

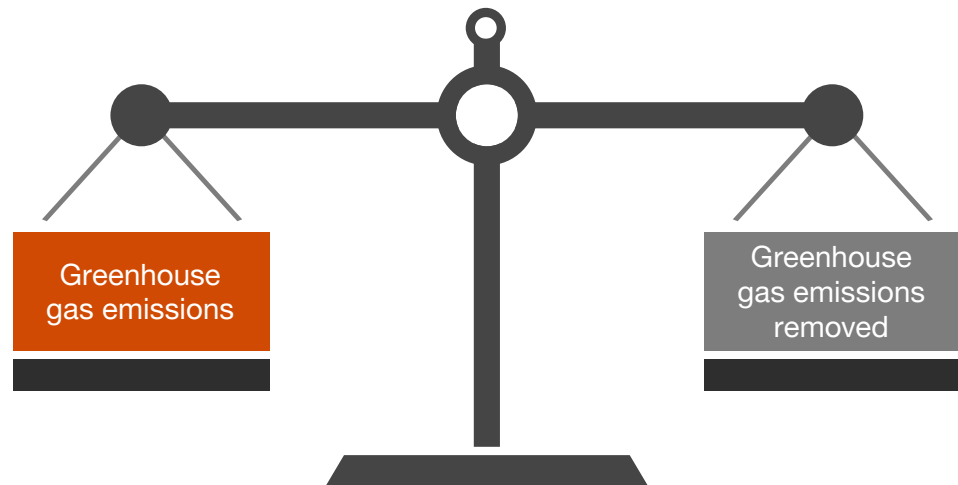
Accounting for your company's zero-carbon future



Reduce what you can, offset what you can't.

Carbonfund.org

Scientists have been sounding alarms for years that greenhouse gas emissions need to be reduced to prevent catastrophic consequences for our planet. Stakeholders—including investors, customers, employees, governments, and regulators around the world—are compelling companies to act, making a focus on climate a business imperative. Enter “net zero,” the balance achieved when the greenhouse gas emissions put into the atmosphere are offset by those removed from the atmosphere.



While that might sound straightforward, going from a net zero goal to an achievable strategy is not so easy. The task of actually achieving net zero or other climate pledges, such as being carbon neutral or carbon negative, can be Herculean, and there is no one-size-fits-all approach. An effective net zero strategy combines actions that **(1) reduce** emissions across the value chain, **(2) absorb** unavoidable emissions, and/or **(3) offset** the emissions that cannot be avoided or absorbed through investments in sustainable projects. But questions arise as to what each of the actions really means and what the implications are.

Despite the complexities, we are witnessing commitments to net zero at a scale never before seen. To make their business models more resilient, companies are pledging bold actions primarily aimed at **Scope 1** (direct) emissions. Companies that have not yet embraced emissions reduction strategies or considered **Scope 2** and **Scope 3** (indirect) emissions may find themselves behind their peers. They could also be opening themselves to reputational risk or experiencing a reduction in available capital or declines in market valuation. And there is the possibility that business partners may only work with companies similarly committed to reducing greenhouse gases.

Understanding how to develop and properly execute on each part of a net zero strategy is important to avoid accounting or business surprises or inadvertent greenwashing (giving the impression that the company is doing more to protect the environment than it is).



Getting to net zero: Common strategies and their impacts on financial reporting

Establishing an approach to achieving net zero requires consideration of various strategies, recognizing what technology is available now and in development, and what others in the company's orbit are doing (which could lead to indirect or Scope 3 emissions). Success will likely require a myriad of strategies working simultaneously, each chosen for its impact balanced against its cost.

Existing US GAAP will apply for some strategies, while others may require establishing accounting policies based on the substance of the transaction. We highlight key financial reporting considerations on common strategies.

