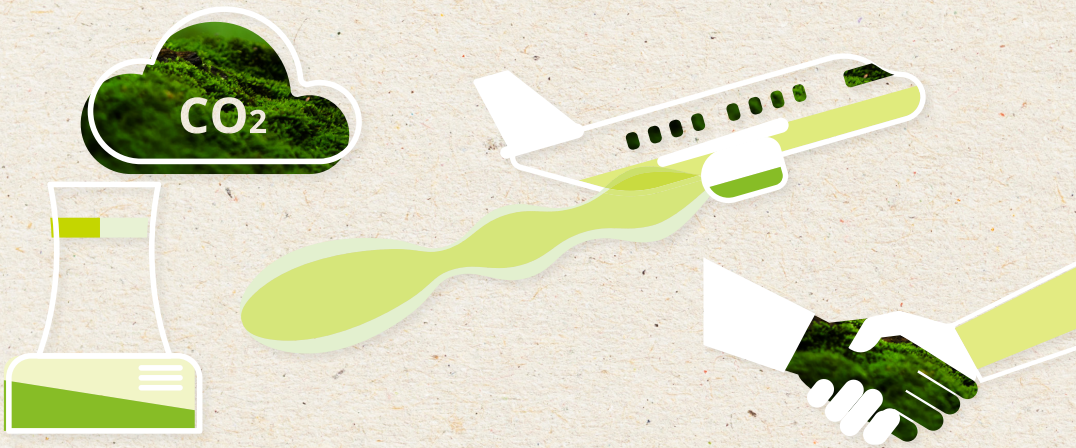




Carbon footprint and CO₂e reduction targets

– Deloitte guide

As Deloitte we support global efforts to address the climate change, so we have taken steps to cut our own greenhouse gas emissions and we want to encourage our business partners to do the same. The actions taken should have a measurable and verifiable results which is why at Deloitte we have calculated the emissions arising from our operations and set ambitious targets to reduce them.



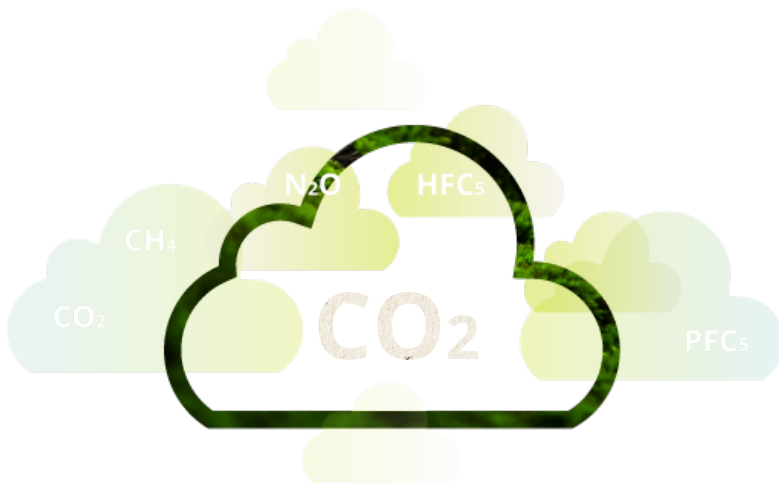
Deloitte Global has undertaken that by 2030 we will have **reduced our Scope 1 and 2 emissions** by **70%** compared to 2019.

In addition, Deloitte Global has committed to **reducing carbon emissions from business travel** by **50%** per employee (by 2030 from 2020 base year).

Deloitte also commits that **67%** of its **suppliers by emissions** covering purchased goods and services and business travel will have science-based targets by 2025.

We expect similar commitments and Scope 1&2 decarbonization goals from our contractors if they wish to continue working with us beyond 2025. We have put together this guide to help our business partners manage their carbon footprint.





CO₂ emission reduction targets and why they are so important

Governments, non-governmental organizations, and representatives of large and smaller companies have been striving to reduce their environmental impact and working to combat climate change.

Their ambition is to achieve climate neutrality, i.e. reduce greenhouse gas emissions to net zero.

The guidelines contained in international treaties and directives aim to help accomplish this goal. Among the most important initiatives are the 2015 Paris Agreement, the European Commission's Corporate Sustainability Reporting Directive (CSRD), the European Union Taxonomy Regulation and the Sustainable Finance Disclosure Regulation (SFDR).

