
Output	Current energy use	Does the output show the energy consumption? If so, in what detail?	No energy consumption shown	Total electricity and gas consumption shown	Total energy consumption shown in energy balance, in which energy vectors and/or company categories are categorised
Output	Current emissions	Does the output show the current emissions? If so in what detail?	No current emissions shown	Total emissions in CO2 equivalence	Emission balance where emissions are allocated per category
Output	Types of GHG reduction measures	Does the output provide GHG emission reduction measures/options? If so, what type of measures are given?	No measures are offered	Only energy efficiency measures are offered	Many different GHG emission reduction measures, such as energy efficiency measures, fuel/material switches, sustainable governance, investments, etc.
Output	GHG reduction measures applicability	Are the GHG reduction measures tailored to the specific sector or organisational assets (buildings, sites)?	No measures offered	General measures are offered, which are not sector specific	Tailored measures are offered tailored to the organisation and/or sector
Output	GHG reduction measures information	If GHG reduction measures are given, what details are provided from these measures?	No information on measures is offered	Only shows limited information (e.g., only savings)	Information on measures include a detailed description, costs, savings, payback time, etc.
Output	Benchmarking	Can the results be benchmarked to other organisations? If so, is the benchmarking representative and reliable?	No benchmarking possible	Benchmarking based on data available that may not be representative for the sector as a whole	Benchmarking based on representative sector data (nationally/internationally)
Support	Guidance documents available	Does the organisation provide guidance documents to support users to realise set objectives?	Limited guidance documents available	Guidance documents are available, however require extra knowledge to put into action	Step-by-step guidance available
Support	Tool support	Is it possible to get extra support besides the tool, that is provided by the tool?	No support offered	General support, such as a helpdesk	Tailored and extensive support via trainings, workshops, or consultancy

*Scope 1 emissions: emissions from sources that an organisation owns or controls directly.
Scope 2 emissions: emissions caused during the production of energy that is purchased and used by an organisation.
Scope 3 emissions: emissions an organisation is indirectly responsible for, up and down its value chain. All emissions sources not considered in scope 1 and 2.

CRITERIA-BASED ASSESSMENT Continued.

Results

Table 4 shows the results of the criteria-based analysis. Although some tools have higher scores than others, it is important to recognise that each organisation may want to apply weighting to the assessment criteria. Therefore, a tool or platform that scores 'suboptimal' in this assessment may still fit an SME well, given its own specific needs and priorities

Table 4: Results of the criteria-based assessment.

THEME	CRITERION	SME CLIMATE HUB	ZDH	NET ZERO NOW	RVO/KWA	DEB	PSB QUICKSCAN ENERGIEBESPARING	SBTI	CARBONFUND FOOTPRINT CALCULATOR	RETSCREEN EXPERT
Type	**Platform type**	Web tool	Web tool	Web tool	Software	Web tool	Web tool	Online form	Web tool	Software
Analysis	Reliability of results	+	+	+	–	+	0	0	0	+
Generic	Openly accessible	+	+	+	–	+	+	+	+	+
Generic	Free	+	+	–	–	+	+	–	+	–
Generic	Language	0	–	0	0	0	0	0	0	+
Generic	Applicability for focus countries	+	+	–	0	0	0	+	–	+
Generic	Expertise requirement	0	+	0	0	+	0	–	0	–
Generic	SME specific	+	+	0	0	+	–	+	–	0
Scope	Scope 1, 2, and 3 emissions	+	0	+	0	0	0	+	+	+
Scope	Energy vectors	+	+	+	+	0	0	+	+	+
Scope	Levels	0	+	+	+	0	0	–	0	+
Scope	Compliance with legislation	+	+	+	+	+	0	+	0	0
Scope	Sustainable energy	0	+	+	+	–	–	+	–	0
Model	Modular structure	+	+	+	+	–	0	–	0	+
Model	Monitoring progress (over time)	0	+	0	0	0	–	0	–	0
Model	Creating a GHG emission reduction plan	0	+	+	+	0	–	–	–	+
Model	Flexible scenarios	–	0	–	–	–	–	+	–	+
Model	Reporting formats	0	0	+	+	+	0	0	–	+
Output	Current energy use	–	0	–	+	0	0	–	–	+
Output	Current emissions	+	+	+	+	–	0	–	+	+
Output	Types of GHG reduction measures	+	+	+	+	0	0	–	0	0
Output	GHG reduction measures applicability	0	+	+	+	+	0	–	0	+
Output	GHG reduction measures information	0	+	0	+	+	+	–	0	+
Output	Benchmarking	0	0	0	+	–	0	0	–	+
Support	Guidance documents available	+	+	0	+	0	0	+	+	+
Support	Tool support	+	+	+	+	+	0	–	0	+
TOTAL	**Total score of all criteria combined**	11	18	10	11	5	-2	-2	-3	16

– Suboptimal   0 Better   + Best

INFORMATION ON E-TOOLS

SME CLIMATE HUB

"The SME Climate Hub is a global initiative that empowers small to medium sized companies to take climate action and build more resilient businesses" – SME Climate Hub Website.

The SME Climate Hub provides free tools that support SMEs in reducing GHG emissions. An important tool is the Business Carbon Calculator developed by Normative with support from Google.org, in which scope 1, 2, and 3 emissions can be calculated for an organisation easily, using data they have available. The Business Carbon Calculator uses grid emission factors and energy prices of most EU countries to create country specific output and estimates scope 3 from your expenses. The calculations are based on a simple and transparent process:

1. Create a business profile. Build an overview of your business by adding basic information about your size, sector, and market.

2. Add your business data. Add more detail about your electricity, heating, and fuel use, as well as how much you spend on things like travel, computers, or transport.

3. See your emissions. View a visual dashboard with a detailed breakdown of your current emissions and continue your carbon reduction journey.

4. Benchmark your emissions against an average company in your sector and country.

5. Complete the assessment matrix using the experience gained via the previous step.

After gaining insight into their emissions, SMEs can access free tools and incentives for every step of their climate action journey. The ClimateFit education course is a free 7-part-course training module that covers several topics related to decarbonisation, such as business strategy, governance, operations, supply chain, design of products, finance, social engagement, and branding.

Alongside the training courses, the SME Climate Hub provides a comprehensive library of tools aimed at emissions reduction. For instance, the 1.5°C Business Playbook contains guidelines that support organisations in developing targets, strategies, and actions that align with the 1.5°C and net zero ambition.

Later this year, the SME Climate Hub will build additional tools and support for carbon reporting, emissions reduction, and financial incentives. Through the upcoming resources, companies will be able to get insights into specific GHG emission reduction measures and develop an emission reduction plan. However, to access these tools, businesses will need to first join the SME Climate Hub, and publicly commit to halving their emissions by 2030, and becoming net zero by 2050. Once committed, businesses can start taking action and the progress of GHG emission reductions can be monitored manually in the Business Carbon Calculator.

SME CLIMATE HUB Continued.

Evaluation of the tool

The online tools provided by the SME Climate Hub are openly accessible, free, and applicable in most countries. The Business Carbon Calculator requires some knowledge on business expenditures but is still easy to use without any prior climate knowledge needed. The Business Carbon Calculator can create results with information that companies from a large range of sectors have available. The SME Climate Hub covers a large range of tools that can be used to develop net zero strategies and to select measures to reduce GHG emissions. The Business Carbon Calculator dashboard can be used as a basic reporting tool and a more comprehensive reporting tool will be added later this year.

The SME Climate Hub has partnered with the UK government to mobilise SMEs in the region. The campaign's website also has pages with concrete ideas (decarbonisation options) for Agriculture, Manufacturing, Retail, Technology Construction, and the Hospitality sector. These pages cover 5–10 themes per sector accompanied with a short description, some actions and often a link to further information (often a specific report or project). Information on the measures is limited and often doesn't include details on reduction potential and cost.

