

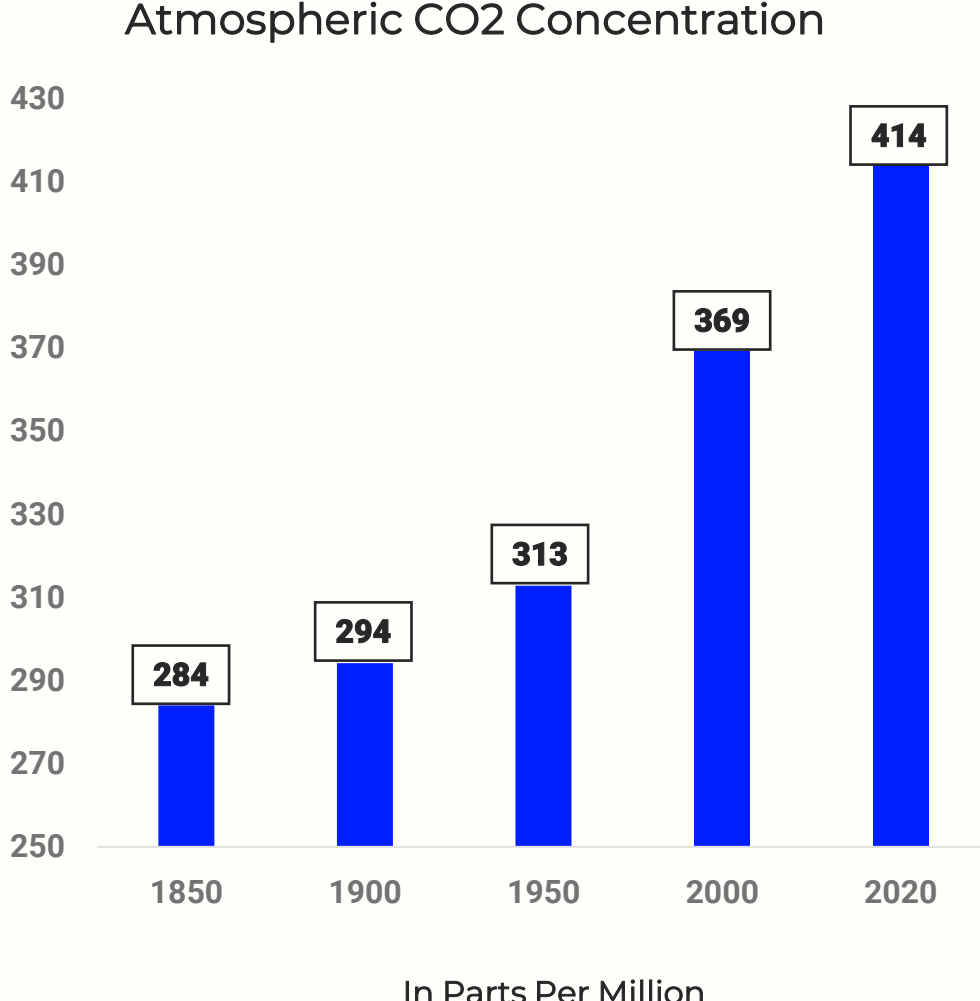
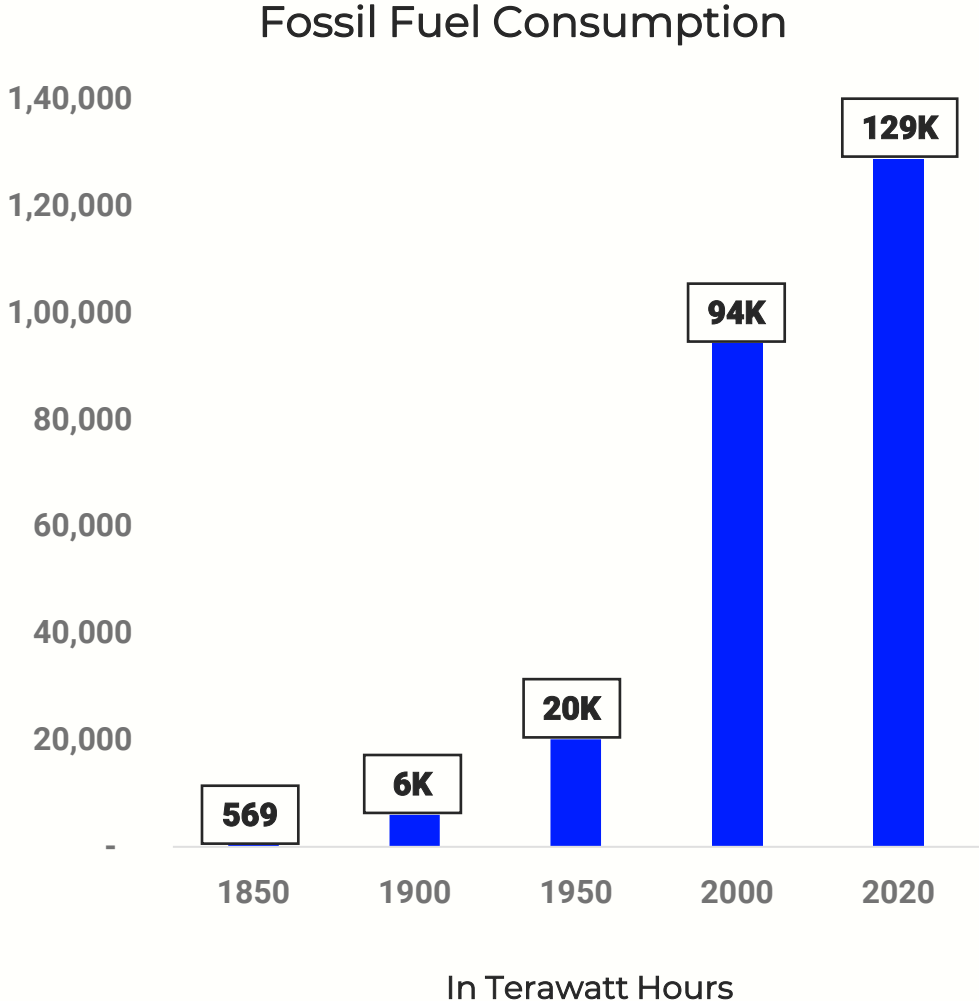
# The Landscape of ClimateTech

By Aakanksha, Aviral and Akul

# The Problem of Climate Change

# Impact of Fossil Fuel Consumption

We have scaled our fossil fuel consumption, unaware of the climate impact of this exponential growth



Source: Our World in Data

# Cost of Climate Change

Climate change has exacerbated natural calamities, causing large-scale losses to the global economy...

