



City of
**Lake Worth
Beach**
FLORIDA

City of Lake Worth Beach
Carbon Neutral Initiative
&
The City Comprehensive Plan



January 2, 2024



Introduction

The City of Lake Worth Beach is among the leading local municipalities embracing sustainability, green principles, and energy conservation. Adopted in 2018, the City's Comprehensive Plan encourages sustainable strategies in each element, establishing goals, objectives, and policies (GOPs) aligned with its long-term vision of an energy-efficient and economically sustainable City. In addition, the City's Land Development Regulations' (LDRs) cutting edge approach to sustainability support development by creating and implementing Sustainable Bonus incentives that benefit the City's built and natural environment.

The City's Community Sustainability Department is considering adding a Carbon Neutral element to its Comprehensive Plan. This proactive and innovative approach will ensure that Lake Worth Beach continues its momentum toward a sustainable, green City. Since the City's own utility department provides water and electricity to its residents and businesses, this new element envisions policies that support cohesive, comprehensive, and holistic strategies including energy, development, infrastructure, and conservation.

The document, prepared by Chen Moore and Associates (CMA), provides definitions, identifies federal and local initiatives, world organizations, and private companies which currently support Carbon Neutral strategies and policies. The document also provides recommendations for consideration in the preparation of the new Carbon Neutral element.

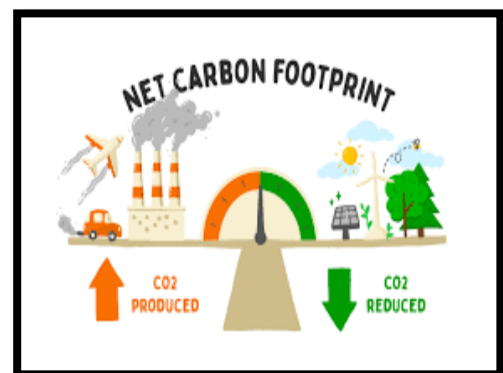
Definitions

Literature indicates that the terms Net Zero and Carbon Neutrality are used interchangeably; however, there are differences. Net zero refers to all greenhouse gases being emitted into the atmosphere, including methane (CH₄), nitrous oxide (N₂O), and other hydrofluorocarbons. To achieve carbon neutrality, the net zero greenhouse gases emitted into the atmosphere must be equivalent to the greenhouse gases being removed from the atmosphere.

According to the United Nations, Net Zero means cutting greenhouse gas emissions as close as possible to zero, and any remaining emissions must be re-absorbed by the natural environment (atmosphere, oceans, and forests).

Net Zero also refers to the removal of greenhouse gases (GHGs) – such as carbon dioxide (CO₂), methane, or sulfur dioxide – from the atmosphere being equal to those emitted by human activity. Emissions reductions would generally follow a certain trajectory, e.g., 1.5°C (34.7°F). Any residual emissions would generally focus on GHG sequestration from the atmosphere.

Carbon Neutrality is similar to Net Zero in that GHG emissions are offset, but it generally includes a wider definition of offsetting residual emissions, including emissions avoidance activities, and wouldn't prescribe a specific reduction trajectory. It's also less prescriptive regarding the



reporting boundary, with the inclusion of wider value chain (Scope 3) emissions being encouraged but not mandatory.

Net-Zero is a challenge since it calls for nothing less than a complete transformation of how we produce, consume, and travel. The energy sector is the source of approximately three-quarters of greenhouse gas emissions today. Replacing polluting coal, gas, and oil-fired power with energy from renewable sources, such as wind or solar, would dramatically reduce carbon emissions.

Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 countries at the UN Climate Change Conference (COP21) in Paris, France, on December 12, 2015, and became effective on November 4, 2016.

The Paris Agreement provided countries with a framework for financial, technical, and capacity-building support. The landmark Agreement provides solutions to climate change and measures for adapting to its effects.

Science clearly shows that in order to avert the worst impacts of climate change and preserve a livable planet, global temperature increase needs to be limited to 1.5°C above pre-industrial levels. Currently, the Earth is already about 1.1°C warmer than it was in the late 1800s, and emissions continue to rise. To keep global warming to no more than 1.5°C by 2030 –as called for in the Paris Agreement –emissions must be reduced by 45%, and net zero must be reached by 2050.

