

# **Japan Carbon Credit Market Assessment, By Type [Government Compliance (California Cap-And-Trade, European Union ETS, The China National ETS, Others) and Voluntary/Third-Party Compliance, and Others], By End-user [Power & Energy Generation, Aerospace, Marine, Agriculture, Manufacturing Sector (Chemical Processing, Oil & Gas, Metallurgy, Others), Building & Construction, Automotive, Waste Management and Others], By Region, Opportunities and Forecast, FY2017-FY2031F**

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## **Abstracts**

Japan Carbon Credit Market size was valued at USD 28.2 billion in FY2023, expected to reach USD 121.5 billion in FY2031 with a CAGR of 20.03% for the forecast period between FY2024 and FY2031.

Japan is registered as the world's fifth-largest carbon emitter and is gearing up to develop initiatives toward the decarbonization of industries. The regulation of carbon credits is essential for any organization to lower carbon emissions and achieve the defined sustainability goals. Since 2013, Japan has voluntarily traded carbon credits over the country. The carbon credits are certified by the government, known as J-credits. They are designed mainly to be dispensed to certified holders through different projects such as forest management, energy-saving equipment, waste management, etc.

In February 2023, under the carbon pricing scheme and one of the policies, "Basic

Policy for the Realization of GX,” the Japanese government commenced and launched an “emission trading system.” The trial trading for GX-ETS is commissioned to begin in FY2023 and transform into full-scale operation by FY2026. The government is under pledge to significantly contribute towards developing the carbon credit market from a medium to long-term perspective and simultaneously creating an emission trading scheme. Japan and Ukraine became the first government-to-government countries that signed a deal to purchase emission rights from Ukraine under the emission trading scheme. Under the signed treaty in 2009, Kiev must deliver 30 million tons of Assigned Amount Units (AAUs) to Japan.

### Tokyo Emissions Trading Schemes (ETS)

Emissions Trading Schemes (ETS) is substantially defined as a carbon pricing mechanism that restricts or caps the amount of dispense of greenhouse gas emissions, including carbon dioxide and provides access to the market to circulate the carbon price through ETS allowances. Japan commenced its initial mandatory ETS in April 2010 under the Cap-and-Trade Program of the Tokyo Metropolitan Government (TMG), which covers approx—20% of the city area’s emissions. The TMG ETS shields carbon dioxide emissions from large factories, high-rise buildings, heat distributors including operations that consume large amount of fossil fuels.

For the second compliance period (FY2015-FY2019) the Tokyo ETS program has achieved the target of reducing 15-17% below base-year emissions. The advance Tokyo’s ETS is linked to the Saitama Prefecture ETS, which allows the credits to be in the mutually exchangeable state between the two jurisdictions. The developed program executes its operations under its third compliance period (FY2020-FY2024) according to the assigned category which aims to reduce emissions by 25% or 27%. Thus, these schemes are expected to drive the carbon credit market in the coming years across Japan.

### Japanese Blue Carbon Offset

The aquatic life and oceans are considered as a prominent carbon reservoir because blue carbon inherits a phenomenal characteristic of remaining in the sea floor sediments by keeping itself undecomposed and demineralized for a very long duration of time. Owing to the external climatic changes, shallow coastal ecosystems (SCEs) such as mangroves, seagrass meadows, tidal marshes deliver a pivotal application regarding environmental concerns.

To counteract the global warming changes, the Yokohama city in Japan has pledged a target to reduce greenhouse emissions by 30% in 2030. The Yokohama Blue Carbon project was commissioned in 2014, to provide a certification on the amount of GHG reduction by blue carbon called blue carbon credit and substantially able to achieve carbon offsetting using credits trading. In 2020, the approved budget of USD 357,586.24 (38,533,000 yen) for Fukuoka city, USD 928 (100,000 yen) was allotted to the Hakata Bay Environmental Conservation and Creation and USD 33,640 (3,625,000 yen) to the Port Environment Improvement and Conservation Fund Reserve. For instance, an electric facility in the southwest of Japan called Electric Power Development also known as J-Power has earned carbon credits by raising algae nearby its area. Recently J-Power has utilized around 16 tons of carbon credits they earned by nurturing a sea grass bed.