**1.5°C**

Increase in temperature from pre-industrial times

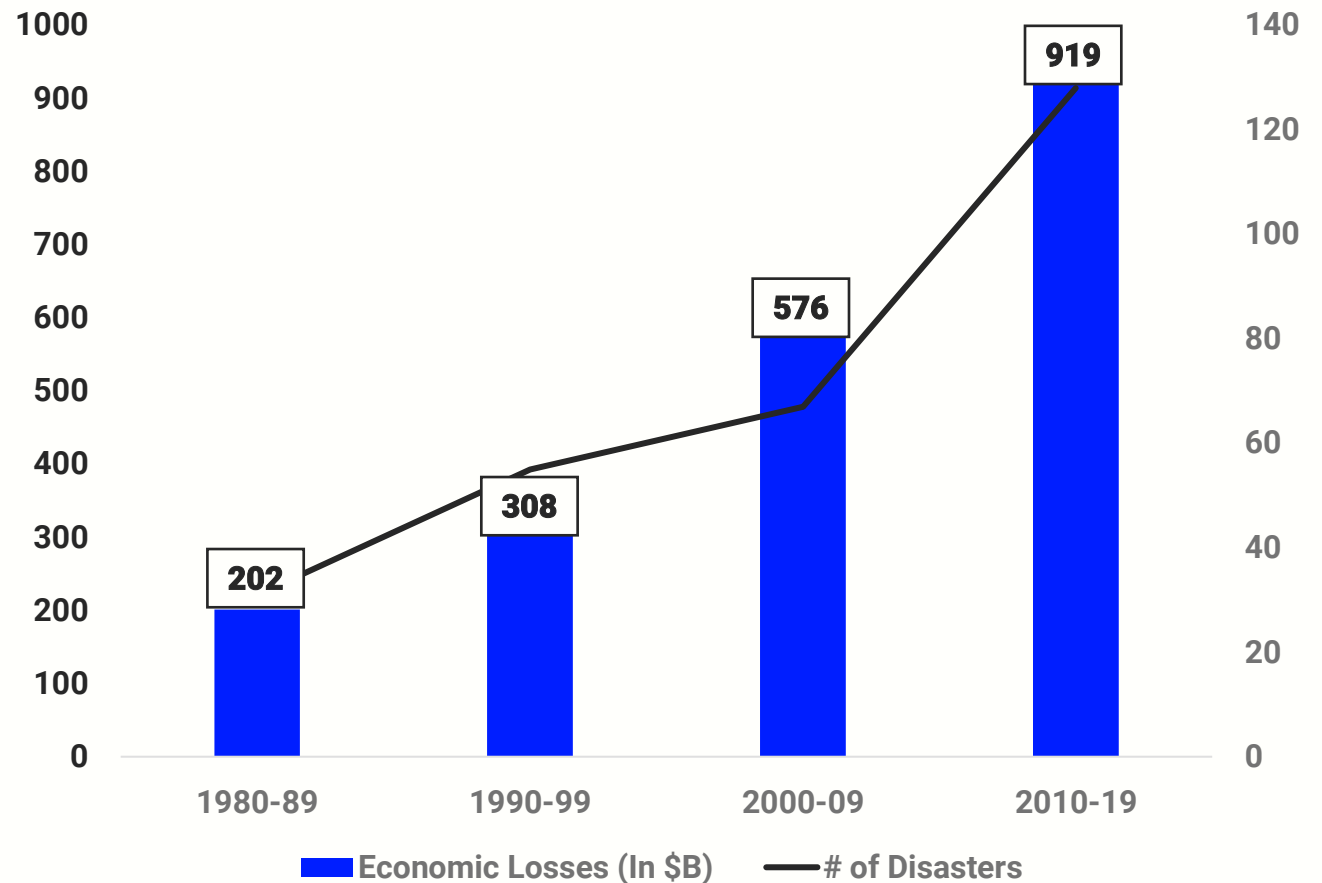
**22**

Disasters in 2021 that costed \$1B+

**\$343B**

Economic loss due to climate change in 2021

### Cost of Climate Disasters, USA



# The Cost of Climate Change

...uprooting thousands of lives in their course



\$65B: Hurricane Idaho



\$43B: Germany and Belgium Floods



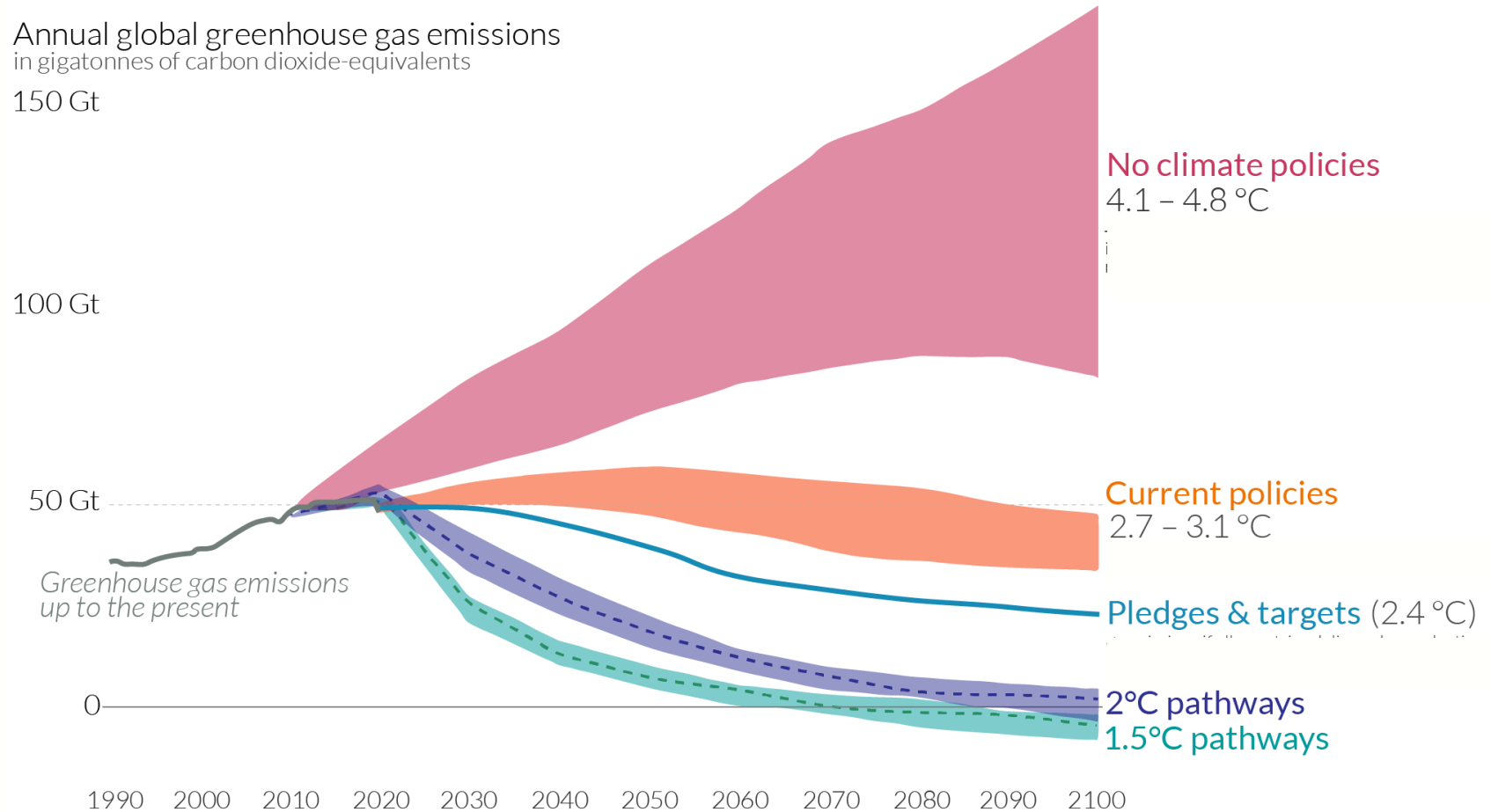
\$23B: Winter Storm in Texas



\$17.6B: China's Henan Province Floods

# Our Future

Climate related challenges will intensify, as we breach twice the target increase in global warming by 2030



# Combating Climate Change

Governments globally are hence pressuring businesses to undertake better environmental footprint management

The EU is finalising disclosure rules for 50,000 companies in the 27-country bloc to report on environmental, social and governance (ESG) factors, as well as a company's impact on the environment known as double materiality

*Source: Reuters*

Fines have been issued for breaches of climate change schemes which are in place to help ensure the UK reaches its target of net zero emissions by 2050

*Source: UK Govt Website*

# How ClimateTech Startups Can Help

ClimateTech startups help businesses navigate these changes enabling us to create a sustainable future

## Measure

How do I measure my organisation's carbon footprint?

Software to calculate carbon footprint of the organisation

What risks does my organisation face because of climate change?

Software to compute the value-at-risk due to climate change

## Mitigate / Reduce

How can we produce and deliver goods more sustainably?

R&D for low-carbon production, and delivery systems

How do we offset our carbon emissions?

Marketplace for purchase of carbon credits

## Accelerate the Transition

How do we help businesses navigate climate risk?

Supply chain planning and insurance for value-at-risk due to climate change

How do we enable businesses' access to sustainable finance?

Business-focused financial products with fractional investments for retail investors



# Theme 1: Measurement

## Carbon Accounting

Globally regulators are directing enterprises to measure their environmental footprint

## US SEC proposal for mandatory carbon reporting

The SEC has proposed new climate-related disclosure requirements for public companies. In March 2022, with the “issuer rule,” the SEC proposed rule amendments that would require public companies to provide certain climate-related financial data, and greenhouse gas emissions (both direct and supply chains) insights, in public disclosure filings.

*Source: Bloomberg*

## EU rules for audited carbon reporting

The EU said over three years companies covered by the rules - renamed as the Corporate Sustainability Reporting Directive - would more than triple to around 49,000. The new rules, which require companies to disclose a broader range of data such as their carbon emissions... Companies would also be required to obtain limited assurance for their sustainability disclosures from an auditor.

*Source: Reuters*

# Cross-border Carbon Tax

The EU has implemented a Cross-Border Carbon "Tax" on the carbon emitted during the production of goods entering the EU



# Cost of “GreenWashing”

The penalties for non-compliance or “greenwashing” are huge, with incorrect reporting costing millions of US dollars

## German government fined energy company for greenwashing

Back in 2020, Eni was fined €5 million for deceiving consumers on its “green” diesel. And as the 2022 German police raid on Deutsche Bank’s DWS proved, there is potentially much more money to be lost. In 2023, we expect at least 10 companies to incur \$5 million or more in greenwashing fines.

*Source: Forbes*

## SEC fined financial services company for improper reporting

DWS was fined \$19m this week by the US Securities and Exchange Commission (SEC) for marketing itself as a leader in ESG while making misleading statements about controls for incorporating research and investment recommendations for ESG-integrated products.

*Source: IPE*

# The Carbon Equation

Carbon accounting is as complex as financial accounting for a multinational organization, with each business activity having a different “carbon cost”

$$\text{Business Activity} \times \text{Emissions Factor} = \text{CO}_2e$$

Company’s daily actions that cause global warming:

- Electricity consumed by building, factory and data centres
- Employees driving to work and flying to meetings
- Raw material purchased from other companies

Measures how much carbon is emitted for each business activity:

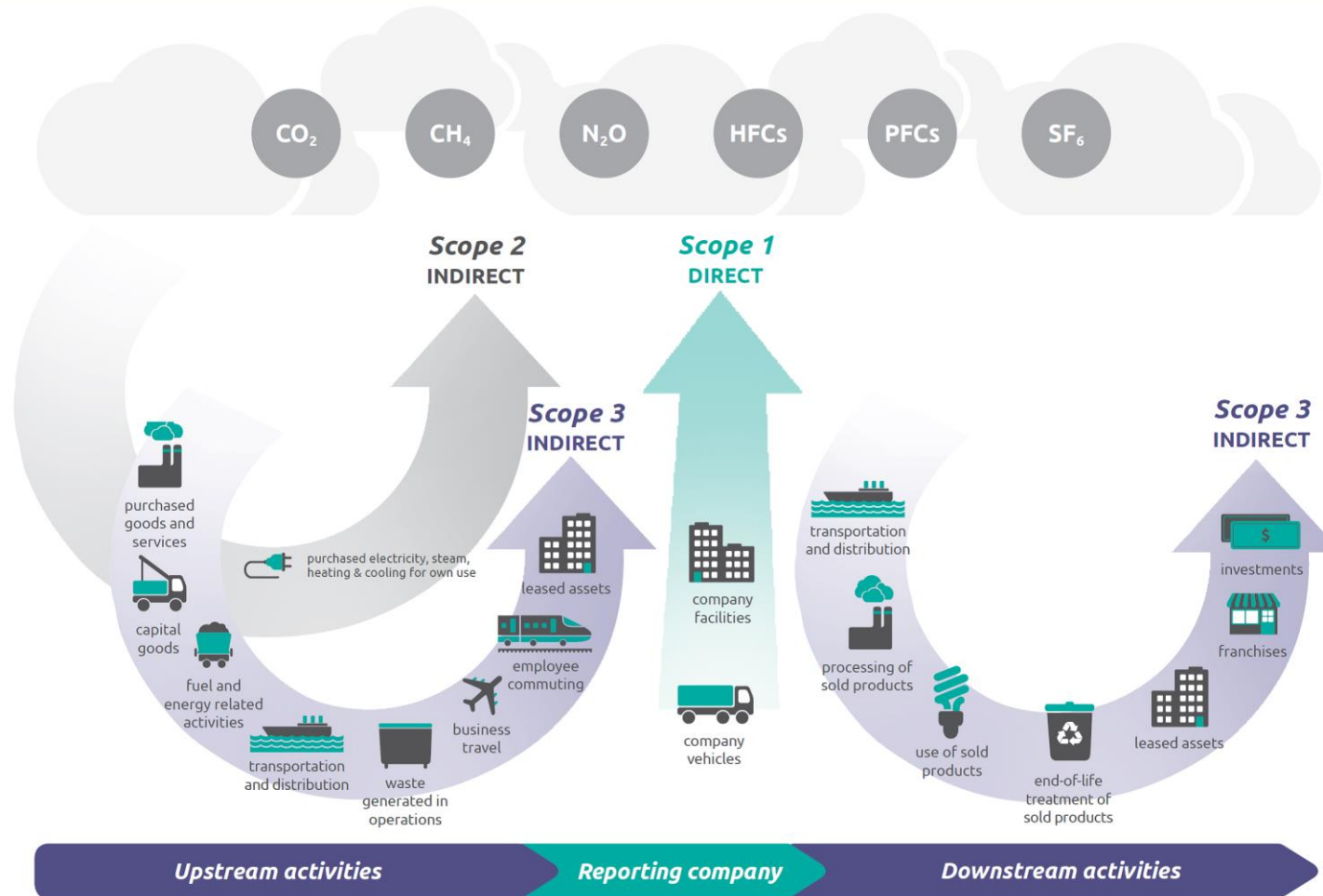
For instance, we know that growing a tomato emits 0.65 kg of CO<sub>2</sub>e, and manufacturing a MacBook Pro emits 185 kg of CO<sub>2</sub>e, etc.