The rationale behind these requirements is to ensure that businesses:

- manage their climate impacts, i.e., measure and report them to their stakeholders (regulators, supervisory bodies, clients, the public and competitors)
- continuously reduce their climate impacts, among others, by cutting down on greenhouse gas emissions.

Apart from the obvious environmental benefits, understanding the organization's impact on the climate is often a key element to be factored in when making business decisions. ➤



To start an effective decarbonization process, the company needs to understand and assess its GHG emissions at least in Scopes 1 and 2 and in the future - in all three scopes (according to the GHG Protocol methodology). Knowing your organization's carbon footprint will help you pinpoint the most carbon-intensive areas in which you should act.

More and more companies expect their business partners to share information on their carbon footprint. They need this data to calculate their own emissions, report them in an appropriate and reliable manner, and then create a plan to lower them. Hence, as environmental impacts are analyzed throughout the value chain,

each entity will need to take steps to pave the way for the global transition to low-carbon economy.

Achieving the climate goals set by the Paris Agreement will not be possible without significant input from the private sector.

Globally, an increasing number of companies are taking voluntary steps to reduce their negative impact on the climate and the environment, but this is still not enough to slow the imminent change.

Upcoming regulations are aimed to enlist the help of the private sector in reducing emissions, and by implication, to minimize the negative effects of climate risks (the industry nomenclature calls it "climate risk mitigation").

Both at the global level and in Poland, by committing to the SBTi 1.5°C target by 2030, Deloitte has also pledged to engage its business partners in its sustainability agenda, i.e. to encourage them to introduce viable decarbonization measures of their own, in line with the Paris Agreement guidelines (for Scopes 1 & 2).



How to calculate the carbon footprint and set reduction targets?

Below we outline best practices and steps to help you establish credible climate targets.

The process consists of two steps:



measuring Scope 1 and 2 **emissions** according to the **GHG Protocol** methodology



setting **climate goals** under Scopes 1 and 2, in line with the **SBT** methodology

KEY TERMS:



Greenhouse gases (GHG): carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs) perfluorocarbons (PFCs), sulfur hexafluoride (SF₆) are gases that contribute to the greenhouse effect by retaining energy from Sun in the Earth's atmosphere. Each gas has a specific global warming potential and therefore, to compare emissions from different sources, greenhouse gas emissions are usually calculated and reported in carbon dioxide equivalent (CO₂e).



Carbon dioxide equivalent (CO₂e) is a metric measure that allows different greenhouse gases to be compared by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. CO₂e emissions are calculated by multiplying the emissions of each of the six greenhouse gases by the 100-year global warming potential (GWP).

Protocol. It allows organizations all over the world to credibly measure and report emissions building on the experience and knowledge of over 350 leading experts drawn from businesses, NGOs and the public sector. GHG Protocol sets out the most commonly used reporting frameworks recognized e.g. by the European Commission and the Task Force on Climate-Related Financial Disclosures (TCFD).



Carbon dioxide (CO₂): is a naturally occurring gas and a by-product of the combustion of fossil fuels (such as oil, natural gas, coal, biomass). It is also emitted from land use changes and other industrial processes (such as cement production). Carbon dioxide is the principal anthropogenic greenhouse gas and the reference against which other greenhouse gases are measured.



The **carbon footprint** is the total of greenhouse gas (GHG) emissions caused directly and indirectly by an individual, organization, event or product; it is expressed as carbon dioxide equivalent (CO₂e).



SBTi (Science Based Targets initiative) is an internationally recognized organization whose main mission is to create a standardized approach to decarbonizing businesses in line with the latest developments in climate science. SBTi is crucial for climate change mitigation, as it provides companies and their stakeholders with a transparent methodology and detailed guidance for defining decarbonization targets in line with the Paris Agreement.



GHG Protocol – the standard for the accounting and reporting of the greenhouse gases provided by the Kyoto



– measuring Scope 1-3 emissions based on **GHG Protocol** methodology

According to SBTi, the organization's carbon footprint must be calculated based on the GHG Protocol methodology. After the organization's GHG emissions are calculated, the climate target can be set. In other words, without calculating emissions for the base year it is not possible to reliably commit to emission reduction in the medium and long-term horizon.

