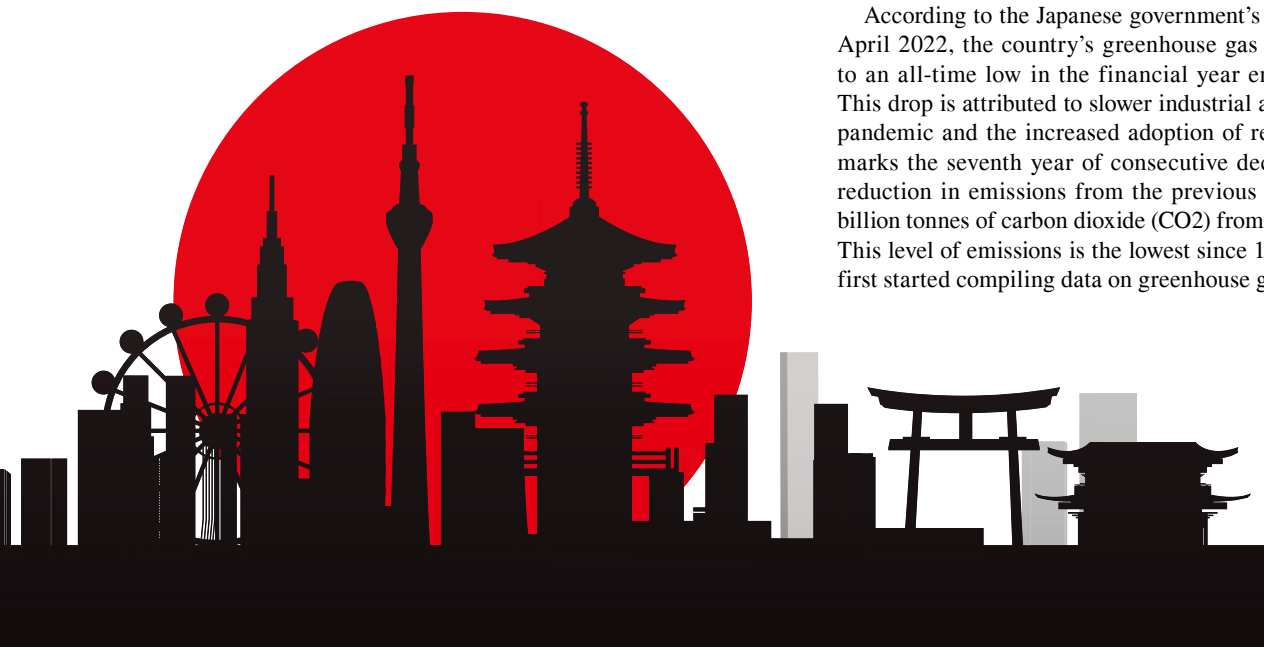


How does Japan Fastening Tools Industry React to Carbon Reduction

日本緊固工具產業如何因應減碳趨勢

Introduction

According to the Japanese government's figures released on April 2022, the country's greenhouse gas emissions dropped to an all-time low in the financial year ending March 2021. This drop is attributed to slower industrial activities during the pandemic and the increased adoption of renewable energy. It marks the seventh year of consecutive declines, with a 5.1% reduction in emissions from the previous year, down to 1.15 billion tonnes of carbon dioxide (CO₂) from 1.21 billion tonnes. This level of emissions is the lowest since 1990-91 when Japan first started compiling data on greenhouse gas emissions.



As the world's fifth-biggest carbon emitter, Japan raised its climate goal in April 2021, pledging to reduce emissions by 46% from 2013 levels by 2030, rather than the previous target of 26%. If achieved, emissions in 2030 will be 0.76 billion tonnes, representing an 18.4% reduction from 2013 levels. Despite the seven-year decline, Masayuki Koiwa, a director at the environment ministry, stated that Japan still has a long way to go to achieve carbon neutrality and cannot be too optimistic. He emphasized the need to maximize the use of renewable energy, particularly solar power, to achieve the 2030 target.

