

RISKS, OPPORTUNITIES AND EXPECTATIONS IN **GREEN** **TRANSITION**

ROADMAP FOR TRANSITION TO A LOW CARBON ECONOMY





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GREEN TRANSITION 
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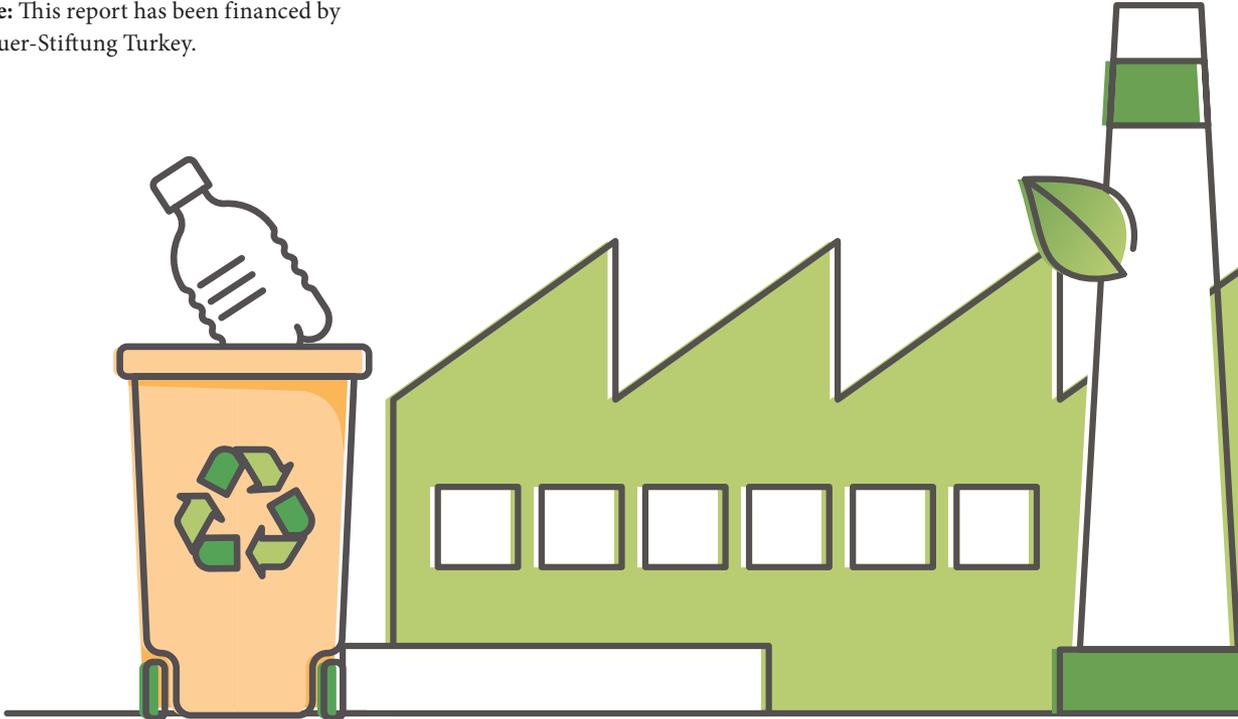
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EXECUTIVE SUMMARY

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The concept of green growth, which is emerging as a frequently emphasized solution in the fight against climate change, has moved to the center of global discussions on climate and the economy with the European Green Deal (EGD) announced at the end of 2019. Parallel to these developments, a period in which the policy-making process accelerated in different countries within the scope of combating climate change has begun.

The dynamic strategy formation process regarding the different policy areas presented under the European Green Deal (EGD) continues. These strategies, which are presented in different sectors and policy areas such as agriculture, industry, energy, biodiversity, are accompanied by legislative changes and this process is supported by the financing aspect. In the coming period, companies exporting to the EU will be exposed to additional costs and administrative obligations through the Carbon Border Adjustment Mechanism (CBAM), and higher product standards particularly in resource-intensive sectors within the scope of the circular economy. In addition, it seems likely that companies will face new sustainability reporting rules and environmental and human rights-oriented due diligence and transparency obligations in their value chains.