### Metal Organic Frameworks (MOFs)

To tackle the rising climatic alterations, carbon capture, utilization, and storage (CCUS) is an integral technology where adsorption is governed using various adsorbing materials corresponding to energy consumption. Metal-Organic frameworks (MOFs) are a remarkable technology for post-processing carbon capture which is a challenging combustion process due to their high humidity levels and low pressure of flue gas streams. MOFs can be regenerated at a very low temperature which adds another excellent characteristic to using MOFs in carbon capture.

Numerous organizations are practicing CCUS technology in different ways. Carbon Clean Solutions Limited has aid using its 49 working facilities worldwide. They have enabled challenging material processing industries such as steel, cement, refineries, etc. to navigate and tackle climatic changes using its low-cost CCUS technology. Their modular carbon capture technology CDRMax which is very energy efficient and can achieve 90%+ carbon capture rates and make the captured carbon available for re-use within the industry.

### Impact of COVID-19

The outbreak of COVID-19 has affected various sectors of Japan and impact has been taken care by government agencies very seriously. Sustainable trade and shipping will play a prominent role in recovering from devastating pandemic duration. Japan which is considered one of the large maritime nations with relevant industries has initiated plan of “Roadmap to Zero Emissions from International Shipping”, which generated emissions pathways for implementing decarbonization technologies in different sectors.

Companies across Japan are exploring the importance of carbon pricing instruments (CPIs) as a measure in post-Covid recovery efforts. The potential revenue accumulated from carbon pricing instruments when disbursed into the economy and into various activities will reduce inequality and poverty created from the pandemic of Covid.

### Impact of Russia-Ukraine War

The Japanese energy sector is entirely dependent on imports due to needing more domestic natural sources. Russia's Sakhalin-1 and Sakhalin-2 projects feed almost half of the requirement of Japanese crude oil, and around all of the LNG requirement is taken care of by Sakhalin-2 alone. The annexation of Russia over Ukraine created instability throughout the major oil & gas company such as Shell, which drives a stake of around 27.5% in the Sakhalin-2 project, announced to withdraw its stake. Japanese administration had also told the sanctions on the import of Russia's energy while continuing the stand on Sakhalin-1 and Sakhalin-2 oil & gas projects.

### Key Players Landscape and Outlook

Companies in Japan are taking carbon dioxide emissions as a serious concern and are seeking strategies to circumvent it. They are putting their investments in channelizing carbon credits in their operations. Tokyo Gas Co., Ltd. is trying to achieve net-zero carbon dioxide by inspiring the importance of natural gas usage to substantially lower carbon dioxide emissions. Simultaneously, the company develops and implements specific technologies in its electric and thermal sectors. Their dedication towards decarbonization has embarked on implementing carbon, capture, utilization, and storage (CCUS) technology in their operations. Their target has aided in reducing carbon emissions by 17 million tons in 2030 throughout their business activities. Tokyo Gas Co., Ltd. has collaborated with Shell Eastern Trading (Pte) Ltd., where the agreement concerns the supply of carbon neutral LNG (CNL), and the carbon credits issued by Shell have been used to requite the carbon dioxide emissions. Shell purchases these carbon credits from numerous natural projects, and each assigned credit is verified by third-party institutions.