There are three Scopes of GHG emissions:

Scope 1 – direct GHG emissions controlled by a business. They include fuel consumption (heating, processing, transport), production, cooling, and fugitive emissions.

Scope 2 – indirect emissions of GHG resulting from the purchase of electricity, heat or steam used to provide facilities with energy and lighting, HVAC devices, water heaters etc.

Scope 3 – the most comprehensive treatment of the organization's environmental impact through indirect emissions. It covers the entire value chain of the organization, beginning from the carbon footprint included in consumables and half-products used in production or provided services (upstream) all the

way through emissions related to the use of products by its end users and its final utilization (downstream). Scope 3 includes indirect emissions resulting from the company's operations, such as waste processing, employee travel and emissions of transportation companies operating on behalf of the company. Accurate calculation of Scope 3 carbon footprint is challenging and requires collaboration with external value chain partners that can only be indirectly influenced by the company, such as through purchasing policies.

To gain full understanding of your organization's environmental impact, we encourage you to calculate your emissions in all three scopes. However, from our perspective and for the purpose of meeting the goals we have set, we recommend that you calculate your carbon footprint (Scopes 1 and 2).

A step-by-step guide to calculating your carbon footprint

1 Determine the organizational and operational boundaries

The purpose of the exercise is to determine the scale of your company's responsibility for given emissions. First, the organizational boundaries should be defined to determine the percentage

of your company's operations for which the carbon footprint should be measured. For example, if your business consists of 10 entities, but you have operational control over 9 of them (because, for example, you have less than 50% shareholding in one company), the carbon footprint should be calculated only for 9 entities. The next step is to determine the operational boundaries i.e., indicate the ranges of direct and indirect GHG emissions that fall within the established organizational boundaries (types of direct and indirect emissions that are characteristic for these 9 companies).

ORGANIZATIONAL BOUNDARIES

Two different methods of accounting and reporting of organizational boundaries can be used for the purposes of corporate GHG reporting: “equity share method” and the “control method”. ➔

Equity share method



The equity share reflects the economic interest, namely the extent of the company's rights to the risks and benefits of the operations.

If the reporting company wholly owns all of its operations, its organizational boundaries will be the same regardless of the method used. In the case of joint ventures, the organizational boundaries and resulting emissions may vary depending on the approach used. For both wholly-owned and joint-venture operations the method selected may change the way emissions are categorized in determining operational boundaries.

This control can be defined in financial or operational terms.

Financial control - the company has financial control over the operation if it has the ability to direct the financial and operating policies of the operation with a view to gaining economic benefits from its activities.

Operational control - the company has operational control over an operation if the company or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operation.

Control method

Under the control method the company **accounts for**

100%

percent of the **GHG emissions** from the operations over which it has control.



It does not, however, **account for the GHG emissions** from entities in which the reporting company has an interest but which **it does not control**.