Compliance with the EU's legal framework and regulations established under the scope of the EGD is very important for Türkiye, which has closely integrated value chains with the EU. For the future, it is critical to accelerate this harmonization process on the basis of green transition goals. In parallel to these

developments a new era in climate policy has begun in Türkiye with the ratification of the Paris Agreement in October 2021. In the upcoming period, it is of key importance for companies in the real sector to plan their production structures, business models and financial plans on the basis of sustainability in order to maintain their level of competitiveness.

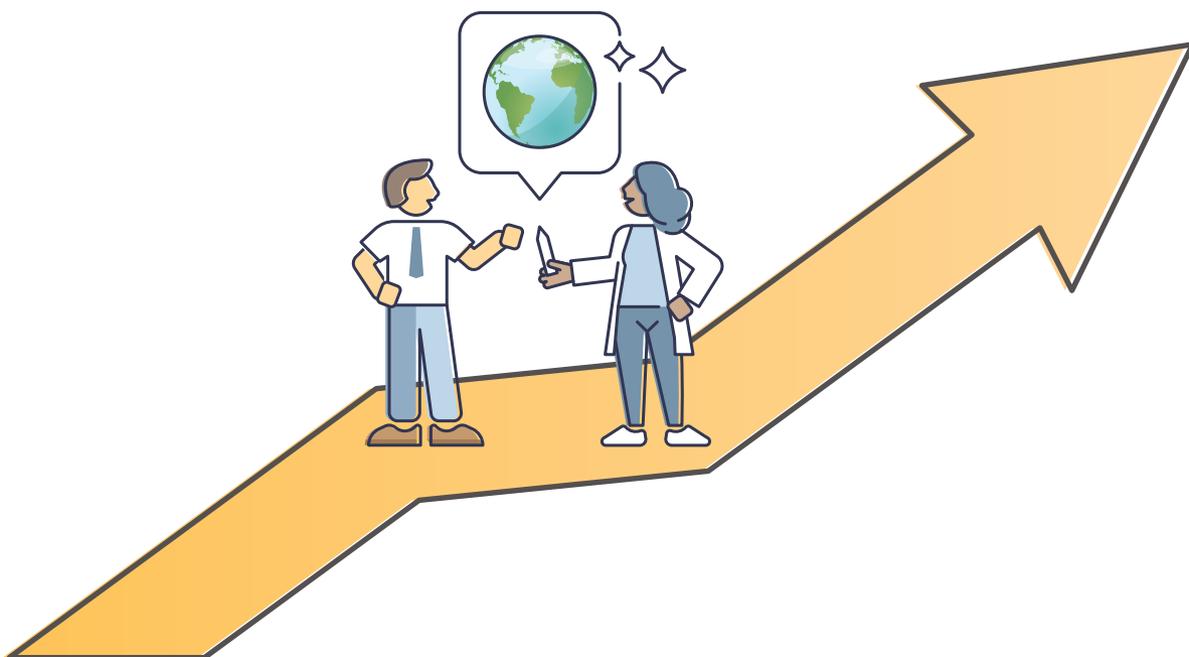
Small and Medium Enterprises (SMEs) deserve a special approach due to their important role in the Turkish economy, as they make up %99,8 of all the enterprises in Türkiye and are vital components of the integrated value chains with the EU. A green transition is not possible without the transformation of SMEs, so it is key to include strategies that include a more disaggregated approach, including SMEs, in climate policy design. In this context, it is important to establish working groups and collaborations to determine the needs and expectations of SMEs.

TÜRKONFED and Konrad-Adenauer-Stiftung (KAS) Türkiye with the support of Akbank, therefore implemented a project aimed primarily at raising awareness of the green transition process through seven workshops (Bursa (pilot), + Kocaeli, Adana, Elazığ, Samsun, İzmir and Gaziantep) at the regional level. In addition, a survey was conducted to measure regional and national awareness on green transition with the participation of focus groups. The project also identified the risks, opportunities and expectations of stakeholders through workshops and developed policy recommendations that will contribute to the existing policy framework for transformation in Türkiye from the perspective of SMEs. The following summarizes the results of the surveys and presents the policy recommendations and roadmap for SMEs developed as a result of the workshops.

