



TECHNICAL INSIGHTS

NET ZERO EMISSIONS

DECEMBER 2021

All of a sudden, everyone is talking about a net zero emissions target. The world leaders' push for action to address climate change issues have led many governments around the world to set their net zero goals and are taking steps to reduce greenhouse gas emissions via the introduction of emissions programmes, carbon taxes and incentives, regulations on energy emissions. The United States of America, European Union, United Kingdom and Japan have committed to net zero emissions by 2050. China, Russia and Saudi Arabia have also set a target to achieve net zero emissions by 2060. In Malaysia, the Government has committed to reduce its greenhouse gas emission intensity of Gross Domestic Product by 45 percent by 2030 and achieve a carbon neutral nation by 2050. In light of this development, many corporations in Malaysia have also geared towards this agenda.

What does net zero emission mean?

The term net zero emission is often used interchangeably with 'carbon neutrality'. It refers to a point in time when humans stop worsening the climate condition by balancing the greenhouse gas emissions produced and removed from the atmosphere. Once we stop producing and emitting greenhouse gas, the next urgent action is to deal with all the past emissions released into the atmosphere over the decades. In short, the harm that brought by humans to the climate has to be reversed and repaired. One of the primary greenhouse gases in the earth's atmosphere is carbon dioxide (CO₂) which can be removed from the atmosphere through 'carbon sinks'.

While driving the agenda towards net zero emission from now to the target deadline, i.e., by 2050, the emissions during this period will not be completely removed from the atmosphere. There are still some emissions produced along this journey to the target deadline, hence it needs to be offset by planting trees, acting on plastic pollution in the oceans and chemical pollution to soil. To avoid a climate catastrophe, we must lower greenhouse gas emissions and simultaneously offset it by carrying out a course of appropriate actions. In this circumstance, fossil fuels such as oil, gas and coal should be phased out with a simultaneous introduction of 'renewable energy'.

Numbers are always close to the heart of professional accountants. Let's understand this through a numerical example. For instance, take an organisation that generates 30,000 tonnes of carbon dioxide annually. If it takes steps to reduce its emissions through the use of renewable energy and reduces it by 24,000 tonnes, the 6,000 tonnes of carbon dioxide produced can be offset by purchasing 6,000 tonnes worth of carbon sinks in order to achieve net zero emissions.

What is a carbon sink?

A carbon sink refers to things that absorb carbon from the atmosphere, such as soil, plants and the ocean. These elements are the largest carbon sinks in the world and are important to counter and tackle climate change as they are able to keep the climate stable. The ocean is one of the largest carbon sinks and absorbs a quarter of the carbon dioxide released by humans into the atmosphere. Phytoplankton, also known as microalgae, lives and grows in the ocean and is similar to terrestrial plants as it absorbs the carbon produced in the atmosphere. This is the natural carbon cycle. However, plastic pollution in the ocean has destroyed this carbon cycle. Hence, it is important to push for an end to plastic pollution in order to protect the carbon cycle. Plants are also carbon sinks. Pursuant to the International Union for Conservation of Nature (IUCN), forests absorb about 2.6 billion tonnes of carbon dioxide every year. Deforestation has impacted the carbon cycle. Felling trees contribute to climate change because it depletes forests that absorb vast amounts of carbon dioxide. The awareness of climate change in the recent years has helped secure more than 100 countries to signed a pledge to protect forests and enhance tree-planting initiatives. Soil also absorbs a large amount of greenhouse gas emissions each year, but it is also under threat from chemical pollution and food production. Currently, humans are emitting more carbon dioxide into the atmosphere than the natural carbon sinks can absorb. Hence, we need to stop damaging activities to eliminate excess emissions in order to protect and preserve our planet.

What is renewable energy?

Renewable energy refers to the earth's natural energy that is not exhaustible, such as wind and sunlight. This energy can be an alternative to fossil fuels such as coal, oil and gas and is less harmful to the environment. Humans can make a change and reduce the impact on the environment by opting for renewable energy instead of the use of traditional fossil fuels. For example, the installation of solar panels can help a house owner reduce energy costs as well as improve their standard of living. This energy resource is more eco-friendly and helps a consumer reduce their carbon footprint. There are many other types of renewable energy that can be used by companies to protect and preserve the environment:

- *Bioenergy*: This is a renewable energy derived from biomass, which comes from living plants and organisms. There are many ways to generate this energy such as harnessing methane, burning biomass and etc.
- *Geothermal*: This heat is trapped underneath the earth's crust. A large amount of this heat leaks to the earth naturally, such as volcanic eruptions and geysers. This heat can be used to produce geothermal energy.
- *Hydroelectric*: This energy also called hydroelectric power or hydroelectricity. It is a form of energy that harnesses the power of water in motion. For example, water flows through a dam to generate electricity.
- *Hydrogen*: This is a clean fuel that when consumed in a fuel cell, produces only water. Today, hydrogen fuel can be produced through many ways, such as natural gas reforming, electrolysis and solar-driven and biological processes.
- *Ocean*: The ocean can produce mechanical and thermal energy. The mechanical energy relies on the flows of the tides to generate energy and the latter uses warm water surface temperatures to create energy.
- *Solar*: This energy is derived by collecting radiant energy from sunlight and converting it

