ProCredit Bank

Decarbonization Guide for MSMEs

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– Supporting MSMEs on their Journey to net zero

Welcome to ProCredit Bank! As a sustainable impact-driven bank, we are committed to supporting our clients in their climate emissions reduction efforts. Climate emissions are the leading cause of climate change and bring harmful effects such as sea level rise, droughts, floods, and wildfires.

1.1 Net zero for SMEs

The science is clear: Climate emissions must reach net zero by 2050 for future generations to enjoy habitable living conditions (IPCC 2023). But what does this have to do with micro-, small and medium-sized enterprises (MSMEs) in Germany?

SMEs are the backbone of the economy and of society, making up 90% of businesses and employing over half the workforce globally. By reducing their emissions, MSMEs not only address climate change, but also inspire widespread action and drive change across industries.

So how can MSMEs contribute? Just like the ProCredit group, MSMEs can also commit to achieving net zero.
What is net zero? Net zero activities are those which do not emit any greenhouse gases (GHG) to the atmosphere.

However, net zero is not just about saving our planet – it also makes sense in business.

1.1.1 Opportunities and financial benefits for MSMEs

1. **Cost savings**: Implementing energy-efficient practices can significantly reduce operational costs. By optimising energy use and reducing waste, MSMEs can increase their productivity.
2. **Market differentiation**: A net zero commitment boosts your company's reputation, attracting eco-conscious consumers and large buyers — helping secure loyalty and drive sales growth.
3. **Attracting talent**: Younger generations prefer working for environmentally responsible companies. Your commitment to net zero could make your business a top choice for motivated talent.
4. **Innovation and resilience**: The shift to net zero encourages innovation, driving the development of new products and services, which can open additional revenue streams. Sustainability practices also improve resilience against climate-related risks, thus securing long- term stability.

5. **Regulatory compliance**: Governments worldwide are tightening emissions regulations. The early adoption of net zero strategies positions SMEs to stay ahead of compliance requirements and avoid potential fines and penalties. For example, the EU's **Carbon Border Adjustment Mechanism (CBAM)**, which will be fully implemented by 2026, aims to put a fair price on the carbon emitted during the production of carbon-intensive goods imported into the EU.

Together, we can make a real difference while strengthening your business. Join us on the journey to net zero!

1.2 Why net zero matters

Understanding why climate change occurs and how it has impacted the regulatory landscape for businesses is essential to grasping the importance of net zero commitments.

1.2.1 Climate change

Anthropogenic climate change refers to the changes in the Earth's climate caused by human activity, primarily through the burning of fossil fuels, deforestation, agriculture and industrial processes. These activities release greenhouse gases (GHG) such as carbon dioxide and methane into the atmosphere. It is these gases that trap heat and lead to global warming.

Learn more about climate change on NASA's website or by watching this video by National Geographic.

Effects of climate change

Climate change has severe effects on the environment and on society. This makes adapting to it inevitable for businesses that aim to remain successful. Joining the journey to net zero is an important step towards climate resilience.

What are the effects of climate change on Germany?

The effects of climate change on societies and ecosystems vary by geographical region. Coastal areas face a different set of challenges compared to mountainous regions and living conditions in countries with an already warm and dry climate will become more difficult compared to cooler areas.

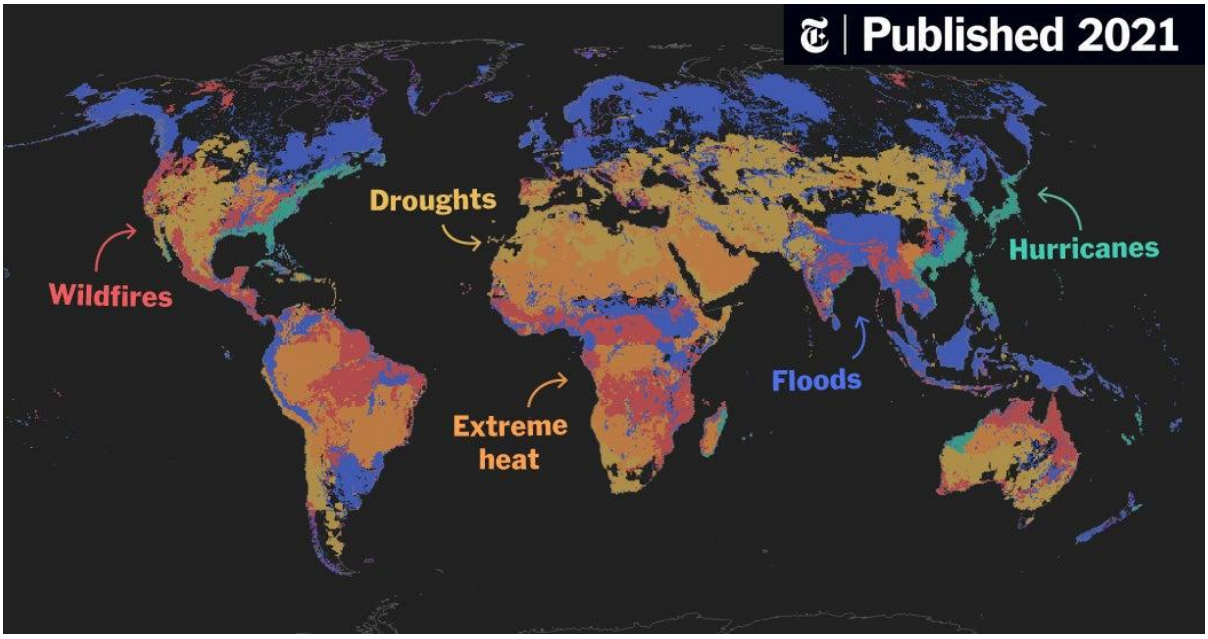

Figure 1: Every Country Has Its Own Climate Risks. What's Yours? - The New York Times

Follow this link to learn what European countries are facing as a result of climate change. For a 2D-journey through climate risks worldwide, visit this website.

In Frankfurt am Main, for example, temperatures have risen significantly over the last twenty years, as you can see from the graph below.