SURVEY RESULTS

Approximately 350 companies took part in the survey conducted between December 2021 and July 2022. 52 percent of the companies participating in the survey operate in the industry, 34 percent in the service sector, and 4.6 percent in the agricultural sector. The main results are as follows:

- » While 65 percent of the firms considered the EGD an opportunity, 21 percent stated that they had no idea whether the EGD was a risk or an opportunity (Figure 4.4). It is observed that 8 percent of the companies consider the EGD as a risk.
- » Considering all sectors, 49 percent of companies stated that they would be affected by the Carbon Border Adjustment Mechanism (CBAM). 28 percent of the companies stated that CBAM would not affect their industry, while 20 percent stated that they had no idea about this issue.
- » 77 percent of the companies stated that they do not have their carbon footprint measured. This rate is 72 percent in industry and 83 percent in services. About half of the 63 companies that measure their carbon footprint are large-scale companies with 250 or more employees.
- » The most frequently implemented resource efficiency actions by companies are energy saving and energy efficiency, minimizing waste and water saving.
- » 40 percent of the companies stated that resource efficiency actions partially or significantly reduced their production costs.
- » Firms were asked on average how much they have invested in the last two years in order to use their resources more efficiently. While 19 percent of the companies stated that they did not make any investments, approximately 49 percent of the companies stated that they allocate less than 5



percent of their turnover to investments. Only 17 percent of the firms applied for external support (e.g. grants, banks and financial institutions, business organizations) in this process.

» It has been stated that the biggest support to companies in the green transition process will be information and advice on consultancy and

financing opportunities for the transition to green production processes. Approximately 40 percent of the companies stated that consultancy and 39 percent of them stated that information and advice on financing opportunities are the factors that will provide the most benefit in the transition to green production processes.





POLICY RECOMMENDATIONS

Policy recommendations created within the scope of the project are listed below under four headings: **Awareness and information sharing at the corporate level, ii) Incentives and regulations, iii) Financing and iv) Education.**

Awareness and information sharing at the corporate level

» **Policy Recommendation 1:** Appropriate communication channels should be determined in order to increase the awareness of SMEs.

» **Policy Recommendation 2:** Under the leadership of public authority networking among stakeholders should be ensured, information sharing should be centrally planned and made more effective.

Incentives and Regulations

» **Policy Recommendation 3:** Comprehensive support mechanisms should be established within the framework of “Think Small First” regarding the green transition of SMEs, and the application processes for these supports should be facilitated.

» **Policy Recommendation 4:** The effectiveness of the grants and supports should be measured by establishing an incentive follow-up mechanism.

» **Policy Recommendation 5:** Regional incentives should be redesigned in order to reduce the development gap between regions.

Green transformation is not possible without the transformation of SMEs, so it is key to include strategies that include a more disaggregated approach, including SMEs, in climate policy design.

» **Policy Recommendation 6:** Contribute to the development of a green and circular entrepreneurial ecosystem

» **Policy Recommendation 7:** It should be verified that the designed regulations are applicable for SMEs and frequent changes of regulations should be avoided.

Financing

» **Policy Recommendation 8:** A national regulatory framework for sustainable finance should be established and opportunities should be provided for SMEs to have greater access to sustainable finance within this framework.

Education

» **Policy Recommendation 9:** Sustainability issues should be added as a compulsory course in the education curricula in order to raise the awareness of the society about green transition.