In summary, the SME Climate Hub allows businesses to gain detailed insights into scope 1, 2 and 3 emissions and provides pointers to an elaborate set of tools that support businesses in reducing these emissions.
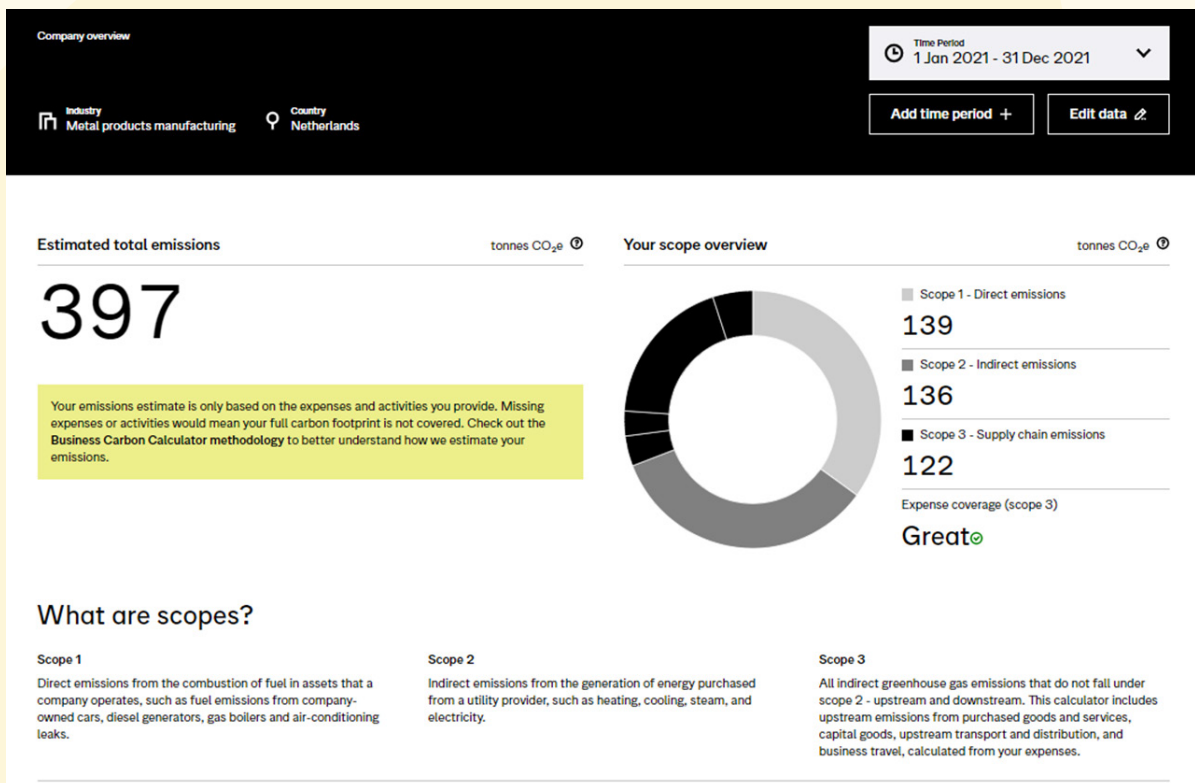
Figure 1: Overview of the output of the Business Carbon Calculator.
Source: **https://businesscarboncalculator.normative.io/dashboard**
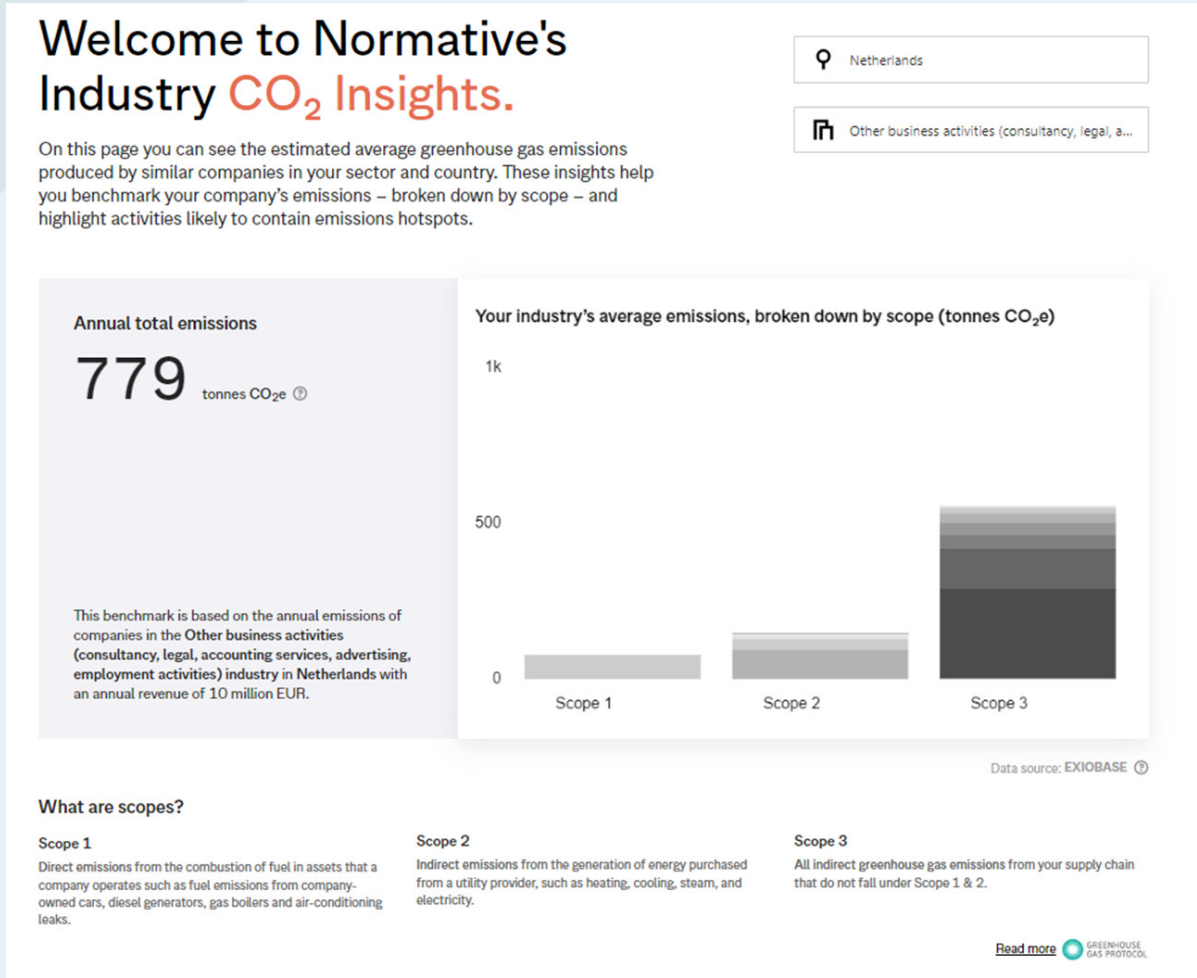
Figure 2: Overview of the output of the Business Carbon Calculator.
Source: **https://businesscarboncalculator.normative.io/dashboard**
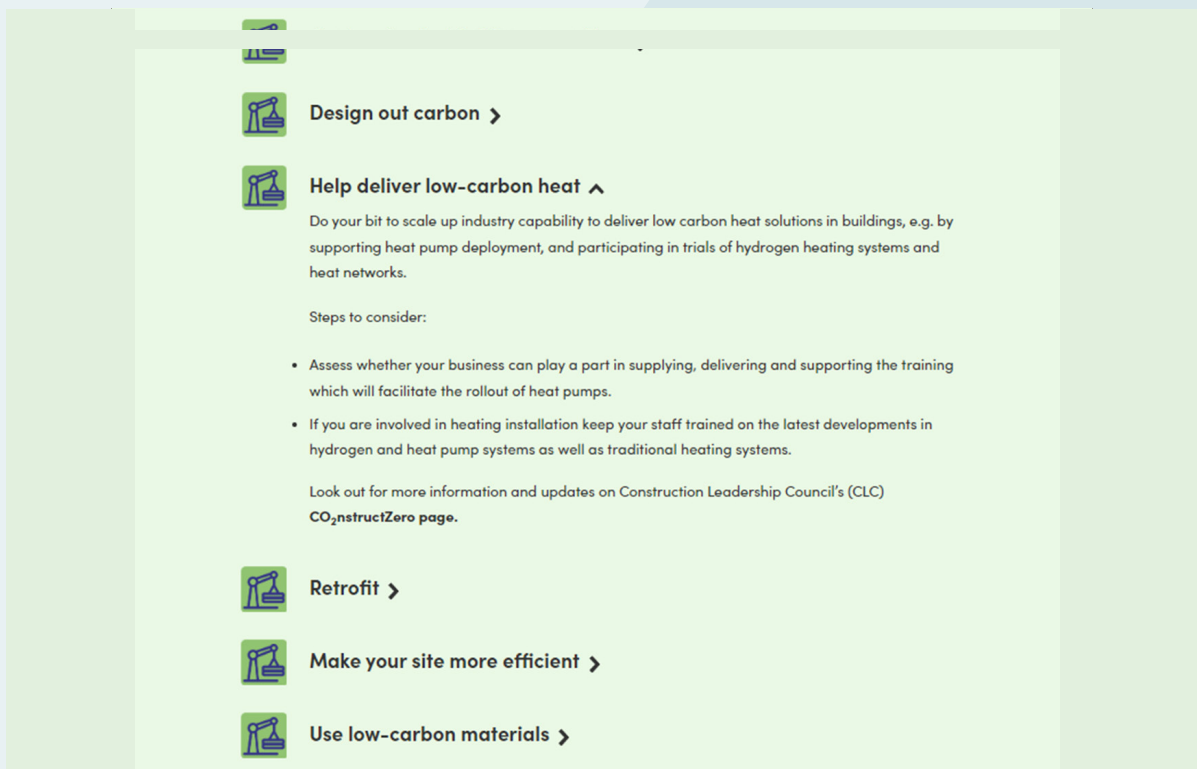
Figure 3: Concrete action for the construction sector. Source: **https://businessclimatehub.org/uk/**

Figure 4: Overview of the SME Climate Hub tool library. Source: https://smeclimatehub.org/tools/

ZDH CRAFTS INITIATIVE (MITTELSTANDSINITIATIVE)

The German SME Initiative Energy Transition and Climate Protection (Mittelstandsinitiative Energiewende und Klimaschutz) supports the German SME sector in exploring the energy saving potential in companies and improving their energy efficiency. The Initiative is a joint project of amongst others the German Association of Chambers of Commerce and Industry (DIHK), the German Confederation of Skilled Crafts (ZDH) and two of the Federal Ministries.

This initiative provides a web-based **energy saving tool and a CO2 calculator** to calculate and analyse current energy use and CO_2 emissions and to develop and visualise an energy efficiency plan. The tool covers scope 1, 2 and partly scope 3 emissions. The level of detail in inputs (energy vectors, installations etc) can be chosen and runs from high level plant totals to data per equipment. The user is guided through the process with pop-up information boxes and pop-up list for a fast and easy selection of relevant energy sources, equipment, and reduction options.

The output of the tool is summarised in an Energy cockpit and includes information on energy use, cost, CO_2 emissions on a plant level and per energy vector, and a benchmark comparison with other companies within the sector that used the tool. The benchmark compares Energy use (or cost) per employee or revenue and the main saving options.

The calculations are compliant with German energy saving regulations (Energieeinsparungspflicht) and are compliant with the requirements of Certifications including Energy Audits (DIN 16247-1), ISO 50001, ISO 14001, EMAS, and DNK.

Additionally, the tool has a database with energy and emission reduction options. The user can select options and put them on a timeline to create a simple visualisation of a clean energy plan (energy efficiency plan/ emission reduction plan). The initiative also provides information on financial support schemes and financing options.

The tools facilitate monitoring and reporting progress at the plant and company level through comparing results of multiple years.

The ZDH initiative supports SMEs with tools such as:

- **Guides for SMEs to improve Energy efficiency in enterprises**. Topics range from employee motivation and efficiency management in business parks to sustainable design of corporate mobility.

- **Sector specific practice guides.** The guides cover in 4–6 pages per sector the main energy users, energy-saving options tips and per option emission savings, cost, available subsidies, and payback time. These guides are available: textile cleaners, Metal Crafts, Carpenters, Bakers, Hairdressers, Motor vehicle traders and Butchers.

