

# **Global Carbon Credit (Compliance & Voluntary) Market: Analysis By Traded Value, By Traded Volume, By Segment (Europe, North America, UK ETS, New Zealand, South Korea, China, and CERs), By Project Category (Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing, Household/Community Devices, Waste Disposal, Energy Efficiency/ Fuel Switching, Agriculture, and Transportation), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028**

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## **Abstracts**

The global carbon credit market traded value was US\$978.56 billion in 2022. The market is expected to reach US\$2.68 trillion by 2028. On the other hand, the global carbon credit market traded volume reached 13.22 GtCO<sub>2</sub>e in 2022. The traded volume is expected to reach 19.57 GtCO<sub>2</sub>e by 2028. A carbon credit is a way to measure, value, and trade a verifiable and quantifiable amount of GHG emissions with one credit universally understood to mean one ton of carbon dioxide or equivalent (tCO<sub>2</sub>e). Article 6 of the Paris Agreement provides a framework for the use of carbon credits, which can increase demand for them. In addition, the Paris Agreement requires countries to regularly update and enhance their nationally determined contributions (NDCs), which can lead to increased demand for carbon credits as countries seek to meet more ambitious emissions reduction targets.

There is increasing regulatory and stakeholder pressure on global corporations to lower emissions. These trends are driving demand for carbon credits, giving rise to two sets of

markets, which could grow meaningfully in the coming decades. At present, the overall carbon market is mainly characterized by the degree of regulation, namely the regulated compliance carbon market (CCM) and the unregulated voluntary carbon market (VCM). The CCM is more mature and has historically generated stronger mitigation actions and incentives to decarbonize the economy than the VCM. CCM most commonly takes the form of an Emissions Trading System (ETS), which is also known as a cap and trade program, the largest of which is the European Union ETS. Article 6 of the Paris Agreement also contemplates an international market that allows for voluntary cooperation between two or more countries on emissions reductions. The global carbon credit market traded value is determined to grow at a CAGR of 18.23% during the forecast period of 2023-2028. At the same time, the carbon credit market traded volume is expected to grow at a CAGR of 6.78%.

#### Market Segmentation Analysis:

**By Type:** In the report, the global carbon credit market traded value and traded volume has been analyzed based on two types: Compliance Carbon Market (CCM) and Voluntary Carbon Market (VCM). The compliance market is significantly larger than the voluntary market today. The compliance carbon market is an important legislative tool for governments to bridge the gap between climate ambitions and policy actions. Paris Agreement & Broader Decarbonization Movement is the primary driver of compliance market demand. The growth of the compliance carbon market has been driven by higher carbon prices and the expansion of emissions coverage. Voluntary carbon market is expected to grow at a highest rate in the coming years. While compliance markets are currently limited to specific regions, voluntary carbon credits are significantly more fluid, unrestrained by boundaries set by nation-states or political unions. Moreover, interest in the voluntary carbon markets is expected to keep growing, boosted by an increasing number of companies worldwide taking on carbon neutrality goals and other climate commitments that involve the use of carbon offsets. The large majority of VCM demand comes from the CORSIA program and companies that have established a net zero or other aggressive decarbonization targets, and need to look beyond reducing the emissions of their own operations because it is either not practically possible or it is not cost effective to directly reduce Scope 1 and 2 emissions.

**By Segment:** The global compliance carbon market can be further segmented as Europe, North America, UK ETS, New Zealand, South Korea, China, and Certified Emission Reductions (CERs). In terms of market traded value and traded volume, Europe dominates the market. Europe has set itself an ambitious target to reduce emissions by 55% by 2030 (compared to 1990 levels). Once the shift from fossil fuels to

green power is complete, the onus of further emissions reductions would move to Europe's hard-to-decarbonize industry.

**By Project Category:** The voluntary carbon market are further segmented based on project categories, namely, Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing, Household/Community Devices, Waste Disposal, Energy Efficiency/ Fuel Switching, Agriculture, and Transportation. Wherein, forestry and land use held the highest share both in terms of value and volume. From 2020 to 2021 REDD+ (type of forestry and land use projects) volumes rose dramatically, including an increase in the avoided unplanned deforestation project type and an increase in avoided planned deforestation. Afforestation and Reforestation (ARR) projects have also seen tremendous growth in Asia and Latin America & the Caribbean between 2019-2022. The sharp increase in ARR projects in large part is due to developments in the Republic of China.