Gases are converted into measures equivalent to a tonne of carbon dioxide for consistency:

For instance, methane emissions are 84 times more potent over a 20 yr period

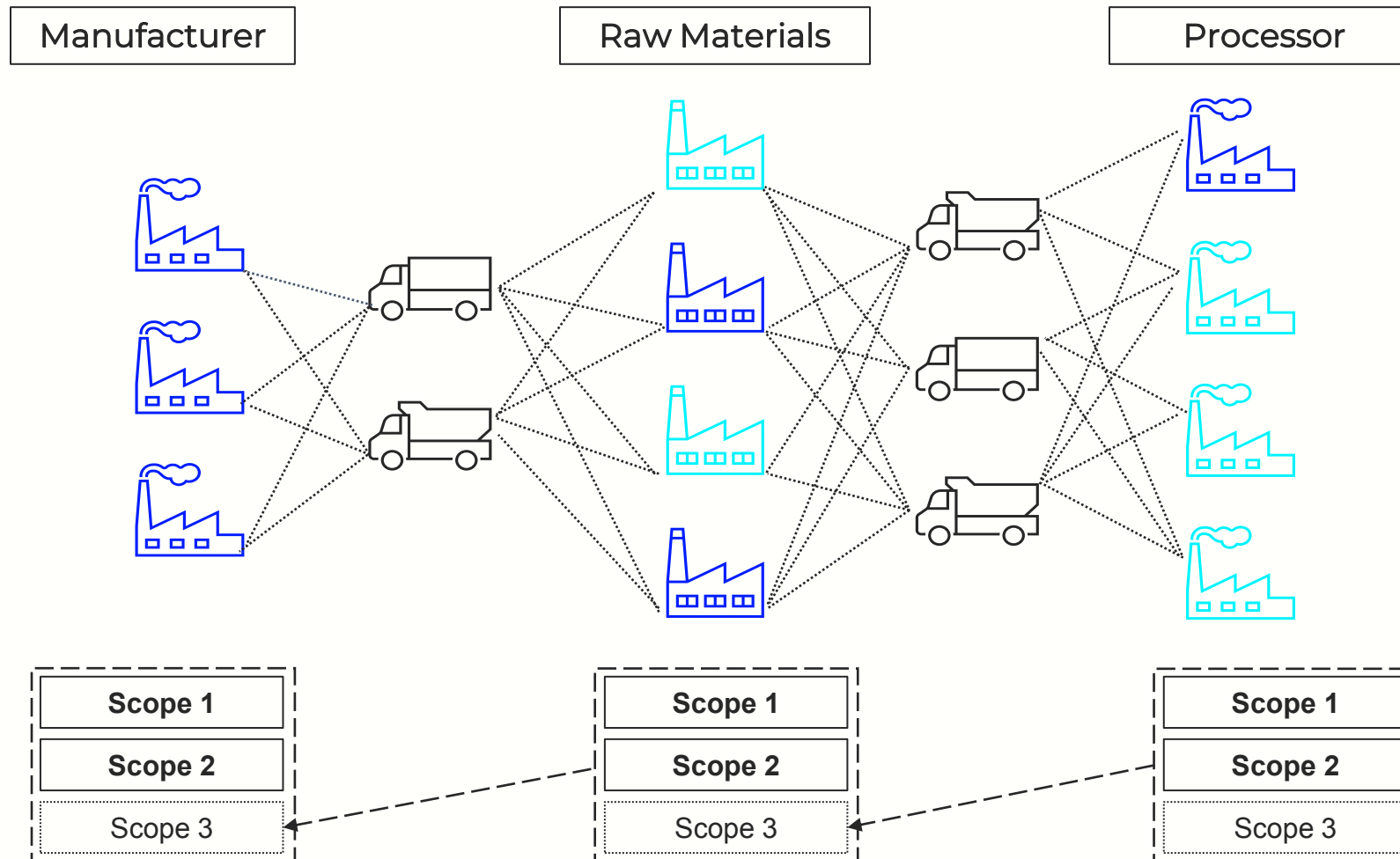
# What is Your Carbon Footprint?

Computing your organizational carbon footprint requires assessing the impact of your business, and your upstream and downstream supply chain partners...



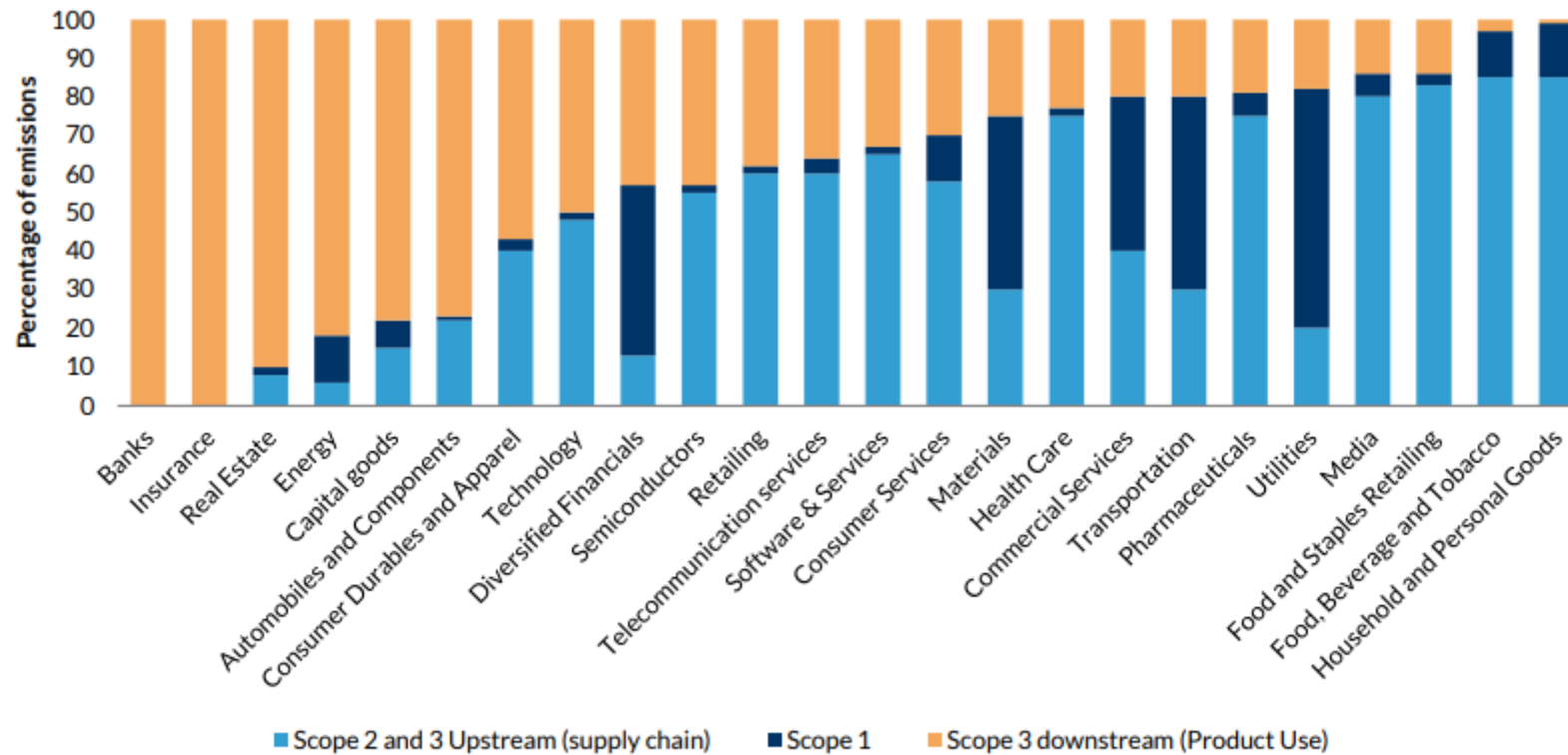
# The Trickle-Down Effect

...with low-carbon cost partners, positively impacting the entire supply chain



# The Interdependence

Each chain has its unique characteristics, with higher Scope 3 emissions implying higher interdependence, driving supply chain reconsiderations





# Global Players

Many publicly-listed enterprises and startups globally are helping organizations compute their environmental footprint



Traditional SaaS companies



\$101M, Series B, 2021



\$73M, Series B, 2022



\$70M, Series B, 2022



\$32M, Series B, 2022



\$22M, Series A, 2022



\$10M, Series A, 2022



\$10M, Series A, 2021



Acquired by OneTrust, 2021



Acquired by NASDAQ, 2022



\$2M, Seed, 2022



NPO, Collective

# What are we looking for?

While the market is competitive, we believe that there is opportunity for Indian startups to build verticalized user-friendly products to capture this market

- Deep experience in carbon consulting and building user-friendly products that can effectively tackle scopes 1 through 3, with a specific emphasis on scope 3 emissions
- A strong focus on building deep vertical distributions in industries with large scope 3 emissions like automobiles, real estate and fashion etc
- The ability to cultivate strong channel partnerships with industry leaders in tax/audit/consulting to pursue enterprise clients with large Requests for Proposals (RFPs)

## Indian Startups



## Theme 2: Mitigation/Reduction Carbon Capture and Offset

# Global Emission Reduction Initiatives

4K+ businesses and financial institutions are working with the Science Based Targets initiative (SBTi) to turn “Net Zero”

## Goldman Sachs Commitment to “Net Zero”

- Achieve Net Zero emissions in our operations and supply chain by 2030
- Reduce energy intensity by 20% from a 2017 baseline for offices under operational control
- Extend Scope 3 carbon neutrality commitment for business travel to include hotel night stays
- Ensure that 80% of renewable energy procurement is from long-term, impactful agreements...

*Source: Goldman Sachs*

## Apple Plans to turn Carbon Neutral

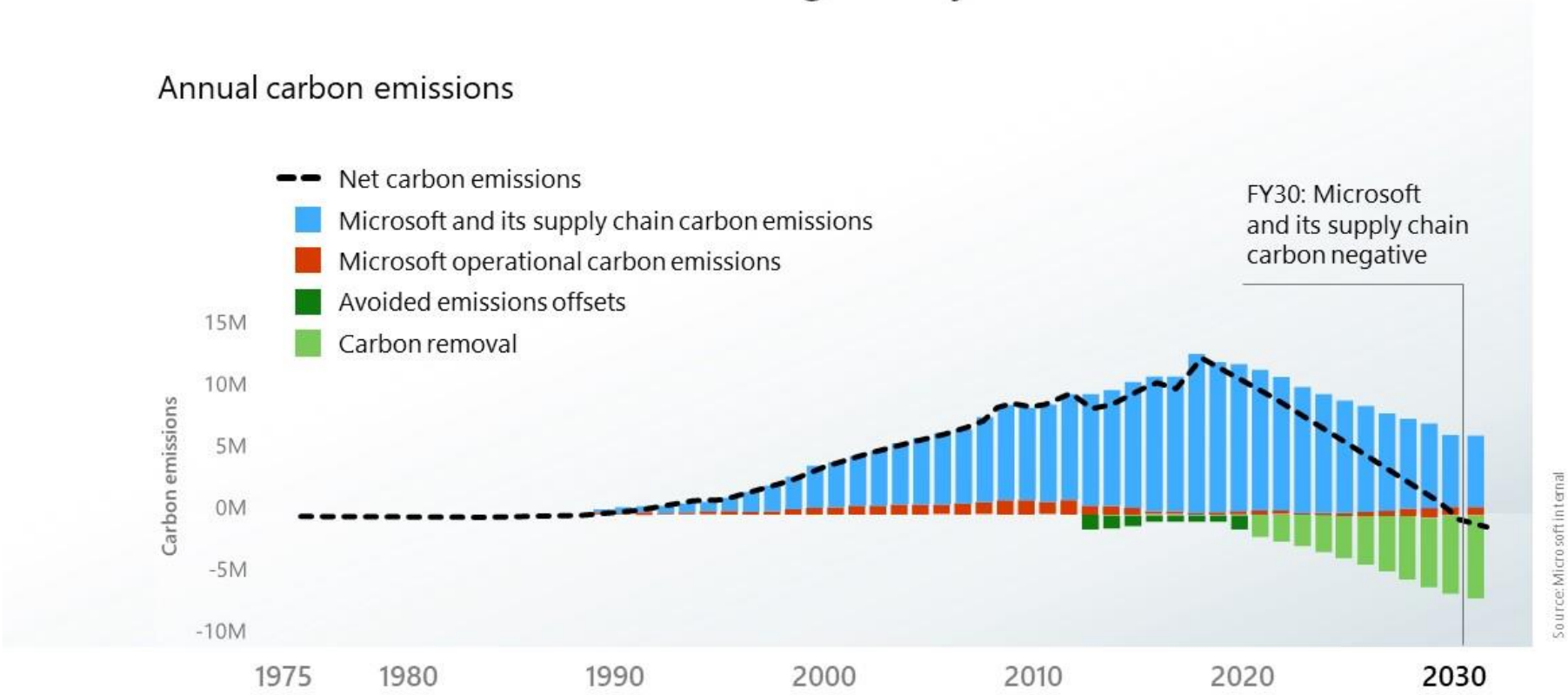
Apple today unveiled its plan to become carbon neutral across its entire business, manufacturing supply chain, and product life cycle by 2030. The company is already carbon neutral today for its global corporate operations, and this new commitment means that by 2030, every Apple device sold will have net zero climate impact.