- **Generic themes and options to reduce energy use and emissions** (Querschnittstechnologien). This part gives insight into themes like heat recovery, cooling & freezing, lighting, CHP's, building insulations and energy management.

- **Sector-specific good practices** (Modellbetriebe, approx. 7 to 10 per sector). These good practices explain in 2 pages the impact implementing 2 or 3 energy saving options.

- **Training, webinars, and personal assistance.** In summary, the initiative gives SMEs in the seven sectors it covers detailed insight into energy savings; their scope 1, 2 and (partly) 3 emissions; and options to reduce their energy use and emissions. The initiative provides a well-developed information package on energy and emission reduction options and is compliant with different certification schemes.

Figure 5: Input ZDH e-tool. Source: online seminar Das Energiebuch E-tool – webportal.

Figure 6: Example output ZDH e-tool. Source: online seminar Das Energiebuch E-tool – webportal.

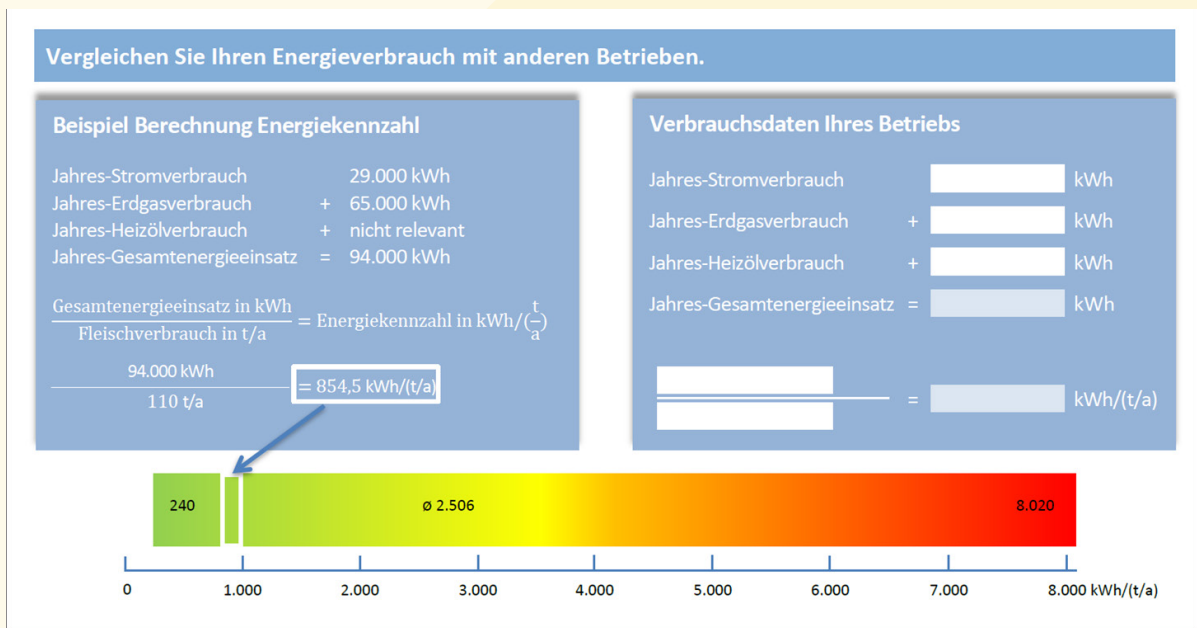Figure 7: Clean Energy plan from ZDH e-tool. (Source: online seminar Das Energiebuch E-tool – webportal).

Figure 8: Example summary table sector guide Bakeries.

NET ZERO NOW

"Net Zero Now exists to provide a simple, credible and affordable route to Net Zero for SMEs and to celebrate and promote those that achieve this vitally important goal." – **Net Zero Now.**

Net Zero Now is not only specifically designed for SMEs but is built to provide specific sectors with a tailored overview and plan to reduce their GHG emissions. These approaches include Sector Protocols, in which sector-specific definitions of Net Zero are defined. These definitions help businesses in reaching Net Zero, but also can be used as a consistent standard against which businesses can assess their efforts. The Sector Protocols are updated annually. The goal is to support businesses in reaching Net Zero, which is defined by matching all Greenhouse Gas Emissions with an equivalent quantity of attributable Greenhouse Gas removals.

Net Zero Now defines four steps that can be followed when using their tool:

1. **Calculate:** Calculate the existing GHG footprint (scope 1, 2 and 3) of your business in detail with a sector-specific carbon calculator. All energy vectors can be included on all organisation levels (company, building, process, installations, transport, etc.). Calculations are based on the GHG Protocol.

2. **Mitigate:** Set targets according to SBTi standards and follow a tailored Emission Reduction Plan with measures that aim to reduce GHG emissions. These include energy efficiency measures, but also others such as change of materials, fuels, and food. Measures are given a description, action, and GHG reduction value.

3. **Compensate:** Emissions that cannot be eliminated can be compensated by investing in Net Zero Now's curated offset product that funds initiatives that reduce the left-over amount of GHG emissions elsewhere. The offset schemes are based on the Oxford University Principles.

4. **Communicate:** bring stakeholders up to speed by publishing the plans and results and sharing the certification awarded by Net Zero Now. Two types of certifications are offered by Net Zero Now, as seen in Figure 9.
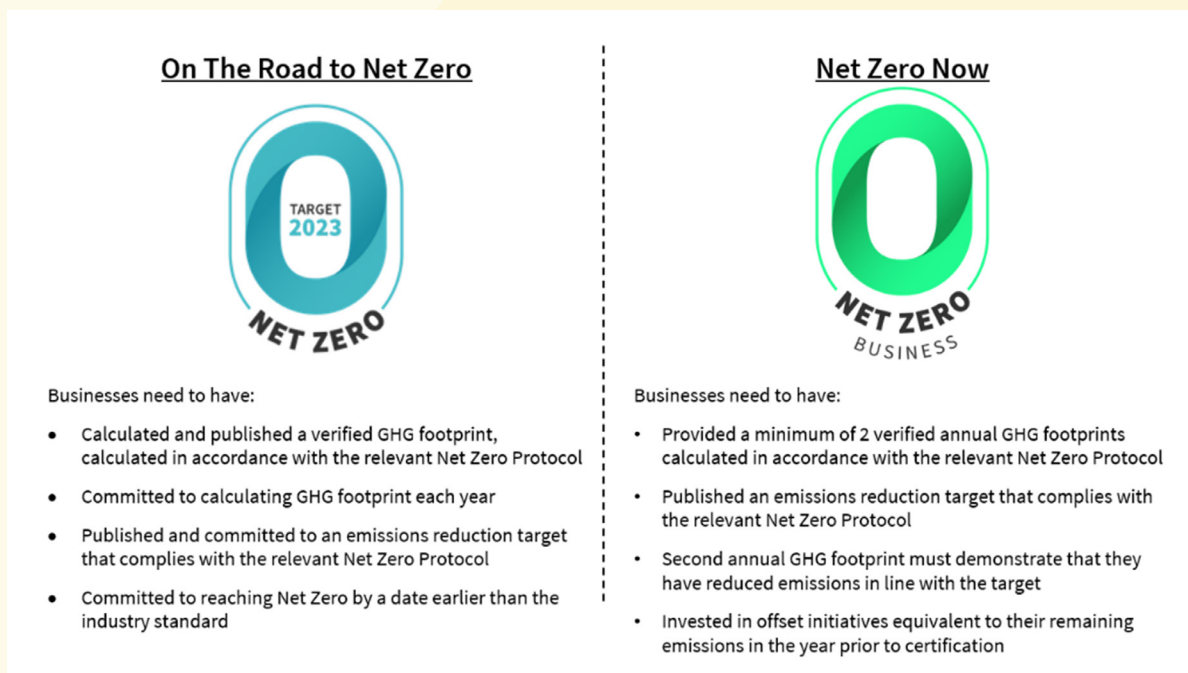
On The Road to Net Zero

TARGET 2023

NET ZERO

Businesses need to have:

- Calculated and published a verified GHG footprint, calculated in accordance with the relevant Net Zero Protocol

- Committed to calculating GHG footprint each year

- Published and committed to an emissions reduction target that complies with the relevant Net Zero Protocol

- Committed to reaching Net Zero by a date earlier than the industry standard

Net Zero Now

NET ZERO
BUSINESS

Businesses need to have:

- Provided a minimum of 2 verified annual GHG footprints calculated in accordance with the relevant Net Zero Protocol

- Published an emissions reduction target that complies with the relevant Net Zero Protocol

- Second annual GHG footprint must demonstrate that they have reduced emissions in line with the target

- Invested in offset initiatives equivalent to their remaining emissions in the year prior to certification

Figure 9: The types of certification Net Zero Now offers. Source: **https://netzeronow.org/**

Throughout the process, personal support is provided, making the process relatively easy. Progress of the GHG emission reduction plan can be done manually, of which reports can be created in several forms. Additional support can be provided upon request, in the form of drop-in sessions or training.

Evaluation of the tool

As of June 2022, the tool can only be used in the United Kingdom, because variables, such as emissions factors and energy prices, are based on data from the United Kingdom only. Also, the tool is now only offered to business in six sectors: Pubs & Bars, Restaurants, Breweries, Accountants, Tech services, and Legal. All subscriptions for a single site company are between 25 and 45 pounds per month. The ambition is to expand the sectors and countries covered by the tool. In the nearby future, an expansion towards France and the sectors health & wellness, hospitality (hotels & bakeries), professional services (consulting, advertising, etc.), and construction is expected.

In summary the Net Zero Now initiative seems to provide a suitable tool and clear information (on measures) to calculate current emissions, select reductions measures and develop a GHG reduction plan. Still, it is currently limited in its reach to a large range of sectors and EU countries.