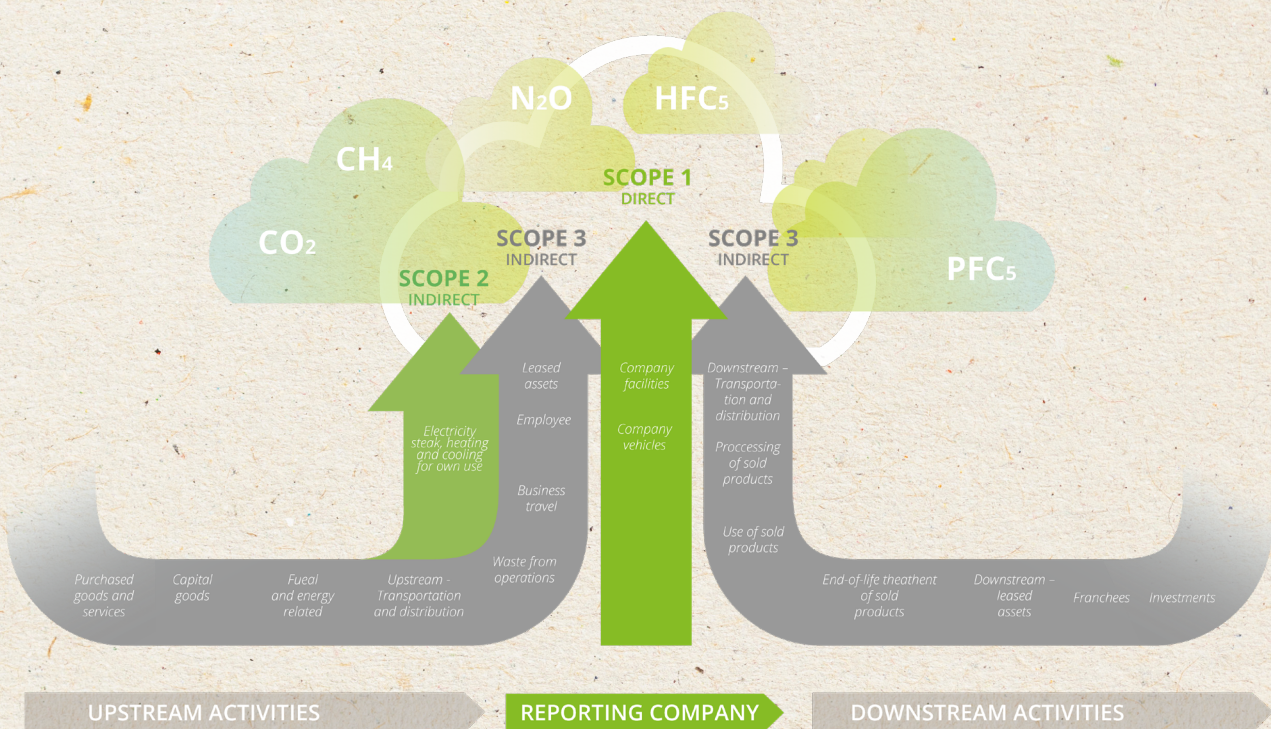


OPERATIONAL BOUNDARIES

An operational boundary defines the scope of direct and indirect emissions for operations that fall within the company's established organizational boundary. The operational boundary (scope 1, scope 2, scope 3) is decided at the corporate level after setting the organizational boundary

Direct GHG emissions are emissions from sources that are owned or controlled by the company. Indirect GHG emissions are emissions that are a consequence of the activities of the company but occur at sources owned or controlled by another company.

Companies should separately account for and report on scopes 1 and 2 emissions at a minimum. Together with Scope 3 reporting, all three scopes will provide comprehensive accounting framework for managing and reducing direct and indirect emissions.



2 Collecting input data

Once the method and scope of reporting greenhouse gas emissions have been determined, it will be necessary to collect the data on which the calculations are to be made. The required data can be divided into the following categories:

- data relating to the company's operations, such as energy consumption, refrigerant leakage (see the table below)
- emission factors

Emission factors are developed to determine the amount of greenhouse gases that enter the ambient air as a result of technological, transportation and other processes. Emission factors are established for most typical production processes in various industries. They determine the average amounts of pollutants (with the greatest environmental significance) that are released as a result of a given process, expressed in units of mass of a given pollutant per unit of time, product, or useful effect, unit of fuel burned, or energy consumed.

Below is a **list of databases** in which you can find the indicators necessary to perform the carbon footprint calculations:

- **DEFRA** - Department for Environment Food and Rural Affairs 
- **KOBIZE** - National Centre for Emissions Management 
- **IPCC** - The Intergovernmental Panel on Climate Change 

The unit of the data collected and the unit of the adopted carbon footprint indicator must be aligned, e.g. the emissions from the natural gas consumed that are reported in m³ should be calculated using the emission factor relating emissions per 1m³ (not kWh or MWh). Similarly, the electricity reported in MWh should be calculated with an index per MWh and not kWh. In addition, you should always choose up-to-date emission factors – their values change, so make sure that the latest database is used.