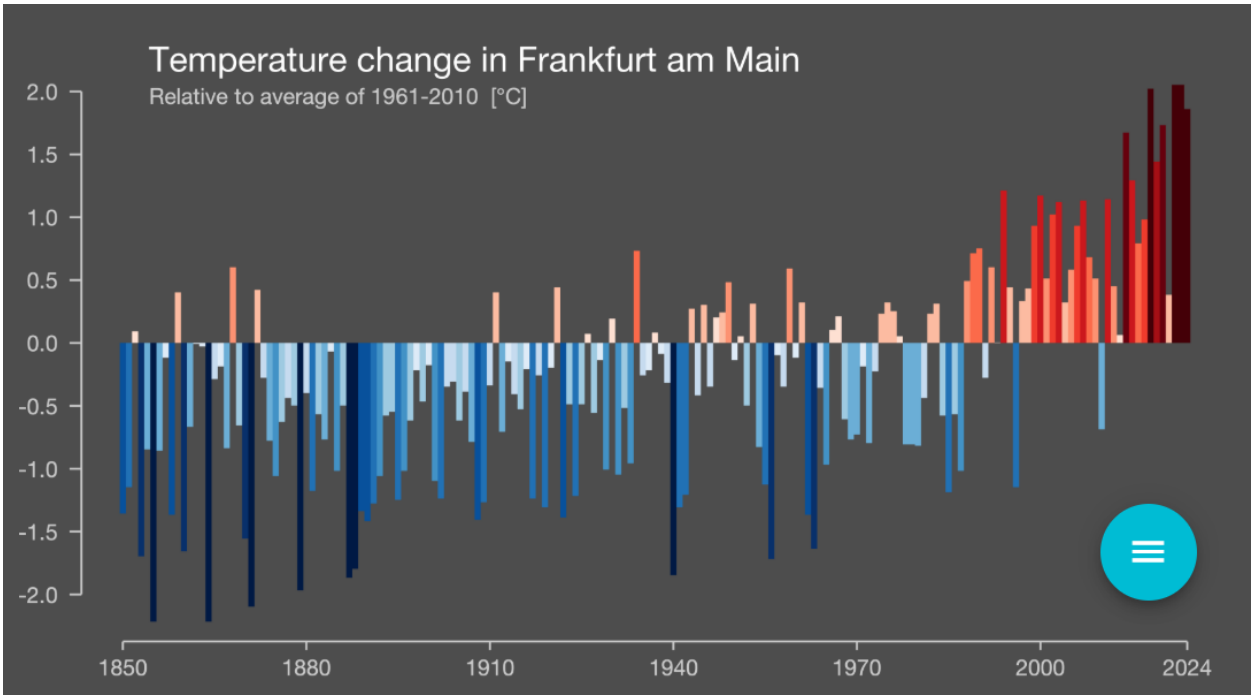

Figure 2: Temperature Change in Pristina - #Show your Stripes (Creative Common License)

Greenhouse gases (GHG) – What are they?

Greenhouse gases (GHGs) are gases in the Earth's atmosphere that trap heat. GHGs are essential for keeping our planet warm and therefore, also essential for human life. However, a high GHG concentration leads to dangerous warming and temperature increases.

The major GHGs are:

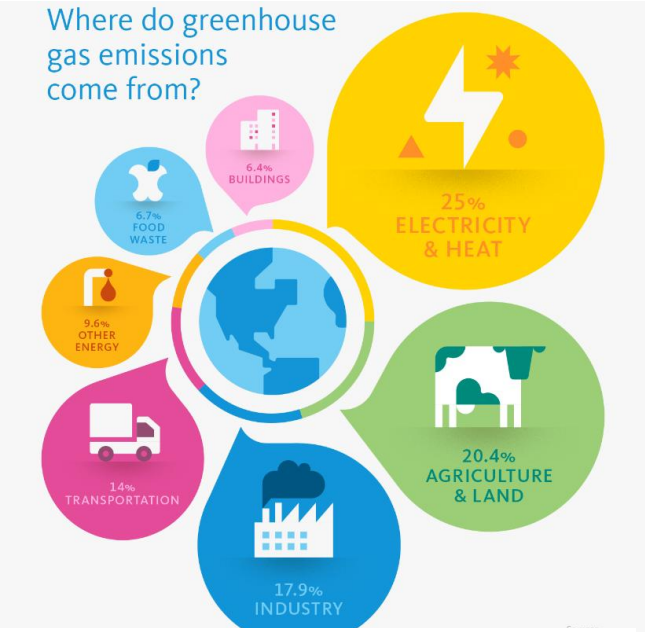

Figure 3: Where do greenhouse gas emissions come from? University of California

- **Carbon dioxide (CO_2)**: From burning coal, oil, and gas; responsible for two-thirds of warming.
- **Methane (CH_4)**: From livestock, decomposing waste, and agriculture; accounts for 15-20% of warming.
- **Nitrous oxide (N_2O)**: From fertilisers and crops; a potent contributor.

The gases remain in the atmosphere for varying lengths of time and contribute to the greenhouse effect differently. CO_2 that has been emitted to the atmosphere remains there for around one hundred years.

Here you can learn more about greenhouse gases.

Emissions per sector

Businesses play a significant role in global GHG emissions, with energy use, agriculture and waste management being major contributors.

- Industrial activities, such as manufacturing, production and transport, consume a significant amount of energy.
- Agriculture causes emissions through deforestation and livestock farming.

This highlights the need for industries to adopt more energy-efficient practices and technologies to reduce their environmental impact.