**By Region:** In the report, the global voluntary carbon market is divided into six regions: Asia, Latin America, Africa, North America, Europe, and Oceania. Asia accounted for the maximum share of the global market value in 2022. In July 2022, HKEX announced the Hong Kong International Carbon Market Council to develop Hong Kong as an international carbon market and a hub for Asia. The Hong Kong International Carbon Market Council would play a vital role in supporting the vision to build a carbon market, welcoming institutional and corporate participants from China, Asia, and around the world. Thus, the market is expected to grow in the coming years.

There has been an increase in participation in Latin American carbon markets due to the expansion of voluntary carbon markets, and ambitious climate goals established globally by governments and private actors, with the hydrocarbon industry leading the energy transition efforts in the region. In the coming years, governments would incentivize low-carbon technologies, such as carbon capture, utilization, and storage (CCUS), to increase the supply of high-quality credits in the region.

#### Market Dynamics:

**Growth Drivers:** The global carbon credit market has been growing over the past few years, due to factors such as the rising carbon emission, increasing corporate efforts in carbon offsetting, increase in adoption of net zero targets, increasing demand for natural climate solutions, establishment of CORSIA, etc. Strong price actions across the world's most liquid carbon markets put a spotlight on carbon as a barometer for global climate policy actions and as an emerging asset class. High carbon prices are required

for carbon removal forestry projects; for blue hydrogen to reach cost parity with grey hydrogen; to decarbonize the hard-to-abate sectors such as steel and cement. The longer nations defer taking action, the higher and faster carbon prices would have to rise to achieve the current climate objectives.

**Challenges:** However, some challenges are impeding the growth of the market such as as insufficient governance, no standard measurement of quality, etc. Since the lack of governance and unified standards make it difficult for market participants to verify the quality of a given carbon credit, it became a hurdle for market growth.

**Trends:** The market is projected to grow at a fast pace during the forecast period, due to various market trends like increasing the number of VCM platforms, increasing corporate efforts in carbon offsetting, carbon as a new investment asset class, article 6 agreement redefining global carbon offset markets, etc. The emergence of carbon credit rating agencies would help to address one of the biggest hurdles in the VCM- the ability of market actors to assess “quality”. Similar to credit rating agencies, these companies use a standardized set of criteria and methodologies to compare credits across different project types. At present, quality is being grouped bluntly using project categories, i.e. removal vs. avoidance, or reforestation vs. renewable energy, when in reality, high and poor-quality credits exist in every category. There is little correlation between price and quality in the current markets and that needs to change for the market to scale and for VCM to deliver its intended climate-positive outcomes.

Moreover, increasing the nationally determined contributions (NDC) net-zero target is also expected to further contribute to the demand for carbon credit. For instance, EU Member States agreed on a 2030 domestic emissions target of at least 55% net reduction below 1990 levels and achieving the goal of emissions neutrality by 2050. On the other hand, South Korea pledged to reduce 2030 emissions by 40% below 2018 levels and achieve carbon neutrality by 2050. According to a report by the Energy & Climate Intelligence Unit and Oxford Net Zero (Taking Stock: A global assessment of net zero targets), 21% of world's largest public companies have committed to a net zero target. Increase in adoption of net zero targets are also contributing to the market growth.

#### Impact Analysis of COVID-19 and Way Forward:

The economic impact of the COVID-19 pandemic had the potential to shock carbon markets around the world. However, markets demonstrated remarkable resilience, first reacting rationally to lower demand through price decreases, and then returning to near-

normal functioning. Compared to after the global financial crisis, ETSs have weathered the shock without major effects.

The global voluntary carbon market has experienced positive growth during the pandemic. In 2020, airlines rolled back their purchases to match lower emissions, whereas broader corporate demand for voluntary carbon offsets was increasing. Then, as the year progressed, so did the number of carbon-neutral pledges from individual companies like Amazon and Microsoft. In the post-COVID era, factors such as government support to reduce greenhouse gas emissions are anticipated to drive market growth.