SCOPE 1 - DIRECT GHG EMISSIONS

Emissions to be covered

- Emissions from means of transportation (gasoline, diesel)
- Emissions from combustion of fuels (coal, diesel, fuel oil, gas) for CO or DHW, or for production of steam and other production utilities
- Emissions from refrigeration/air conditioning plants
- Emissions from combustion of ON for backup generators

Sample data for calculating emissions

Vehicles - fleet

- Own fuel consumption of vehicles (gasoline in liters and kilometers)
- Own fuel consumption in vehicles (diesel in liters and kilometers)
- Own fuel consumption in vehicles (LPG in liters and kilometers)

Sources of fuel combustion - real estate

- Consumption of natural gas for CO, DHW needs (GJ/kWh/liters)
- Consumption of fuel oil CO, DHW (GJ/kWh/liter)
- LNG consumption for CO, DHW needs (GJ/kWh/liters)
- Diesel fuel consumption for emergency generator needs (diesel fuel in GJ/kWh/liter)
- Consumption of hard coal (pea coal) for the needs of CO, DHW (GJ/kWh/ton)
- Total amount of RES energy generated in own sources (% of total electricity consumed)
- Refrigerant in own installations - losses / additions (kg) DEFRA:

Sample emission factors

DEFRA:

- Diesel: 2.706 kg CO₂e / l
- Gasoline: 2.340kg CO₂e / l
- LPG: 1.557 kg CO₂e / l
- Natural gas: 2.021 kg CO₂e / m³
- Fuel oil: 2.54014 kg CO₂e / l
- IR134A refrigerant: 1,430 kg CO₂e / kg
- Coal: 2.404 kg CO₂e / kg

SCOPE 2 - INDIRECT EMISSIONS

Emissions to be covered

- GHG emissions resulting from purchased electricity
- GHG emissions resulting from purchased thermal energy (municipal district heating)
- Emissions data are either from suppliers (real data) or from international / sectoral databases for specific activities (i.e. DEFRA, IEA, other sectoral)

Sample data for calculating emissions

- Consumption of total purchased electricity (kWh/MWh) - according to invoices for energy consumption (indicate locality and name of energy supplier)
- Share (%) of green energy under the above item - based on guarantees of origin or other documents confirming the origin of energy from renewable sources (guarantees of origin obtained from the energy supplier indicating the year and amount of energy supplied from RES should be attached)
- Total consumption of purchased electricity (kWh/MWh) to power vehicles - according to invoices for energy consumption
- Share of purchased green energy under the above item (%)
- Consumption of purchased thermal energy (G) - according to invoices for consumption of thermal energy (indicate locality and name of energy supplier)

Sample emission factors

KOBIZE:

- Electricity in Poland 2021: 652 kg CO₂e / MWh

URE

- Network-supplied heat in Poland 2021: 96.5 kg CO₂e / GJ

3 Calculation of Scope 1 and 2 GHG emissions

Carbon footprint is the total amount of greenhouse gases released into the atmosphere by an activity or organization over a specified period of time. It is measured in metric tons of carbon dioxide equivalent (tCO₂e).

Once the data is collected:

- match the emission factor with the data (source of emissions) and
- multiply the consumption of a particular type of energy by its emission factor

For example: your company consumes 200 liters of diesel fuel. The emission factor is 2.706 kg CO₂e / l. Thus, the emission intensity of this consumption is 541.2 kg CO₂e.

4 Report and compilation of results (with mandatory disclosures)

Measuring the carbon footprint is not a common practice among companies, hence the implementation of this process takes time and may have a margin of error at first.

However, due care and diligence should be used and the methodology and data sources adopted to make calculations must be transparently communicated to stakeholders. With time GHG emission measurements and inventories will become more and more complete. To ensure transparency and – by the same token – to make it possible to compare results, it is recommended that GHG emissions reports be public and:

- be based on the most current data available at the time of publication,
- clearly show the methodology adopted,
- include information on any significant discrepancies found in previous years.

THE GHG REPORT SHOULD CONTAIN:

1. Description of the company's boundaries and inventory

- a. description of selected organizational

boundaries, including the selected approach to consolidation


- b. description of selected operational boundaries (Scopes 1-3)

2. Information on emissions

- a. total calculated Scope 1 and 2 emissions
- b. Scope 1 and 2 emissions separately in kg CO₂ equivalent

3. Description of the methodology

- a. the calculation year
- b. the methodology used to calculate or measure emissions, with a reference or link to any calculation tools and benchmarks used
- c. any specific exclusions from the calculation of energy sources, facilities and/or operations

For **carbon footprint calculations**, you can **use the free tool** available on the **GHG Protocol** website. 