Figure 10: Overview of the input for the Net Zero Now tool. Source: **https://netzeronow.org/**
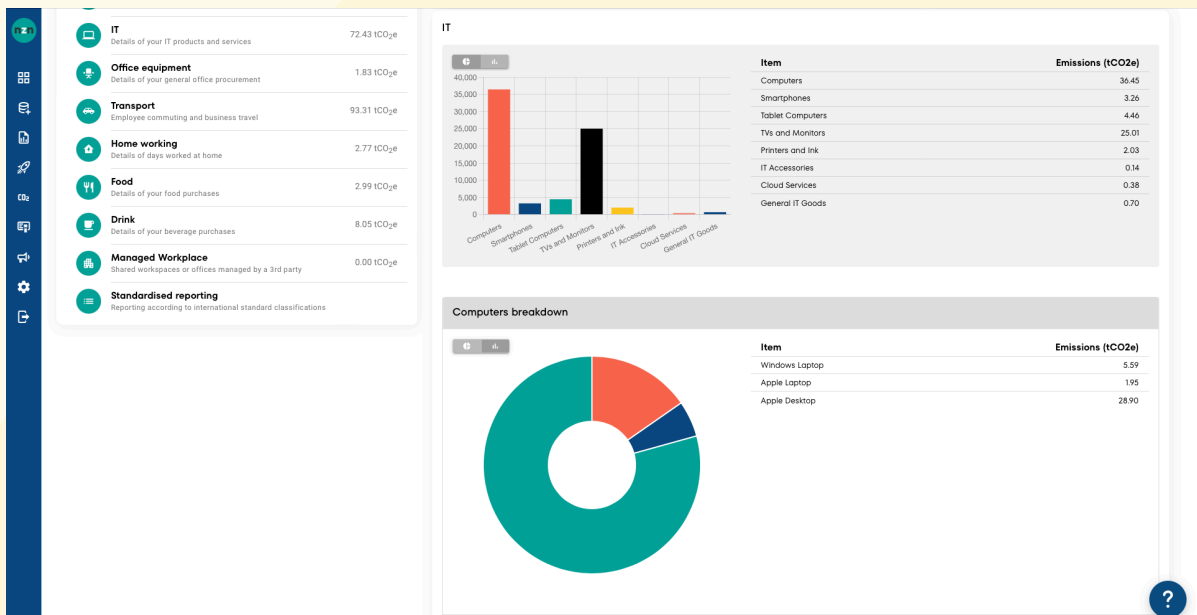
Figure 11: Example of the output generated by the Net Zero Now tool. Source: **https://netzeronow.org/**

Figure 12: Example of the GHG reduction plan generated by the Net Zero Now tool.
Source: https://netzeronow.org/
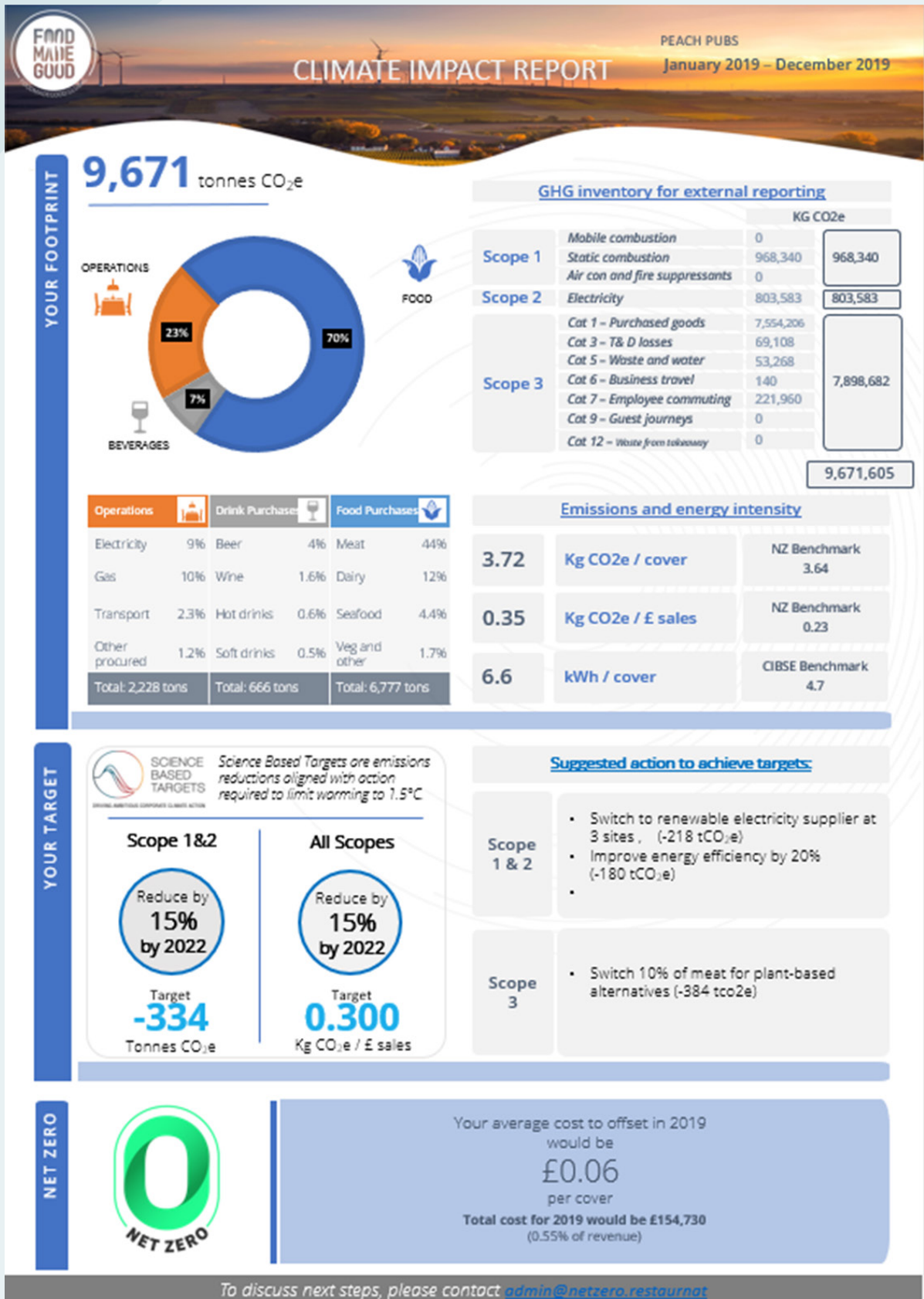
Figure 13: Example of the report of the results provided by Net Zero Now.
Source: https://netzeronow.org/

RVO/KWA

The results are based on an interview with KWA and knowledge present in DNV.

The tool is built by KWA Bedrijfsadviseurs and can only be accessed by participants of the Masterclass CO2-reduction Industry, which is organised by RVO and KWA. This masterclass, consisting of four sessions, is specifically meant for industrial production companies in the Netherlands to support them in reducing GHG emissions in their own company.

With support of RVO and KWA, the participants analyse their current situation, after which different options are discussed that help the company reduce GHG emissions. From these options, a total reduction is calculated, and a GHG emission reduction plan is constructed. The calculations are based on elaborate sector specific energy balances. They make use of the KWA Triple C protocol, which can be summarised as a procedure in which CO2 is reduced via three steps: CO2-reduction in production processes, CO2-reduction in utilities, and CO2-reduction in alternative energy sources. Additionally, the tool is Energy audit proof, meaning it can be used during Energy audits as a valid energy efficiency plan. The tool includes all recognised measures (also 'Erkende Maatregelen') based on the 'Energiebesparingsplicht', a Dutch law requiring businesses to implement energy efficiency measures. Also, it covers innovations in the production processes.

Some knowledge on energy systems and the company's processes is required to use the tool. Organisations of any size can participate in the masterclass, as long as they are industrial production companies. The methodology of the tool is aimed towards industrial companies that want to realise their 2030/2050 targets with a CO2-reduction plan to fully transform to a climate neutral business operation. The tool is built as a self-assessment tool, in which scope 1, 2, and partly 3 emissions from many energy vectors can be analysed on company, building, process, and installation level. Several reporting formats are available.