The overarching goal of COP21 is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”

However, in recent years, leading world scientists have stressed the need to limit global warming to 1.5°C by the end of this century. The United Nations Intergovernmental Panel on Climate Change indicates that crossing the 1.5°C threshold risks unleashing far more severe climate change impacts, including more frequent and severe droughts, heatwaves, and rainfall. To limit global warming to 1.5°C, greenhouse gas emissions must peak before 2025 at the latest and decline 43% by 2030.



Federal and Local Initiatives

In 2021, the federal government signed an executive order outlining a plan for the federal government to achieve carbon neutrality by 2050. The goal is to achieve a 65% reduction in planet-warming greenhouse gas emissions by 2030 and an all-electric fleet of cars and trucks within the following five-year period. Under the plan, the government would spend billions of dollars to purchase electric vehicles, provide adequate refueling facilities, upgrade federal buildings, and leverage the power of the government to shift to cleaner forms of electricity.

The intent is to limit the sale of gas-powered passenger cars by 2027 and achieve 100% electric vehicle sales by 2035. The 2050 deadline for global carbon neutrality is in line with what scientists predict is necessary to prevent catastrophic climate change. The US goal is to reduce greenhouse gas emissions nationwide. Under the Paris Agreement, the US agreed to cut its emissions by up to 52 percent this decade compared to 2005 levels.

In addition, United States Department of Agriculture (USDA) has determined that food loss and waste have a significant effect on the GHG footprint. Food loss and waste is estimated to be roughly one third of the food intended for human consumption in the United States. When food is discarded, all inputs used in producing, processing, transporting, preparing, and storing discarded food are also wasted. The production, transportation, and handling of food generates significant Carbon Dioxide (CO₂) emissions and when food ends up in landfills, it generates methane, an even more potent greenhouse gas. The role of food loss and waste in climate change is increasingly recognized as critical in the link between climate change, agriculture, and supply chain resiliency.

In 2021, the U.S. Environmental Protection Agency (EPA) published a report on the environmental impacts of food waste. Based on its findings, U.S. food loss and waste accounts for 170 million metric tons of carbon-dioxide-equivalent (million MTCO₂e) GHG emissions (excluding landfill emissions) – equaling the annual CO₂ emissions of 42 coal-fired power plants. This estimate does not include the significant methane emissions from food waste rotting in landfills. The report also highlights the benefits of preventing food loss and waste in terms of agricultural land, blue water (i.e., freshwater from surface water and groundwater), fertilizer, and energy.

Based on the EPA's findings, the reduction and eventual prevention of food waste will increase food security, foster productivity and economic efficiency, promote resource and energy conservation, and limit the effort necessary to reduce the effects of climate change.

Heeding the federal government's call for carbon neutrality, the following cities have created Climate Action Plans, Sustainability Plans, or incorporated policies into their Comprehensive Plans for carbon neutrality and net zero emissions:

- Boulder, CO
- Minneapolis, MN
- New York City, NY
- San Francisco, CA

Boulder, Colorado

In 2021, the City of Boulder, Colorado, updated its Climate Action Plan to assist in the mitigation of the global climate crisis. The city's actions supporting the achievement of this goal include the reduction of carbon emissions by 70% by 2030 instead of their previous goal of 2018. In addition, the city plans to become a net zero city by 2035 and a carbon positive city by 2040.

Based on these goals and aspirations, Boulder has included the following policies in its Comprehensive Plan, specifically in the Energy, Conservation, & Renewable Energy element:

- 4.03 Energy Conservation & Renewable Energy –Boulder's transition to clean energy through innovative strategies, products, and services, aims to dramatically reduce GHG emissions, enhance community resilience, enhance local environmental health and diversity, promote creative solutions to energy conservation, and support a vital and equitable economy. The city and county will plan for and implement innovative programs and opportunities for individuals, businesses, and organizations to maximize the efficient use of energy and reduce the carbon footprint from development. The city and county will set goals to ensure that the community has access to reliable, competitively priced, and increasingly clean energy. The city and county will support both public and private adoption and use of renewable energy and preserve options for developing renewable energy in the future.
- 4.04 Local Energy Generation Opportunities - The city and county support programs and opportunities for individuals, businesses, and organizations to develop, use, and share local energy generation. The city will review and consider revisions to regulations to support onsite energy generation, including solar and wind.
- 4.05 Clean Mobility - To reduce GHG emissions, the city and county will support the retirement of fossil-fuel based transportation. The city and county will continue to develop policies, incentives, and programs that reduce vehicle miles traveled, replace fossil fuel-based transportation with clean energy-fueled transportation (e.g., with electric vehicles), and continue to plan a built environment and mix of land uses that reduce the need for people to drive.
- 4.06 Energy System Resilience - The city and county recognize that energy resilience is necessary for properly functioning emergency infrastructure and community resilience. The city supports a communitywide electricity network that can deliver basic services in case of a grid disruption. The city will pursue energy resilience strategies such as grid modernization, microgrid development, active islanding, on-site generation, storage technologies, and reduced demand to reduce emissions and reliance on fossil fuels.