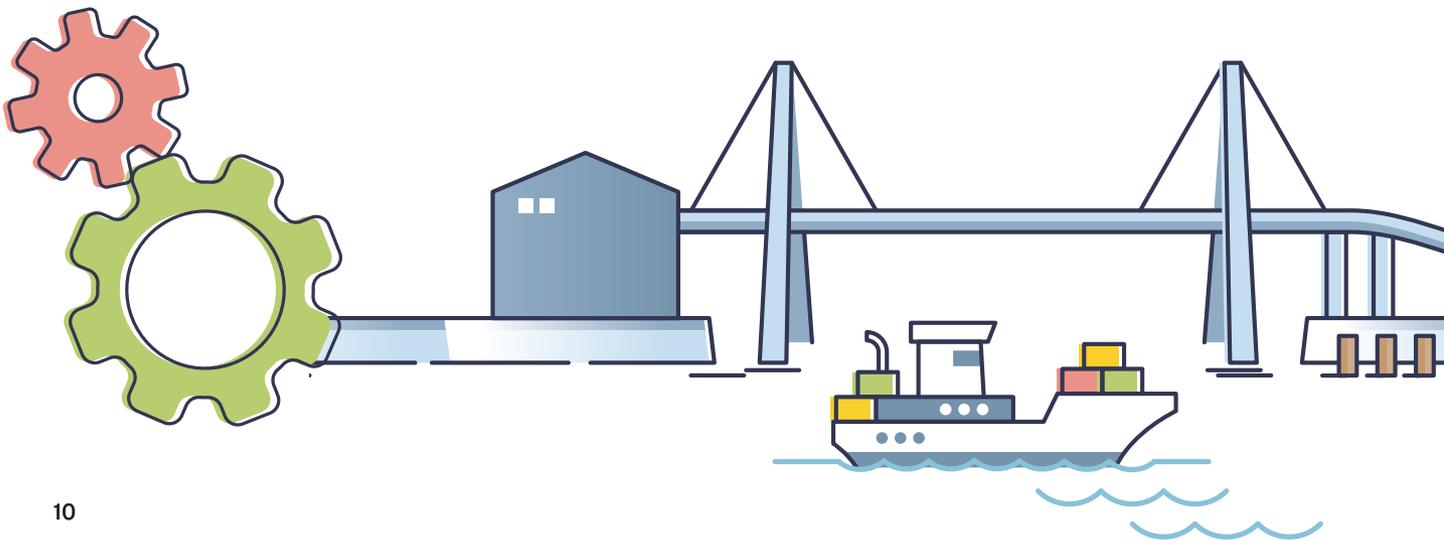
» **Policy Recommendation 10:** The workforce needed by green sectors should be created through national curriculums or on-the-job training programs.

The approximate number of companies participating in the focus group on green transition in the survey conducted between on December 2021 and July 2022 / 350 Firms

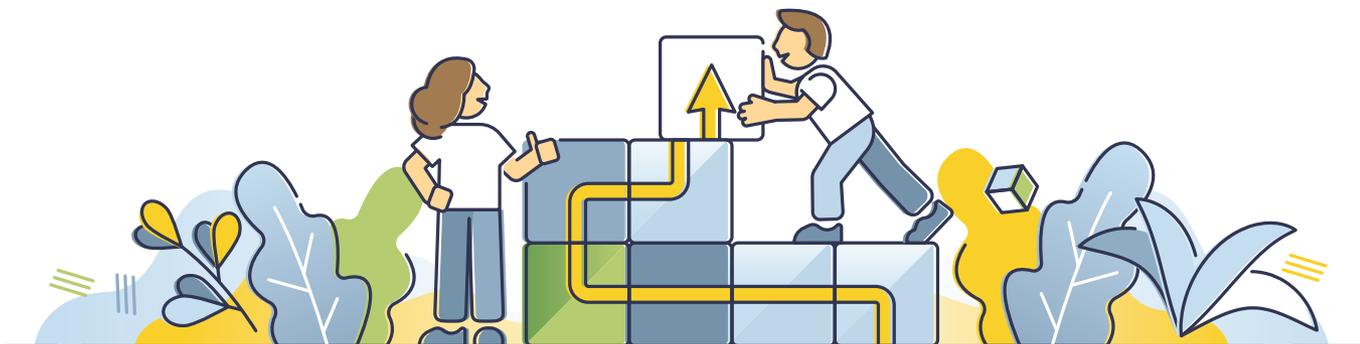
350 FIRMS



Sectoral distribution of companies that were included in the survey study



The Perspective of the Firms on the European Green Deal



AREAS THAT ENTERPRISES CONSIDER AS OPPORTUNITIES IN THIS PROCESS

- » Access to major markets and/or cost advantages
- » Providing new business opportunities, financing and technical assistance
- » 'Foreign trade with the EU' and 'Geographical opportunities for Türkiye'

ELEMENTS THAT SMES CONSIDER AS RISK IN THIS PROCESS

- » Lack of knowledge and awareness
- » Insufficient human capital
- » Loss of competitiveness
- » Problems in the institutional structure regarding financing, incentives and supports