Net zero strategy



Technology

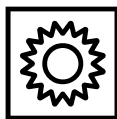
Technology that exists today will provide a partial solution to the net zero equation for some companies. Companies may undertake capital projects to improve the efficiency, cost, and effectiveness of their operations and reduce emissions. Examples include electrification (replacing technologies that run from fossil fuels such as natural gas with those that use electricity) or making changes to buildings and infrastructure (e.g., green certifying buildings or adding a solar roof to the building or parking lot).

Companies are also engaged in research to develop and improve technology to both reduce emissions or to absorb emissions that are not able to be reduced. For example, carbon capture and storage is a way of removing carbon emissions from the atmosphere by capturing the carbon dioxide produced by power generation or industrial activity, transporting it to a storage site, and then storing it deep underground.

Direct financial statement impacts

- Companies that invest in technology need to determine whether or not to capitalize the improvement. An expenditure that adds to the productive capacity or improves the efficiency of an existing facility should be considered a capital item. Costs occurring in the preliminary stage of a capital project should be expensed.
- Companies involved in researching new technologies need to determine whether research and development (R&D) costs should be capitalized or should be expensed as incurred. Only costs for R&D activities that have an alternative future use should be capitalized. Costs such as research into new technologies and design or modification of possible alternative technologies would typically be expensed.
- Companies should also consider whether government incentives were provided to encourage technological investments, and if so, whether government grant accounting applies.



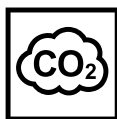


Renewable energy

Investment in renewable energy sources (e.g., wind, solar, hydro) is booming, and numerous non-traditional investors are entering this space. A renewable energy credit, or REC, is created for each megawatt hour of electricity that is generated from a renewable energy resource. A REC provides evidence that power has been generated by a qualifying renewable resource and is typically certified by a state or other agency, is separable from the underlying power, and may be purchased or sold.

While some companies may choose to directly invest in renewable projects and retain the RECs created by the project, others are obtaining RECs directly from power generators or moving to facilities with “greener” energy supplies. Typically, only the REC holder can “claim” the lower emissions resulting from using a renewable generating source, allowing them to offset power generated from other sources for purposes of any net zero commitments.

- Companies that invest in renewable energy projects need to consider the structure of the investment and whether it would result in consolidation of the issuing entity or require another method of accounting (e.g., equity method, fair value, measurement alternative). In addition, investors in these projects need to consider the accounting for any tax credits and, if the equity method of accounting is required, whether the hypothetical liquidation at book value method (HLBV) should apply.
- Companies purchasing RECs through green power purchase agreements will need to consider whether lease or derivative accounting applies to the purchase agreement or if consolidation is required. There may also be tax considerations.
- There is currently no specific US GAAP covering the accounting for RECs; however, we believe a company may account for a REC as (1) inventory (if held for use or sale) or (2) an intangible asset (if held for use). The approach selected should be applied consistently, be reasonable based on the intended use, and be properly disclosed. A voluntary change in accounting approach would be treated as a change in accounting principle, and the company would need to demonstrate that the alternative accounting principle is preferable.
- Companies such as utilities that are required to obtain RECs to meet state targets for green power should expense the cost of purchased RECs when they are submitted to meet the compliance obligation.
- Companies that are obtaining RECs to voluntarily reduce emissions also need to consider when a REC is “used” and therefore, retired (i.e., removed from the books). General practice is that the REC should be retired (with the state or other applicable agency) and expensed when the company applies it to its net zero goals (i.e., when the REC is voluntarily surrendered to the state or other applicable agency). The REC would not be amortized over a period of time.
- The power plant entity itself will also have other accounting and reporting considerations. See Chapter 9 of PwC’s *Utilities and power companies* guide for more information.



Carbon offset programs

A carbon offset allows a company to invest in projects to offset or “reduce” the greenhouse gas emissions it produces. Companies typically purchase these to offset their emissions that cannot be eliminated. Carbon offsets are intended to represent an actual reduction of one ton of carbon dioxide or greenhouse gas (GHG). Carbon offsets can be generated from programs such as reforestation, farm management, methane abatement, and carbon capture.