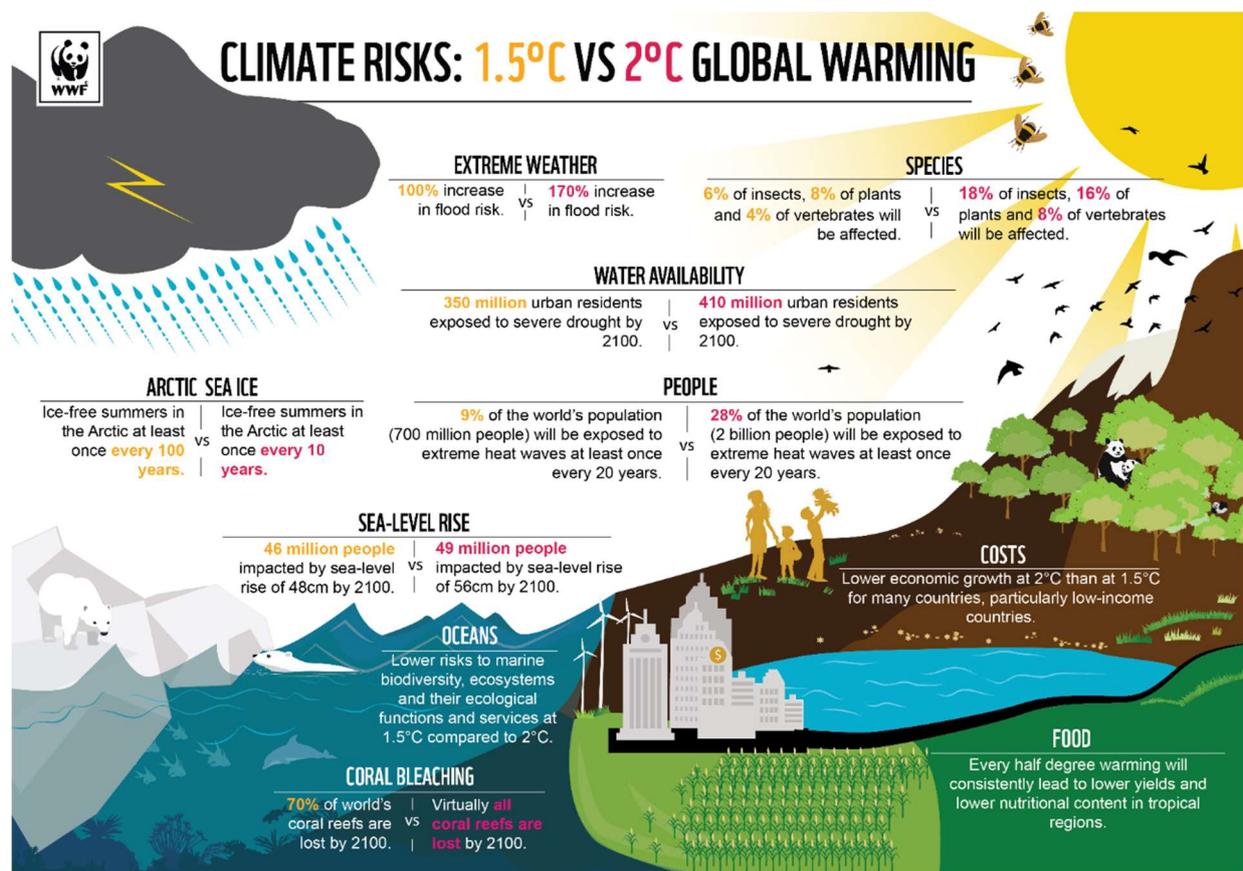
into electricity or heat.

- *Wind*: This is derived by capturing wind flow through the use of turbines and converting it into electricity.

Why is net zero emissions important?

The Intergovernmental Panel on Climate Change (IPCC) has shed light on climate change. It was reported that in the past three decades, global warming has continued unabated. According to the United Nation World Meteorological Organisation 2018, the world is currently on track to a temperature rise of 3-5°C above pre-industrial levels by 2100, which will lead to irreversible changes to the global environment and pose considerable economic and financial challenges.