Evaluation of the tool

The tool is not openly accessible and charges for use. To DNV's knowledge, it has a broad scope and relatively flexible structure. Additionally, it generates a wide variety of output, showing great potential in informing the users of their current situation and future possibilities in reducing their GHG emissions. Moreover, due to the Masterclass, extensive support is provided.
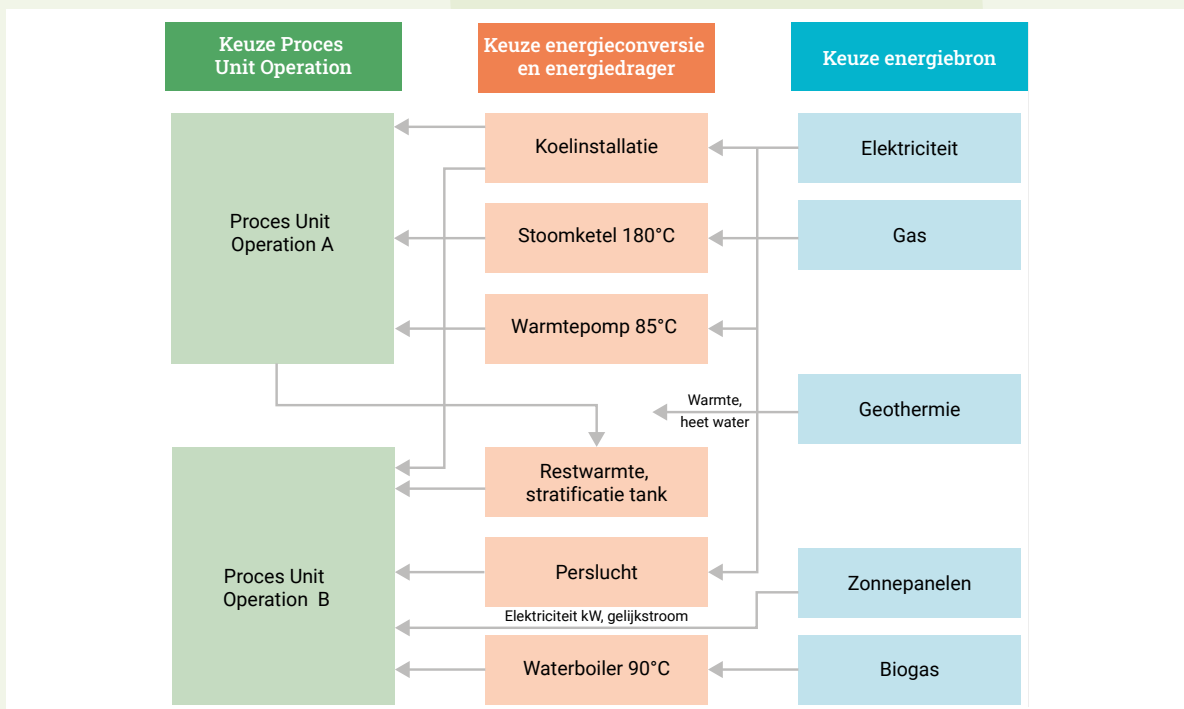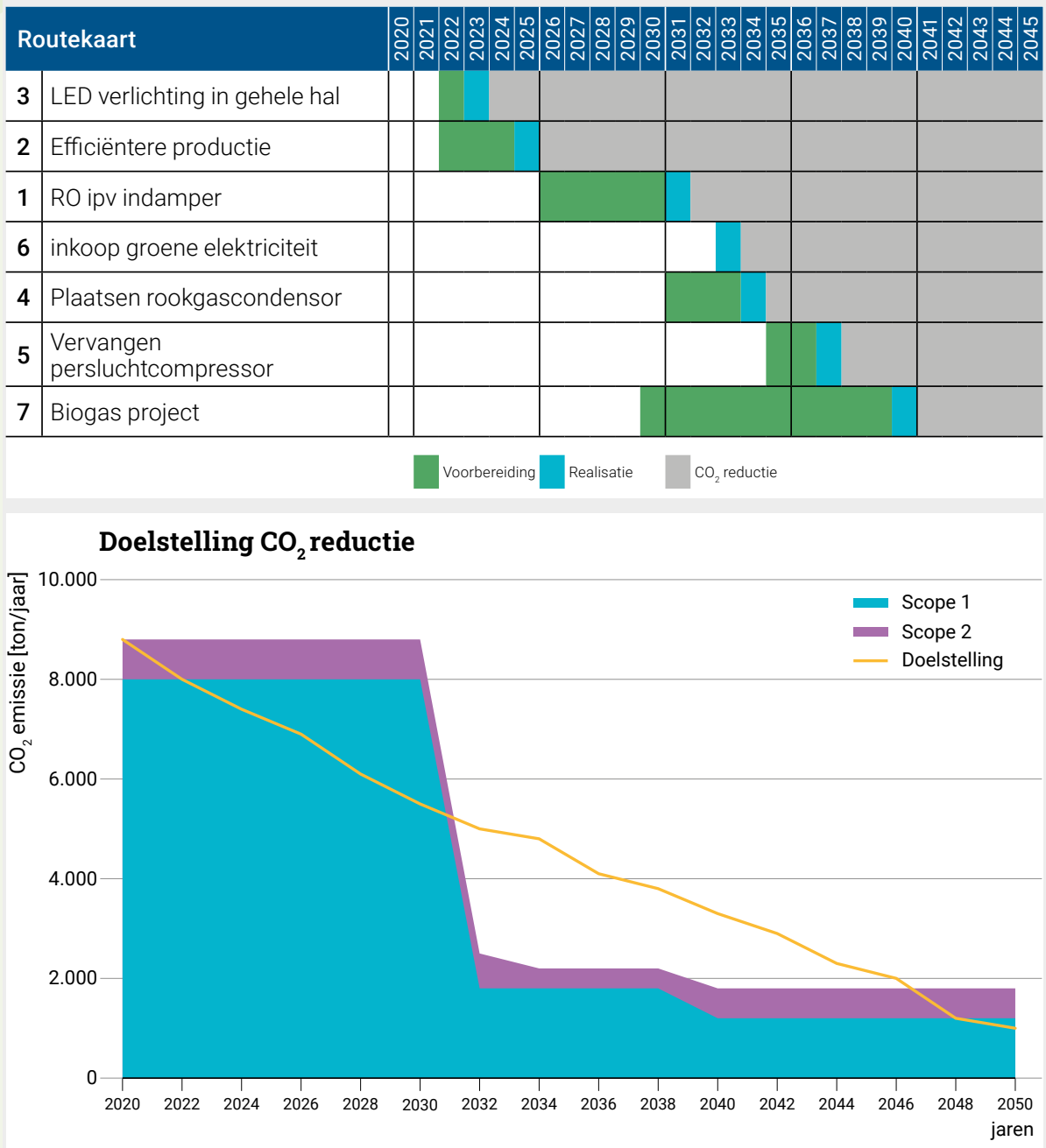

Figure 14: Example of Triple C Protocol (in Dutch).
Source: https://www.kwa.nl/files/202007/raw/17ac215ce5270d3adfcfd280d97f561d.pdf

Routekaart		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
3	LED verlichting in gehele hal																										
2	Efficiëntere productie																										
1	RO ipv indamper																										
6	inkoop groene elektriciteit																										
4	Plaatsen rookgascondensor																										
5	Vervangen persluchtcompressor																										
7	Biogas project																										

Voorbereiding   Realisatie CO_2 reductie

Doelstelling CO_2 reductie

Figure 15: Example of roadmap generated by the RVO/KWA tool (in Dutch).
Source: https://www.kwa.nl/files/202007/raw/17ac215ce5270d3adfcfd280d97f561d.pdf

DEB: DUURZAAM ENERGIE BESPAREN (SUSTAINABLE ENERGY SAVING)

deb | Duurzaam. Energie. Besparen.

"DEB gives insight into the possible energy efficiency measures with short payback times and that fit your company and sector." – **DEB**

DEB is a Dutch, openly accessible, free, web-based energy saving tool, specifically built for SMEs, that gives insight into the amount of energy and costs a company can save and how these can be achieved. It makes use of professional visualisations and links to knowledge databases. Only limited information is needed in the form of a company's address and sector to generate a first overview of the results, including a validation of the estimated electricity and gas consumption. More accurate results are generated by filling in the actual annual electricity and gas consumption.

Results show a range of sector-specific energy efficiency measures based on the 'Energiebesparingsplicht', a Dutch law forcing businesses to implement energy efficiency measures. These measures are related to scope 2 emissions and are on building and installation level. They show an extensive explanation of how to execute the measures and an estimate of the initial costs, energy savings, and costs savings. The calculations of these results are based on the average energy prices (updated yearly), energy consumption, investment, and payback time of SMEs in the same sector. The foundation of these parameters is also applied in calculations for the 'Energiebesparingsplicht'

A basic GHG reduction plan can be constructed by planning and checking off the measures to give the user an updated overview. Several formats are available to report the results.
In addition to the tool, the DEB website provides knowledge and tips on subsidies, financing, and legislation. For example, DEB provides contact information of SME qualified energy consultants that can help SMEs in all sectors in constructing an energy efficiency plan. Additionally, some basic guidance documents are included, and support can be provided via a helpdesk.

Evaluation of the tool

The tool is limited to scope 2 energy efficiency measures. GHG emissions cannot be calculated from this tool. Also, the tool only produces accurate results on financial savings for Dutch organisations, because only Dutch energy prices are considered.

In summary, the DEB tool is openly accessible, free, easy to use, and provides a large range of detailed energy efficiency measures but can only be used by Dutch organisations and excludes GHG emissions in the calculations and results.

DEB: DUURZAAM ENERGIE BESPAREN (SUSTAINABLE ENERGY SAVING)
Continued.

Edit location:

Name	
Street + house number	Addition
Postal Code	
Place	
Energy consumption (in kWh)	
Gas consumption (in m³)	
ⓘ Additional explanation gas consumption	

Industries:
- ○ Agricultural sector
- ○ Car body repair companies
- ○ Company halls
- ○ Construction materials
- ○ Commercial data centers
- ○ Retail
- ○ Printing, paper and cardboard
- ○ Healthcare and welfare institutions
- ○ Hotels and restaurants
- ● Offices
- ○ Foodstuffs
- ○ Metalelectro and SME metal
- ○ Furniture and wood
- ○ Mobility industry
- ○ Educational institutions
- ○ Rubber and plastics industry
- ○ Sports and recreation
- ○ Gas stations and car washes
- ○ Paint and printing ink
- ○ Voluntary List
- ⓘ Which industry should I choose?

Figure 16: Total input that can be given in the DEB tool. Source: **https://www.deb.nl/**
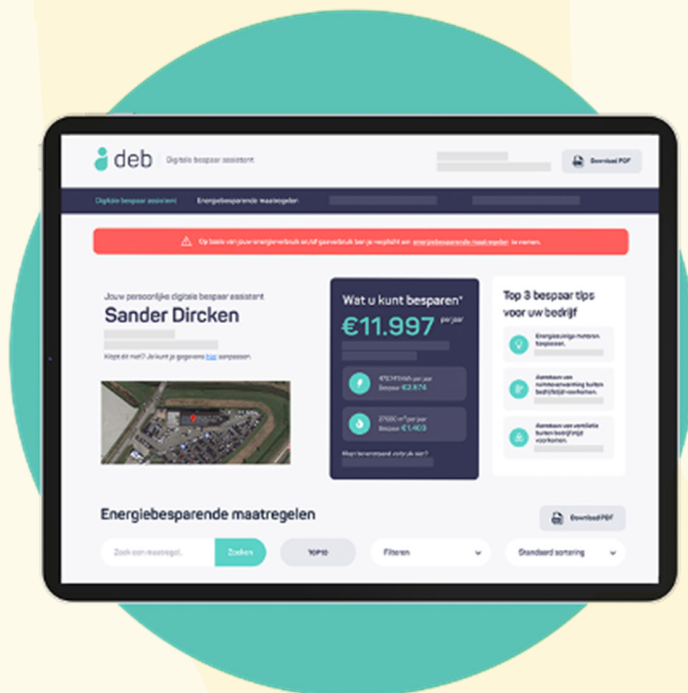
Figure 17: Example of the generated results on the potential savings on electricity and gas (in Dutch). Source: **https://www.deb.nl/**

DEB: DUURZAAM ENERGIE BESPAREN (SUSTAINABLE ENERGY SAVING)
Continued.