#### Competitive Landscape:

The key initiatives/ Emission Trading Systems (ETS) of the global carbon credit market are:

EU ETS

California Cap-and-Trade Program

Regional Greenhouse Gas Initiative (RGGI)

Korea Emissions Trading System

UK ETS

China National ETS

The European Union Emissions Trading System (EU ETS) represents the central pillar of the EU's policy to combat climate change and a key tool for reducing, on a cost-effective basis, GHG emissions from the regulated sectors. The system covered 36% of the total emissions of the European Economic Area (EEA) in 2020–21, encompassing activities from the power sector, manufacturing industry, and aviation (including flights from the EEA to the United Kingdom).

The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory GHG ETS in the US and covers emissions from the power sector. The system started operating in 2009 with 10 states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New

Hampshire, New Jersey, New York, Rhode Island, and Vermont).

The UK Emissions Trading Scheme (UK ETS) started in January 2021. Many design elements of the new system mirror those in phase 4 of the EU ETS, in which the UK had participated since 2005. The UK ETS covers energy-intensive industries, the power sector, and aviation within the UK and European Economic Area (EEA), together making up about one-third of the UK's GHG emissions.

## Contents

### 1. EXECUTIVE SUMMARY

### 2. INTRODUCTION

- 2.1 Carbon Credit: An Overview
  - 2.1.1 Introduction to Carbon Credit
  - 2.1.2 Compliance v/s. Voluntary Market
- 2.2 Carbon Credit Segmentation: An Overview
  - 2.2.1 Compliance Carbon Segmentation
  - 2.2.2 Voluntary Carbon Segmentation

### 3. GLOBAL MARKET ANALYSIS

- 3.1 Global Carbon Credit Market: Traded Value Analysis
  - 3.1.1 Global Carbon Credit Market by Traded Value: An Overview
  - 3.1.2 Global Carbon Credit Market by Traded Value
  - 3.1.3 Global Carbon Credit Market Traded Value by Type (Compliance Carbon Market and Voluntary Carbon Market)
- 3.2 Global Carbon Credit Market: Traded Volume Analysis
  - 3.2.1 Global Carbon Credit Market by Traded Volume: An Overview
  - 3.2.2 Global Carbon Credit Market by Traded Volume
  - 3.2.3 Global Carbon Credit Market Traded Volume by Type (Compliance Carbon Market and Voluntary Carbon Market)
- 3.3 Global Compliance Carbon Market: An Analysis
  - 3.3.1 Global Compliance Carbon Market: An Overview
  - 3.3.2 Global Compliance Carbon Market by Traded Value
  - 3.3.3 Global Compliance Carbon Market Traded Value by Segment (Europe, North America, UK ETS, New Zealand, South Korea, China, and Certified Emission Reductions (CERs))
  - 3.3.4 Global Compliance Carbon Market by Traded Volume
  - 3.3.5 Global Compliance Carbon Market Traded Volume by Segment (Europe, North America, UK ETS, China, New Zealand, South Korea, and Certified Emission Reductions (CERs))
- 3.4 Global Compliance Carbon Market: Segment Analysis
  - 3.4.1 Global Compliance Carbon Market by Segment: An Overview
  - 3.4.2 Europe Compliance Carbon Market by Traded Value
  - 3.4.3 Europe Compliance Carbon Market Traded Value by Segment (EUAs Exchange

Traded, EUAs Auctioned, EUAs OTC, and Aviation EUAs)

3.4.4 Europe Compliance Carbon Market Segment by Traded Value

3.4.5 Europe Compliance Carbon Market by Traded Volume

3.4.6 Europe Compliance Carbon Market Traded Volume by Segment (EUAs

Exchange Traded, EUAs Auctioned, EUAs OTC, and Aviation EUAs)

3.4.7 Europe Compliance Carbon Market Segment by Traded Volume

3.4.8 North America Compliance Carbon Market by Traded Value

3.4.9 North America Compliance Carbon Market Traded Value by Segment (WCI and

RGGI)

3.4.10 North America Compliance Carbon Market Segment by Traded Value

3.4.11 North America Compliance Carbon Market by Traded Volume

3.4.12 North America Compliance Carbon Market Traded Volume by Segment (WCI

and RGGI)