## Contents

### **1. RESEARCH METHODOLOGY**

### **2. PROJECT SCOPE & DEFINITIONS**

### **3. IMPACT OF COVID-19 ON THE JAPAN CARBON CREDIT MARKET**

### **4. IMPACT OF RUSSIA-UKRAINE WAR**

### **5. EXECUTIVE SUMMARY**

### **6. VOICE OF CUSTOMER**

#### 6.1. Market Awareness and Product Information

#### 6.2. Brand Awareness and Loyalty

#### 6.3. Factors Considered in Purchase Decision

##### 6.3.1. Brand Name

##### 6.3.2. Quality

##### 6.3.3. Quantity

##### 6.3.4. Price

##### 6.3.5. Product Specification

##### 6.3.6. Application Specification

##### 6.3.7. VOC/Toxicity Content

##### 6.3.8. Availability of Product

#### 6.4. Frequency of Purchase

#### 6.5. Medium of Purchase

### **7. JAPAN CARBON CREDIT MARKET OUTLOOK, FY2017-FY2031**

#### 7.1. Market Size & Forecast

##### 7.1.1. By Value

##### 7.1.2. By Volume

#### 7.2. By Type

##### 7.2.1. Government Compliance

###### 7.2.1.1. California Cap-And-Trade

###### 7.2.1.2. European Union ETS

###### 7.2.1.3. The China National ETS

###### 7.2.1.4. Others

#### 7.2.2. Voluntary/Third-Party Compliance

### 7.3. By End-user

#### 7.3.1. Power & Energy Generation

#### 7.3.2. Aerospace

#### 7.3.3. Marine

#### 7.3.4. Agriculture

#### 7.3.5. Manufacturing Sector

##### 7.3.5.1. Chemical Processing

##### 7.3.5.2. Oil & Gas

##### 7.3.5.3. Metallurgy

##### 7.3.5.4. Others

#### 7.3.6. Building & Construction

#### 7.3.7. Automotive

#### 7.3.8. Waste Management

#### 7.3.9. Others

### 7.4. By Region

#### 7.4.1. North

#### 7.4.2. Central

#### 7.4.3. South

### 7.5. By Company Market Share (%), FY2023

## 8. SUPPLY SIDE ANALYSIS

### 8.1. Capacity, By Company

### 8.2. Production, By Company

### 8.3. Operating Efficiency, By Company

### 8.4. Key Plant Locations (Up to 25)

## 9. MARKET MAPPING, FY2023

### 9.1. By Type

### 9.2. By End-user

### 9.3. By Region

## 10. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE

### 10.1. Supply Demand Analysis

### 10.2. Import Export Analysis – Volume and Value

### 10.3. Supply/Value Chain Analysis

## 10.4. PESTEL Analysis

### 10.4.1. Political Factors

### 10.4.2. Economic System

### 10.4.3. Social Implications

### 10.4.4. Technological Advancements

### 10.4.5. Environmental Impacts

### 10.4.6. Legal Compliances and Regulatory Policies (Statutory Bodies Included)

## 10.5. Porter's Five Forces Analysis

### 10.5.1. Supplier Power

### 10.5.2. Buyer Power

### 10.5.3. Substitution Threat

### 10.5.4. Threat from New Entrant

### 10.5.5. Competitive Rivalry

## 11. MARKET DYNAMICS

### 11.1. Growth Drivers

### 11.2. Growth Inhibitors (Challenges, Restraints)

## 12. KEY PLAYERS LANDSCAPE

### 12.1. Competition Matrix of Top Five Market Leaders

### 12.2. Market Revenue Analysis of Top Five Market Leaders (in %, FY2023)

### 12.3. Mergers and Acquisitions/Joint Ventures (If Applicable)

### 12.4. SWOT Analysis (For Five Market Players)

### 12.5. Patent Analysis (If Applicable)

## 13. PRICING ANALYSIS

## 14. CASE STUDIES

## 15. KEY PLAYERS OUTLOOK

### 15.1. Toshiba Corporation

#### 15.1.1. Company Details

#### 15.1.2. Key Management Personnel

#### 15.1.3. Products & Services

#### 15.1.4. Financials (As reported)

#### 15.1.5. Key Market Focus & Geographical Presence

- 15.1.6. Recent Developments
- 15.2. Tokyo Gas Co., Ltd.
- 15.3. Isuzu Motors Ltd.
- 15.4. Olympus Corporation
- 15.5. Sakai Chemical Industry Co., Ltd.
- 15.6. Toho Titanium Co.
- 15.7. Marunouchi Heat Supply Co., Ltd.
- 15.8. Yakult Honsha Co., Ltd.
- 15.9. Lumine Co., Ltd.
- 15.10. Mitsubishi Estate Co., Ltd.

\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work

## **16. STRATEGIC RECOMMENDATIONS**

## **17. ABOUT US & DISCLAIMER**



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