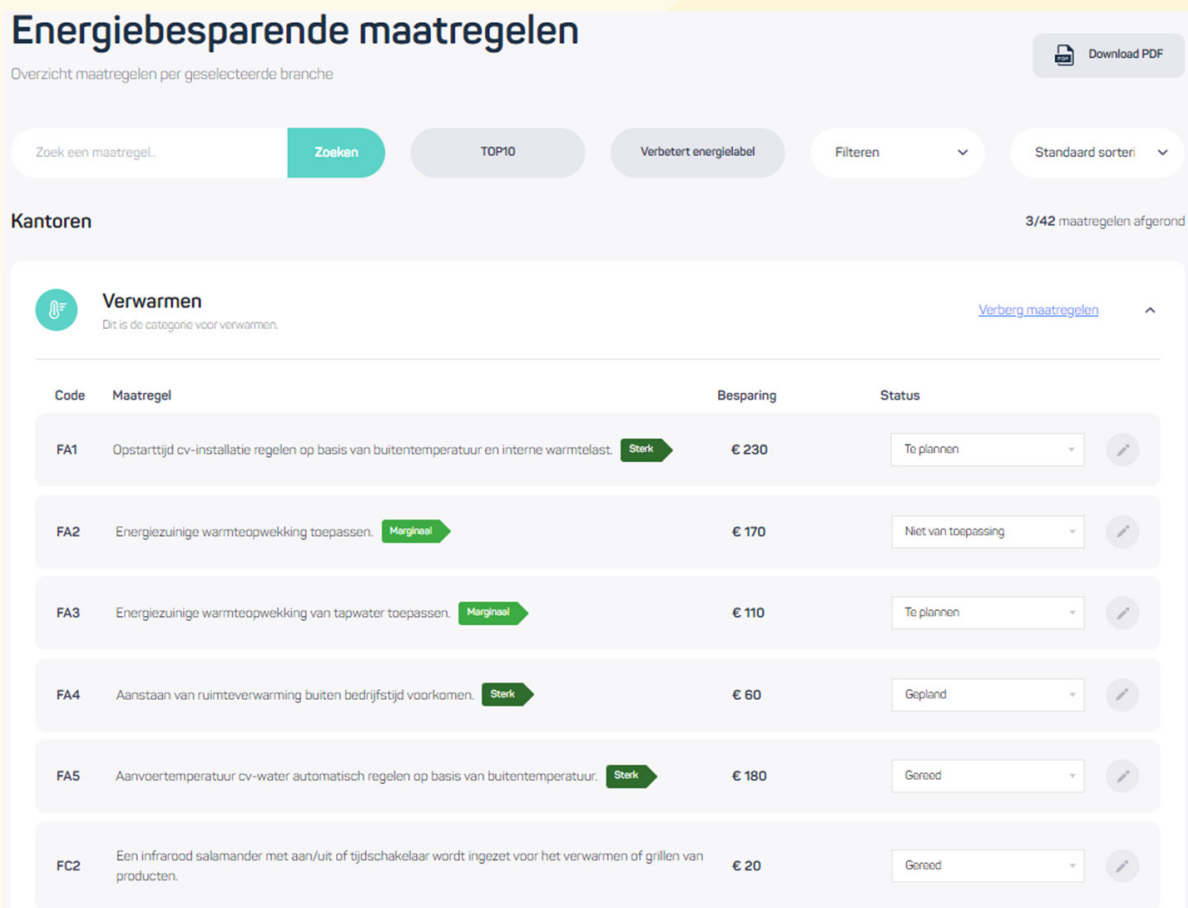**Figure 18: Example of the overview of the categories of the energy savings plan generated by the DEB tool (in Dutch).**
Source: https://www.deb.nl/

Figure 19: Example of an overview of the measures in the heating category in the DEB tool (in Dutch).
Source: https://www.deb.nl/

DEB: DUURZAAM ENERGIE BESPAREN (SUSTAINABLE ENERGY SAVING)
Continued.

Figure 20: Example of the information provided for one measure in the DEB tool (in Dutch). **Source: https://www.deb.nl/**

QUICKSCAN ENERGIEBESPARING

"With the Quickscan Energy Saving, owners or users of buildings can quickly gain insight into the energy saving opportunities for their office or building." **– Platform Duurzame Huisvesting (Platform Sustainable Housing)**

The Quickscan Energy Saving is a Dutch, openly accessible, free web-tool. By filling in some relatively simple parameters, such as the energy consumption, floor area, operating time, age, and heating/cooling systems of their organisation, the tool gives insight into energy efficiency measures relevant to the user's organisation.

The first overview gives an estimated energy balance, energy consumption per surface area, costs before and after implementation of the energy efficiency measures and the CO_2 savings. The energy consumption is benchmarked to a reference office building in energy consumption per square meter. The second overview shows the most promising energy efficiency measures, their investment, and their payback time. These measures are based on the 'Energiebesparingsplicht', a Dutch law forcing businesses to implement energy efficiency measures. A more detailed list can also be found including measures and their investment costs, cost savings, and payback time. The tool provides a reporting possibility via screenshots.

Evaluation of the tool

Although a list of measures is provided, they cannot be personalised, and progress cannot be monitored over time. Also, the tool doesn't give insight into the GHG emissions and is limited to electricity, gas, and district heating as energy vectors. The tool is limited to Dutch organisations because Dutch energy prices are used, and it only generates measures for general (office) buildings on building and installation level. Sector-specific measures are not shown. However, the website provides links to instruments that can support users in implementing energy efficiency measures, such as options for Energy Performance Contracts (EPC). Some guidance documents are provided to support the user.

In summary, the Quickscan Energiebesparing is a basic tool that is free and openly accessible but limited to Dutch office buildings. It gives insight into general energy efficiency measures that can be taken with estimated costs and savings. Because of its simple approach, it generates relatively simple results.

QUICKSCAN ENERGIEBESPARING Continued.

Figure 21: Overview of the input of the Quickscan Energiebesparing tool.
Source: **https://www.platformduurzamehuisvesting.nl/quickscan-energiebesparing/app/**
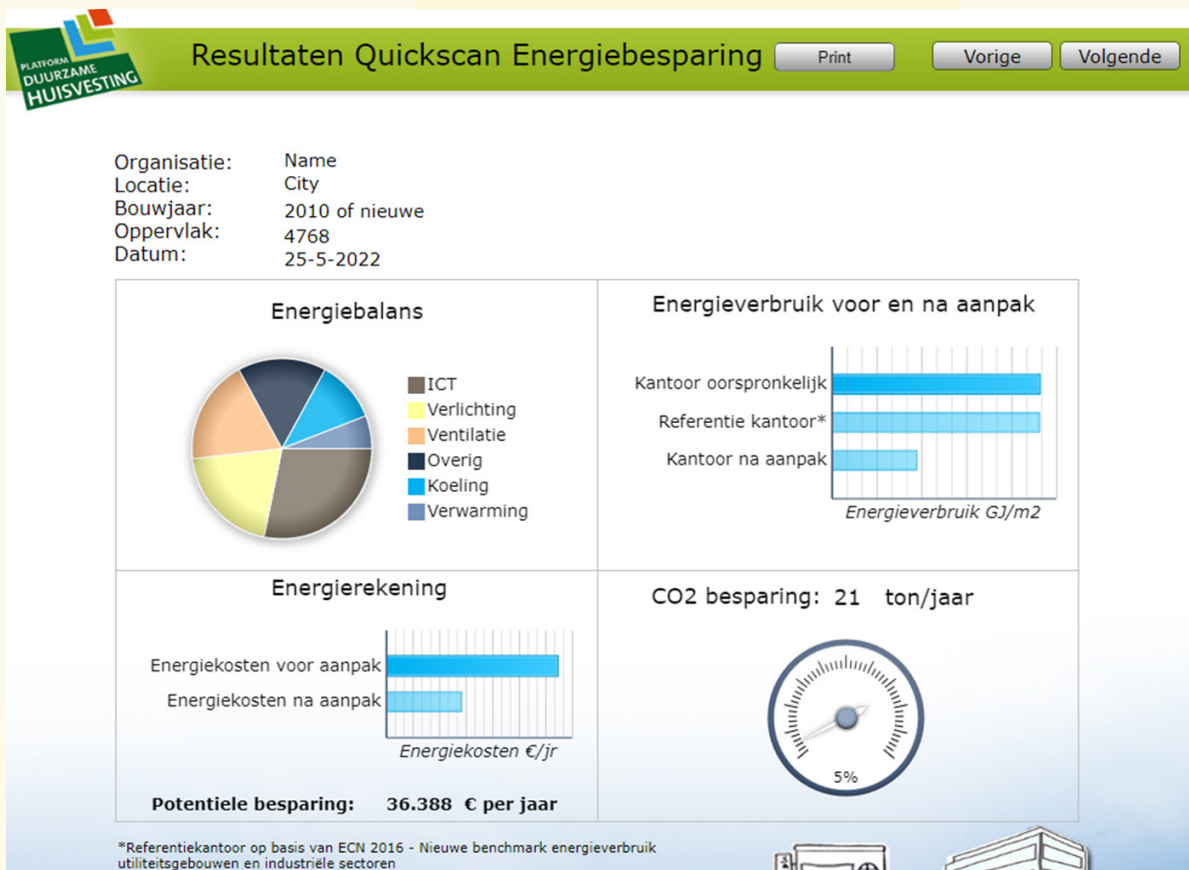
Figure 22: Overview of the output of the Quickscan Energiebesparing tool (in Dutch).
Source: **https://www.platformduurzamehuisvesting.nl/quickscan-energiebesparing/app/**

Promising measures

print | Previous | Next one

Organization: Name
Location: City
Construction year: 1990 - 2009
Surface: 1000
Date: 30-6-2022

Promising measures	Investment	TVT [yr]
hybrid L/W heat pump	€7,553	7
Swipe Switch	€1,000	2

For all measures and amounts click here

Effect energy label

Estimated energy label: C
Estimated label after approach: A

What now?
Would you like to get started with energy savings and sustainable generation? Then proceed to the