*Source: Apple*

# Corporate Emission Reduction Initiatives

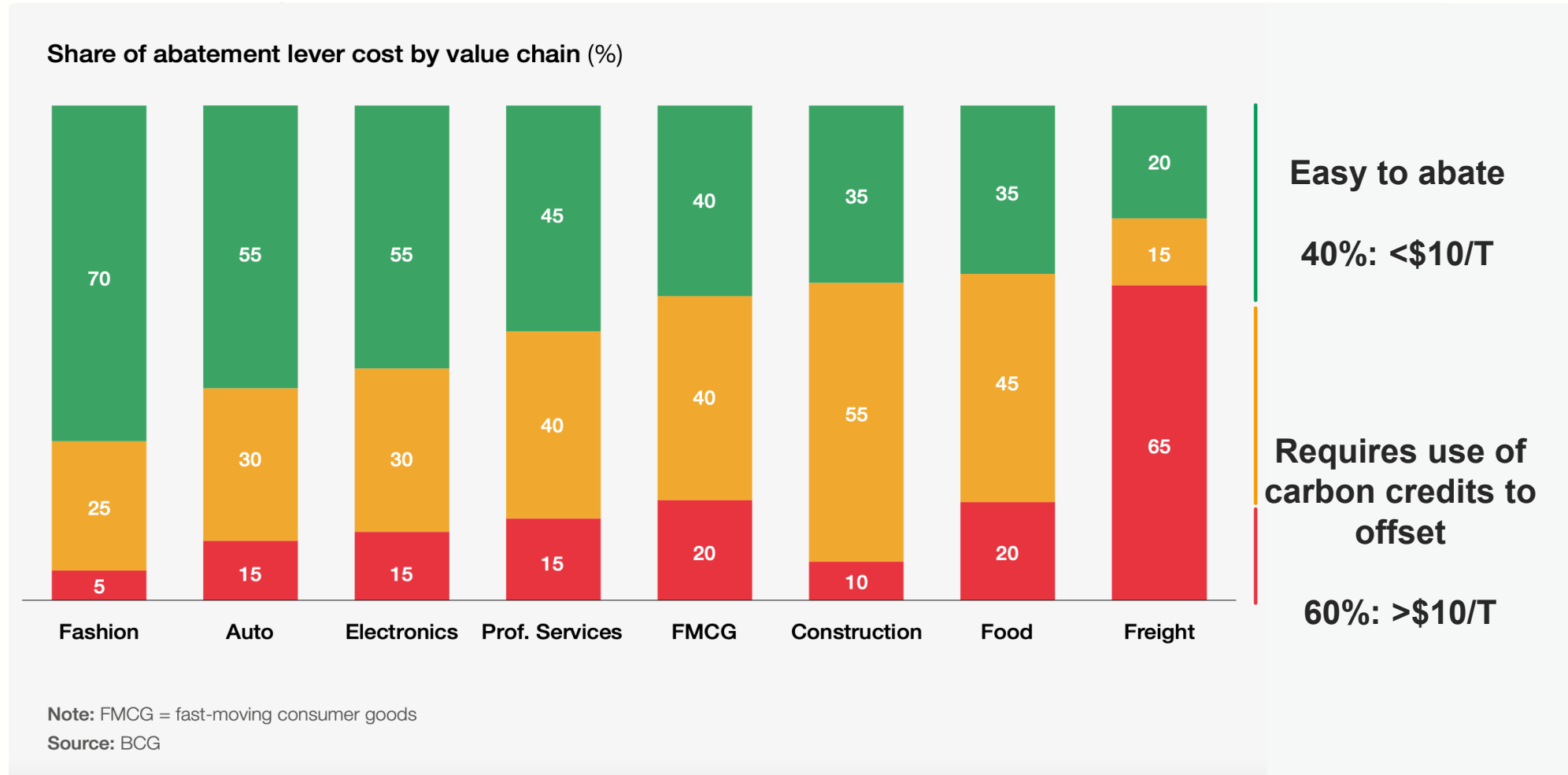
Companies like Microsoft have also published their pathways to “Net Zero” for investors, and customers

## Microsoft’s pathway to carbon negative by 2030



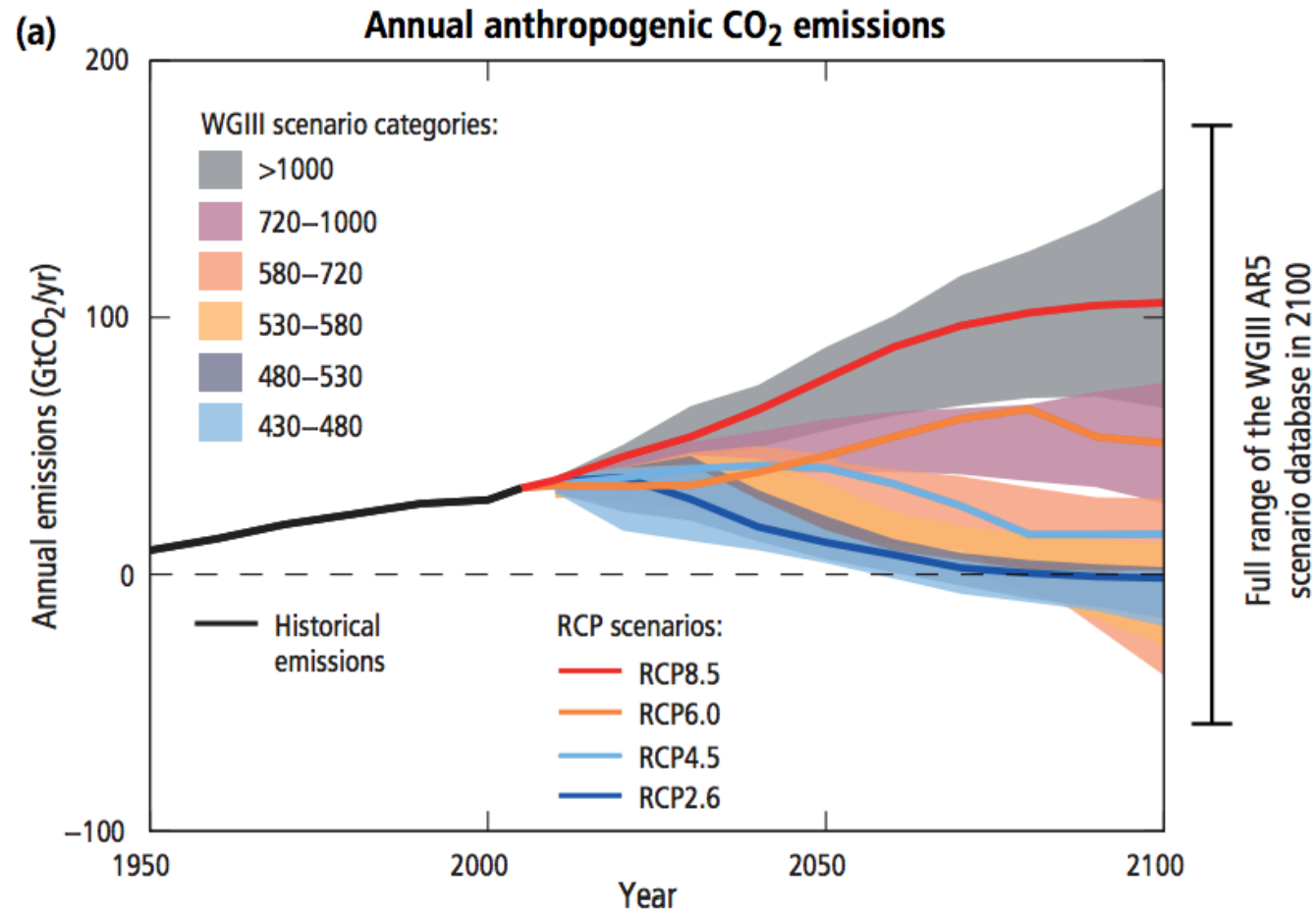
# Business Challenges in Achieving 'Net Zero'

Making all value chains "Net Zero" is prohibitively expensive and disrupts business operations, necessitating their use of carbon credits