3.4.13 North America Compliance Carbon Market Segment by Traded Volume

3.4.14 UK ETS Compliance Carbon Market by Traded Value

3.4.15 UK ETS Compliance Carbon Market by Traded Volume

3.4.16 New Zealand Compliance Carbon Market by Traded Value

3.4.17 New Zealand Compliance Carbon Market by Traded Volume

3.4.18 South Korea Compliance Carbon Market by Traded Value

3.4.19 South Korea Compliance Carbon Market by Traded Volume

3.4.20 China Compliance Carbon Market by Traded Value

3.4.21 China Compliance Carbon Market by Traded Volume

3.4.22 Certified Emission Reductions (CERs) Compliance Carbon Market by Traded Value

3.4.23 Certified Emission Reductions (CERs) Compliance Carbon Market Traded Value by Segment (Primary and Secondary)

3.4.24 Certified Emission Reductions (CERs) Compliance Carbon Market Segment by Traded Value

3.4.25 Certified Emission Reductions (CERs) Compliance Carbon Market by Traded Volume

3.4.26 Certified Emission Reductions (CERs) Compliance Carbon Market Traded Volume by Segment (Primary and Secondary)

3.4.27 Certified Emission Reductions (CERs) Compliance Carbon Market Segment by Traded Volume

3.5 Global Voluntary Carbon Market: An Analysis

3.5.1 Global Voluntary Carbon Market: An Overview

3.5.2 Global Voluntary Carbon Market by Traded Value

3.5.3 Global Voluntary Carbon Market Traded Value by Project Category (Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing,



Household/Community Devices, Waste Disposal, Energy Efficiency/ Fuel Switching, Agriculture, and Transportation)

3.5.4 Global Voluntary Carbon Market Traded Value by Region (Asia, Africa, Latin America, North America, Oceania, and Europe)

3.5.5 Global Voluntary Carbon Market by Traded Volume

3.5.6 Global Voluntary Carbon Market Traded Volume by Project Category (Forestry and Land Use, Renewable Energy, Chemical Process/Industrial Manufacturing, Waste Disposal, Energy Efficiency/ Fuel Switching, Household/Community Devices, Transportation, and Agriculture)

3.5.7 Global Voluntary Carbon Market Traded Volume by Region (Asia, Latin America, Africa, North America, Europe, and Oceania)