Helpful Resources
- Background Recognized Measures
- Subsidies for energy savings
- Sustainable maintenance plans

Figure 23: Overview of potentially promising energy efficiency measures generated by the Quickscan Energiebesparing tool.
Source: **https://www.platformduurzamehuisvesting.nl/quickscan-energiebesparing/app/**

Overview of all measures

print | Previous

| All measures	Investment (€)	Savings (€/year)	Financing charges (€/year)	TVT (year)	Effect of housing costs (€/year)
Double glass	132.582	405	€13,000	>25	12.595
Triple glass	195,384	926	€19,000	>25	18,074
crack seal	3.240	135	€500	24	365
roof insulation	23,667	405	€ 2,500	>25	2.095
Floor insulation	20,000	135	€2,000	>25	1,865
facade insulation	20,000	405	€2,000	>25	1,595
Open ceiling	29,000	420	€3,000	>25	2,580
Balancing CV	2,500	600	€750	4	150
Weather dependent control CV	1,500	300	€500	5	200
Heat recovery ventilation	27,000	1.245	€ 3,500	22	2.255
HR boiler	6,000	600	€1,000	10	400
Gas absorption heat pump	140,000	1,540	€18,250	>25	16,710
ATES system	480,000	- 7,400	€ 62,250	N/A	69,650
hybrid L/W heat pump	7.553	1.137	€1,000	7	- 137
Boiler on biomass	9.711	137	€1,500	>25	1,363
Frequency controlled pumps	1,798	240	€250	7	10
Outdoor sun protection	51,288	244	€5,000	>25	4.756
Wet cooling tower	18,000	200	€ 2,500	>25	2,300
Central cooling installation	3,600	394	€500	9	106
Adjust ventilation system	8,000	40	€2,000	>25	1960
Timer for ventilation	150	20	€250	8	230
Cascade control for ventilation	500	6	€250	>25	244
T5-HF lighting	16,000	1.040	€ 3,750	15	2,710
LED-lighting	8,000	1,510	€2,000	5	490
Swipe Switch	1,000	650	€250	2	- 400

Figure 24: Overview of all potential energy efficiency measures generated by the Quickscan Energiebesparing tool. Source: **https://www.platformduurzamehuisvesting.nl/quickscan-energiebesparing/app/**

SBTI: SCIENCE BASED TARGETS INITIATIVE

SBTi provides businesses the possibility to set science based GHG emission reduction targets that are aligned with the 1.5°C target set in the Paris Agreement. A new streamlined route is set up for SMEs. A form can be filled in that provides SMEs with several options in setting targets to reduce their GHG emissions. Two types of targets are defined by SBTi:
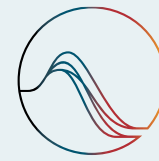
- Near-term science-based targets that should be met by 2030 in which only targets are set for scope 1 and 2 GHG emissions. Still, SMEs must commit to measure and reduce their scope 3 emissions.

- Net zero targets that should be met by 2050 at the latest in which targets are set for scope 1, 2, and 3 emissions and unabated emissions are neutralised. If net zero targets are set, near-term science-based targets should also be set.

To set these targets, SMEs are required to complete a recent, comprehensive GHG emissions inventory following specific guidelines and describe the activities generating GHG emissions. The targets are set on an organisational level.

To validate the targets, the SME target setting form should be filled in. Then SBTi will perform a review of the form. After the review, the SME should provide the payment. Finally, the targets are approved and registered, and the targets are published on the Science Based Targets initiative website.

Evaluation of the tool

SBTi is available for every country, SME specific, science-based and considers scope 1, 2, and 3 emissions. On the other hand, the tool is expensive, requires energy and GHG emission expertise and does not provide GHG emission reduction measures and monitoring of progress that support in achieving the set targets. It is purely meant for setting science based GHG emission reduction targets.

In summary, SBTi provides a route to set realistic science-based targets but lacks in providing a GHG reduction plan. Although it requires some expertise in the form of executing a GHG emissions inventory, it is all encompassing in terms of GHG emissions.

Figure 25: Example of part of the input for setting targets in the non-SME SBTi tool.
Source: https://sciencebasedtargets.org/
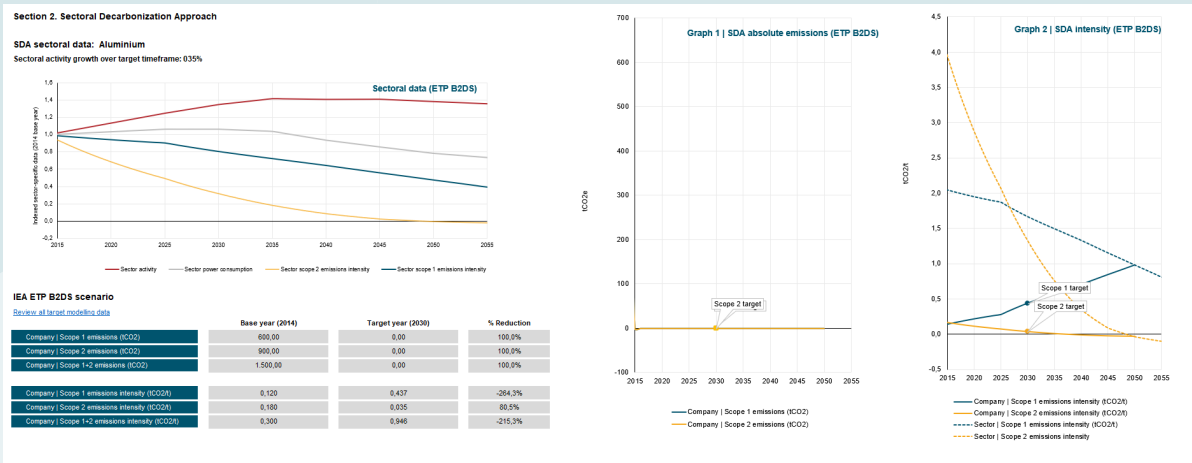
Figure 26: Example of target output in the non-SME SBTi tool.
Source: https://sciencebasedtargets.org/

CARBONFUND

"Our Carbonfree Partner Program is an innovative and flexible way to help your business calculate, reduce and offset your carbon footprint." – **Carbonfund**

The Business Emissions Calculators is a free and openly accessible web-tool that can give business insight on their carbon emissions. This is done by filling in data on the consumption of electricity and heat (natural gas, oil, or propane; no district heating or steam) and the distance travelled of personnel or shipments by car, plane, train and/or boat. This way, scope 1, 2, and partly 3 GHG emissions can be calculated. It requires some knowledge on the energy consumption of the organisation and transportation activities of the organization to get reliable results. After filling in all the information, the tool shows the costs directly related to the amount of CO2eq the user's business has emitted. Carbonfund provides a detailed explanation on how the final emissions and costs are calculated.

The tool provides an opportunity to offset the calculated emissions. The GHG emission costs that were calculated before can be offset to a range of projects that Carbonfund supports. Carbonfund provides descriptions of these projects, so the user can choose their preferred carbon offsetting project. The projects are assessed with the Carbonfund Quality Assurance Protocol, meaning they are analysed by Carbonfund for their legitimacy.

Evaluation of the tool

The tool is basic and easy to use. It provides opportunities for offsetting the user's GHG emissions and receiving a business carbon offset certificate but lacks the features to provide techniques on GHG reduction measures that can be implemented in the user's own business. Furthermore, the calculations are based on data on emission factors, energy prices, and CO2 prices from the U.S. Environmental Production Agency and U.S. Energy Information Administration. This can result in incomplete and/or unreliable results concerning GHG emissions for countries outside of the United States. Moreover, it doesn't provide tools for monitoring progress, or to benchmark or report results.

In summary, the Carbonfund tool is a relatively easy tool to calculate and offset the user's GHG emissions. Still, it is limited in its output and can give incomplete results concerning its GHG emissions if used by organisations outside the United States of America.

Business Emissions Calculators

Please complete each step of the business emissions calculator that is relevant to your business, using actual (or estimated) annual operational data. Press the Next button to skip any calculations.

ELECTRIC HEAT VEHICLE AIR RAIL SHIPPING EVENTS TOTAL

Step 2 of 8

25%
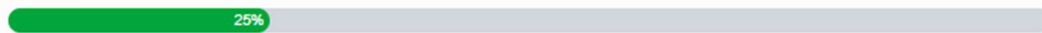
Annual office heating fuel

Fuel Oil

Natural Gas ▾

CCF

Tonnes CO2

0

Total Cost

$0.00

PREVIOUS   NEXT

Figure 27: Example of the user's input.
Source: https://carbonfund.org/take-action/businesses/business-calculators/

Total ($)

0.00

MINIMUM DONATION: $5

NAME FOR CERTIFICATE

Name (Optional)

ADD TO CART

Figure 28: Output of the Carbonfund tool.
Source: https://carbonfund.org/take-action/businesses/business-calculators/

RETSCREEN EXPERT

"The RETScreen® Clean Energy Management Software platform enables low-carbon planning, implementation, } monitoring and reporting." – **RETScreen Expert**

The RETScreen Expert tool is a comprehensive computer programme that allows detailed modelling of all the energy systems and setting GHG emissions reduction targets

Firstly, a benchmark analysis is done, in which the location and specifications of the site and the energy, emission and/or costs reduction targets are filled in. The tool considers the climate conditions on the specified location, allowing results tailored to the user's building location. Secondly, a feasibility analysis is done, in which GHG emission reduction measures are calculated. RETScreen Expert provides technical measures that mainly focus on energy and fuel efficiency, but also sustainable alternatives of energy sources and fuels. From these measures, scope 1, 2, and 3 emissions are considered. The energy savings, emission reductions, and financials are calculated in detail, from which a GHG emission reduction plan can be constructed.

Lastly, a performance analysis is done, in which the results are analysed, and reports can be constructed.

Evaluation of the tool

RETScreen Expert is available to everybody in almost all European languages, and has a free Viewer mode, so users can test it. The full version requires payment. It gives exact insight into and control over almost all variables related to the location and energy systems present in the user's case study. For example, emission factors and energy prices of different countries are given but can also be altered by the user. It can give insight into energy consumption and potential savings on organisational, building, process, installation, and transportation level. It has a wide range of reporting options, in which reports can be tweaked in detail to the user's preference.