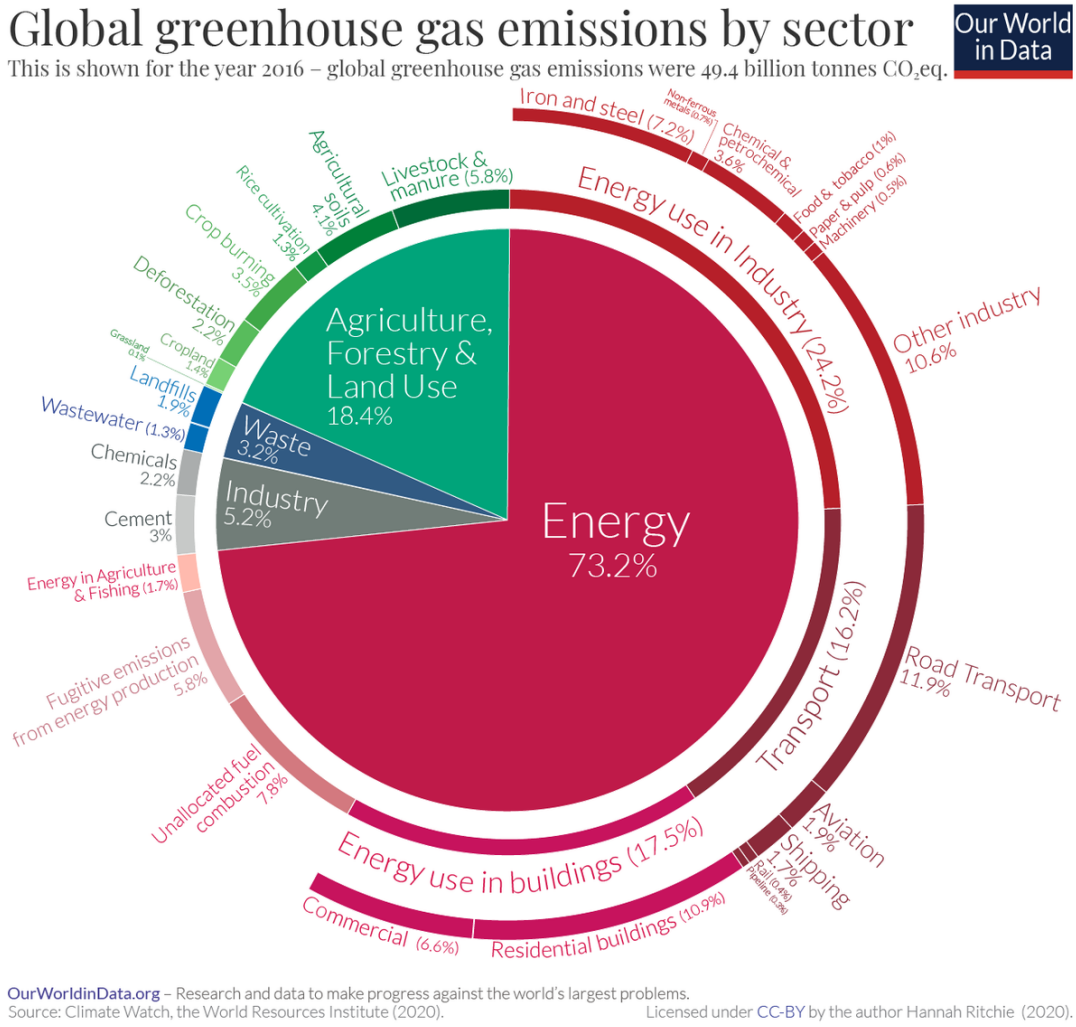

Figure 4: Global greenhouse gas emissions by sector – ourworldindata (Creative Common License)

Political response: The Paris Agreement

The 2015 Paris Agreement unites 195 countries in the fight against climate change. Its goals include limiting global warming to 1.5–2°C above pre-industrial levels by:

- Reducing GHG emissions through nationally determined contributions.
- Supporting adaptation measures and enhancing resilience through renewable energies.
- Aligning financial flows with climate goals.

These international efforts directly affect MSMEs by shaping market conditions, regulations and opportunities for sustainable innovation.

1.2.2 Regulations impacting your business

Adopting a net zero strategy is not just about doing good, it is also about staying competitive in an evolving regulatory environment.

In compliance with the Paris Agreement, the EU and national governments are implementing laws that require businesses to reduce their emissions. While not all MSMEs are directly affected, many will experience indirect impacts through supply chain relationships or market expectations.

Sustainability advantages

MSMEs that adopt sustainable practices early on may strengthen their brand, attract conscious consumers and gain an edge in the EU market.

Here is an overview of key EU regulations affecting MSMEs:

CBAM: CO_2 border adjustment system

The CBAM imposes a carbon price on certain imported goods to the EU such as steel, cement and fertilisers. This levels the playing field with EU producers who face stricter carbon regulations. MSMEs in non-EU countries will experience a spill-over effect.

For SMEs in non-EU countries, CBAM brings both challenges and opportunities:

- New reporting requirements: Producers will need to implement carbon monitoring systems to comply with CBAM.
- Financial adjustments: The introduction of a carbon price could increase short-term export costs but also incentivise cleaner practices for long-term savings.

More on CBAM: EU official CBAM learning material

Corporate Sustainability Reporting Directive (CSRD)

The CSRD mandates companies to disclose their environmental and social impact publicly. While primarily affecting companies in the EU, non-EU SMEs may also feel the ripple effects of this directive.

- Supply chain opportunities: EU companies seeking to align with the CSRD look for suppliers with sustainable practices in place, thus creating an incentive for SMEs to improve their sustainability.
- Enhanced market access: MSMEs that demonstrate alignment with the CSRD's goals may find greater market opportunities in the EU, alongside increased investor interest.

More on the CSRD: Corporate sustainability reporting - European Commission

The supply chain law: Corporate Sustainability Due Diligence Directive (CS3D)
The CS3D is a new set of EU rules that require large companies to take responsibility for human rights and the environment in their supply chains. MSMEs in EU and non-EU countries are not affected directly, but could all experience spill-over effects.

- Increased demand for information: MSMEs may be asked to provide details about their environmental and social practices. This could include risk assessments and sustainability strategies.
- Support and resources: The CS3D includes provisions to help MSMEs. Large companies are encouraged to support their smaller partners by providing training and resources to help them comply with sustainability requirements.

More on the CS3D: Corporate sustainability due diligence - European Commission

Achieving net zero aligns your business with a global movement, brings you in compliance with regulations and positively affects society and your profitability. Go to the next section to see what the net zero journey for MSMEs looks like at ProCredit.

2. The net zero journey for your Business

We have learned why net zero is so important. But what does it mean for your business? And what does this journey look like? Let's dive into it:

What does net zero mean?
As presented earlier, net zero activities are those which do not emit any greenhouse gases (GHG) to the atmosphere. Achieving net zero in your business activities is a journey that is both challenging and rewarding.

A net zero business aims to significantly reduce the amount of GHGs it emits by committing to the following:

- **Reduction**: Implementing measures and strategies to reduce emissions such as using renewable energy, improving energy efficiency and adopting sustainable practices like circularity and waste management.
- **Removal**: Balancing remaining emissions with emission removal efforts such forestation, reforestation or carbon capture.