3.6 Global Voluntary Carbon Market: Project Category Analysis

3.6.1 Global Voluntary Carbon Market by Project Category: An Overview

3.6.2 Global Forestry and Land Use Voluntary Carbon Market by Traded Value

3.6.3 Global Forestry and Land Use Voluntary Carbon Market by Traded Volume

3.6.4 Global Renewable Energy Voluntary Carbon Market by Traded Value

3.6.5 Global Renewable Energy Voluntary Carbon Market by Traded Volume

3.6.6 Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Value

3.6.7 Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Volume

3.6.8 Global Household/Community Devices Voluntary Carbon Market by Traded Value

3.6.9 Global Household/Community Devices Voluntary Carbon Market by Traded Volume

3.6.10 Global Waste Disposal Voluntary Carbon Market by Traded Value

3.6.11 Global Waste Disposal Voluntary Carbon Market by Traded Volume

3.6.12 Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Value

3.6.13 Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Volume

3.6.14 Global Agriculture Voluntary Carbon Market by Traded Value

3.6.15 Global Agriculture Voluntary Carbon Market by Traded Volume

3.6.16 Global Transportation Voluntary Carbon Market by Traded Value

3.6.17 Global Transportation Voluntary Carbon Market by Traded Volume

## **4. REGIONAL MARKET ANALYSIS**

4.1 Asia Voluntary Carbon Market: An Analysis

- 4.1.1 Asia Voluntary Carbon Market: An Overview
- 4.1.2 Asia Voluntary Carbon Market by Traded Value
- 4.1.3 Asia Voluntary Carbon Market by Region (India, China, Indonesia, and Rest of Asia)
- 4.1.4 India Voluntary Carbon Market by Traded Value
- 4.1.5 China Voluntary Carbon Market by Traded Value
- 4.1.6 Indonesia Voluntary Carbon Market by Traded Value
- 4.1.7 Rest of Asia Voluntary Carbon Market by Traded Value
- 4.1.8 Asia Voluntary Carbon Market by Traded Volume
- 4.1.9 Asia Voluntary Carbon Market Traded Volume by Region (India, China, Indonesia, and Rest of Asia)
- 4.1.10 India Voluntary Carbon Market by Traded Volume
- 4.1.11 China Voluntary Carbon Market by Traded Volume
- 4.1.12 Indonesia Voluntary Carbon Market by Traded Volume
- 4.1.13 Rest of Asia Voluntary Carbon Market by Traded Volume
- 4.2 Latin America Voluntary Carbon Market: An Analysis
  - 4.2.1 Latin America Voluntary Carbon Market: An Overview
  - 4.2.2 Latin America Voluntary Carbon Market by Traded Value
  - 4.2.3 Latin America Voluntary Carbon Market by Region (Brazil, Peru, and the Rest of Latin America)
  - 4.2.4 Brazil Voluntary Carbon Market by Traded Value
  - 4.2.5 Peru Voluntary Carbon Market by Traded Value
  - 4.2.6 Rest of Latin America Voluntary Carbon Market by Traded Value
  - 4.2.7 Latin America Voluntary Carbon Market by Traded Volume
  - 4.2.8 Latin America Voluntary Carbon Market Traded Volume by Region (Brazil, Peru, and the Rest of Latin America)
  - 4.2.9 Brazil Voluntary Carbon Market by Traded Volume
  - 4.2.10 Peru Voluntary Carbon Market by Traded Volume
  - 4.2.11 Rest of Latin America Voluntary Carbon Market by Traded Volume
- 4.3 Africa Voluntary Carbon Market: An Analysis
  - 4.3.1 Africa Voluntary Carbon Market: An Overview
  - 4.3.2 Africa Voluntary Carbon Market by Traded Value
  - 4.3.3 Africa Voluntary Carbon Market by Traded Volume
- 4.4 North America Voluntary Carbon Market: An Analysis
  - 4.4.1 North America Voluntary Carbon Market: An Overview
  - 4.4.2 North America Voluntary Carbon Market by Traded Value
  - 4.4.3 North America Voluntary Carbon Market by Region (The US, Canada, and Mexico)
  - 4.4.4 The US Voluntary Carbon Market by Traded Value

- 4.4.5 Canada Voluntary Carbon Market by Traded Value
- 4.4.6 Mexico Voluntary Carbon Market by Traded Value
- 4.4.7 North America Voluntary Carbon Market by Traded Volume
- 4.4.8 North America Voluntary Carbon Market Traded Volume by Region (The US, Canada, and Mexico)
- 4.4.9 The US Voluntary Carbon Market by Traded Volume
- 4.4.10 Canada Voluntary Carbon Market by Traded Volume
- 4.4.11 Mexico Voluntary Carbon Market by Traded Volume
- 4.5 Oceania Voluntary Carbon Market: An Analysis
  - 4.5.1 Oceania Voluntary Carbon Market: An Overview
  - 4.5.2 Oceania Voluntary Carbon Market by Traded Value
  - 4.5.3 Oceania Voluntary Carbon Market by Traded Volume
- 4.6 Europe Voluntary Carbon Market: An Analysis
  - 4.6.1 Europe Voluntary Carbon Market: An Overview
  - 4.6.2 Europe Voluntary Carbon Market by Traded Value
  - 4.6.3 Europe Voluntary Carbon Market by Traded Volume

## **5. IMPACT OF COVID-19**

- 5.1 Impact of COVID-19 on Carbon Credit Market
- 5.2 Impact of COVID-19 on Carbon Prices
- 5.3 Investments in Green Recovery Plans

## **6. MARKET DYNAMICS**

- 6.1 Growth Driver
  - 6.1.1 Rising Carbon Emission
  - 6.1.2 Growing Coverage of Carbon Pricing Initiatives
  - 6.1.3 Increase in Carbon Pricing
  - 6.1.4 Increase in Adoption of Net Zero Targets
  - 6.1.5 Establishment of CORSIA
  - 6.1.6 Increasing Demand for Natural Climate Solutions
- 6.2 Challenges
  - 6.2.1 Insufficient Governance
  - 6.2.2 No Standard Measurement of Quality
  - 6.2.3 Difficulty in Mobilizing Potential Supply
  - 6.2.4 Problems of Homogeneity, Justice, Gaming, and Knowledge
- 6.3 Market Trends
  - 6.3.1 Increasing Number of Voluntary Carbon Market (VCM) Platforms

- 6.3.2 Booming Venture Capital (VC) Deals in NBS/Carbon Removal
- 6.3.3 Increasing Corporates Efforts in Carbon Offsetting
- 6.3.4 Key Nationally Determined Contributions (NDC) Net-Zero Targets
- 6.3.5 Key Initiatives Framing the Future
- 6.3.6 Article 6 Agreement Redefining Global Carbon Offset Markets
- 6.3.7 Carbon as a New Investment Asset Class
- 6.3.8 Emergence of Carbon Credit Rating Agencies