There are numerous carbon offset programs and various forms of verification in the carbon offset market. Verification of offset programs is an evolving area and questions have been raised about whether the verification is truly substantive (e.g., are the offsets incremental to the emissions that would have been reduced absent the offset project). To avoid inadvertent greenwashing, companies that are considering investing in offset projects or purchasing carbon offsets should understand the underlying source of the carbon reduction, the likelihood of reduction absent the project (i.e., is it incremental to business as usual), and the criteria used to determine the amount of offsets generated. Also, it is important to ensure that the methods used to calculate the reduction in emissions are rigorous and accurate.

- Companies that directly purchase or invest in the assets used in an offset program (e.g., planting trees for reforestation, methane gas capture at a landfill) should consider whether to capitalize the offset-generating asset as property, plant, and equipment or as inventory.
- There is currently no specific US GAAP covering the accounting for carbon offsets. However, we believe that companies that purchase carbon offsets may classify a carbon offset as (1) inventory (if held for use or sale) or (2) an intangible asset (if held for use). The approach selected should be applied consistently, be reasonable based on the intended use, and be properly disclosed. A voluntary change in accounting approach would be treated as a change in accounting principle, and the company would need to demonstrate that the alternative accounting principle is preferable.
- Another consideration is when a carbon offset is “used” and therefore, retired (i.e., removed from the books). General practice is that the carbon offset should be retired (with the state or other applicable agency) and expensed when the company applies it to its net zero goals (i.e., when the offset is surrendered to the state or other applicable agency to demonstrate compliance or when the company voluntarily surrenders it if compliance is not required). The offset would not be amortized over a period of time.

Net zero strategies may also impact other assets and liabilities in the financial statements (e.g., impairment of long-lived assets when they become obsolete). The FASB recently published a [paper](#) on the intersection of ESG matters with financial accounting standards that addresses some of these considerations.

Companies should be transparent about their commitment to reducing emissions and their environmental impact. Disclosure of the financial statement impact may also be appropriate in the financial statements or, for public companies, in other parts of the SEC filing. Given the recent focus on climate disclosure in particular by the [SEC](#) and [European Union](#), companies are advised to consider what is material to investors’ informed decision-making. Regulators around the globe may issue comments asking for supporting detail on statements regarding a company’s commitment to net zero or lack thereof.



They will be looking to reduce emission...but for a period of time, they will also need the “net” in net zero, and they can only get that from a credible global [carbon] market that needs to be developed.

Mark Carney, Special Envoy for Climate Action and Finance

Ask the National office

I have also heard about carbon credits and emissions allowances. What are those?

Carbon credits and emissions allowances are terms often used interchangeably. A carbon credit or emissions allowance gives an entity the legal right to emit one ton of carbon dioxide or GHG equivalent. They are generally used by companies such as power generators, utilities, and oil refineries that are subject to state regulations over their emissions. These companies are generally required to provide allowances equal to their emissions in a particular year. Companies subject to these requirements are typically allocated allowances based on certain targeted levels of emissions. If the company uses fewer emissions credits than it is allocated, it can trade, sell, or hold the excess credits. Alternatively, a company that emits carbon dioxide or GHG equivalents in excess of its cap would be required to purchase emissions credits from another company. Ultimately, the credits will be retired when used to meet a company’s compliance obligation.

How do these differ from carbon offsets?

While carbon offsets are intended to be actual reductions in carbon or GHG equivalents, carbon credits or emissions allowances represent the amount of emissions a company is allowed to produce (though there are some that use all of these terms interchangeably). Companies should look through the “form” of the program to understand its substance.

Do carbon credits or emissions allowances get considered in whether a company has met its net zero targets?

No. Because an emissions allowance or carbon credit does not represent an actual emissions reduction (i.e., a company has not taken steps to incrementally reduce the amount of emissions beyond what they are allowed to produce), it is not factored in a net zero commitment.

What’s next?