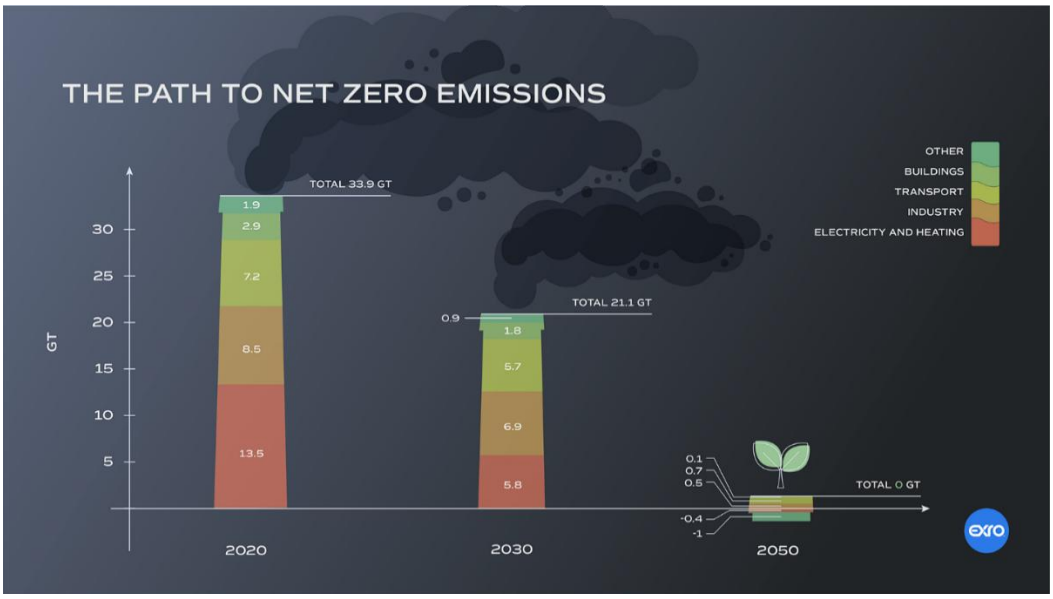

Figure 5: The Path to Net Zero Emissions - exro

2.1 Stages of net zero

Let's have a look at what this exciting journey towards achieving net zero emissions looks like and how ProCredit can support your business every step of the way.

Measure emissions

Measure the emissions and impact of your own operations on the environment with the ProCredit CO_2-Calculator

Learn about your options

Learn how to transform your operations and reduce your business's impact

Get to know the special financing options offered by ProCredit Bank and its partners

Set targets

Set net zero targets to reduce your emissions based on your impact.

Implement decabonisation measures

Integrate net zero targets into your business strategy and start implementing them with the support of ProCredit Bank and its partners

Disclose progress

Disclose your progress on an annual basis to increase credibility and consolidate your market position as a net zero pioneer.

ProCredit can follow up on compliance with targets.

1. Measure emissions

To reduce emissions effectively, you first need to understand them. ProCredit offers a specialised CO_2-Calculator tailored to various industries from agriculture to

manufacturing. In section 3, you will find detailed instructions on how to use the calculator to define your starting point.

2. Learn about your options

Depending on your emissions profile, solutions might include transitioning to renewable energy, modernising production facilities or adopting sustainable farming techniques. ProCredit offers consultations and specific investment catalogues to help you plan and execute these changes. Learn more in section 4.

3. Set targets

Once you have a clear understanding of your emissions and opportunities, the next step is setting targets. We will guide you in establishing ambitious yet achievable emissions reduction targets. Aim for a 50% reduction in operational emissions by 2030, aligning with the Paris Agreement, and integrate these goals into your business strategy to ensure real action.

4. Implement decarbonisation measures

This stage involves concrete action. Integrate net zero targets into your business strategy and start implementing decarbonisation measures with the support of ProCredit Bank and its partners.

5. Disclose progress

The final stage of the net zero process is reporting. Transparency is key in this journey. We encourage you to disclose your progress annually, using the ProCredit CO_2-Calculator to track and disclose your progress. Reporting builds trust with stakeholders and demonstrates your commitment to net zero. It also facilitates ongoing improvements based on your results.

Start today! Go to section 3 for practical steps to measure and analyse your emissions.

3. Measure your emissions

Welcome to your personal journey to net zero! Measuring your emissions is the **foundational step** in this transformation. Understanding your current emissions enables you to identify areas for improvement, set realistic goals and make meaningful changes.

3.1 Why measure your emissions?

Adopting data-driven practices allows you to:

- **Understand the impact** of your business
- **Set** effective and realistic reduction **targets**
- **Identify key areas** to reduce emissions, improve efficiency, and cut costs
    - For example: Using renewable energy, switching to electric vehicles, and upgrading to energy-efficient equipment
- **Track your progress** and **communicate** this to stakeholders

3.2 Quantify your company's emissions

It is recommended for businesses to follow the **Greenhouse Gas (GHG) Protocol** if they aim to reduce their emissions. The GHG protocol is one of the internationally leading frameworks for measuring emissions.

3.2.1 Understanding emission scopes in accordance with the GHG Protocol

Emissions are categorised into three groups:

Scope 1: Direct emissions
These are emissions from sources owned or controlled by your business such as:

- Fuel used for internal heating
- Fuel consumed by your vehicle fleet (non-electric vehicles)

Scope 2: Indirect energy emissions
These emissions are associated with the production of the energy your business consumes, for example:

- Electricity for your building, for heating, cooling, steam, etc.

Scope 3: Value chain emissions
These are emissions generated up and down your value chain and include:

- Supplier practices, including emissions from the production, delivery and disposal of goods.

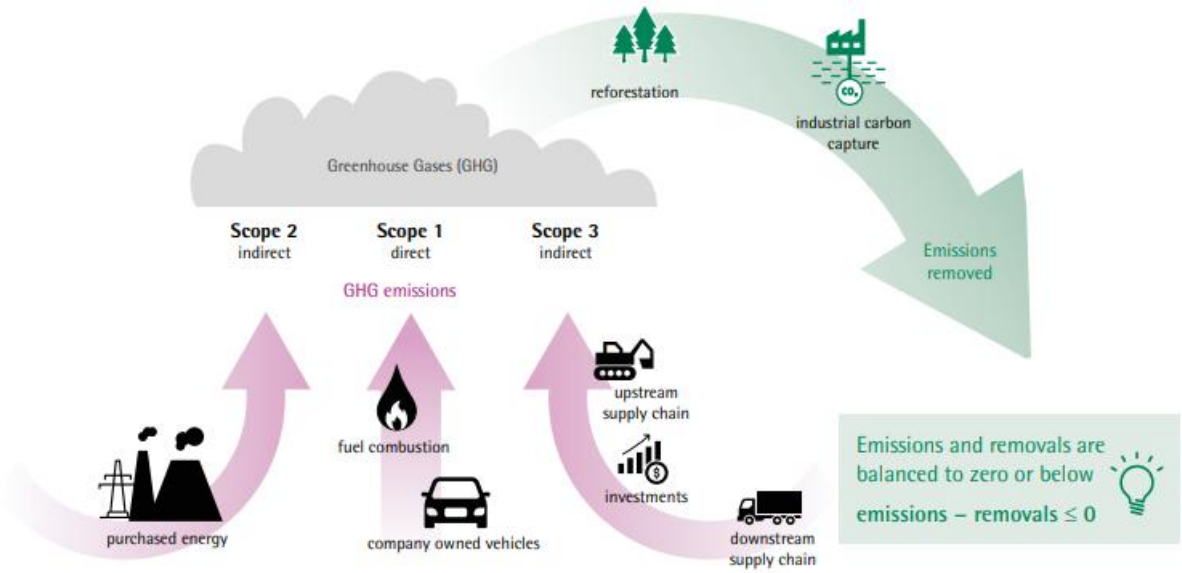

Figure 6: Emission Scopes - ProCredit

MSMEs focus on Scopes 1 and 2 first

For MSMEs, measuring Scope 1 and 2 emissions provide a manageable starting point. Once these are addressed, evaluate whether Scope 3 emissions significantly impact your overall carbon footprint.