## **7. COMPETITIVE LANDSCAPE**

- 7.1 Emissions Trading Schemes: Key Comparison
- 7.2 Emissions Trading Systems: Implemented/ Under Consideration

## **8. INITIATIVES/EMISSION TRADING SYSTEMS PROFILES**

### **8.1 EU ETS**

- 8.1.1 Overview
- 8.1.2 Offsets and Credits
- 8.1.3 Auction Revenue
- 8.1.4 Annual Cap on Stationary Installations

### **8.2 California Cap-and-Trade Program**

- 8.2.1 Overview
- 8.2.2 Offsets and Credits
- 8.2.3 Auction Revenue
- 8.2.4 Annual Cap

### **8.3 Regional Greenhouse Gas Initiative (RGGI)**

- 8.3.1 Overview
- 8.3.2 Offsets and Credits
- 8.3.3 Auction Revenue
- 8.3.4 Annual Cap

### **8.4 Korea Emissions Trading System**

- 8.4.1 Overview
- 8.4.2 Offsets and Credits
- 8.4.3 Auction Revenue
- 8.4.4 Annual Cap

### **8.5 UK ETS**

- 8.5.1 Overview
- 8.5.2 Offset and Credits
- 8.5.3 Auction Revenue

- 8.5.4 Annual Cap
- 8.6 China National ETS
  - 8.6.1 Overview
  - 8.6.2 Offset and Credits
  - 8.6.3 Annual Cap

## List Of Figures

### LIST OF FIGURES

Figure 1: Types of Carbon Credit Market

Figure 2: Compliance v/s. Voluntary Market

Figure 3: Compliance Carbon Segmentation

Figure 4: Voluntary Carbon Segmentation

Figure 5: Global Carbon Credit Market by Traded Value; 2018-2022 (US\$ Billion)

Figure 6: Global Carbon Credit Market by Traded Value; 2023-2028 (US\$ Trillion)

Figure 7: Global Carbon Credit Market Traded Value by Type; 2022 (Percentage, %)

Figure 8: Global Carbon Credit Market by Traded Volume; 2018-2022 (GtCO<sub>2</sub>e)

Figure 9: Global Carbon Credit Market by Traded Volume; 2023-2028 (GtCO<sub>2</sub>e)

Figure 10: Global Carbon Credit Market Traded Volume by Type; 2022 (Percentage, %)

Figure 11: Global Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Billion)

Figure 12: Global Compliance Carbon Market by Traded Value; 2023-2028 (US\$ Trillion)

Figure 13: Global Compliance Carbon Market Traded Value by Segment; 2022 (Percentage, %)

Figure 14: Global Compliance Carbon Market by Traded Volume; 2018-2022 (GtCO<sub>2</sub>e)

Figure 15: Global Compliance Carbon Market by Traded Volume; 2023-2028 (GtCO<sub>2</sub>e)

Figure 16: Global Compliance Carbon Market Traded Volume by Segment; 2022 (Percentage, %)

Figure 17: Europe Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Billion)

Figure 18: Europe Compliance Carbon Market Traded Value by Segment; 2022 (Percentage, %)

Figure 19: Europe Compliance Carbon Market Segment by Traded Value; 2018-2022 (US\$ Billion)

Figure 20: Europe Compliance Carbon Market by Traded Volume; 2018-2022 (GtCO<sub>2</sub>e)

Figure 21: Europe Compliance Carbon Market Traded Volume by Segment; 2022 (Percentage, %)

Figure 22: Europe Compliance Carbon Market Segment by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 23: North America Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Billion)

Figure 24: North America Compliance Carbon Market Traded Value by Segment; 2022 (Percentage, %)

Figure 25: North America Compliance Carbon Market Segment by Traded Value;

2018-2022 (US\$ Billion)

Figure 26: North America Compliance Carbon Market by Traded Volume; 2018-2022 (GtCO<sub>2</sub>e)

Figure 27: North America Compliance Carbon Market Traded Volume by Segment; 2022 (Percentage, %)

Figure 28: North America Compliance Carbon Market Segment by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 29: UK ETS Compliance Carbon Market by Traded Value; 2021-2022 (US\$ Billion)