In light of this, the Paris Agreement aims to obtain a global response to the threat of climate change by controlling the rise in the global average temperature to below 2°C above pre-industrial levels and to pursue efforts to limit the temperature rise to 1.5°C above pre-industrial levels. Subsequently, the IPCC presented the Special Report on Global Warming of 1.5°C, which confirms that climate change is already affecting people, ecosystems and livelihoods all around the world. It shows that limiting warming to 1.5°C is possible within the laws of chemistry and physics but would require unprecedented transitions in all aspects of society.



(Source: WWF, 2020)

What is the role of professional accountants in dealing with net zero emissions?

Professional accountants have a critical role in navigating the way to achieve net zero emission targets. Chief Financial Officers (CFOs) and their financial functions are key in providing such support to companies and helping companies progress towards net zero emissions including:

- raising and allocating funds needed for adaptation;
- providing information and data to drive the reduction of greenhouse gas emission agenda;
- embedding the reduction of greenhouse gas emission in the decision-making process and devising strategies to achieve greenhouse gas targets;
- interacting with capital markets to meet the targets; and
- reporting performance against greenhouse gas targets.

International development

The whole finance system plays an important role in meeting this global agenda. With the push of The Prince of Wales's Accounting for Sustainability Project (A4S), accountancy bodies across the globe have also pledged to provide advice to help governments establish policies and infrastructure aimed at achieving net zero economies. In addition, these accountancy bodies have also committed to providing their members with support, including creating guidance and generating action to help achieve a net zero economy, aimed at progressing to net zero emissions by 2050. The ultimate aim is to prevent a worsening climate crisis and seize opportunities in the energy transition.

Malaysia's landscape

In Malaysia, efforts in growing the green economy, boosting energy sustainability and transforming the water sector have accelerated to become the core of the country's socio-economic development. Professional accountants, as trustworthy advisors to businesses they work with and for, are expected to be cognisant of greenhouse gas emission issues, assess their implications to the businesses, manage the risk of greenhouse gas emissions and advise management diligently. Currently, there are generally accepted accounting principles for greenhouse gas, one of it being the 'Greenhouse Gas Protocol' which is widely used standard to measure greenhouse gas emissions. The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard sets the requirements and provides guidance for companies in preparing a greenhouse gas emissions inventory. A well-designed greenhouse gas inventory can serve a number of business objectives, such as managing greenhouse gas risks, identifying reduction in greenhouse gas emission opportunities, participating in mandatory reporting programmes, and participating in greenhouse markets, amongst others.

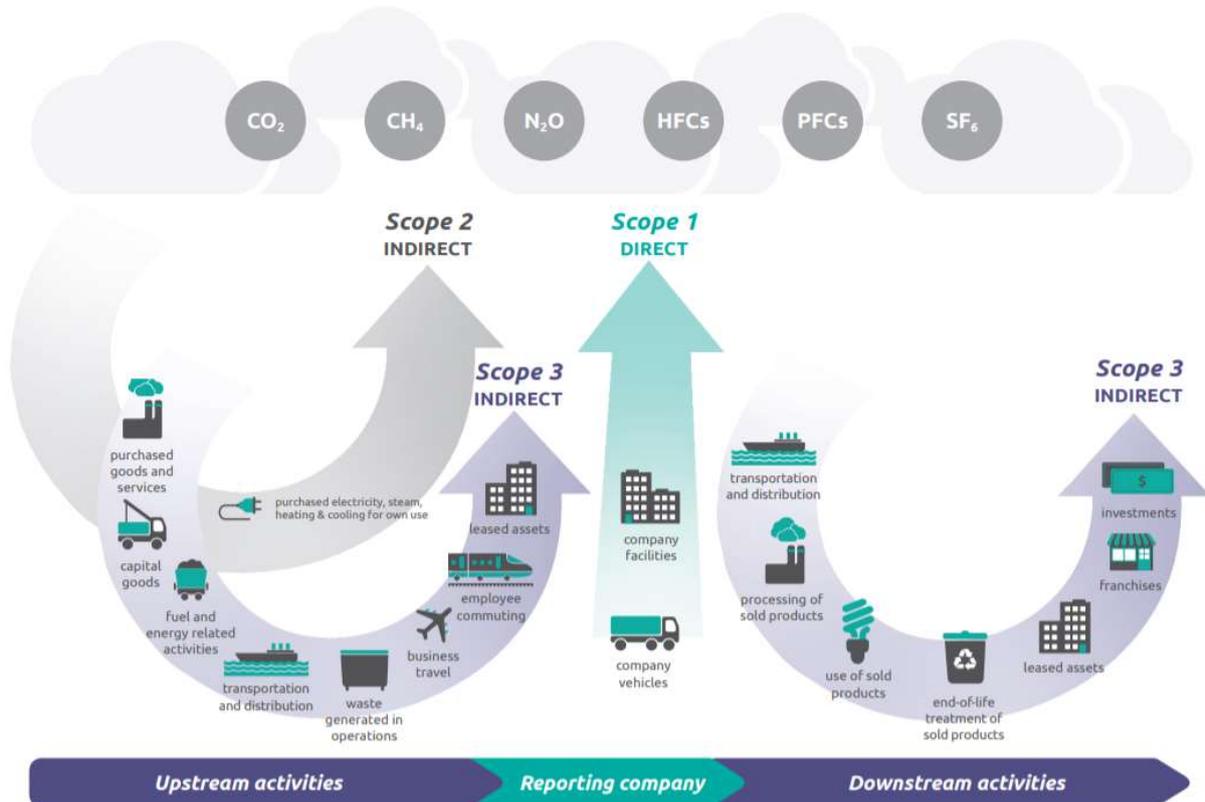
Greenhouse Gas Protocol Corporate Accounting and Reporting Standard