3.3 ProCredit CO_2-Calculator: Measure your emissions step-by-step

The ProCredit CO_2-Calculator is designed to simplify emissions measurement and provide valuable insight. It is based on the methodology of the GHG protocol and on guidelines of the Intergovernmental Panel of Climate Change (IPCC) to guarantee scientifically correct numbers.

Here is what it offers:

- Accurate calculations for Scopes 1 and 2 for all sectors
- Identification of high emission areas to focus reduction efforts
- Comprehensive report and sector comparisons
- Scope 3 calculations (available for the construction sector)

What you need to get started

First you need to select a reporting year as the baseline for your journey:

- The reporting year can be in the past; however, it should not be earlier than 2019
- Reliable and complete data for that year is needed

Prepare the following information to enter into the CO_2-Calculator:

- Energy consumption (in kWh) for electricity and heating
- Fuel data: type and amount of fuel consumed (in litres or other relevant measurement unit)
- Refrigerant type and volume (in kg) for air conditioning
- Additional data (if applicable):
    - On-site waste management details
    - On-site wastewater treatment
    - Landfills
- Agricultural data:
    - Number, productivity and weight of animals
    - Crop yield (tonnes/year) and cultivated area (decares)
    - Land-use changes and management updates
- Construction sector data in the case of lacking specific fuel data:
    - Vehicle and machinery types and usage time
    - Transportation details for own and third party routes

Start using the ProCredit CO_2-Calculator here: CO2 Calculator ProCredit Bank

For further guidance, a **user manual** is available**.**

Next steps

By measuring your emissions, you have laid the groundwork for your net zero journey. Next, you will:

1. Learn about emissions reduction actions
2. Set ambitious yet realistic reduction targets
3. Implement impactful changes tailored to your business model
4. Monitor and report progress to stakeholders effectively

Join us in the next sections as we explore these topics in detail and take you closer to achieving your sustainability goals.

4. Reduce your emissions

Our clients' businesses are diverse, and every company needs its own customised solutions. By measuring your emissions with our CO_2 Calculator, you can determine in which areas improvement is needed.

But how can you turn this information into a plan of action? Although there is no streamlined process, this section aims to address the key areas in which you can significantly cut your emissions.

4.1 Mechanism to reduce emissions

Reducing emissions is mainly about transforming processes so that they have the most efficient and long-lasting outcome. The following mechanisms can be implemented to achieve this:

Avoiding: Cut out unnecessary energy and resource-intensive practices from your processes. Avoid, for example, printing, leaving machinery and equipment running when not needed or going on business trips when meetings can be held online.

Reducing: Minimise waste, water, energy and fuel consumption through behavioural changes such as reusing materials, implement "switch-off" policies, waste separation, recycling and the use of locally produced materials.

Controlling: Use timers and sensors to control lighting, heating and equipment, and define shut-down hours to ensure everything is turned off when not in use.

Maintaining: Ensure that machines, pipes, boilers and other equipment undergo regular maintenance to run smoothly, to prevent leaks and save energy.

Replacing: Replace older equipment with energy-efficient or non-emitting alternatives such as LED lighting and energy-efficient appliances. Switch to a renewable energy provider and use sustainable materials and products.

4.2 Reduce your emissions impactfully and profitably

The most impactful way to reduce your emissions quickly is to introduce energy-efficient equipment to your operations and use renewable energy sources.

4.2.1 Energy efficiency

Energy-efficient measures reduce the amount of energy needed for your daily operations. In this sense, these measures not only reduce your emissions, but are also very profitable for businesses and increase your energy security.

Cost savings

Let's have a closer look at the cost savings you can achieve through energy efficiency measures. Research conducted by the International Energy Agency (IEA) showed significant reductions in energy costs and consumption among its 32 member states.

Energy efficiency measurements for MSMEs

The table below lists the operational systems with the potential to reduce emissions per business sector through energy efficiency measurements.

Business sector	Systems with potential to reduce emissions
Food industry	Lighting, space heating, air conditioning and refrigeration, motor-driven processes, vehicle fleet, compressed air
Trading activities	Lighting, space heating, air conditioning and refrigeration, motor-driven processes, vehicle fleet and compressed air
Plant breeding	Fertilisers, space heating, lighting, land use management, vehicle fleet, compressed air, motor-driven processes
Animal husbandry	Feed type, space heating, lighting, air conditioning and refrigeration, vehicle fleet, compressed air, motor-driven processes
Woodworking	Lighting, space heating, air conditioning and refrigeration, vehicle fleet, compressed air, motor-driven processes
Metalworking and mechanical engineering	Lighting, space heating, air conditioning and refrigeration, vehicle fleet, compressed air, motor-driven processes
Construction of buildings	Compressed air, mobile plant, space heating
Production textiles, paper, ceramics, glass and other	Lighting, industrial systems, motor-driven processes, space heating

Figure 7: Emissions reduction potential per business sector – Own elaboration in accordance with The Journey to Net Zero for SMEs | The Carbon Trust & CO2 Calculator of ProCredit Bank

Lighting: Switching to LED lighting can lead to substantial energy savings.

- LED lights are **up to 90%** more efficient than traditional incandescent or fluorescent bulbs.
- Businesses can save **up to 75%** on their energy costs for lighting by switching to LED lighting.
- LED lights have a much longer lifespan, often lasting up to **25 times longer** than traditional bulbs, which further reduces maintenance and replacement costs.

See how a horse barn in Canada profits from switching to energy-efficient lighting:
Video Clip Horse Barn with efficient lighting

Learn how to conduct an LED lighting upgrade cost-benefit analysis here.

Heating and cooling: To improve your company's performance in this area, you can consider switching fuels or investing in a modern HVAC system. Using electric heat pumps for your heating system, for example, can contribute to substantial energy savings and reduced emissions.

- Electric heat pumps, especially in regions with a clean electricity grid, can further enhance efficiency and sustainability
- Modern HVAC systems are designed to be highly energy-efficient and come with advanced features such as programmable thermostats and zoning capabilities, which adjust heating and cooling based on occupancy and specific area needs (Agrawal et al. 2023).