- 4.07 Energy-Efficient Land Use - The city and county will encourage energy efficiency and conservation through land use policies and regulations governing placement and orientation of land uses to minimize energy use, including an increase in mixed-use development and compact, contiguous development surrounded by open space.
- 4.08 Energy-Efficient Building Design - The city and county will pursue efforts to improve the energy- and resource-efficiency of new and existing buildings. The city and county will consider the energy consumption associated with the building process (i.e., from the raw materials through construction), improve regulations ensuring energy and resource efficiency in new construction, remodels, and renovation projects, and will establish energy efficiency requirements for existing buildings. Energy conservation programs will be sensitive to the unique situations that involve historic preservation and low-income homeowners and renters and will ensure that programs assisting these groups continue.

Minneapolis, Minnesota

In 2023, the City of Minneapolis adopted a Climate Equity Plan. The City's Comprehensive Plan, implemented the following goals and objectives to obtain its Carbon Neutrality Initiatives:

- Goal/Objective: The City will seek to accomplish the following action steps to encourage the use and generation of renewable and carbon-free energy in the city. (Renewable and Carbon-Free Energy)
 - Invest in grid modernization to accommodate increases in distributed renewable energy generation.
 - Purchase clean energy directly through community solar gardens, contracts with renewable electricity developers, utility offerings, or by installing renewable energy systems on municipal buildings.
 - Continue to support and advocate for accelerated and deeper decarbonization of electricity supplied by Xcel Energy.
 - Explore the environmental attributes of renewable natural gas and biomethane programs potentially offered by CenterPoint Energy.
 - Expand opportunities for district cogenerating energy systems and decarbonize existing district energy systems.
 - Ease permitting requirements for locally distributed renewable energy.
- Goal/Objective: The City will seek to accomplish the following action steps to ensure city infrastructure and residents are resilient to the shocks and stresses of climate change. (Climate Resilient Communities)
 - Strengthen connections among individuals and networks while promoting social inclusion and cohesion. Anticipate and prepare for pressures and shocks that climate change will introduce or worsen by collaborating across City departments, government agencies, private businesses, and organizations, and resident networks.

- Decrease demand for energy and increase the proportion derived from renewable energy sources.
 - Maximize carbon sequestration in soils, including the use of biochar, and through educating residents on the importance of healthy soils in landscaping.
 - Establish an urban tree canopy goal and adopt a plan to manage the urban heat island effect across all communities.
 - Consider climate forecasts in stormwater feasibility and modeling work to inform infrastructure investments.
 - Develop guidance that encourages climate sensitive design for residential and commercial buildings, parking lots, and open spaces, and parks.
 - Increase locally produced renewable energy.
- Goal/Objective: The City will seek to accomplish the following action steps to achieve steep increases in energy efficiency of buildings through retrofits, design of new buildings, and decarbonization options. (Energy Efficient and Sustainable Buildings)
 - Pursue a deep-carbon building retrofit program, including a fuel-switching component that eliminates fossil fuel dependency from all existing buildings and retrofits that eliminate dependency on fossil fuel appliances.
 - Prioritize and incentivize energy efficiency improvements in existing residential and commercial buildings with program emphasis on high-energy users, historic buildings, low-income neighborhoods, and Green Zones.
 - Investigate heating in building, industrial energy needs, and decarbonization options.
 - Require sustainable design practices and principles for projects supported by City financing, with a focus on robust energy efficiency, building envelope, and environmentally friendly building treatments including bird-safe glass.
 - Identify and implement ways to encourage, incentivize, or require sustainable design practices and principles for privately funded projects.
 - Continue to pursue building code and other regulatory changes such as a stretch energy code to advance energy efficient design and building operations.
 - Encourage use of environmentally responsible building materials and construction practices.