The needs of companies for the green transition process



**Approach of
Companies on
Carbon Footprint
Measurement**

77% COMPANIES
THAT DO
NOT MAKE
MEASUREMENTS
IN ALL SECTORS

19% COMPANIES
THAT MAKE
MEASUREMENTS

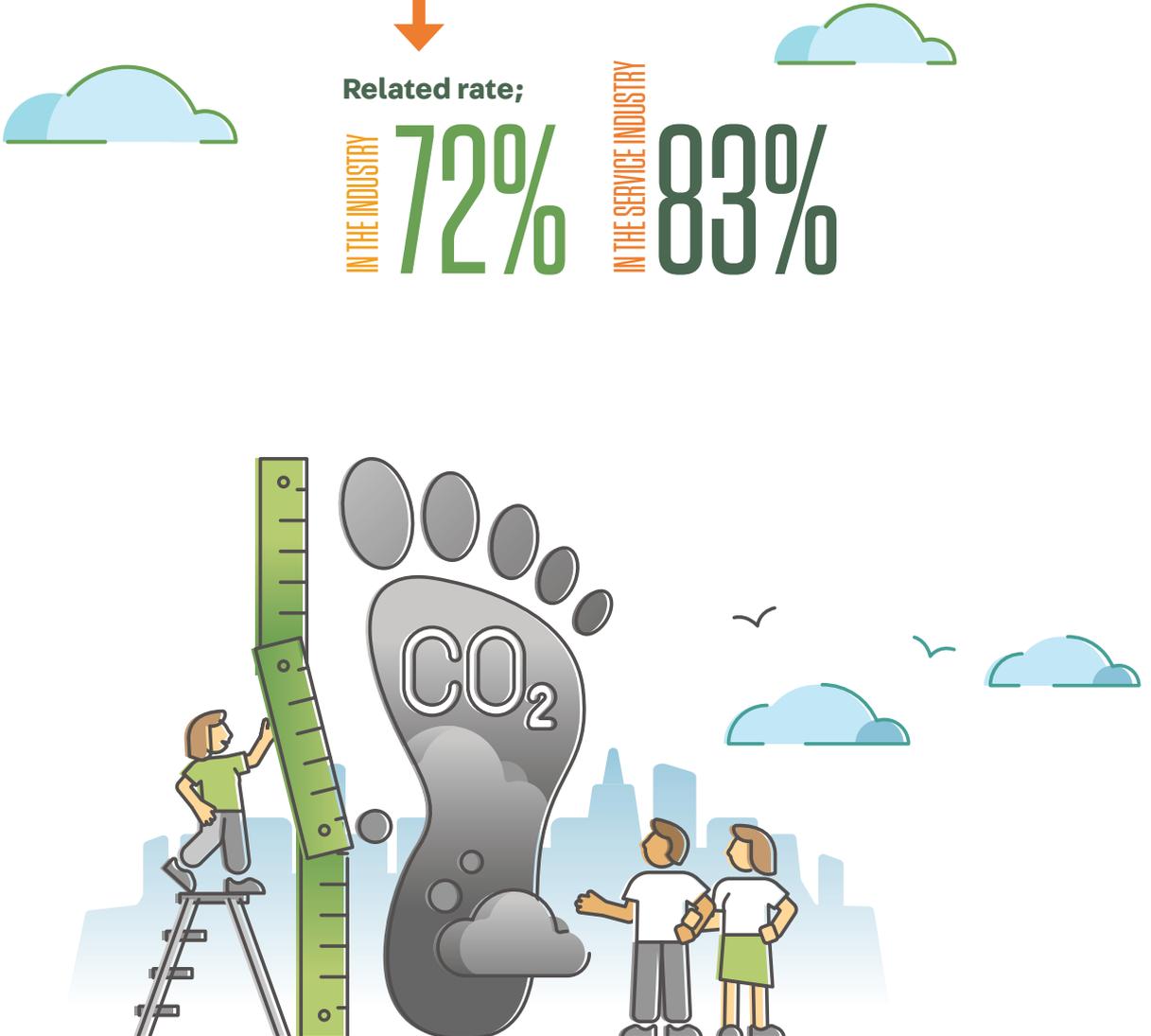
Related rate;