In order to help an organisation progress towards net zero emissions, professional accountants are expected to have an understanding of the available protocol and standard. Greenhouse gas emissions come from a variety of sources. To account for it, a company should categorise it based on its source. Pursuant to the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, greenhouse gas emissions can be divided into:

- *Scope 1*: Direct greenhouse gas emissions that occur from sources that the company

controls, such as boilers, furnaces, vehicles, and etc.

- *Scope 2:* These emissions physically occur at the facilities that generate electricity, heat, or steam.
- *Scope 3:* These emissions occur from sources that the company does not own or control, such as purchased goods and services; the transportation and distribution of products purchased or sold in vehicles the company does not own; business-related travel in vehicles operated by third parties, and emissions from using goods the company sells.



(Source: Greenhouse Gas Protocol – Overview of Greenhouse Gas Protocol scopes and emissions across the value chain)

After obtaining a basic understanding of greenhouse gas emissions, a company can take the following steps to establish an inventory of greenhouse gas use:

Setting Boundaries

The first step is to set the boundaries for counting emissions. A company can opt for an approach for consolidating greenhouse gas emissions and then apply that approach consistently. The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard suggests two possible approaches for consolidating greenhouse gas emissions, i.e., equity share approach and control approach.

Identifying Sources and Measuring Emissions

After determining the boundaries for counting emissions, the next step is to identify the emissions sources, such as usage of electricity, natural gas, company-owned vehicles, etc.

Analysing Greenhouse Emissions

Gathering data of greenhouse gas emissions is just the beginning of this exercise. The next step

is to analyse the gathered data and information. The company can perform the analysis in many ways. One of the common analyses is to compare over a period of time. Successful management of emissions can demonstrate a declining trend over time using trend analysis.

How to Create Accountability for Net Zero Emissions?

Many investors are serious about combatting climate change and supporting energy transition. There is a need for companies to report and inform investors whether their investments are on track to achieve a net zero target. In this circumstance, carbon quotient analytics can be used to coordinate information for investors. Hence, in addition to an understanding of the available standard and financial data, the International Federation of Accountants (IFAC) supports the use of carbon quotient analytics. Professional accountants may consider a new approach to measure climate-related financial risk by using the carbon quotient analytics.

What is carbon quotient?

Companies and professional accountants may adopt this Carbon Quotient Analytics to measure, manage and report climate-related financial risk and track the performance over time. Carbon Quotient Analytics leverages on the information in the income statement and balance sheet to create "what if" scenario such as, "what if" this project has to be carbon neutral today? Would it be profitable? Would it be solvent? Companies can perform an estimation of future greenhouse gas emissions by calculating and accounting for the remaining useful life of existing carbon-intensive assets i.e., emission-producing assets. Instead of looking at the past greenhouse emissions, Carbon Quotient Analytics measures the unrealised greenhouse gas emissions that have already embedded in the existing emission-producing assets in the real economy.

The following diagram shows that climate-related impacts on expected future cash flows can have immediate financial consequences. If the existing emission-producing assets will be replaced at the end of useful life, this reduces replacement costs. If the assets will be replaced prior to the end of useful life, this gives rise to an impairment of the assets.



(Source: Carbon Quotient™ - Climate-related risks, opportunities and financial impact)

Companies may use Carbon Quotient Analytics to identify, assess and manage the potential financial impacts of the transition to net zero, especially it helps companies assess whether long-lived tangible assets will become impaired or stranded. It also helps companies prepare climate-related financial disclosures on risk management. Carbon Quotient Analytics can also be incorporated into an organisation's strategic analysis to format a roadmap of where and how the company will compete in a low carbon economy.

The aspiration of Malaysia is to become a low-carbon country. This goal is not an empty dream. We need a collective effort in combatting climate change and achieving the goal. Irrespective of the size of organisations professional accountants work with and for, all professional accountants have an important role here in helping their organisations meet compliance targets and deploy climate-friendly strategies.

(Note: This publication was also included in the Institute's magazine 'The Malaysian Accountant Journal' November / December 2021 Issue)