San Francisco, California

California has begun an initiative toward carbon neutrality and net zero emissions. In 2022, Governor Gavin Newsom introduced a plan to implement climate action policies for drastically reducing pollution and accelerating the transition to clean energy. In 2021, San Francisco implemented a Climate Action Plan to obtain net zero emissions. According to the report,

transportation vehicles such as cars and trucks were the leading source of carbon emissions, followed by electricity and natural gas uses in building operations.

The Climate Plan includes strategies and supporting actions for obtaining the net-zero goal. Ten of the strategies from San Francisco's plan are:

- Turning to 100% renewable electricity by 2025 and phasing out all fossil fuels
- Electrifying existing buildings
- Investing in public and active transportation projects
- Increasing density and mixed-use developments near transit
- Accelerate adoption of zero emission vehicles and boost charging infrastructure
- Use pricing policy to reduce private vehicle use and limit congestion
- Implement and reform parking management programs
- Increase compact infill housing production near transit
- Reduce food waste and promote plant-rich diets
- Enhance and maintain the city's urban forest and green space.

In addition, the Environmental Protection Element of the San Francisco General Plan includes a section for Energy. The goal of the energy section includes protecting and enhancing the economic and environmental well-being of city residents by providing more efficient use of energy, the balancing of energy supplies to meet local needs, economic development, and responsible community participation.

Residential, commercial, transportation, alternate energy, intergovernmental, and financing. Alternate Energy with objectives that:

- Promote effective energy management practices to maintain the economic vitality of commerce and industry
- Enhance the energy efficiency of housing in San Francisco
- Increase the energy efficiency of transportation and encourage land use patterns and methods of transportation that use less energy
- Promote the use of renewable energy sources
- Support federal, state, and PG&E energy programs that are equitable, and encourage conservation and renewable energy use
- Develop financing opportunities to implement local energy programs

New York City

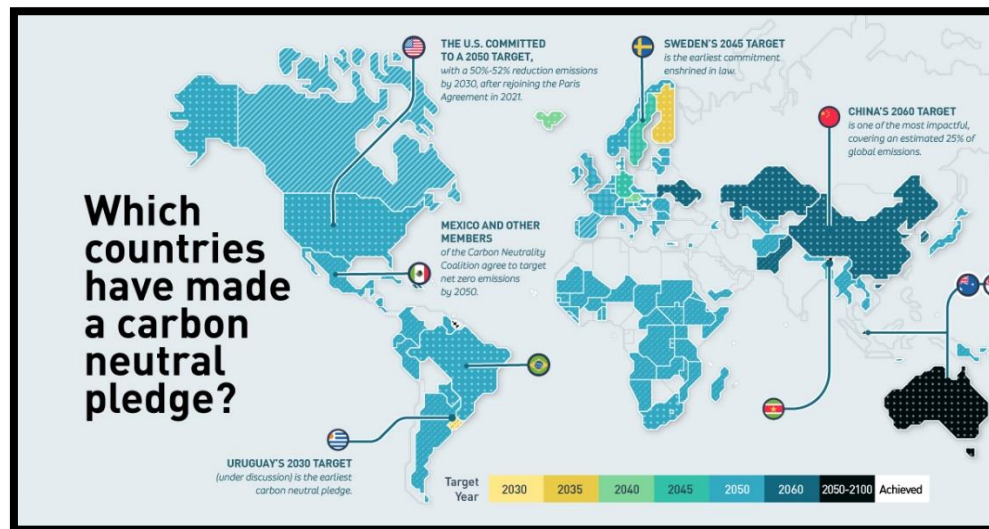
New York City (NYC) is the largest city in the United States and one of the largest in the world. The city supports net zero and carbon neutrality strategies. The city created its “Pathways to Carbon-Neutral NYC” document to achieve carbon neutrality by midcentury through equity.

NYC has more than 1.6 billion square feet of rooftops, and the implementation of green roofs and the use of solar panels could help reduce its greenhouse gas emissions. The city provides tax abatements and incentives for the installation of solar panels and creation of green roofs. As a result, many developments and sites within the city have implemented green roofs.



Global Initiatives

Globally, a coalition of countries, cities, businesses, and other institutions are pledging to obtain net-zero emissions. More than 140 countries, including the biggest polluters – China, the United States, India, and the European Union – have set a net-zero target, covering about 88% of global emissions. More than 9,000 companies, over 1000 cities, more than 1000 educational institutions, and over 600 financial institutions have joined the Race to Zero, pledging to take rigorous, immediate action to halve global emissions by 2030.