IN THE INDUSTRY

72%

IN THE SERVICE INDUSTRY

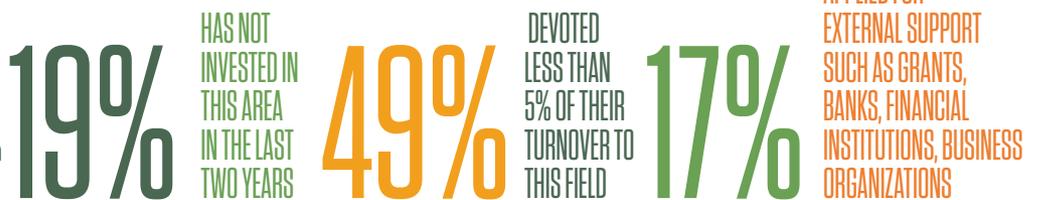
83%



Approach of the Firms to the Carbon Border Adjustment Mechanism (CBAM)



SMEs and Resource Efficiency in the Process of Adaptation to EGD



RESOURCE EFFICIENCY ACTIONS MOSTLY IMPLEMENTED BY COMPANIES

- » Energy-saving
- » Energy efficiency
- » Minimizing waste and saving water

43% of companies in the industrial sector and **38%** of companies in the service sector plan to increase their use of renewable energy in the next two years.







ROADMAP FOR TRANSITION TO A LOW CARBON ECONOMY

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1. INTRODUCTION & CONCEPTS

The scope of the European Green Deal (EGD), for which policy-making and legislative process continues for different sectors and policy areas, offers a comprehensive framework with its strategies, legal regulations and financing aspects in different sectors and policy areas such as agriculture, industry, energy and biodiversity. The main developments in the EGD that will affect companies engaging in foreign trade relations with the EU are outlined under the headings of **Fit for 55 Energy and Climate Law Package** and **Circular Economy**. These two main initiatives, which are based on reduction of emissions, are also considered as key policy areas for SMEs.

In this comprehensive framework, it is possible to achieve the desired targets in the green transition process with the transformation of SMEs, which are the main drivers of economies, and the reduction of emissions is at the centre of this process.

For this reason, organizations need to know about national and international climate change policies, be prepared for them, and manage greenhouse gas risks, in order to maintain

their future competitiveness in the market. It is very important to proceed with a reliable and appropriate roadmap that is based on scientific data in the process of transition to a low carbon economy. **The Roadmap for Transition to a Low Carbon Economy is discussed in three sections, namely “Introduction and Concepts”, “Emission Reduction Roadmap” and “Emission Reduction Process and Developing New Technologies”.**

SMEs that are following the **Roadmap for Transition to a Low Carbon Economy** take advantage of the following benefits. These include:

- » Enhanced transparency, customer trust, brand and reputation building
- » Less exposure to, and better management of, resource, energy and climate-related risks
- » Increased competitiveness with energy and resource efficiency
- » Positive interaction with stakeholders

All of these show the benefits of green transition for the world and the economy. So, it is no surprise that more and more companies today are promising to be carbon neutral, net zero, and even climate positive.

2. GREEN DICTIONARY



Knowing some basic concepts and taking the right steps is an important point.

Carbon neutral: It covers the emission reduction initiatives of companies, as well as balancing of emissions by methods such as obtaining carbon certificates.

Net zero: The net zero term is used for companies that reduce emissions as determined within the framework of science-based targets initiative (SBTi) and that compensate for their remaining limited amount of emissions with carbon certification.

Climate positive: It means that the company goes beyond achieving net zero carbon emissions, to create an environmental benefit by removing additional carbon dioxide from the atmosphere.

Scopes of Emissions

According to the leading Greenhouse Gas Protocol (GHG Protocol) corporate standard, a company's greenhouse gas emissions are classified into three scopes. These three scopes complement each other and guide all SMEs and facilities in terms of being net zero. Scope 1 covers emissions coming directly from the plant itself; Scope 2 covers emissions coming from the energy purchased; and Scope 3 covers all other indirect emissions and is the most difficult to monitor. However, companies that succeed in reporting all three scopes can gain a sustainable competitive advantage.

Scope 1

The Greenhouse Gas Protocol (GHG Protocol) defines these as direct emissions that are owned or controlled by the organization. Generally composed of emissions generated through fuels burned in stationary (building heating, steam or hot water generation, etc.) or mobile (company vehicles, construction equipment, etc.) sources, the Scope 1 category also includes emissions from production processes and emissions released during activities such as those involving refrigerant gases, fire extinguishers and treatment plants.