Due to its detailed approach, RETScreen Expert is relatively complex. It requires an energy (systems) expert to control it, with in-depth knowledge on the organisation's energy systems, energy consumption, targets, potential savings, and costs of reduction measures. The tool provides a list of GHG emission reduction measures that are common in the user's sector, but it is up to the user to construct its tailored list of effective measures. The tool supports the user in calculating the costs and savings of these measures. Also, progress can be monitored manually.

In summary, RETScreen Expert is a comprehensive tool that supports SMEs in calculating effective GHG emission reduction measures in detail. Still, SMEs are required to have in-depth technical knowledge on their energy-related consumption, systems, and financials.

RETSCREEN EXPERT Continued.

Figure 29: Overview of the steps the user can take in the tool. Source: RETScreen Expert software.

Figure 30: Example of part of the input the user can give. Source: RETScreen Expert software.

RETSCREEN EXPERT Continued.

RETScreen - Energy Model   **Subscriber: Viewer**

Industrial - Pharmaceuticals - Chemical - Pharmaceuticals/Medical

	Heating kWh	Cooling kWh	Electricity kWh	Incremental initial costs $	Fuel cost savings $	Incremental O&M savings $	Simple payback yr	Include measure?
Heating								
Space heating - Office	0			0	0	0		☑
Space heating - Manufacturing	0			0	0	0		☑
Domestic hot water	0			0	0	0		☑
Process steam	0			0	0	0		☑
Cooling								
Air conditioning		0		0	0	0		☑
Building envelope								
Office	2.685	-157		100	60,1	0	1,7	☑
Warehouse	14.192	753		5.700	476	0	12,0	☑
Manufacturing	75.061	3.330		100	2.452	0	0,0	☑
Ventilation								
Office	7.584	1.243		9.600	338	0	28,4	☑
Cafeteria	2.597	399		2.300	113	0	20,3	☑
Warehouse	11.097	1.659		7.200	479	0	15,0	☑
Manufacturing	161.488	23.007		51.200	6.859	0	7,5	☑
Exhaust fan	22.580	355		1.500	673	0	2,2	☑
Coater	14.989	235		1.800	447	0	4,0	☑
Washroom	791	18,1		1.200	24,1	0	49,7	☑
Shipping/Receiving - Air curtain	10.515	1.533		9.400	450	0	20,9	☑
Shipping/Receiving - Seal	3.377	505		2.200	146	0	15,1	☑
Lights								
Office			3.895	5.050	390	60,4	11,2	☑
Cafeteria			931	429	93,1	17,1	3,9	☑
Warehouse			6.007	3.170	601	-210	8,1	☑
Manufacturing			82.594	49.565	8.259	-3.270	9,9	☑
Manufacturing - Inspection			18.771	9.915	1.877	-655	8,1	☑
Shipping/Receiving - Doors			129	2.340	12,9	-10	798,2	☑
Sign - Exit			701	230	70,1	140	1,1	☑
Exterior - Parking			1.524	1.275	152	-10	9,0	☑
Exterior - Facade			964	1.365	96,4	60	8,7	☑
Exterior - Doors			771	1.090	77,1	50	8,6	☑
Electrical equipment								
Electrical equipment			5.535	880	554	50	1,5	☑
Server room			0	0	0	0		☑
Hot water								
Hot water	2.557			2.800	72,2	200	10,3	☑
Process - Cleaning	0			0	0	0		☑
Pumps								
Liquid feeder			19.269	1.000	1.927	0	0,5	☑
Fans								
Office			1.392	200	139	0	1,4	☑
Cafeteria			709	200	70,9	0	2,8	☑
Warehouse			2.015	200	201	0	1,0	☑
Manufacturing			29.843	800	2.984	0	0,3	☑
Exhaust fan			0	0	0	0		☑
Coater			0	0	0	0		☑
Washroom			0	0	0	0		☑
Shipping/Receiving - Air curtain			-482	200	-48,2	0	None	☑
Process electricity								

Side panel (left):

- **Fuels & schedules**
  - Electricity and fuels
  - Schedules
- **Equipment**
  - Heating
    - Space heating - Office
    - Space heating - Manufacturing
    - Domestic hot water
    - Process steam
  - Cooling
    - Air conditioning
- **End-use**
  - Building envelope
    - Office
    - Warehouse
    - Manufacturing
      - Roof - Concrete
      - Walls - Concrete
      - Roof - Office - Steel
      - Walls - Office - Brick
- **Optimize supply**
  - Heating
    - Solar water heater - Hot water
    - Solar water heater - Process - Cleaning
  - Power
    - Photovoltaic - 158 kW
- **Summary**
  - Include measure?
  - Comparison

Show: All
Fuel saved — kWh

**Figure 31: Example of the quantitative overview of GHG emission reduction measures.
Source: RETScreen Expert software.**

Archetype - Proposed case

Schedules
- Adjust temperature settings.

Building envelope
- Warehouse (West): Install new loading doors (Four 9 ft x 9 ft).

Ventilation
- Install high efficiency units. Also see Fans.
- Reduce fresh air flow.
- Tighten intake air dampers.
- Install heat recovery system.
- Loading doors (Two 9 ft x 9 ft): Install air curtains. Also see Fans.
- Loading doors (Two 9 ft x 9 ft): Install seal.

Lights
- Install LED lamps. O&M savings due to longer life expectancy of LEDs.
- Install occupancy sensors.

Electrical equipment
- Computer: Train staff to turn off and use the stand-by feature.
- Standby losses: Install power bars and train staff to shut down properly.
- Vending machines: De-lamp. Install occupancy sensors.

Hot water
- Reduce water usage by 20%. O&M savings due to reduced water usage.

Pumps
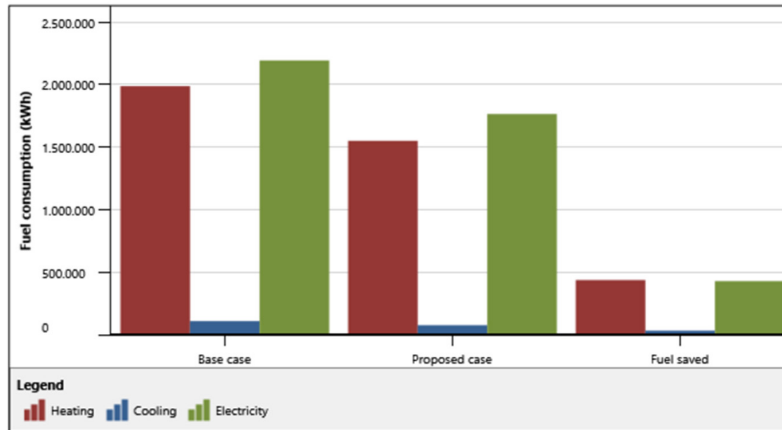- Liquid feeder: Install new motors with variable speed drive.

Fans
- Install high efficiency units. Also see Ventilation.

Figure 32: Example of the qualitative over of GHG emission reduction measures.
Source: RETScreen Expert software.

Energy savings | Fuel summary

Energy savings

Fuel consumption	Heating kWh	Cooling kWh	Electricity kWh	Total kWh
Base case	1.987.224	108.726	2.192.850	4.288.801
Proposed case	1.550.202	75.847	1.764.497	3.390.546
Fuel saved	437.022	32.879	428.354	898.255
Fuel saved - percent	22%	30,2%	19,5%	20,9%

**Figure 33: Example of a report of the potential energy savings results.
Source: RETScreen Expert software.**

End-use

Fuel saved
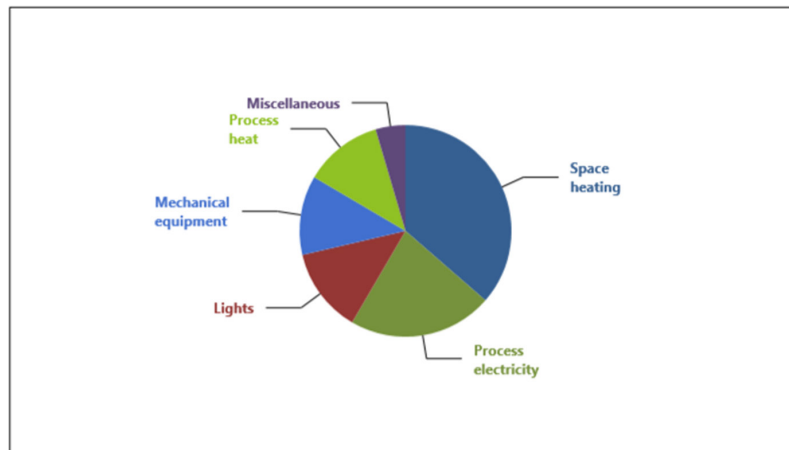
Section	Fuel saved kWh	%
Space heating	326.956	36,4%
Process electricity	197.726	22%
Lights	116.288	12,9%
Mechanical equipment	108.805	12,1%
Process heat	107.509	12%
Miscellaneous	40.971	4,6%
Space cooling	32.879	3,7%
Electrical equipment	5.535	0,62%
Hot water	2.557	0,28%

Figure 34: Example of an energy savings balance report. Source: RETScreen Expert software.

CONCLUSION

This report has provided an assessment of some tools that have the potential to support SMEs in reducing their energy use and/or GHG emissions. This assessment included multiple objective criteria, including themes such as accessibility, expertise requirement, scope, model, output, and support. Each tool was evaluated against these criteria and was accompanied with explanatory information.

When comparing results, ZDH and RETScreen Expert score remarkably high in the assessment. They show great potential in supporting SMEs, due to their relatively easy accessibility, broad scope, flexible model, detailed output, and excellent support.

Considering all the tools, it is remarkable that most of them score relatively low in creating flexible scenarios for their users, which could be considered as an underrated feature of such tools.

Still, it is important to state that SMEs should check for themselves which tool or tools fit them best, because preference and compatibility will differ between organisations and tools.

REFERENCE LIST

European Commission. (2022). Annual Report on European SMEs 2021/2022:
SMEs and environmental sustainability Background document)

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