Carbon Offsetting
Paving the Way for a Greener Future

NEW YORK LIFE INVESTMENTS

Greenhouse gases (GHG) are known to trap heat in the Earth's atmosphere, an effect that contributes to global warming.

Of these gases, Carbon Dioxide (CO_2) is the most prevalent.

Breakdown of U.S. GHG Emissions

CO_2 is released into the atmosphere through human activities such as:

- Deforestation
- Fossil fuel consumption

Source: EPA, 2018

As significant emitters of CO_2, businesses can play a large part in reducing global emissions.

A company's carbon footprint can be broken down into three scopes:

Scope 1

Direct emissions from company operations

- Company vehicles
- Factories

Scope 2

Indirect emissions from company operations

- Emissions from purchased electricity

Scope 3

Indirect emissions from company supply chains

- Raw material extraction
- Business travel
- Shipping

In most cases, completely eliminating these emissions is not yet possible.

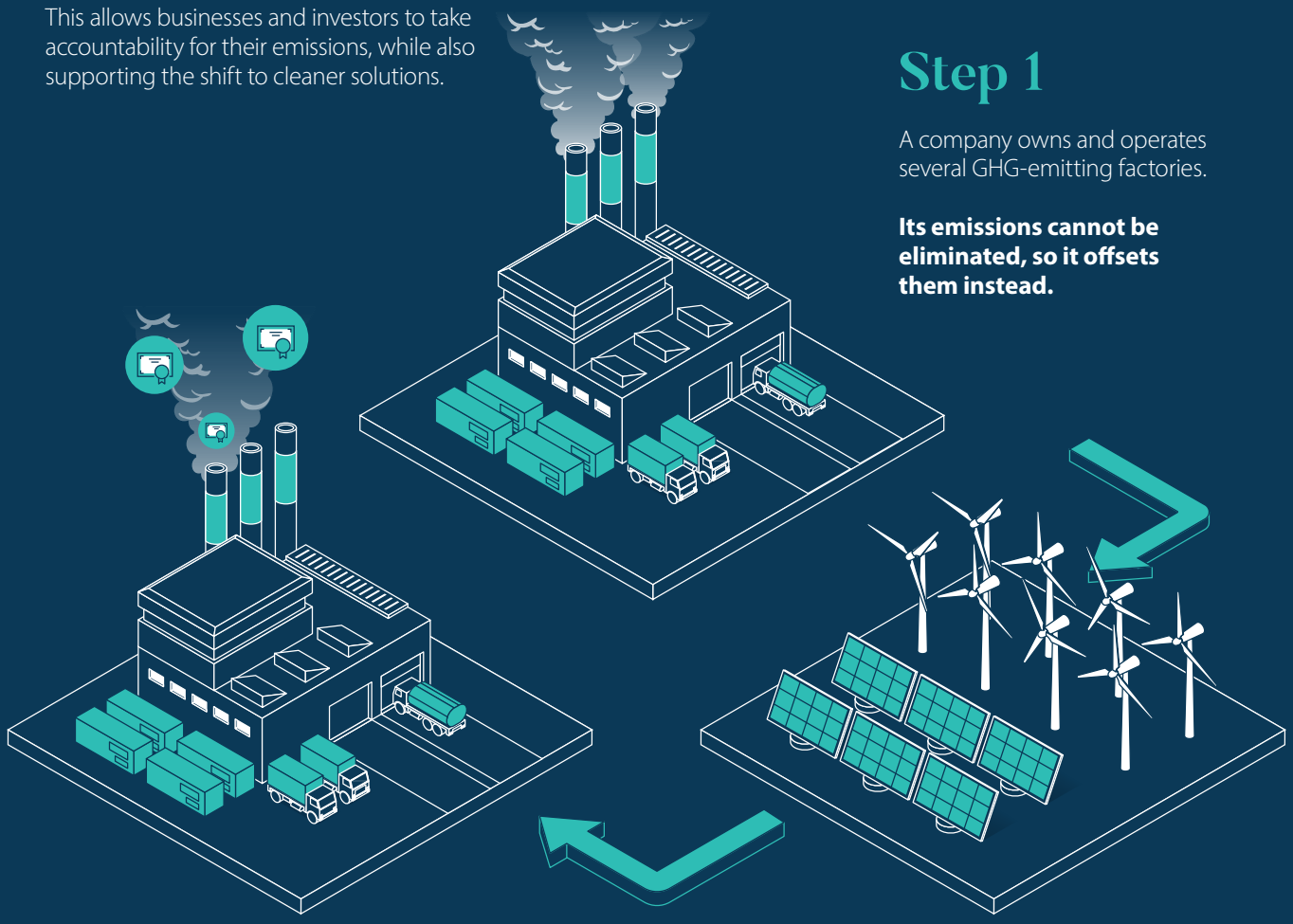
Instead, a company can opt to neutralize its emissions through an activity known as **carbon offsetting.**