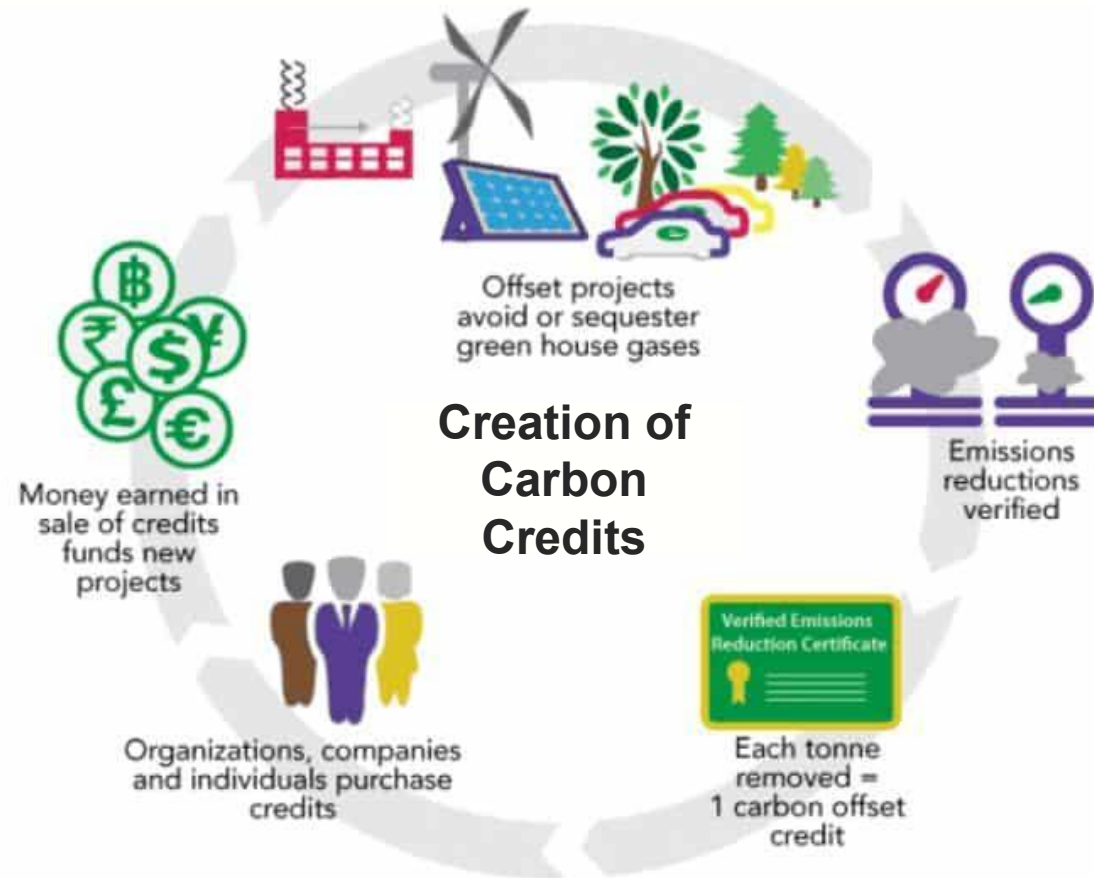
# Meeting the 1.5C Paris Goal

Turning “Net Zero” alone is not sufficient to restrict the rise in temperature, since temperature change is dependant on the stock and not the flow of GHGs, removing existing GHGs from the atmosphere is critical



# Introduction to Carbon Credits

Carbon credits are generated from projects that pull Greenhouse Gases (GHGs) out of the atmosphere or keep emissions from being released





# Types of Carbon Credits

There are 4 broad categories of carbon credits...



Technology-based removal



Emissions avoidance/reduction



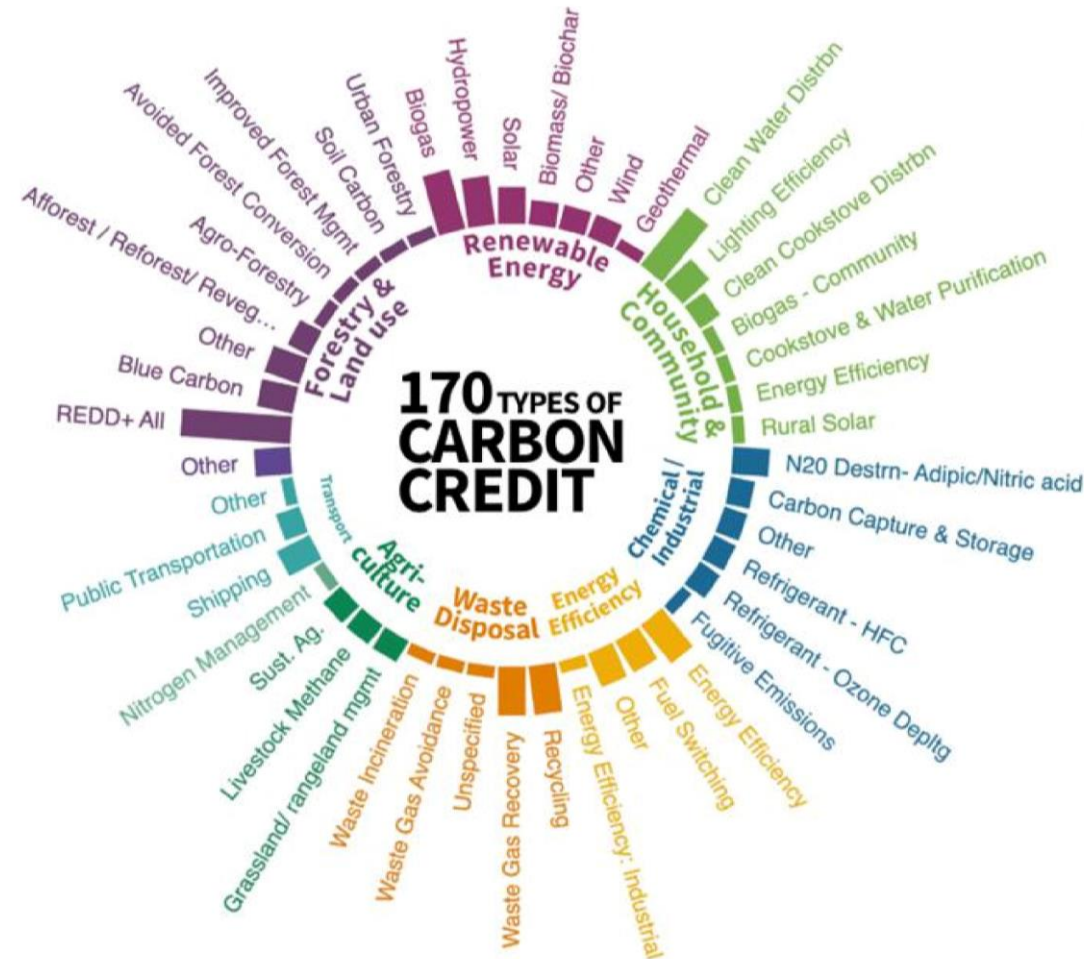
Nature-based sequestration



Avoided nature loss

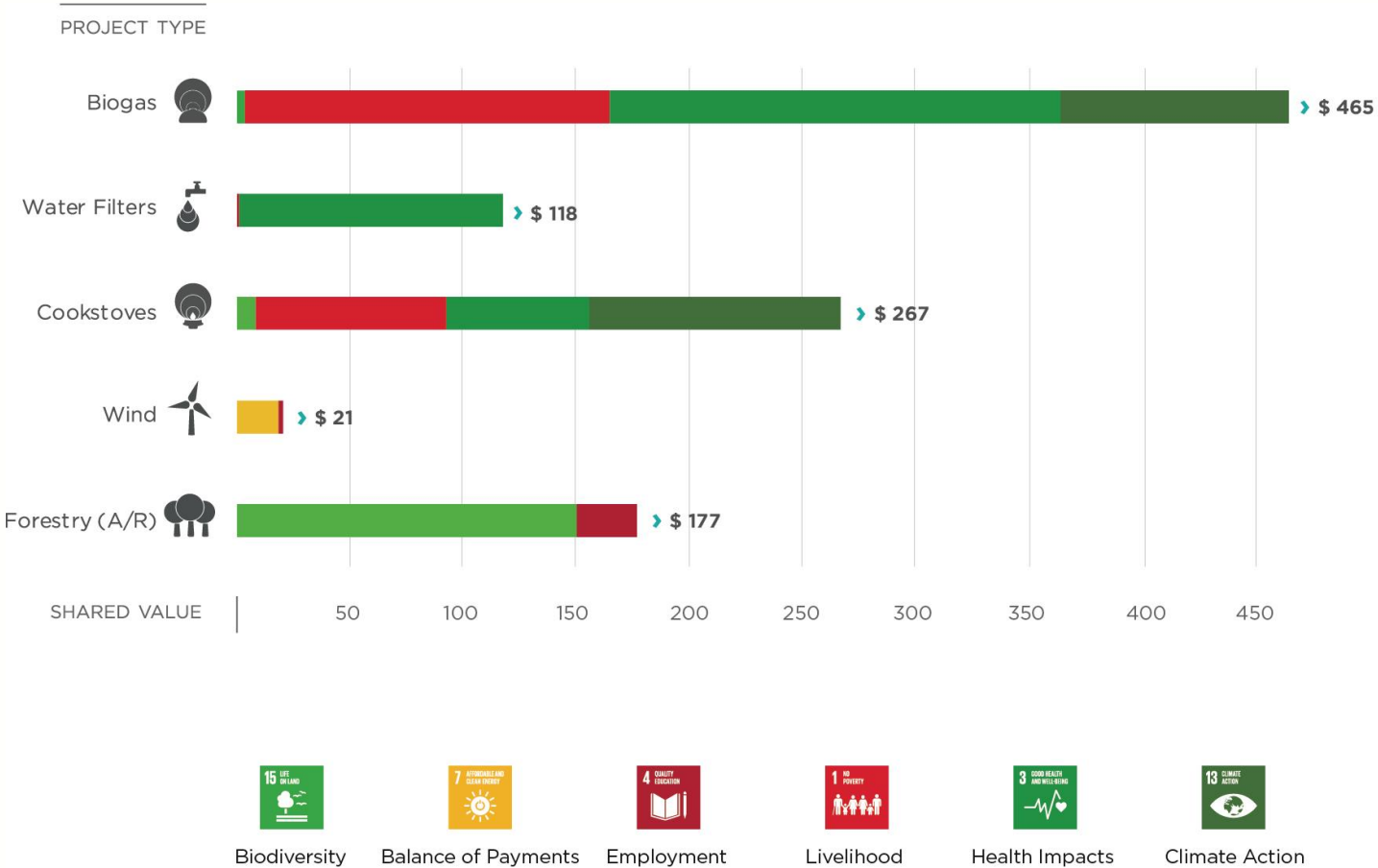
# Types of Carbon Credits

...which include 170+ types of carbon credits...



# Price of Carbon Credits

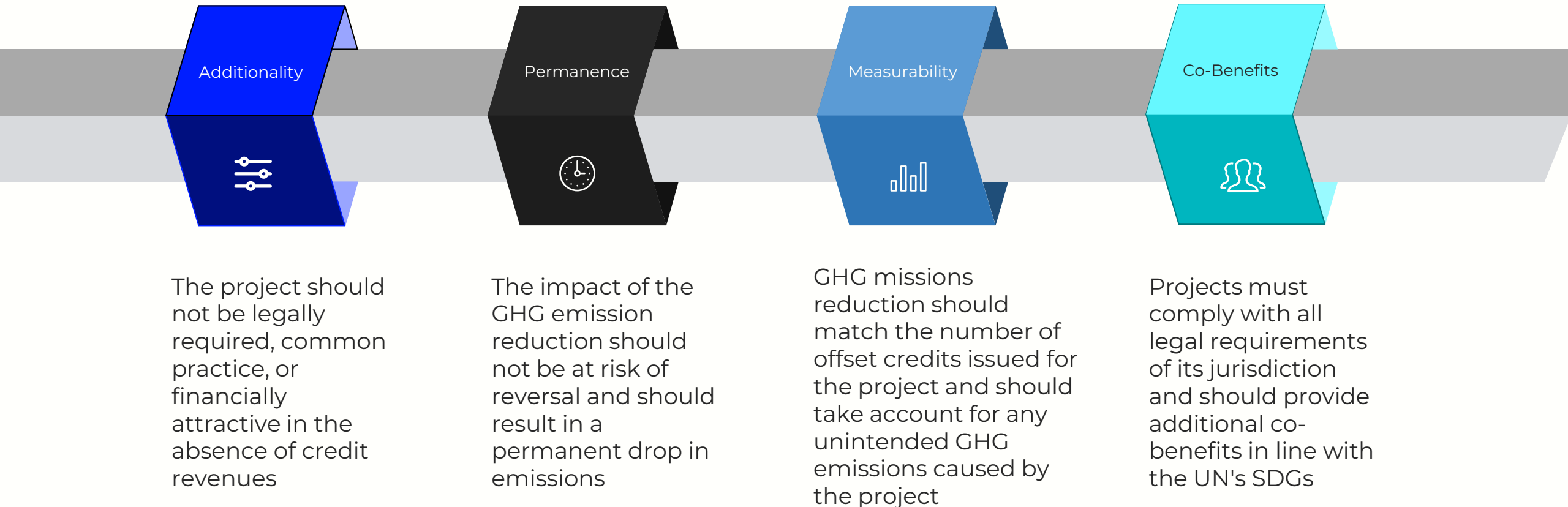
...with prices ranging from a few cents to \$2000+ per ton