Figure 30: UK ETS Compliance Carbon Market by Traded Volume; 2021-2022 (MtCO<sub>2</sub>e)

Figure 31: New Zealand Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 32: New Zealand Compliance Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 33: South Korea Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 34: South Korea Compliance Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 35: China Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 36: China Compliance Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 37: Certified Emission Reductions (CERs) Compliance Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 38: Certified Emission Reductions (CERs) Compliance Carbon Market Traded Value by Segment; 2018 & 2022 (Percentage, %)

Figure 39: Certified Emission Reductions (CERs) Compliance Carbon Market Segment by Traded Value; 2018-2022 (US\$ Million)

Figure 40: Certified Emission Reductions (CERs) Compliance Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 41: Certified Emission Reductions (CERs) Compliance Carbon Market Traded Volume by Segment; 2018 & 2022 (Percentage, %)

Figure 42: Certified Emission Reductions (CERs) Compliance Carbon Market Segment by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 43: Global Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 44: Global Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 45: Global Voluntary Carbon Market Traded Value by Project Category; 2022 (Percentage, %)

Figure 46: Global Voluntary Carbon Market Traded Value by Region; 2022 (Percentage, %)

Figure 47: Global Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 48: Global Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 49: Global Voluntary Carbon Market Traded Volume by Project Category; 2022 (Percentage, %)

Figure 50: Global Voluntary Carbon Market Traded Volume by Region; 2022 (Percentage, %)

Figure 51: Global Forestry and Land Use Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 52: Global Forestry and Land Use Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 53: Global Forestry and Land Use Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 54: Global Forestry and Land Use Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 55: Global Renewable Energy Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 56: Global Renewable Energy Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 57: Global Renewable Energy Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 58: Global Renewable Energy Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 59: Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 60: Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 61: Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 62: Global Chemical Process/Industrial Manufacturing Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 63: Global Household/Community Devices Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 64: Global Household/Community Devices Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 65: Global Household/Community Devices Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 66: Global Household/Community Devices Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 67: Global Waste Disposal Voluntary Carbon Market by Traded Value;



2018-2022 (US\$ Million)

Figure 68: Global Waste Disposal Voluntary Carbon Market by Traded Value;

2023-2028 (US\$ Million)

Figure 69: Global Waste Disposal Voluntary Carbon Market by Traded Volume;

2018-2022 (MtCO<sub>2</sub>e)

Figure 70: Global Waste Disposal Voluntary Carbon Market by Traded Volume;

2023-2028 (MtCO<sub>2</sub>e)

Figure 71: Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 72: Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 73: Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 74: Global Energy Efficiency/ Fuel Switching Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 75: Global Agriculture Voluntary Carbon Market by Traded Value; 2021-2022 (US\$ Million)

Figure 76: Global Agriculture Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 77: Global Agriculture Voluntary Carbon Market by Traded Volume; 2021-2022 (MtCO<sub>2</sub>e)

Figure 78: Global Agriculture Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 79: Global Transportation Voluntary Carbon Market by Traded Value; 2021-2022 (US\$ Million)

Figure 80: Global Transportation Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 81: Global Transportation Voluntary Carbon Market by Traded Volume; 2021-2022 (MtCO<sub>2</sub>e)

Figure 82: Global Transportation Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 83: Asia Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 84: Asia Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 85: Asia Voluntary Carbon Market by Region; 2022 (Percentage, %)

Figure 86: India Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 87: India Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 88: China Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 89: China Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 90: Indonesia Voluntary Carbon Market by Traded Value; 2019-2022 (US\$

Million)

Figure 91: Indonesia Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 92: Rest of Asia Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 93: Rest of Asia Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 94: Asia Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 95: Asia Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 96: Asia Voluntary Carbon Market Traded Volume by Region; 2022 (Percentage, %)

Figure 97: India Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 98: India Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 99: China Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 100: China Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 101: Indonesia Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 102: Indonesia Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 103: Rest of Asia Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 104: Rest of Asia Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 105: Latin America Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 106: Latin America Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 107: Latin America Voluntary Carbon Market by Region; 2022 (Percentage, %)

Figure 108: Brazil Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 109: Brazil Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 110: Peru Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 111: Peru Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 112: Rest of Latin America Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 113: Rest of Latin America Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 114: Latin America Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 115: Latin America Voluntary Carbon Market by Traded Volume; 2023-2028

(MtCO<sub>2</sub>e)

Figure 116: Latin America Voluntary Carbon Market Traded Volume by Region; 2022 (Percentage, %)