Japan's greenhouse gas emissions had surged following the 2011 nuclear disaster at Fukushima, which led to the closure of nuclear power plants and an increased reliance on fossil fuels. However, Japan's emissions have turned lower since reaching a peak of 1.41 billion tonnes in the 2013-14 year. Although ten reactors have been restarted, which is the most since the Fukushima incident, only five are currently operational. The government aims to promote renewable energy to make up for the nuclear power deficit, and in the financial year 2020-21, renewable energy accounted for 19.8% of electric power generation of one trillion kilowatt-hours, up 1.6% from the previous year. In contrast, nuclear energy fell 2.3 percentage points to 3.9%, while thermal power made up 76.3%, up 0.7 percentage points.

It is difficult to estimate how much of Japan's industrial emissions come specifically from the fastening tools industry, as there are many different types of industrial processes and products that contribute to emissions. However, the fastening tools industry is likely a relatively small contributor to Japan's overall industrial emissions, as it is a specialized sector within the broader manufacturing industry.

Fastening Tools Industry Reacts to Carbon Reduction

The fastening tools industry, like many other industries, has likely faced increasing pressure to reduce its carbon emissions in response to the growing concerns over climate change. In Japan, the government has set ambitious targets for reducing carbon emissions, and many companies in the country have been taking steps to reduce their carbon footprints.

One response is the development of more environmentally friendly products. To achieve this, companies use materials with a lower carbon footprint, such as recycled or sustainably sourced materials, or develop tools that require less energy to produce or use. For example, some companies are developing electric or battery-powered tools that emit lower levels of emissions than traditional tools that run on old generation of batteries.

- **Japanese companies have shifted from using older generation batteries based on nickel-cadmium or nickel-metal hydride technologies in their fastening tools, to newer generation lithium-ion batteries.** The newer batteries have higher energy density, longer lifespan, and do not suffer from memory effect, making them more efficient. They are also considered more environmentally friendly, as they do not contain toxic materials and can be recycled. Some companies are also exploring the use of solid-state batteries, which offer even higher energy density and faster charging times, but are still in development.
- **Another example, some companies are experimenting with new materials and technologies, such as 3D printing or nanotechnology, to reduce the amount of waste generated in the manufacturing process and improve energy efficiency.** Some potential areas where nanotechnology is applied in the fastening tools industry in Japan include the development of stronger and lighter materials, coatings that improve resistance to wear and corrosion.

Additionally, companies are investing in more sustainable production processes, such as using renewable energy sources or improving their supply chain management. The

fastening tools industry in Japan is responding to the carbon reduction trend and making strides towards a more sustainable future.

- The fastening tools industry in Japan is also exploring the use of renewable energy sources to power its production processes. **Some companies are investing in solar panels to generate their own electricity and reduce their reliance on fossil fuels.**
- Additionally, to further reduce their carbon footprint, **some fastening tools producers are engaging in carbon offsetting initiatives, such as reforestation or the use of carbon capture and storage technologies.** Additionally, circular economy principles are being adopted by some companies, which involve designing products and processes with reuse and recycling in mind. Through these efforts, the fastening tools industry in Japan is striving to become more sustainable and contribute to a cleaner, greener future.
- The adoption of renewable energy in the fastening tools industry in Japan is part of a broader trend in the country towards sustainable production practices and reducing carbon emissions.

CNC Auto Lathe

Major Products: Fiber-optic Telecommunications Equipment, Hydraulic/Pneumatic Components, Shafts, Mechanic Components, Electronic Components, Wire-cutting, Housing, Computer Connectors, Auto/Motorcycle Parts, Radio Wave Launchers, Radio Frequency Generators

Materials: Phosphor Bronze, Aluminum, Copper Beryllium, Free Cutting Copper, Stainless Steel

SMA	BNG
SMB/SMC	TNC
MCX	1.0/2.3
MMCX	1.6/5.6
N	7/16





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Conclusion

Overall, the fastening tools industry in Japan, like many other industries, is likely to take a multifaceted approach to responding to the carbon reduction trend. This involves developing more sustainable products, investing in sustainable production processes, and engaging in carbon offsetting or other initiatives to reduce their carbon footprints. As the urgency of the climate crisis continues to grow, it is likely that companies in this industry and others will face increasing pressure to take meaningful action to reduce their environmental impact. ■

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