Although achieving net zero is still a long way off for many companies, there is good news: energy²-related carbon dioxide emissions in the United States decreased by 2.8% from 2018 to 2019, and since 2007, energy-related carbon dioxide emissions have declined eight out of twelve years. Notwithstanding the progress companies are making on their net zero pledges, there continue to be questions and complexities surrounding net zero, but it’s too important and too in demand by stakeholders for companies to delay taking action. Establishing a comprehensive plan and understanding the accounting and reporting impacts are important first steps. The rest is a journey of continuous improvement.

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¹ <https://www.eia.gov/environment/emissions/carbon/>

Appendix A

Net zero dictionary

Bio-energy with carbon capture and storage (BECCS)	Process of extracting bioenergy from biomass and capturing and storing the carbon, thereby removing it from the atmosphere
Biomass energy	Energy found in plants
Carbon capture / carbon sequestration	Process of extracting carbon and storing it, thus preventing it from being emitted in the atmosphere
Carbon negative	Removing more carbon dioxide from the atmosphere than is emitted
Carbon neutral	Achieving net zero carbon dioxide emissions by balancing carbon dioxide emissions with removal or elimination of carbon dioxide emissions altogether
Carbon offset projects	Projects that allow companies to invest in environmental projects to make up for emissions of greenhouse gases [see also Verification]
Carbon credit	Tradable instrument that conveys a right to emit a unit of pollution [See also Emission allowance]
Carbon pricing	Captures the external costs of greenhouse gas emissions
Carbon sink	A forest, ocean, or other natural environment that has the ability to absorb carbon dioxide from the atmosphere
Carbon tax	Government-imposed fee on any company that burns fossil fuels (coal, oil, and natural gas)
Certification	A Renewable Energy Credit is an instrument that certifies the bearer owns one megawatt-hour (MWh) of electricity generated from a renewable energy resource [See also Renewable Energy Credit]
Decarbonization	Phasing out carbon dioxide emissions from the use of fossil fuels
Deforestation	Clearing a wide area of trees
Electrification	The process of replacing technologies that use fossil fuels with those that use electricity as a source of energy
Emission allowance	Tradable instrument that conveys a right to emit a unit of pollution [See also Carbon credit]
Greenhouse gas	Primarily water vapor, carbon dioxide, methane, nitrous oxide, and ozone, these gasses absorb and emit radiant energy within the thermal infrared range, causing warming of the atmosphere.
Green power	Power derived from renewable energy sources and technologies that provide the highest environmental benefit—e.g., solar, wind, geothermal, biogas, biomass, and hydroelectric
Green taxonomy	Classification system that identifies the activities or investments that deliver on environmental objectives, which can help investors identify opportunities for investments that comply with sustainability criteria
Greenwashing	Creating the impression, sometimes inadvertently, that the company is doing more to protect the environment than it is
Nuclear energy	Energy derived from nuclear reactions
Renewable energy	Energy that is derived from a renewable resource - examples include hydro, wind, geothermal, solar, and biomass energy
Renewable energy credit (REC)	One REC is equal to one megawatt hour of electricity generated from a renewable energy source [See also Certification]
Scope 1 emissions	Direct emissions from the activities of an organization or activities under their control
Scope 2 emissions	Indirect emissions from purchased electricity, steam, heating, and cooling consumed by an organization
Scope 3 emissions	Emissions resulting from activities from assets not owned or controlled by an organization but occur within its value chain - includes all sources not within Scope 1 or Scope 2
Verification	The process of evaluating calculations of the actual amount of greenhouse gas emissions avoided or sequestered through implementation of a carbon offset project [see also Carbon offset programs]

Related content

Research and development costs, capitalization of costs:

- *PwC's Property, plant, equipment and other assets guide* (PPE 8.3, PPE 1)

Emission allowances, RECs and carbon credits, government incentives and tax credits:

- *Utilities and power companies guide* (UP 6, UP 7, UP 16)