– Setting Scope 1 and 2 climate targets in line with **SBT** methodology

When you know your carbon footprint, you can move on to the next step which is to set your organization’s decarbonization targets. The targets identified in SBT provide companies with a clear pathway to cut emissions in line with the goals of the Paris Agreement. According to the methodology for Scopes 1 and 2, it is recommended to define an Absolute Target i.e., the commitment to reduce emissions in absolute terms (relative to the base year) in accordance with the 1.5oC trajectory which translates into an annual average emission reduction of at least 4.2% over a specified time horizon, in accordance with the 42% reduction convergence assumption by 2030.

The exact target should be calculated according to Formula 1. This target:

- covers **95% of emissions** in Scopes 1 & 2
- the time horizon for the target set is **5-10 years**



Formula 1

4.2% X (target year-2020)

Example
Thus, if the company sets an Absolute Target for Scopes 1&2 with the time horizon: 2023-2030, it will have to demonstrate a 42% reduction in greenhouse gas emissions during this period.

The target set for 2023-2032 will require greater ambition and, according to the formula, will entail a 50.4% reduction in emissions.

There are other types of emission reduction targets e.g., targets related to emission intensity for a fixed rate, but they are reserved for Scope 3 emissions (indirect emissions) or they concern selected business sectors. We believe that our business partners do not belong to the sectors eligible for other types of targets.

How to meet your decarbonization targets?

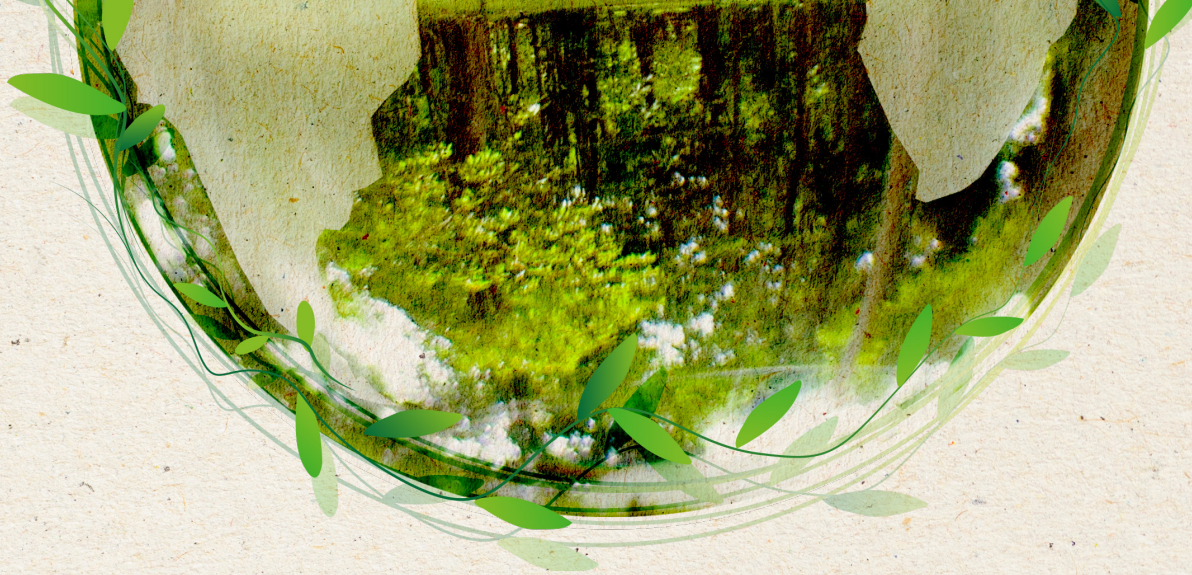
When you have calculated your carbon footprint i.e., you are aware which part of your company's value chain generates the majority of your emissions, you can plan the reduction activities that will be tailored to your needs. A number of actions will help you achieve your goals.

Scope 1:

- switching to a fleet of electric cars and powering them with RES energy,
- choosing buildings that do not use natural gas for heating,
- investments aimed to increase the energy efficiency of building heating systems.

Scope 2

- purchasing green energy (guarantees of origin or a long-term cPPA)
- choosing office buildings with alternative heat sources such as heat from HVAC or heat pumps instead of district heat.



Deloitte.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms or their related entities (collectively, the "Deloitte organization") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities (collectively, the "Deloitte organization"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.