Source: Gold Standard

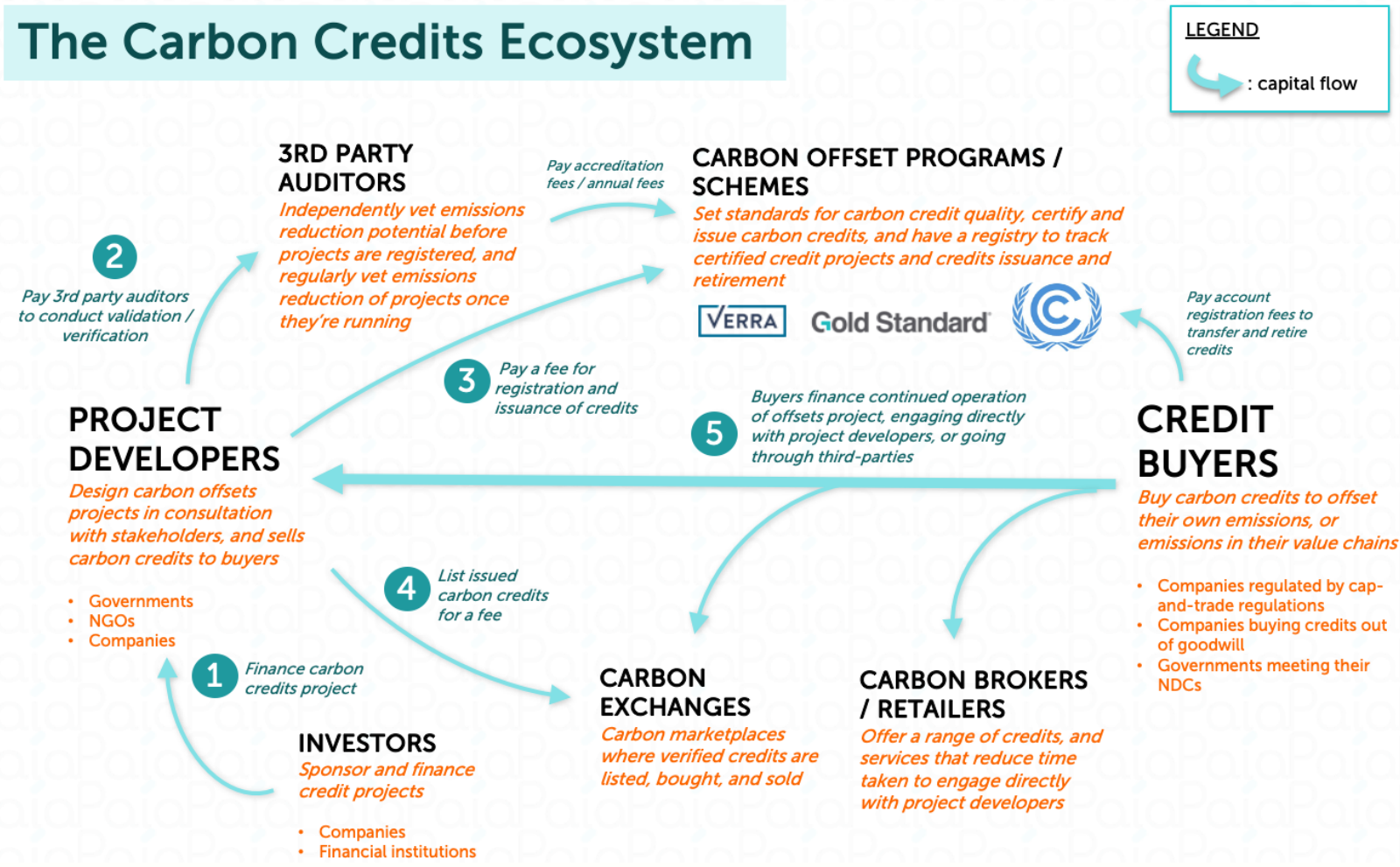
# Understanding Carbon Credits

There are 4 parameters basis which organizations evaluation carbon credits



# Purchasing Carbon Credits

Organizations have to navigate a complex ecosystem to understand these projects and determine which credits to buy and from whom

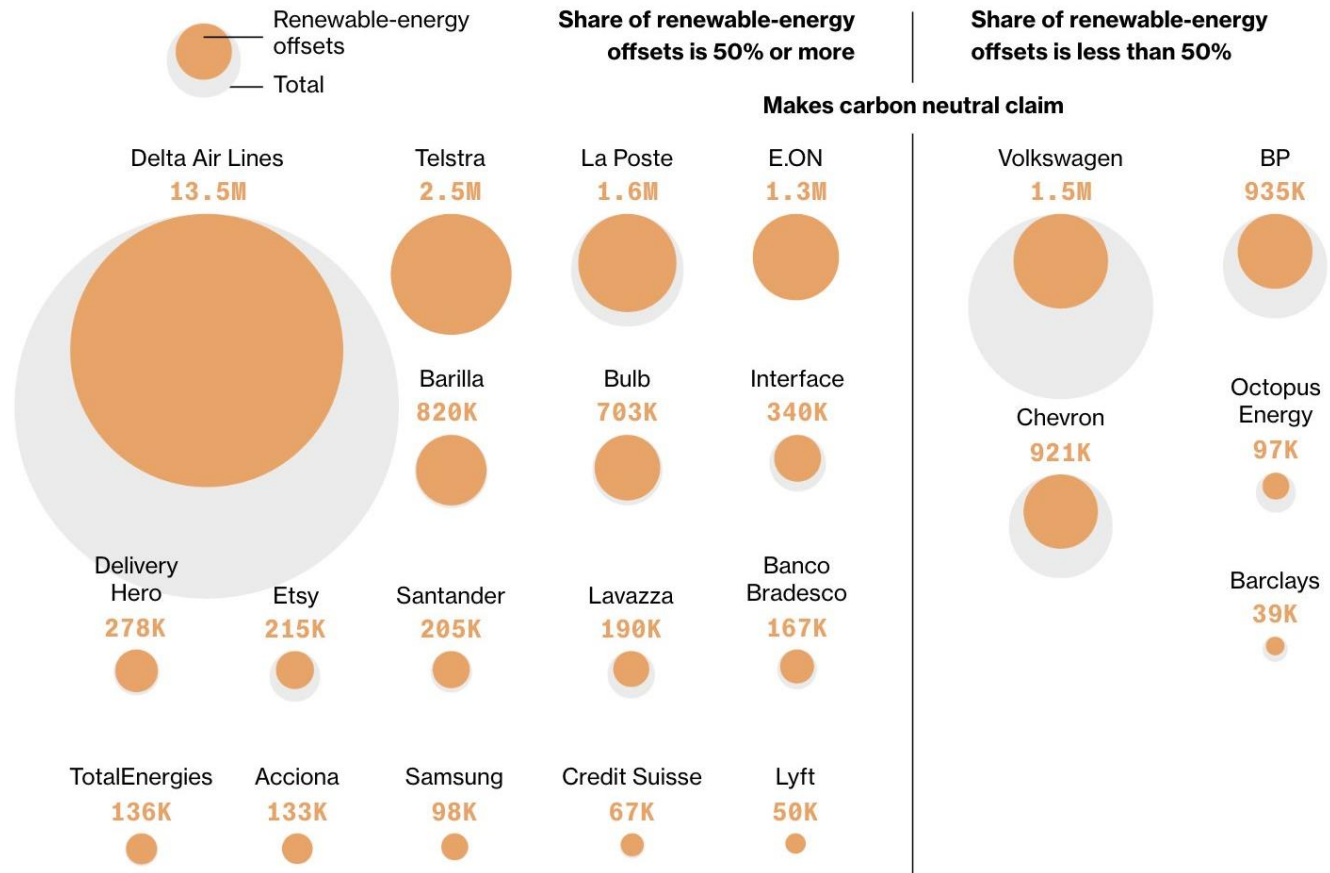


# Purchasing Carbon Credits

Organisations that fail to purchase high-quality carbon credits also risk getting accused of greenwashing, consequently inviting regulatory action and consumer pressure

## Buying Bogus Offsets

Total carbon offsets bought in 2021 and the share coming from renewable-energy projects for a selection of big buyers