Vehicle fleet: Consider switching to lower-emitting vehicles for improved air quality as well as lower costs and emissions. Fuel switching, as this process is called, involves substituting fossil fuels with lower- or zero-carbon alternatives such as hybrid or electric drivetrains.

- **Electric vehicles (EVs)**
  - On average, EVs can save up to 50-70% on fuel costs and 20-30% on maintenance costs.
  - Over their entire lifecycle, EVs produce about 73% lower greenhouse gas (GHG) emissions compared to petrol and diesel cars when using renewable electricity.
- **Electric trucks**
  - Electric trucks have higher upfront costs; however, the total costs of ownership (TCO) are lower, due to cheaper electricity and reduced maintenance. The TCO can be up to 20-30% lower than for diesel trucks over the vehicle's lifetime.
  - Battery electric trucks can reduce GHG emissions by approximately 63% compared to diesel trucks over their lifetime. Reductions can reach up to 84% if renewable electricity is used.

Investing with ProCredit

At ProCredit, we follow a robust methodology to ensure that investments in energy efficiency measures succeed in terms of achieving a significant reduction in energy consumption and in that sense, a reduction in costs and emissions. This means our investment suggestions guarantee a minimum reduction in energy consumption of 20%, or significant absolute energy savings, or represent the best available technology in the market. For more information contact *deu.corporate-banking@procredit-group.com*.

4.2.2 Renewable energy

Switching from fossil fuels to renewable energy is a powerful way to significantly reduce your emissions. Renewable energy is defined as energy derived from natural sources that are replenished constantly, and which is produced using technologies such as solar PV panels, wind turbines, hydroelectric dams and geothermal plants. Renewable energy technologies generally produce significantly lower greenhouse gas emissions compared to fossil fuels, with most emissions occurring during the manufacturing and installation phases rather than during operation.

As an SME, there are different renewable energy options available. The best solution depends on the type of premises you have (and whether you own them), the nature of your business and your investment capacity. Let's explore the options available to find the perfect fit for your business.

On-site renewable energy generation – Rooftop PV system

Generating renewable energy on your premises offers numerous benefits for SMEs:

- **Financial benefits**: Generating your own electricity can significantly lower your energy costs and ensure price stability by shielding your business from volatile energy markets. Over time, the savings can offset the initial investment in renewable energy systems.
- **Energy independence**: Having your own energy production reduces the reliance of your business on an unreliable grid and minimises energy transmission losses that occur during normal transmission and distribution from distant power plants.
- **Environmental impact**: In addition to reducing your carbon emissions, generating renewable energy supports the much-needed global energy transition.
- **Financial incentives**: Many governments offer financial incentives, such as tax credits, grants, and subsidies, to support the installation of renewable energy systems. Furthermore, installing renewable energy systems increases the value of your property.
- **Enhanced corporate image** through demonstrating a commitment to renewable energy.

Rooftop photovoltaic systems are a practical and cost-effective way to generate renewable energy on your premises. Solar cells on the panels capture sunlight and transform it into electricity, which is then converted into ready-to-use energy through an inverter, making it suitable for powering your building.

What happens when your PV system produces more electricity than you need?

- Batteries: Store any excess electricity in batteries for later use or sell it.
- Net metering (where applicable): Send excess electricity back to the grid and receive energy credits from the electricity company in exchange. This process allows you to receive credits for the same amount of energy at no extra cost during periods in which you need more electricity than generated.
  Watch this video on net metering
- Net billing (where applicable): Instead of receiving energy credits as in net metering, you receive monetary credits for the excess electricity exported to the grid. These credits are typically calculated based on the market price of electricity at the time of export.
  If you generate more electricity than you consume during a billing period, you may receive financial credit or payment for the surplus energy.

This publication provides a comprehensive overview of rooftop PV systems, including how they work, their benefits and key considerations for installation: five-minute-guide-rooftop-solar-pv.pdf

➔ Want to learn more? In our sequence for agricultural clients, you can find information on open-field PV systems and biomass plants.

Switching to renewable energy

SMEs that face limitations with regard to installing their own PV systems or that are not yet ready to make this commitment, can either switch to a renewable energy tariff (or find another energy provide offering renewable energy) or purchase energy attribute certificates.

Switching to a new tariff might be the simplest solution, as the energy provider is responsible for dealing with everything. Those who do not want to or cannot switch their energy provider can still reduce their emissions and support clean energy by purchasing energy attribute certificates called **Guarantees of Origins (GOs).**[1]

- GOs certify that a certain amount of energy was produced from renewable sources.
- Each GO represents 1 megawatt-hour (MWh) of clean electricity.

[1] GOs are applicable when a company would like to reduce its environmental footprint and commit to an overall net zero pathway; however, these Guarantees are not yet applicable when it comes to CBAM regulation (European Commission 2024).

Why obtain GOs? GOs are a recognised, flexible and cost-effective way to support renewable energy, as they do not tie you to a specific energy provider or potentially costly green tariffs.

How do I obtain GOs?

1. Find a supplier: Many energy companies and specialised brokers offer these certificates.
2. Purchase GOs: Buy the required amount of GOs to match your energy consumption. This can be done through direct purchase agreements or on energy certificate trading platforms.
3. Redeem certificates: Once purchased, the GOs can be redeemed to claim the environmental benefits associated with renewable energy consumption.

Investing with ProCredit

ProCredit Bank supports renewable energy measures as far as small solar or biomass plants with minimal or no adverse future environmental and social impacts are concerned.

4.2.3 Specific to agricultural clients

Agriculture is both a significant source of greenhouse gas emissions and a vital part of the solution for achieving net zero. Emissions from agriculture include methane from livestock, nitrous oxide from fertilisers and carbon dioxide from machinery and land use changes. By adopting sustainable practices, the agricultural sector can reduce these emissions and enhance carbon sequestration.

Learn about your options to reduce emissions and save costs below. Read about how different farmers from the UK tackled the net zero challenge here.

On-site renewable energy generation for agribusinesses – Open-field PV and biomass

Agribusinesses have significant potential for achieving net zero energy, due to the significant amount of organic waste they produce and their large areas of land suitable for renewable energy installations. By leveraging these resources, they can effectively reduce their emissions and even earn money with clean energy. Investing in photovoltaic or biogas plants allows farmers to generate electricity for their own use and sell any surplus.