What is

carbon offsetting?

Carbon offsetting is the method of neutralizing emissions by funding GHG reduction projects.

This allows businesses and investors to take accountability for their emissions, while also supporting the shift to cleaner solutions.



Step 1

A company owns and operates several GHG-emitting factories.

Its emissions cannot be eliminated, so it offsets them instead.

Step 2

The company makes investments in several GHG reduction projects.

The environmental benefits of these projects, expressed in tonnes of CO_2 equivalent (CO_2e), are certified by carbon credits.

One carbon credit = One metric ton of carbon emissions

Step 3

The company receives carbon credits in return for its investments, which it uses to neutralize its emissions for the year.

An important aspect for any carbon offsetting transaction is the effectiveness of the underlying project.

GHG reduction projects focus on one of three areas:

1 Energy efficiency

These projects reduce our current energy consumption.

Case study
Efficient cookstoves in Rwanda

Rwanda's reliance on firewood and charcoal negatively impacts health conditions and the environment.

Distributing fuel-efficient stoves will directly reduce emissions and improve living conditions.

- **10,800 stoves** distributed to households
- **58,000 tonnes** of CO_2e reduced annually
- **70% less** firewood needed

2 Forestry

These projects nurture and protect our CO_2-absorbing forests.

Case study
Garcia River forest protection

California's redwood forests store more carbon per hectare than any other forest type.

Protecting them maintains their environmental integrity while sustaining the local timber economy.

- **9,600+** hectares protected
- **77,000+ tonnes** of CO_2e stored annually
- **200+ jobs** created

3 Renewable energy

These projects reduce our reliance on fossil fuels.

Case study
Changbin and Taichung wind farms

Taiwan relies on fossil fuels for over 75% of its total electricity capacity.

Building wind farms can improve Taiwan's national security and future prosperity.

- **62** wind turbines installed
- **328,000 tonnes** of CO_2e reduced each year
- **483,864 MWh** of renewable energy supplied

Source: South Pole, 2020

Businesses aren't the only entities that can offset their GHG emissions.

Consider a sustainably managed strategy that wishes to neutralize the carbon of its investments.

Portfolio holdings

Associated emissions

Company A

20% ownership stake in Company A

The company emits **10,000 metric tons of CO_2** annually

The fund is seen as "emitting" **20% of the company's emissions**

The fund would require **2,000 carbon credits** to offset its associated emissions

Company B

5% ownership stake in Company B

The company emits **50,000 metric tons of CO_2** annually

The fund is seen as "emitting" **5% of the company's emissions**

The fund would require **2,500 carbon credits** to offset its associated emissions

Carbon offsetting can allow an investment strategy to neutralize its associated emissions.

How is

offsetting regulated?

The market for carbon offsets is not regulated by a sole entity.

Instead, verification is provided by third-party organizations such as Verra, Gold Standard, or American Carbon.

Carbon credits are only issued after a project has undergone a verification process covering four broad criteria:

Measurability

The GHG savings of the project must be measurable.

Verifiability

The results of the project must be verified by an independent auditor on an annual basis.

Sustainability

Each project should have a minimum lifespan of seven years.

Additionality

The GHG reductions of the project must be considered in reference to a baseline scenario.