Figure 117: Brazil Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 118: Brazil Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 119: Peru Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 120: Peru Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 121: Rest of Latin America Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 122: Rest of Latin America Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 123: Africa Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 124: Africa Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Billion)

Figure 125: Africa Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 126: Africa Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 127: North America Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 128: North America Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 129: North America Voluntary Carbon Market by Region; 2022 (Percentage, %)

Figure 130: The US Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 131: The US Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 132: Canada Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 133: Canada Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 134: Mexico Voluntary Carbon Market by Traded Value; 2019-2022 (US\$ Million)

Figure 135: Mexico Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 136: North America Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 137: North America Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 138: North America Voluntary Carbon Market Traded Volume by Region; 2022 (Percentage, %)

Figure 139: The US Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 140: The US Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 141: Canada Voluntary Carbon Market by Traded Volume; 2019-2022 (MtCO<sub>2</sub>e)

Figure 142: Canada Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 143: Mexico Voluntary Carbon Market by Traded Volume; 2019-2022 (KtCO<sub>2</sub>e)

Figure 144: Mexico Voluntary Carbon Market by Traded Volume; 2023-2028 (KtCO<sub>2</sub>e)

Figure 145: Oceania Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 146: Oceania Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 147: Oceania Voluntary Carbon Market by Traded Volume; 2018-2022 (KtCO<sub>2</sub>e)

Figure 148: Oceania Voluntary Carbon Market by Traded Volume; 2023-2028 (KtCO<sub>2</sub>e)

Figure 149: Europe Voluntary Carbon Market by Traded Value; 2018-2022 (US\$ Million)

Figure 150: Europe Voluntary Carbon Market by Traded Value; 2023-2028 (US\$ Million)

Figure 151: Europe Voluntary Carbon Market by Traded Volume; 2018-2022 (MtCO<sub>2</sub>e)

Figure 152: Europe Voluntary Carbon Market by Traded Volume; 2023-2028 (MtCO<sub>2</sub>e)

Figure 153: Global Annual Carbon Emission; 2010-2022 (GtCo<sub>2</sub>)

Figure 154: Global Share of Annual Greenhouse Emissions Covered by Carbon Pricing Initiatives: 2016-2022 (Percentage, %)

Figure 155: Prices in Implemented Carbon Pricing Initiatives; 2018-2022 (US\$/tCO<sub>2</sub>e)

Figure 156: Net Zero Emission Target Announcements; 2022 (Percentage, %)

Figure 157: Number of Companies with SBTi Commitments; 2019-2022 (Unit)

Figure 158: Key Initiatives Framing the Future

Figure 159: EU ETS Auction Revenue; 2018-2022 (US\$ Billion)

Figure 160: EU ETS Annual Cap on Stationary Installations; 2013-2021 (MtCo<sub>2</sub>e)

Figure 161: California Cap-and-Trade Program Auction Revenue; 2018-2022 (US\$ Billion)

Figure 162: California Cap-and-Trade Program Annual Cap; 2018-2030 (MtCo<sub>2</sub>e)

Figure 163: Regional Greenhouse Gas Initiative Auction Revenue; 2018-2022 (US\$ Million)

Figure 164: Regional Greenhouse Gas Initiative Annual Cap; 2014-2023 (MtCO<sub>2</sub>e)

Figure 165: Korea Emissions Trading System Auction Revenue; 2019-2022 (US\$ Million)

Figure 166: Korea Emissions Trading System Annual Cap; 2015-2025 (MtCO<sub>2</sub>e)

Figure 167: UK ETS Auction Revenue; 2021-2022 (US\$ Billion)

Figure 168: UK ETS Annual Cap; 2021-2023 (MtCO<sub>2</sub>e)

Figure 169: China National ETS Annual Cap; 2019-2021 (MtCO<sub>2</sub>e)

Table 1: VCM Platforms Operational or to be Launched

Table 2: Venture Capital (VC) Deals in NBS/Carbon Removal

Table 3: Net-Zero Initiatives Taken by Large Corporates

Table 4: NDC Net-Zero Targets

Table 5: Emissions Trading Schemes: Key Comparison

Table 6: Emissions Trading Systems Implemented, Scheduled and Under Consideration

Table 7: EU ETS Offsets and Credits

Table 8: California Cap-and-Trade Offsets and Credits

Table 9: Regional Greenhouse Gas Initiative Offsets and Credits

Table 10: Korea Emissions Trading System Offsets and Credits

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