Open-field PV system

Open-field photovoltaic (PV) systems used on farm fields offer various additional advantages to rooftop PV systems. One of the key benefits is the increased land use

efficiency achieved through the production of renewable energy combined with agricultural activities known as agrivoltaics. This approach can enhance land use efficiency by over 60% (Fraunhofer Institute for Solar Energy Systems ISE 2017). Additionally, the substructure of the PV mounting system can be used to install rainwater tanks or attach protective fencing. The PV panels themselves can act as a physical barrier against wind, helping to reduce soil erosion. Furthermore, tracking PV systems can be particularly advantageous for applications that require variable lighting conditions for crops, optimising both energy production and agricultural output.

Figure 8: Agrivoltaics in a vineyard (left, Source SunAgri), vertical agrivoltaics (right, Source Solar Builder Magazine)

Biomass and biogas plants

A biomass plant is a facility that uses organic materials to produce energy. Utilising biomass for energy can be particularly beneficial for agribusinesses, turning their waste into a valuable resource. Organic waste, when left untreated, can decompose anaerobically, releasing methane. However, through a biomass plant, organic waste can be converted into heat, electricity or fuels for transport. The following plant substances can be used as described below:

- Starch or oil from oil crops for biofuels such as ethanol and biodiesel
- Biomass briquettes for energy
- Pyrolysis for oil (tar) and syngas, which can be converted into synthetic natural gas and methane; the solid residue from the process is biochar, which can be used to enrich and protect soil from nutrient loss and for carbon sequestration
- Lignin for energy and chemicals
- Protein and feed for animals
- Cellulose for paper

A **biogas plant** is a specific type of biomass plant that uses anaerobic digestion to convert organic materials, such as manure and organic waste, into biogas. This biogas can be used to produce electricity, heat, or transportation fuel. The process also

produces a digestate with high nutrient value that can be used as an organic fertiliser. By integrating a biogas plant, farmers can use waste products to generate renewable energy and improve soil health, while contributing to the reduction of waste and a circular economy
See how it works in this video: Renewable Energy 101: How Does Biomass Energy Work?

Benefits of a biomass plant

- ➔ Cost savings and potential profits from selling surplus energy to the grid
- ➔ Reliable and continuous source of energy, unlike intermittent renewable sources such as solar and wind
- ➔ Improvement of waste management: Using waste materials for energy production reduces disposal costs and can even turn waste into a revenue stream
- ➔ Energy independence, reducing vulnerability to energy price fluctuations and supply disruptions

Feed types and fertilisers

The type of feed and fertiliser used in agriculture significantly influences greenhouse gas emissions. Livestock feed, particularly those high in fibre, can increase methane emissions during digestion (enteric fermentation). By optimising the feed composition, such as incorporating more easily digestible ingredients and feed additives, farmers can reduce methane emissions from livestock.

Fertilisers, especially nitrogen-based ones, contribute to nitrous oxide emissions, a potent greenhouse gas. The production and application of synthetic fertilisers are major sources of these emissions. Farmers can mitigate this issue by adopting practices such as precision farming, using slow-release fertilisers and incorporating organic fertilisers such as compost and manure.

Additionally, implementing crop rotations with legumes can naturally enhance soil nitrogen levels, reducing the need for synthetic fertilisers.

- ➔ Implementing a waste management system makes it possible to turn organic waste into energy and fertiliser and helps to reduce emissions supports a circular economy in agriculture. By turning waste into resources, farmers can improve

their productivity and contribute to a more sustainable and resilient agricultural system.

5. Net zero action

After learning about your possibilities to reduce emissions, this section helps you to set strategic net zero targets and provides you with an action plan that defines when to take what type of action during your journey to net zero.

5.1 Setting net zero targets

After measuring your emissions, setting net zero targets is the most critical step in the process. These targets present the framework for your upcoming journey as well as your action plan.
Everything you need to know about net zero targets in a nutshell:

First, establish your CO_2 baseline.

- The CO_2 baseline is the year you start measuring your CO_2 emissions as a company.
- The emissions for this year serve as the reference point for your target setting.
- This year can be before the target publication year, but no earlier than 2019.

Next, set near-term and long-term targets.

- Near-term targets are greenhouse gas (GHG) emissions reduction targets for Scope 1 and 2 emissions to be met in the next 5 to 10 years.
- Aim to reduce your emissions in this first period (5-10 years) by 50%.
- SMEs can set targets for Scope 3 emissions in the near term voluntarily. It is recommended to keep these in mind and track them.
- Long-term targets aim for a complete GHG emissions reduction for all scopes and should be reached by 2050 at the latest.

If you want to learn more about the net zero target setting process, click for a more detailed explanation.

5.2 Net zero action plan

This action plan is designed to support you step by step in transforming your business to achieve net zero emissions. It is divided into four detailed phases, each

corresponding to a specific time period, ensuring a structured and manageable approach to your journey to net zero.

Key principles for SMEs

- **Focus on reduction first**: Prioritise cutting emissions over offsetting to ensure meaningful and lasting impact.
- **Leverage partnerships**: Collaborate with green finance providers, suppliers, and industry groups to amplify your efforts.
- **Measure and report progress**: Regularly track emissions and adjust strategies to stay on course and achieve your goals.

This roadmap provides an actionable framework for SMEs to transition to net zero in a realistic and strategic manner. Let's start:

Phase 1: Establishing the foundation (2024–2025)

In this foundational phase, your business will lay the groundwork for achieving net zero emissions by 2050 or earlier. This phase is all about setting clear ambitions, understanding your current impact, and engaging your entire business ecosystem in the mission.

- **Measure your emissions** with the CO_2 Calculator and understand them. Knowing where you stand is crucial for planning your path forward.
- **Set reduction targets** for the upcoming years. We recommend focusing on Scope 1 and 2 emissions and aiming to reduce them by at least 50% in the upcoming 5-10 years. A more detailed description of that process can be found in the Annex.
- **Develop an action plan**: Identify priority areas for emissions reductions and outline the steps your business will take to achieve its targets. This action plan will be your roadmap for the coming years.
- **Involve your employees:** As the business owner, take the lead in exploring net zero strategies and identifying quick-to-implement solutions such as energy-saving measures that can be achieved through behavioural changes. Look into grants or financing options for hiring qualified staff if needed.

Validate your targets through SBTi: The internationally acclaimed Science Based Targets initiative (SBTi) offers the service to verify that your reduction targets are robust and in line with climate science. This can give you a competitive advantage. ProCredit

Bank can support you in this. Learn more about the process with SBTi here: SBTi Target Service
Target Validation Checklist for SMEs

Phase 2: Quick wins and early reductions (2025–2030)

Now that you have a solid foundation, it's time to focus on quick wins and early reductions. This phase is all about implementing immediate strategies that will yield significant results in the short term. By making these early gains, your business will build momentum and demonstrate the feasibility of your net zero ambitions.