Carbon offsetting in the U.S. is primarily a voluntary activity, but several states have made it mandatory for significant polluters.

Case study

California's Cap and Trade

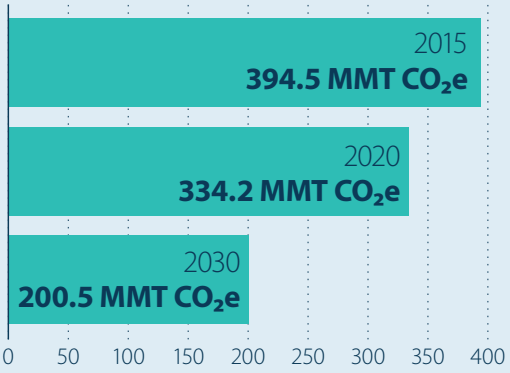
California's cap and trade program is one of the world's largest regulatory emissions programs.

What is it?

The program is overseen by the California Air Resources Board, which issues annual emissions allowances to significant polluters.

This allowance sets a "cap" on total GHG emissions, and is reduced over time.

California emission allowances, in million metric tons (MMT)



Who does it affect?

California's cap and trade program applies to significant polluters such as:

Power plants

Industrial facilities

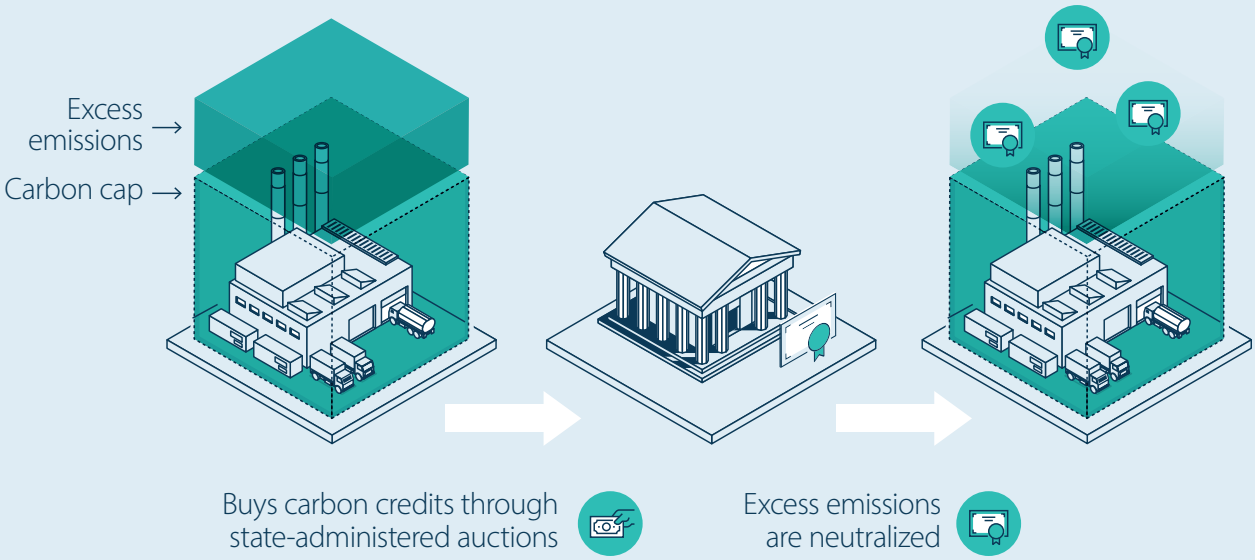
Fuel distributors

Businesses in compliance:
450, representing 85% of California's total GHG emissions

Threshold of coverage:
sources that emit at least 25,000 metric tons of CO_2e per year

How does it work?

Businesses must acquire carbon credits to offset any emissions in excess of the cap.



Benefits

California's carbon credit auctions have generated $12.5B in revenues since the start of the program.

These revenues are used to fund various projects across the state:

- **287,000 rebates** issued for zero-emission and plug-in hybrid cars
- **690,000 acres** of land preserved or restored
- **108,000** urban tree plantings
- **150,000** energy efficiency projects installed in homes

Source: California Climate Investments, 2020

Investors are driving the shift to

carbon neutrality

Shareholder concern for ESG factors has pressured corporations to increase their sustainability efforts.