Scope 2

Scope 2 emissions, which cover the greenhouse gas emissions that are generated during the production of electricity, heat or steam purchased by the organization and which are called "indirect emissions from energy trade", are the emissions that are generated outside the boundaries of the reporting organization due to electricity, hot water and steam produced outside the boundaries of the organization but consumed within the organization.

Scope 3

While the "other indirect" emissions caused by the activities of the organization and the activities across the supply chain outside the boundaries of the organization are defined as Scope 3 emissions, the emissions within this scope also create the greatest greenhouse gas effect.

- » Emissions emitted during business travel or commuting
- » Emissions from road, sea and air transport as well as emissions from third-party storage
- » Emissions of methane (CH₄) and nitrous oxide (N₂O) released during waste disposal
- » All emissions caused by the production of goods and services purchased by the company, etc.

For many organizations, scope 3 emissions have become more important in recent years, as the scope 3 emissions embedded in the value chain account for a significant portion of total emissions.

ROADMAP FOR REDUCING EMISSIONS



Image 1: Roadmap for Reducing Emissions

a. Roadmap Preparation Phase

Reference Year Selection

In order for facilities to monitor their emission performances consistently, they need to set a reference year. While determining the reference year, it is necessary to pay attention to some points. Data for emissions within the scope must be accurate and verifiable. The selected reference year is expected to represent the greenhouse gas emissions of the organization's operations.

Determining the Reference Emission Level

It is important that Scope 1-2 are primarily represented at a level of 95 percent and that Scope 3 is also included for the medium and long terms. By determining the reference level, the main emission sources are clarified and the focus points for the steps to be taken are determined. A detailed energy and resource efficiency study may be the first step in determining the reference energy level. With these studies, the following benefits can be achieved in SMEs.

- » Determination of energy, water and resource savings
- » Increased energy efficiency
- » Reduced emissions
- » Improved water efficiency
- » Minimizing the use of raw materials
- » Preventing waste and pollution at source
- » Developing efficient management practices
- » Encouraging energy management activities
- » Reducing operating costs

GHG verification is a third-party verification indicating that facilities have a proper system in

place with regulatory-compliant and reliable data, and also providing assurance to relevant stakeholders in relation to the commitment of reducing carbon emissions.

b. Energy and Resource Saving Activities

Saving activities, which are the first step, are based on behavioural and operational transformation and preventing unneeded and unnecessary use. It is important to raise awareness of, and train, all employees in order to successfully manage conservation efforts. The aim should be to eliminate unnecessary consumption by establishing monitoring (measurement) systems and an energy management system in relation to this process.

c. Energy and Resource Efficiency Activities

Efforts to improve the energy performance of existing systems, which can be implemented with or without investment, should be carried out immediately after the conservation efforts. These can be micro and macro-scale activities. For example: while activities such as speed driver application to compressors, LED conversion in lighting, boiler waste heat recovery, and free cooling in air conditioning, etc. are evaluated at the micro level; activities such as production of useful heat or electricity by recovery of process waste heat, and modernization of the cooling room, etc. are considered on a macro-scale.

With the analyses of water efficiency and water consumption, the potential for water

consumption reduction is revealed. Examples of water efficiency may be the collection of rain water or the treatment of grey/waste water for subsequent use. In addition, reducing the use of chemicals and the raw material conversion will also contribute positively to energy and resource reduction per product/service. These actions should be shaped around a prioritization matrix by evaluating their parameters such as **“efficiency on a system basis”**, **“efficiency on a facility basis”** and **“applicability”** and an optimum action plan should be created.

d. Energy Conversion Activities

The global energy transformation is happening more rapidly day by day. “Electrification efforts”, which are defined as the operation of machines, vehicles or systems with electrical energy, are an important part of the energy transformation. Examples of electrification may be the transition from gasoline vehicles to electric vehicles, from natural gas-fired boilers to heat pumps, or from natural gas-fired stoves to electric stoves. In addition, these activities

should be carried out simultaneously with optimization activities and the aim must be to also reduce the electrification load.

e. Renewable Energy Activities

Meeting the remaining energy demand from renewable energy after “focused and planned savings” and “efficiency and transformation” activities is important for reducing emissions. With the renewable energy systems (solar or wind) to be installed on site, both emission reduction and energy security with on-site production will be achieved.

f. Monitoring & Control

Measurement, monitoring and control are important in order to manage energy, resources, raw materials and emissions, and to maintain a seamless green transition journey in harmony with business strategies and policies. Measurement - monitoring and control systems should be established to control the results of the steps to be taken with the approach “You cannot manage what you cannot measure”.