Germany

Germany created a plan to master climate-neutral transportation to become net zero by 2045. The plan was separated into ten core actions related to energy, industry, buildings, traffic, agriculture, and banking. The country's goal consists of the following:

In addition to these core initiatives, a number of important enablers and framework elements will be required, such as the streamlining of permitting procedures, especially for the expansion of solar and wind power, and the designation of areas for urgently needed additional infrastructure, as well as the accelerated education and training of decarbonization experts in the various sectors. This is imperative to driving implementation across the board and at all levels, from entrepreneurs and decision makers to skilled workers and trainees, all of whom have a role to play. Furthermore, all these measures are dependent on bold and committed decision makers and broad citizen support.

At the same time, green transformation offers companies the opportunity to capture future markets. A sustainable product portfolio and technological innovations offer new growth opportunities. This is true in both the consumer-goods industry, where sustainable products deliver both significantly higher growth and significantly wider margins, and in the capital-goods sector, where players are looking ahead to a period of growth fueled by the accelerated expansion of infrastructure and the restructuring of value chains. Leading sustainability-oriented companies often benefit from attractive valuations that are otherwise only reached by technology companies (with some reaching EBITDA multiples of between 15 and 30). This makes it easier for them to raise capital, to invest in further green growth, and to scale faster. Government stimulus packages and a growing “green capital market” are providing additional tailwinds.

Like New York City, Germany requires green roofs and green infrastructure in new developments. In fact, Europe has been ahead of the carbon neutrality effort since they have alternate energy sources and recycling is heavily promoted. European cities such as Copenhagen, Stuttgart, and others have mandated green roofs on most new construction to help mitigate carbon emissions, reduce energy consumption, and help create clean air. In some cases, roofs have more green and open spaces than the ground floor.

Toronto, Canada

In Toronto, the city has adopted a strategy for reducing the GHG to net zero by 2040. The strategy was implemented to decarbonize all existing residential, commercial, and institutional buildings by 2050. The adopted strategy targets are as follows:

- 30 percent by 2020
- 45 percent by 2025
- 65 percent by 2030
- net zero by 2040

Toronto currently has 1.1 million passenger vehicles and 121,000 commercial vehicles, most of which are powered by internal combustion engines (fossil fueled). With a rapidly growing population, these numbers are predicted to continue increasing. In Toronto, modelled air quality is markedly worse in areas near major highways and arterial roads such as along Highway 401 and downtown. Research in cities indicates that in general adverse health impacts from air pollution rise with proximity to major roadways, creating an inequitable health burden for those who live, work, play, and learn near major roads.

This traffic-related air pollution and its health effects will be improved with increased active transportation, transit ridership, and switching to electric vehicles.

Natural gas for heating in buildings continues to be the largest source of emissions in Toronto, accounting for approximately 50 per cent of all GHG emissions. On the net zero pathway, natural gas will be phased out by installing electric heat pumps and replacing gas appliances. In 2021, City Council adopted strategies for new construction and existing buildings to make progress towards fuel switching to electricity and renewable energy by 2030. In order to meet its 2030 emission-reduction targets, the city needs to send clear signals to the market and the community. To minimize costs, the phase-out of natural gas connections and equipment will coincide as much as possible with the end of useful life and planned replacement of equipment.

- Demonstrate carbon accountability locally and globally by establishing a carbon budget
- Accelerate a rapid and significant reduction in natural gas use
- Establish performance targets for existing buildings
- Increase access to low carbon transportation options, including walking, biking, public transit, and electric vehicles
- Increase local renewable energy to contribute to resilient carbon grid

World Organizations

Various organizations around the world have committed to reducing and ultimately eliminating the global carbon footprint. Those organizations include Carbon Trust, TerraPass, Cool Effect, Natural Capital Partners, Carbon Neutral Cities Alliance (CNCA), and C40 Cities.

Carbon Neutral Cities Alliance (CNCA)

This organization collaborates with member cities working to achieve carbon neutrality in the next 10 to 20 years. CNCA is committed to prioritizing climate action that advances the well-being of low-income people, indigenous peoples, communities of color, immigrants, refugees, and other historically marginalized communities. The following cities are members of the CNCA:

- Adelaide, Australia
- Amsterdam, Netherlands
- Copenhagen, Denmark
- Glasgow, Scotland
- Helsinki, Finland
- London, England
- Melbourne, Australia
- Oslo, Norway
- Rio de Janeiro, Brazil
- Stockholm, Sweden