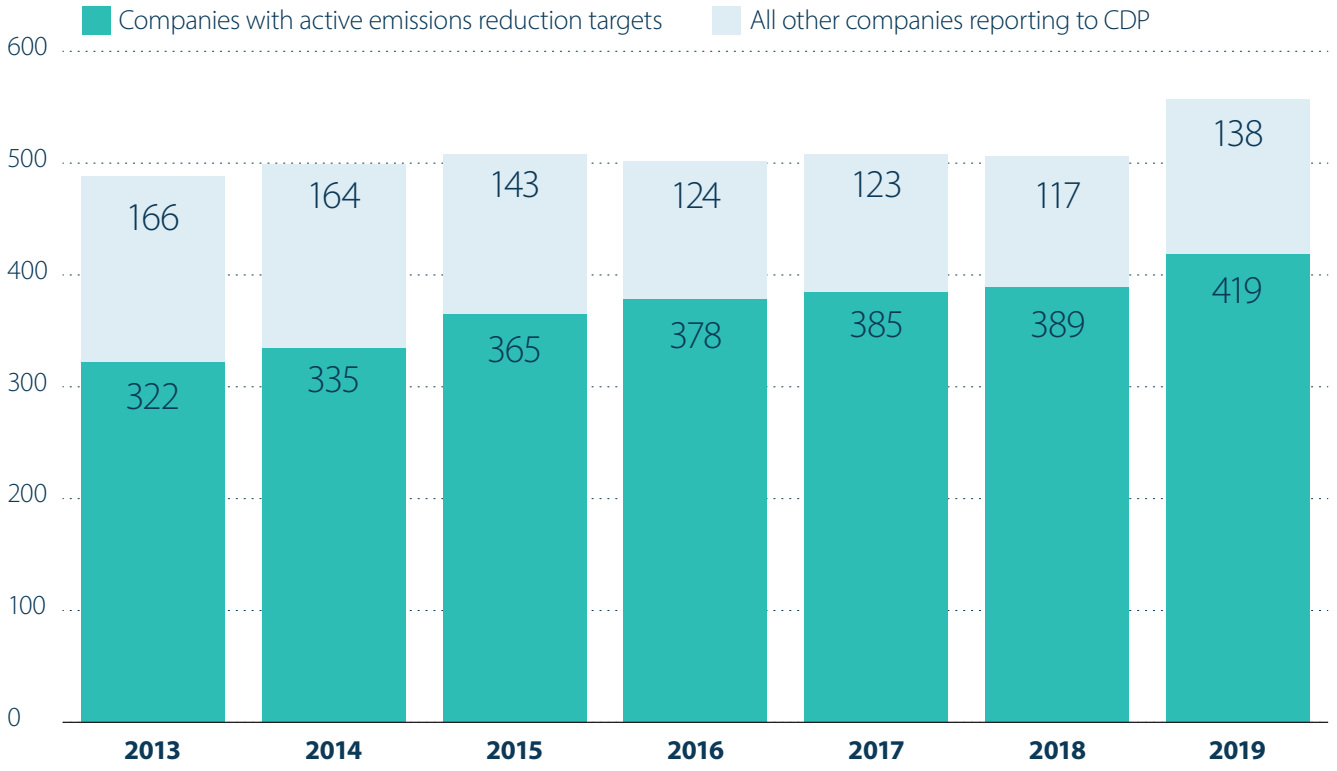
Number of S&P 500 companies publishing sustainability reports

2011 **20%**

2019 **90%**

Source: Governance & Accountability Institute, 2020

In addition, hundreds of U.S. companies are sharing carbon footprint data with the CDP (formerly the Carbon Disclosure Project). **A majority of these firms have also made commitments to reducing their GHG emissions.**



Source: CDP, 2020

The consequences of global warming are becoming more evident, and significant investment will be required to develop sustainable solutions.

In this regard, carbon offsetting can be a powerful tool used by both businesses and investors.

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