- **Increase energy efficiency**: Implement easily accessible changes with low investment effort such as an upgrade to energy-efficient lighting and HVAC timers. Think about implementing an energy management system (EMS) to optimise energy use.
- **Switch to renewable energy**: One of the simplest and most effective steps a business can take to reduce its carbon footprint significantly is to switch to a renewable energy provider. If this is not possible, consider purchasing Guarantees of Origin. Consider installing rooftop photovoltaic panels, and if you have an agricultural business, think about setting up a biomass plant.
- **Sustainable procurement and supply chain**: Research and partner with suppliers who have net zero commitments and optimise logistics to reduce emissions (e.g. route optimisation, electric vehicles).
- **Electrification and low-carbon technologies**: Replace fossil-fuel-based heating and cooling systems if possible. Depending on your business type, consider replacing your vehicle fleet with electric alternatives as a long-term investment.
- **Training and networking**: Use the opportunities ProCredit Bank provides to form net zero networks and benefit from the training and knowledge transfer offered. Research local stakeholders and incentives.
- **Communicate your commitment and progress:** Clearly communicate your net zero commitment to all stakeholders, including employees, customers and suppliers. Transparency and regular updates will build trust and support.

Phase 3: Deep decarbonisation (2030–2040)

With early reductions in place, it's time to take a deeper dive into decarbonisation. This phase focuses on more substantial and long-term changes that will tackle the remaining emissions and ensure that emissions reductions are maintained.

- **Decarbonise business operations**: Phase out fossil fuels in production and transportation. Improve circular economy practices by reducing, reusing and recycling materials.
- **Tackle Scope 3 emissions**: Work closely with suppliers to decarbonise their processes and introduce low-carbon product designs and packaging.
- **Innovation and collaboration**: Explore new technologies such as carbon capture, sustainable materials, or AI-driven efficiency tools. Collaborate with industry partners to drive collective action.
- **Communicate your progress and achievements**: Regularly update stakeholders on the progress of your reduction efforts. Publicise your achievements and share your journey with the broader community. Transparency and storytelling will enhance your brand and encourage others to pursue similar goals.

Phase 4: Achieving net zero and beyond (2040–2050)

As you approach the final phase of your journey, it's time to focus on achieving net zero emissions and looking beyond to ensure lasting impact. This phase is about finalising your transition and leading the way in sustainability.

- **Near zero emissions operations**: Finalise the transition to fully decarbonised business processes, ensuring that all aspects of your operations are as sustainable as possible.
- **Last-mile offsetting (if needed)**: Offset any remaining hard-to-abate emissions with verified carbon credits, ensuring that your net zero goal is fully realized.

"Let's start the Net Zero journey together. We are looking forward to getting in touch!"

Annex: Net zero target-setting process

It’s time to learn some details about setting net zero targets. Let’s dive in:

What makes good net zero targets?
A robust net zero target should have the following attributes:

- **Defined timeframe**: Clearly outline a timeline for achieving the goal, including both near-term and long-term milestones.
- **Transparent rationale**: Provide an easy-to-understand explanation of how and why the target will achieve the anticipated reductions.
- **Clear assumptions**: Explicitly state any assumptions regarding measurement, including the scopes and emissions boundaries.

Common pitfalls of net zero targets

- **Mass-based reduction targets**: Setting targets to reduce emissions by a specific mass of greenhouse gases (e.g. “Reduce emissions by 5 million tonnes by 2035”) can obscure the company’s overall emissions performance.
- **Sector benchmarking**: Comparing performance against sector averages can be problematic, as sector performance may change over time, making it difficult to track long-term performance changes.
- **Overreliance on carbon offsets**: Relying heavily on carbon offsets (more than 5-10% of emissions reductions) can undermine the integrity of the target.

The following figure shows how you could set your targets if you start with 2023 as the base year.

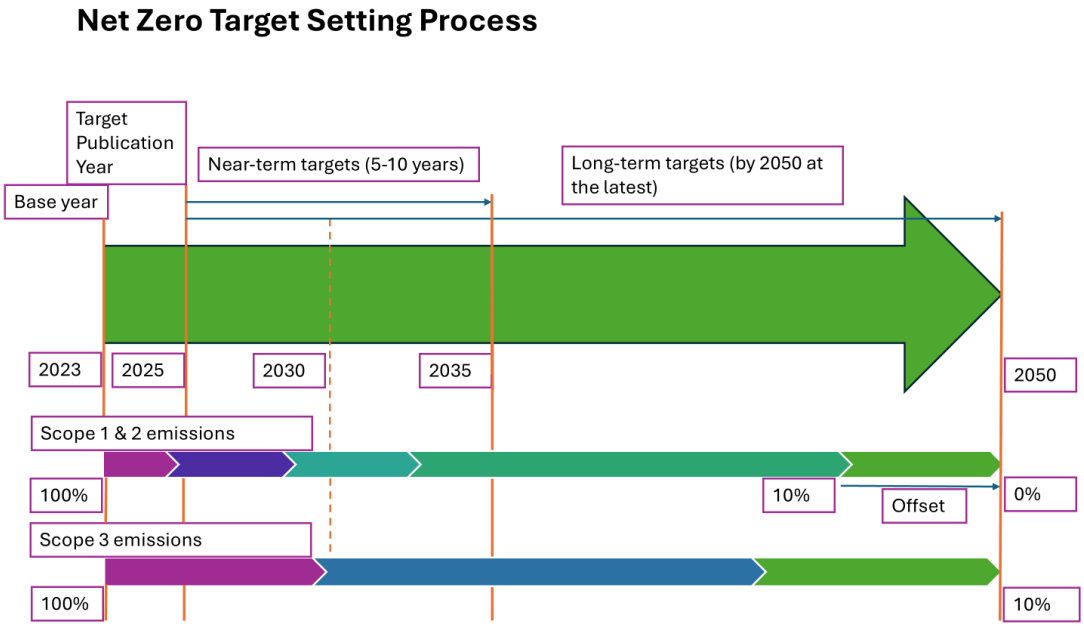

Figure 9: Net zero target-setting process - Own elaboration

Do you want to give your targets additional credibility? Have them validated by the Science Based Targets initiative (SBTi) like the ProCredit group does.

Find more information on SBTi here:
SBTi Target Service
Target Validation Checklist for SMEsW

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Opinion | Every Country Has Its Own Climate Risks. What's Yours? - The New York Times

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Training catalogue

Corporate sustainability reporting - European Commission

CO_2 Calculator ProCredit Bank

Corporate Standard | GHG Protocol

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