- Sydney, Australia
- Toronto, Canada
- Vancouver, Canada
- Yokohama, Japan
- Minneapolis, MN
- Boulder, CO
- Seattle, WA
- San Francisco, CA
- Portland, OR
- Washington, DC
- New York City, NY

CNCA mobilizes transformative, game-changing climate action through the following seven strategic focus areas:

- Funding transformative climate action to mobilize the development, adoption, and implementation of game-changing climate policies in cities.
- Exerting collective influence on and advocating for policies from other decision-makers to reduce emissions not directly controlled by cities.
- Advancing methodologies, standards, and governance tools for carbon neutrality planning, implementation, impact measurement, and continuous improvement.
- Fostering peer learning among climate vanguard cities, so they can learn from each other and go further and faster together.
- Cultivating transformational leadership so city sustainability directors can excel in their roles as change-makers.
- Helping cities communicate more effectively to advance their carbon neutrality work.
- Prioritizing a just carbon neutral future by integrating climate justice with ambitious climate action.

C40 Cities

C40 is a global network of nearly 100 mayors of cities that are united in their efforts to confront the climate crisis. These mayors represent countries from areas all across the globe such as Africa, Central East Asia, East/Southeast Asia, Oceania, Europe, Latin America, North America, and South and West Asia.

The Mayors of C40 cities are committed to using an inclusive, science-based, and collaborative approach to cut their fair share of emissions in half by 2030, help the world limit global heating to 1.5°C, and build healthy, equitable, and resilient communities. C40 supports:

- Raising climate ambition through support of its 1.5°C climate action plan, high-impact accelerators, and fostering innovation.
- Building equitable and thriving communities via global and regional programs.
- Building a global movement through robust international advocacy and diplomacy.

- Scaling up climate action and sharing best practices across high-impact sectors.
- Facilitating access to finance for investment in green jobs and projects that improve resilience in cities.

Climate Impact Partners

Since its inception in 2002, Climate Impact Partners has focused on providing guidelines for businesses to achieve carbon neutrality. Climate Impact Partners is committed to providing a robust framework for credible carbon neutral action. The organization has worked with over 300 clients in 33 countries including ING, and Microsoft.

Private Companies

Private companies have joined governments and public organizations in supporting the net zero and carbon neutral goal of eliminating greenhouse gas emissions across the globe. Understanding the source of emissions and how to measure them is essential.

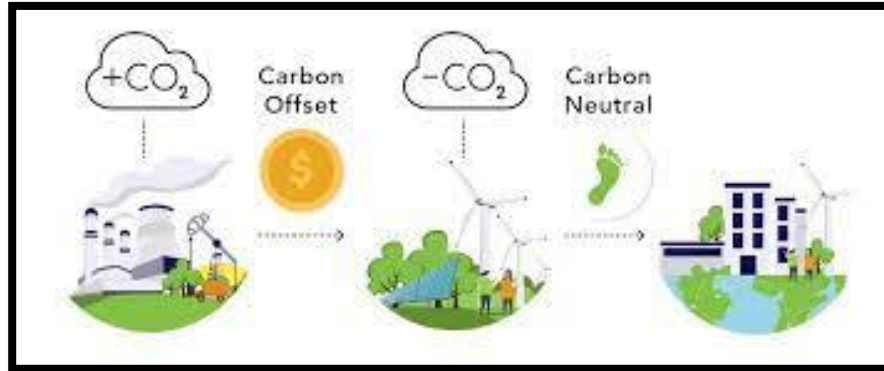
The Greenhouse Gas Protocol (GHG Protocol) provides the internationally recognized standard for categorizing [Scope 1, 2 and 3] and calculating emissions. Together, Scope 1, 2 and 3 emissions form a corporate carbon footprint, or corporate GHG emissions inventory, thus enabling companies to understand their full value chain emissions and focus their efforts on the greatest reduction opportunities.

Scope 1 emissions are direct emissions from operations that are owned or controlled by the company, including fuels combusted in vehicles or furnaces/boilers, fugitive or vented emissions from process equipment, or process emissions from chemical reactions.

Scope 2 emissions are emissions from the generation of purchased or acquired electricity, steam heating, or cooling consumed by the company. Scope 2 emissions occur at the facility where electricity is generated, not at the company's own facility. Scope 2 emissions are the Scope 1 emissions of another company (e.g. a power station).

Scope 3 emissions are all other indirect emissions (not included in Scope 2) that occur in the value chain of the company.