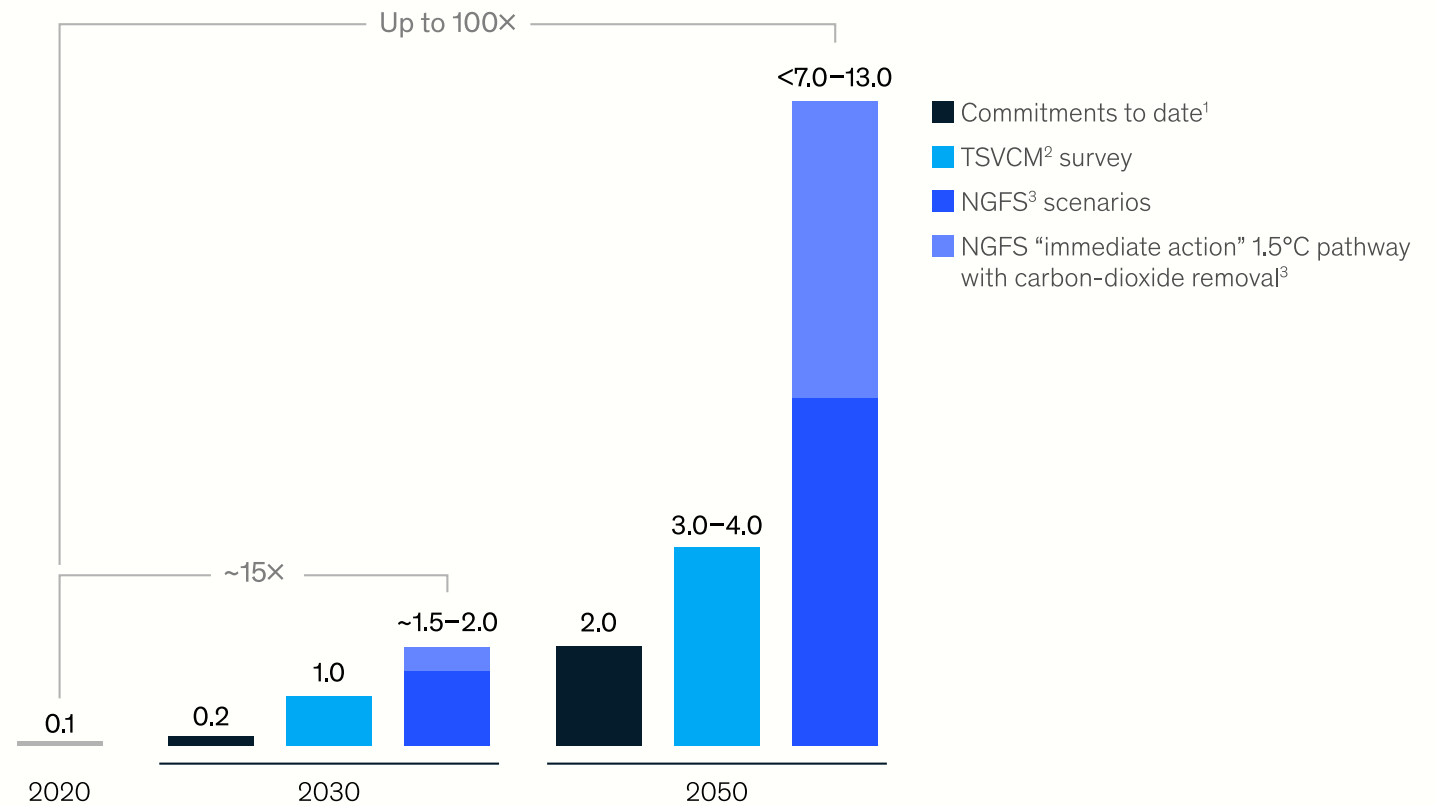
# The Demand for Carbon Credits

The demand for carbon credits is set to grow exponentially

**\$50B+**  
Exp. Voluntary Carbon  
Market Size, 2030

**Global demand for voluntary carbon credits could increase by a factor of 15 by 2030 and a factor of 100 by 2050.**

Voluntary demand scenarios for carbon credits, gigatons per year



# Global Players

Public corporations and well-capitalized startups are building to capitalize on the growth of the carbon credits market



Public, \$160B MCap



\$400M, Series D, 2022



\$70M, Series A, 2022



\$61M, Series C, 2022



\$55M, Series B, 2022



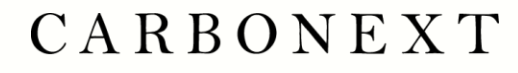
\$55M, Series B, 2022



\$50M, Series B, 2022



\$50M, Series B, 2022



NATURE & FUTURE

\$38M, Series B, 2022



\$33M, Series A, 2022



\$10M, Series A, 2022



\$7M, Series A, 2022



# What are we looking for?

We believe that India's biodiversity provides our entrepreneurs fertile grounds to develop methodologies to generate carbon credits and capitalize on this growing market

- Expertise in the development of technologies crucial for credit certification; this encompasses areas such as the measurement, collection, and computation of field and satellite data
- A solid grasp of or experience in global financial markets, particularly the green finance sector to secure access to cost-effective working capital
- The ability to efficiently coordinate offline operations in collaboration with regional and local stakeholders at scale

## Indian Startups



# Theme 3: Accelerating the Transition

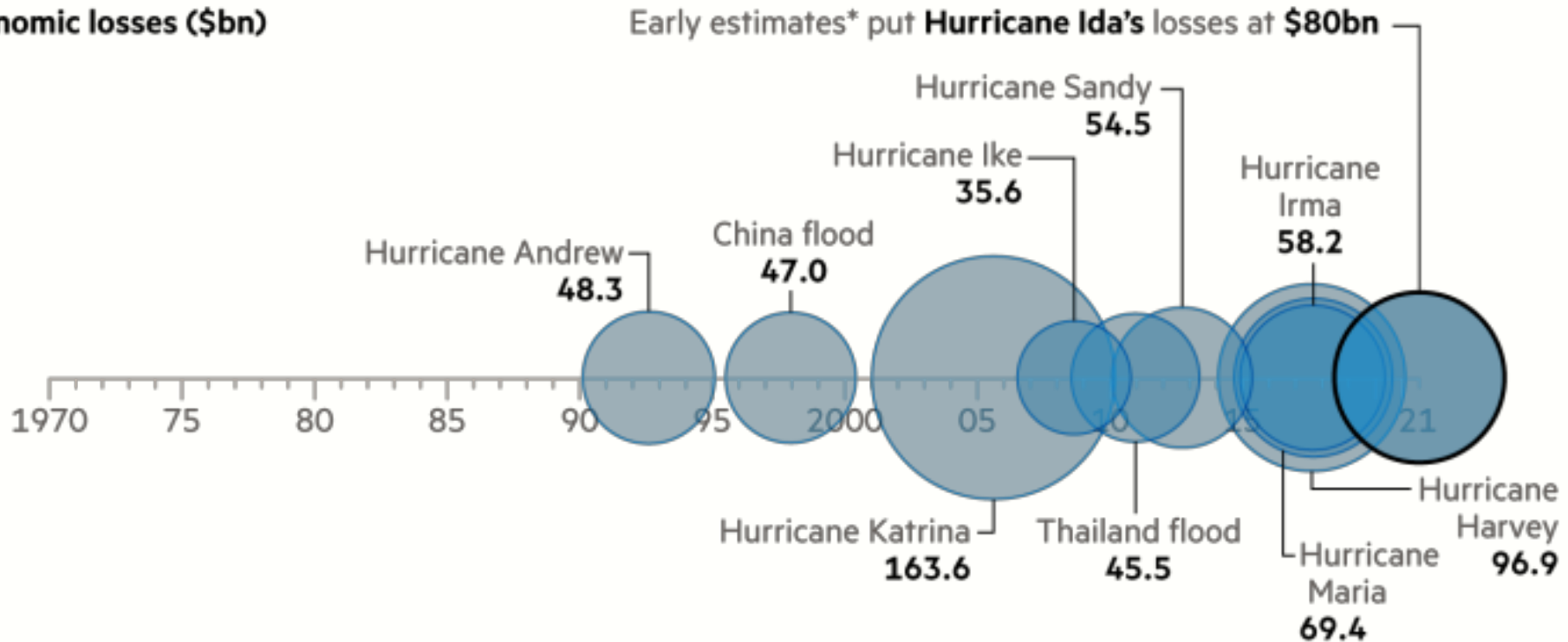
## Climate Intelligence

# Climate Change's Economic Toll

Developed nations have incurred the bulk of \$3.6T in economic losses from severe weather events over the past five decades

Top 10 disasters by reported economic losses and deaths since 1970

Economic losses (\$bn)



# Climate Change's Economic Toll

Swiss Re Institute expects climate risks to add \$183B to property insurance costs by 2040

Economic development will remain the key driver of premium growth across all lines of business over the next 20 years. In property, climate risks will raise property claims and premiums.

	Motor	Property	Liability
Economic development	↑	↑	↑
Climate risk and associated policies	↓	↑	↑
Technology/digitalisation	↓	=	↑
Urbanisation	↓	↑	↑
Liability regimes, social inflation	↑	↑	↑

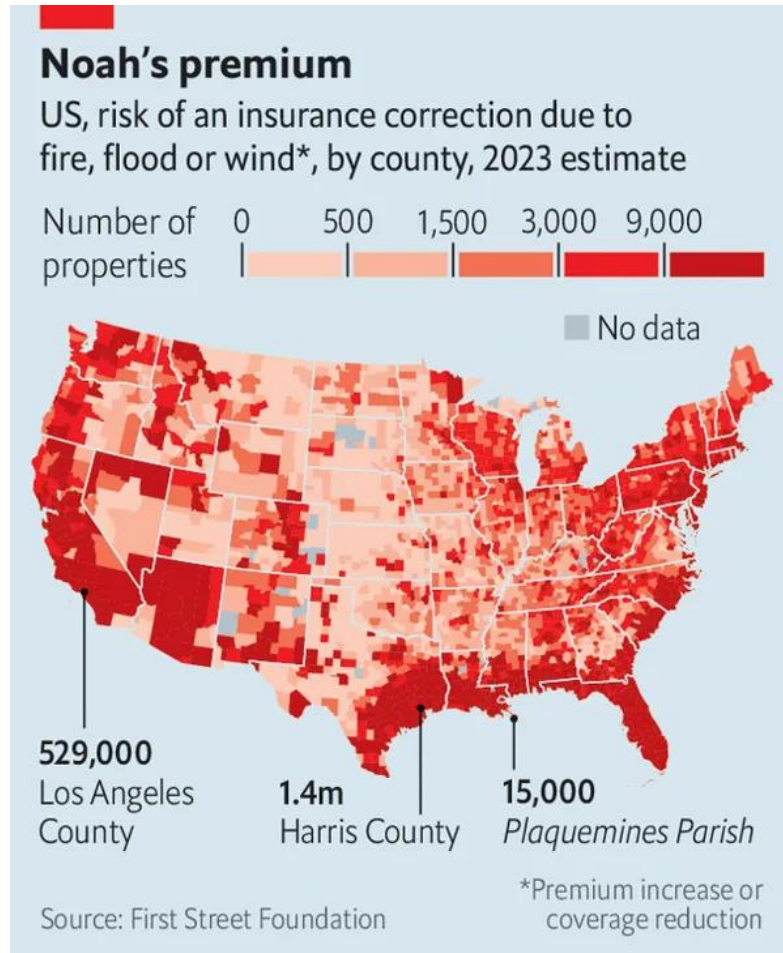
- Explicit quantitative analysis of impact
  - Implicit quantitative analysis of impact
- Source: Swiss Re Institute

	Motor	Property	Liability	Other	Total
Additional premiums by 2040F (USD million)	635	823	369	681	2 508
Contribution by driver					
Economic development	194%	75%	100%	100%	116%
Urbanisation	na	3%	na	na	1%
Climate change	na	22%	na	na	7%
Technology & sustainability	-94%	na	na	na	-24%