3. EMISSION REDUCTION PROCESS AND DEVELOPING NEW TECHNOLOGIES

Emission Reduction Process

With the European Green Deal, the European Union has set the goal of being the first carbon neutral continent. Accordingly, reducing carbon emissions by 55 percent in 2030 compared to 1990 is the first target; Focused policies have started to be implemented in order to reduce carbon emissions by 85% in 2040 and to achieve a carbon neutral economy in 2050. At this point, it is an important step for the emission reduction process for businesses to also determine their short and long-term targets and action plans.

Short-term goals: These are greenhouse gas reduction targets that cover a period of 5-10 years. Necessary actions should be determined for significant emission reductions to be achieved by 2030. It is essential to limit the temperature increase to 1.5°C compared to the pre-industrial period.

Long-term goals: They convey the goal of a company’s de-carbonisation journey. These targets indicate the degree of emission reductions companies must ultimately achieve in order to become carbon neutral under the criteria of the standard. Most companies need to reduce their emissions by at least 90 percent to reach carbon neutrality. It covers the years 2040 and 2050. Reducing emissions to near zero by 2050 is the main goal.

Reductions beyond the value chain: It will not be the right approach to solve the problems for companies to purchase carbon credits, instead of reducing emissions. However, after companies reduce their emissions in line with their short and long-term science-based goals to achieve carbon neutrality, they must neutralize the remaining emissions. Purchasing carbon credits for neutralizing purposes seems to be a good way to become carbon neutral.

Residue neutralization: Residual emissions need to be neutralized on the way to the carbon neutral level.



Image 2: Emission process

Emerging Energy Technologies for Emission Reduction

Modern, Renewable

Solar, wind and bio-energy plants are very popular electricity generation methods today. Renewable power plants, the use of which is becoming more widespread day by day, play a very effective role in reducing carbon and equivalent emissions, if they are preferred as an alternative to fossil fuel-based grid electricity. Instalment of these renewable and environmentally-friendly plants at various scales as in-house units of organizations can be facilitated.

Organic Rankine Cycle (ORC)

Organic Rankine Cycle is one of the most effective methods to generate electricity from a low-temperature heat source. It is possible to

generate electricity via an organic fluid cycle, from a source that is at a lower temperature compared to the Conventional Rankine Cycle. It is an effective method to be a business that produces its own energy and to ensure energy independence. Furthermore, choosing ORC over a fossil fuel-based energy grid reduces emissions and demonstrates a very environmentally-friendly attitude.

Heat Pump

Heat pumps are systems that provide a high-temperature source from a low-temperature source by means of a thermodynamic cycle. Simultaneous heating and cooling can be produced in a heat pump, and it is also possible to convert a low-temperature source (tower water, waste hot water, etc.) that cannot be used efficiently into useful heat by using it as a heat source. It can meet the same thermal



needs with much lower consumption than direct heating with electricity, natural gas or any other source. In addition to the material savings to be achieved in this way, carbon emissions will also be greatly reduced.

Green Hydrogen

Hydrogen fuel is a zero-carbon energy source. Hydrogen produced by renewable resources, on the other hand, is classified as green hydrogen. Green hydrogen, which does not create carbon emissions in its supply and consumption processes, is used as an alternative fuel and is an indispensable source for zero carbon economy.

Decarbonisation

Coal is a fuel that causes high emissions due to its structure and reaction. The use of coal, which is a major factor in the formation of

greenhouse gases that constitute one of the most important effects of the climate crisis, poses a serious threat to the environment. One of the top priorities towards becoming environmentally-friendly and net zero carbon is to cease energy production and process operations that are based on coal consumption.

Electricity Storage

Battery technologies are progressing day by day in line with the purpose of electricity storage. Excess electricity from renewable energy sources is stored in storage units and responds to demand during peak consumption times. Thus, continuous use of renewable energy is ensured. With this process, electricity storage technologies provide a very effective solution in terms of reducing fossil fuel use and related emissions.





NOTES

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TRANSITION **SME'S**

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