For an organization to be carbon neutral it must examine the three scopes of emissions produced during business operations. If a company's scopes are equal to or neutralized by the carbon emissions avoided or removed from the atmosphere, it is considered carbon neutral. A company can purchase carbon credits (also known as carbon offsets) to obtain this goal.



Carbon offset broadly refers to a reduction in GHG emissions – or an increase in carbon storage (e.g., through land restoration or the planting of trees) – that is used to compensate for emissions that occur elsewhere. For every one ton of carbon produced, a business would need to purchase one verified carbon credit to offset the carbon emissions. This process removes one ton of carbon dioxide from the atmosphere that would otherwise remain. In many cases, companies will purchase the equivalent volume of carbon credits (independently verified emissions reductions) to compensate for the emissions they cannot avoid.

Every carbon credit represents the reduction of one ton of emissions delivered by a project; the reductions are independently audited to internationally accepted standards. They are certified by third parties and go through a rigorous system of checks and balances to prove they are real, measurable, permanent, additional, independently verified, and unique.

Carbon offsets projects:

- Protect forests – funding management and monitoring schemes that protect this natural source of carbon sequestration.
- Fund renewable energy – displacing fossil fuels from regional and national grids by funding clean renewable energy sources such as wind and solar.
- Tackle household emissions – tackling sources of emissions in households and communities, these projects cut emissions through increasing energy efficiency or reducing use of fossil fuels.
- Planting trees and land restoration – sequestering carbon from the atmosphere by storing it in trees and soil. Stabilizing soils also reduce the risk of erosion and flooding, while an increased forest area aids biodiversity.

Carbon offsets are measured in a unit of tons of carbon dioxide equivalent emissions (tCO₂e), so whether a project is avoiding methane emissions, reducing carbon emissions from deforestation, or planting new trees to sequester carbon, the units are always rendered in tCO₂e.

Carbon offset projects measure their annual emission reductions in tCO₂e against a baseline level of annual emissions which is calculated using an approved standard methodology. The project’s baseline or business-as-usual emission calculations must be validated by a third-party auditor before the project can start obtaining carbon credits.

Once it is registered, the project measures and reports its emission reductions in a publicly available monitoring report that is again verified by a third-party auditor. Once they are verified, the total number emission reductions from the project can be issued as the same number of carbon credits in tCO₂e.

Based on Climate Impact Partner's guidance, organizations can offset their carbon footprint by:

- Defining and measuring their carbon footprint
- Setting goals to reduce their carbon footprint and deliver internal reductions
- Going beyond internal reductions to compensate for remaining unavoidable emissions
- Selecting quality carbon credits verified under a recognized global standard
- Communicating their climate action and engaging their teams, customers, and stakeholders

Food Corporations

Tyson Foods is a leading global protein company located in the United States. In 2021, the company announced its goal to achieve net-zero GHG emissions across its global operations and supply chain by 2050. Tyson is the first U.S. based protein company to have an emission reduction target approved by Science Based Target initiative (SBTi).

Requiring a collective effort from every team member in addition to external stakeholders, key areas the company will be prioritizing to meet this goal include:

- Updating the baseline for emissions to align with limiting global temperature rise to 1.5°C, consistent with the Paris Agreement, by the end of 2023.
- Establishing a pathway to using 50% renewable energy across its domestic operations by 2030.
- Completing initial land stewardship target of engaging 2 million feed acres and expanding total acres by 2025, including a total target of 100% of feed purchased by 2030.
- Expanding the company's current 5 million acre grazing lands target for sustainable beef production practices by 2025.
- Continuing work to eliminate deforestation risk throughout its global supply chain by 2030.
- Supporting climate action policies through advocacy groups such as the Net Zero Business Alliance.

A British Company, Quorn, focuses on healthy and sustainable ways to enjoy food while also reducing the carbon footprint. Since 2012, Quorn has reduced the carbon footprint within its factories by 37% and changed 80% of its packaging to recyclable materials. The company has stressed the importance of reducing the collective consumption of meat, which would significantly help to reduce carbon emissions.

Quorn is the first business of its kind to achieve third-party certification of its carbon footprint figures. Over 50% of its products have achieved the Carbon Trust Footprint.

In addition, the company has created a sustainability calculator to measure the impact that going meat free would have on our planet and our health. It's not just the reduction of saturated fat and calories you'll save, but the impact of your carbon footprint too.