na = implicit quantification only  
Source: Swiss Re Institute

# Climate Change's Economic Toll

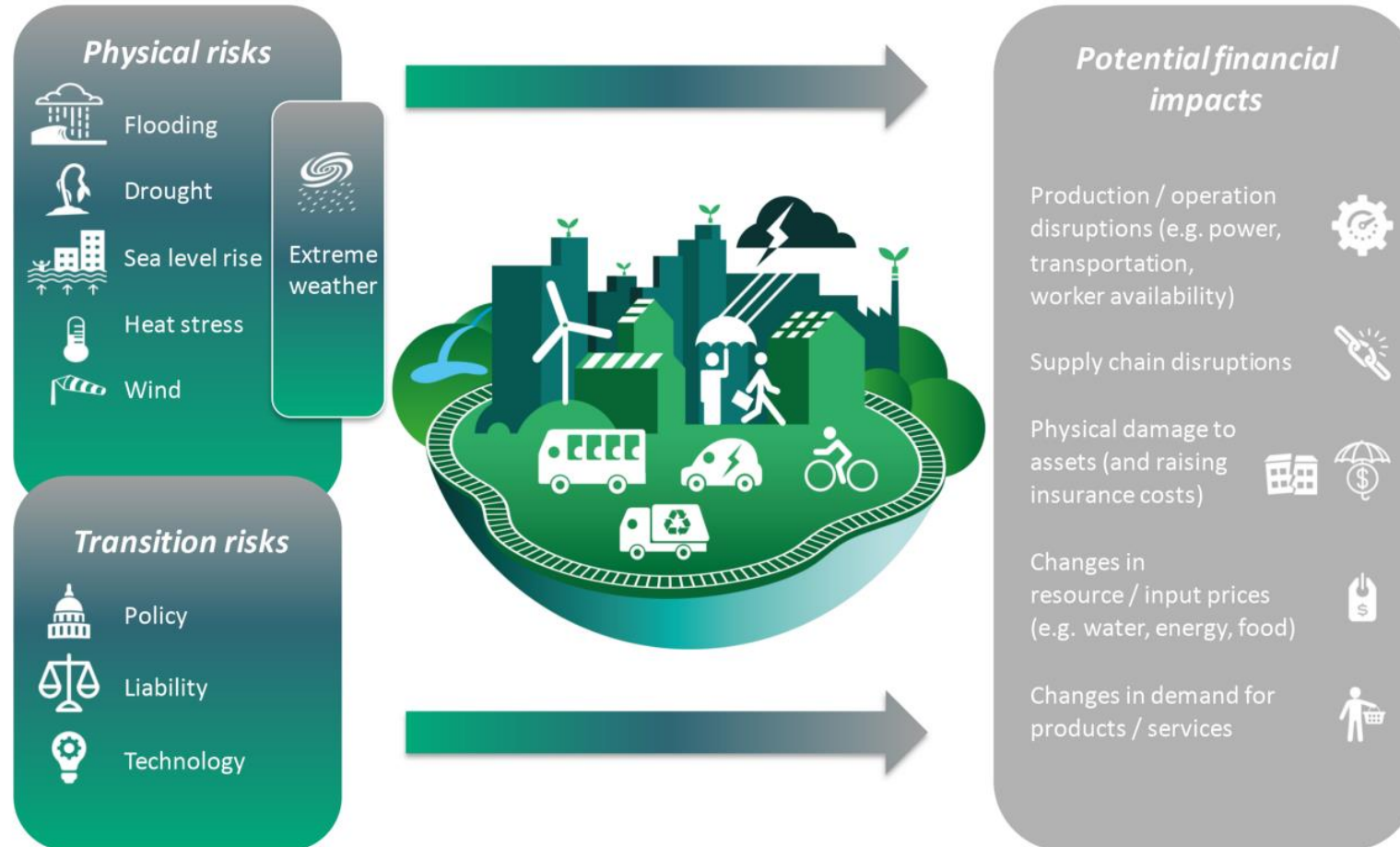
Early impacts on the rise in property insurance costs are visible with many properties in California and Australia becoming uninsurable



In Florida the average home-insurance premium in 2023 is around \$6,000, more than three times the national average and up 42% year-on-year. Yet rather than drooling over juicy profits, insurers are fleeing. At least 15 firms have recently limited their business in the state, according to the Insurance Information Institute; seven others were declared insolvent. With 1.3m policies, the state-backed insurer of last resort now has the highest market share in Florida and is insuring assets worth \$608bn. When it can't afford to pay claims, policyholders foot the bill.

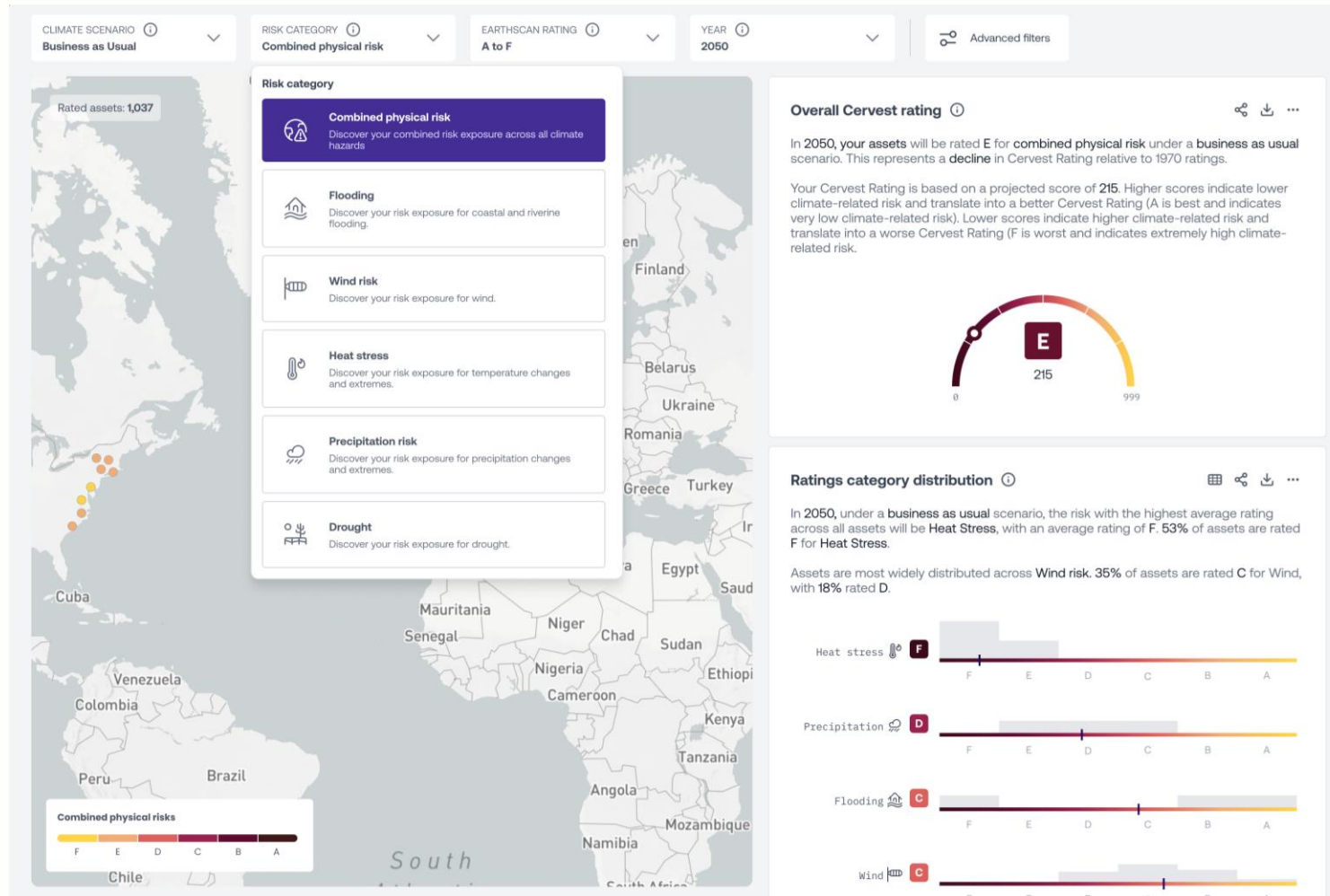
# Translation of Climate Risks to Financial Risks

Physical and transition risks of climate change have the potential to cause severe financial distress to organizations, resulting in operational, credit, insurance and market risks



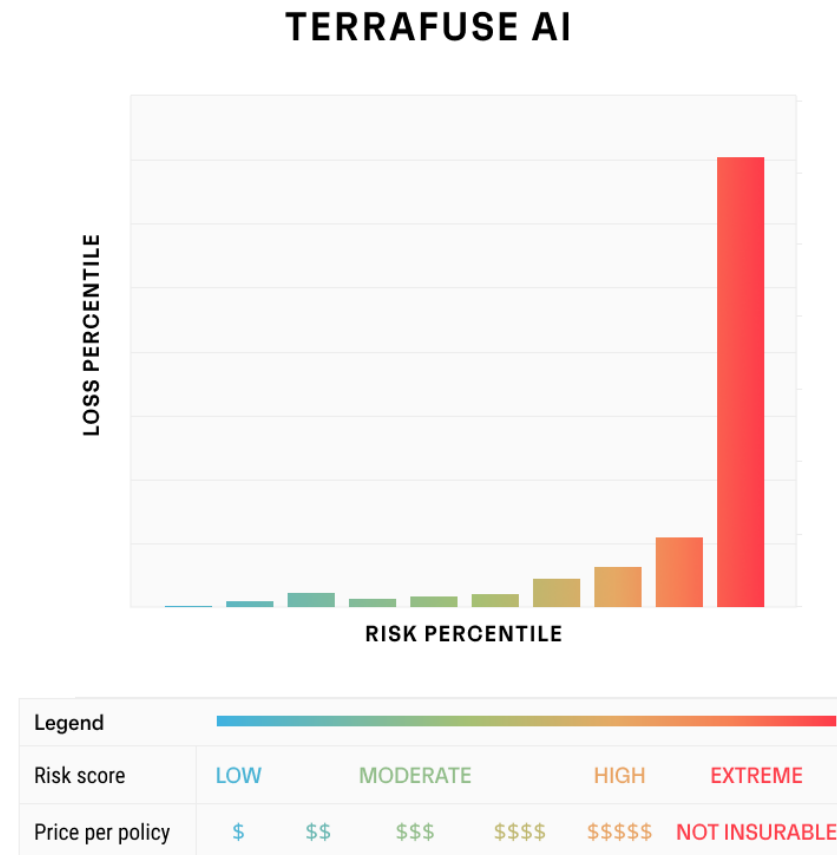
# Quantifying Climate Risk

Climate intelligence will allow organizations to quantify and objectively evaluate risk to their assets and supply chains



# Climate Risk Assessment

Compared with traditional methods, the use of real-time data, integrated assessment models and hyperscaled geospatial data allows for better assessment of climate specific risk





# Global Players

The climate intelligence market has many traditional and new players to provide raw data and analytics

McKinsey&Company

Consulting Firms

**Climavision**

\$100M, Series C, 2022

**tomorrow.io**

\$77M, Series D, 2021

**JUPITER™**  
Predicting risk in a changing climate

\$54M, Series C, 2021

**cervest**

\$30M, Series A, 2021

**MANIFEST CLIMATE**

\$24M, Series A, 2022

**BreezoMeter**

Acquired by Google

**EARTH NETWORKS®**

Acquired by Union Park Capital

**planalytics®**

\$11M, Series A, 2018

**FUTUREPROOF**

\$7M, Series A, 2022

**dClimate**

\$3.5M, Seed, 2021

**TERRAFUSE AI**

\$1.5M, Seed, 2020

# What are we looking for?

Despite intense competition, we believe there is opportunity for Indian startups to emerge as thought partners, developing best in-class models to analyze climate data and inform global businesses

- Proficiency in developing technologies for collecting and analyzing climate data, constructing integrated climate assessment models, and effectively applying this data to specific geospatial contexts
- Experience of selling to global enterprises with distributed operations or supply chains and governments
- The ability to cultivate a network of climate leaders and position the company as the industry's preferred thought partner

Indian Startups



Blue Sky Analytics

**ambee**<sup>•</sup>

# Thank you!

If you are building in ClimateTech, please feel free to write to us at [reachus@venturehighway.vc](mailto:reachus@venturehighway.vc)

Note : Climate Fintech is a part of our larger Fintech thesis and is therefore excluded from the scope of this presentation;  
it continues to be a focus area for VH