A reduction in our collective meat consumption is essential to avoiding significant climate change. Livestock farming damages the environment, contributes to deforestation, and adds substantial quantities of methane emissions. In rich nations, beef consumption would have to be reduced by 90%, and milk by 60%, to avoid global warming over 1.5°C¹. Because rice paddies are another dominant source of methane, rice consumption must also be reduced..

Buying plant-based meat alternatives, plastic-free products, or even products without plastic packaging can be expensive. However, if we commit to recycling, a little can go a long way. Encouraging businesses to adapt their sustainability goals to reduce their carbon emissions is another great step in the right direction. Importantly, we should also encourage our local officials to support greater change.

Oil and Automotive Companies

Like many countries around the world, major automobile companies as well as oil providers such as Exxon Mobil have made strides toward obtaining their net zero ambitions. According to Exxon Mobil, its net-zero ambition (Scope 1 and 2 operated assets) is backed by a comprehensive approach centered on detailed emission-reduction roadmaps for its major operated assets.

While oil companies promote carbon neutral efforts while continuing to producing fossil fuels, many major automotive manufacturers such as Chevrolet, Ford, Honda, Toyota, and other popular brands have begun making to electric vehicles (EV) in addition to their fossil fuel powered vehicles.

Globally, EV sales spiked in the first half of 2021, increasing by 160% compared with the previous year. Even in 2020 – when most car sales were down due to the COVID-19 pandemic – EV sales were up 46 percent from 2019. Ford introduced electric versions of its iconic Mustang and F-150 pickup truck. Meanwhile, automakers from General Motors to Volkswagen to Nissan have outlined plans to launch new EV models over the next decade: GM pledged to go all-electric by 2035, Honda by 2040.

Energy Companies

NextEra Energy, is the parent company to Florida Power and Light (FP&L). Its goal is to be completely carbon emissions-free by no later than 2045. The plan includes meaningful milestones in five-year increments that would allow it to reach Real Zero emissions by no later than 2045. FP&L has built solar and wind projects, and closed oil and coal-fired power plants.

Schneider Electric is a multinational corporation that specializes in energy management. It has a Net-Zero target that has been validated by the SBTi and has emphasized its commitment to developing a roadmap to reducing global temperature-rise. The company's goals include

becoming carbon neutral, obtaining a 25% absolute carbon reduction across the entire chain by 2030, becoming “Net-Zero” ready, and obtaining an end-to-end carbon neutral value chain by 2040, and Net-Zero CO2 emissions across the value chain by 2050.

Schneider Electric provides software for monitoring and measuring energy consumption and communicating sustainability accomplishments. Its EcoStruxure Power Monitoring Expert is designed to help power-critical and energy-intensive facilities to:

- Maximize operational efficiency.
- Reduce maintenance costs and energy consumption, increase equipment life span, occupant comfort, and productivity.
- Predict future energy consumption based on external temperature, occupancy, and other variables.
- Establish energy efficiency benchmarks and facilitate informed decisions that reduce energy consumption to improve a building's energy performance.

Final Remarks

The City of Lake Worth Beach is positioned to continue its sustainability efforts by adding a Carbon Neutral element to its Comprehensive Plan. The new element will consider the existing policies and regulations that the local government has already adopted, the 2018 Comprehensive Plan, and the city's innovative Land Development Regulations.

Further analysis is needed to ensure that the subject element reflects the vision of the city and provides for cohesive, comprehensive, and holistic policies. This report includes strategies implemented by federal and local governments, other countries, world organizations, and private companies that can be taken as a general framework for creating the policies that will serve Lake Worth Beach's Carbon Neutral element.

Part of creating a Carbon Neutral element includes researching a methodology for measuring and monitoring carbon emissions in the city. The intent of the new element is to support energy, development, infrastructure, conservation, and other climate-friendly policies. Among several opportunities for promoting carbon neutrality, the city should initiate a marketing initiative to provide information that helps residents and businesses to reduce carbon emissions and be more energy efficient.

As part of becoming a Carbon Neutral, the city should focus on using renewable energy sources for all city-owned properties. Transportation policies should strengthen existing infrastructure for bicyclists and pedestrians and encourage multi modal forms of transportation (Palm Tran, Tri-Rail, etc.).

The city's electrical utilities department will be involved in the preparation of the new element. The Carbon Neutral element will provide Goals, Objectives, and Policies to implement, achieve, and measure sustainable, equitable strategies.

Sources

[Advancing climate solutions | ExxonMobil](#)

<https://carbonneutralcities.org/about/>

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