



Technology for solving the dilemma between carbon neutrality and economic activity

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With the extreme heat witnessed this summer and the large-scale disasters caused by frequent extreme weather events worldwide, we are keenly aware that global warming is seriously impacting the entire world. In response to this problem, an international goal for carbon neutrality (CN) has been set, and efforts are being made to limit the rise in global temperatures by reducing greenhouse gas (GHG) emissions. JATCO has also established CO₂ reduction as one of its company-wide KPIs and is promoting activities to address this issue as part of its 18 material sustainability issues.

The main source of CO₂ emissions is the combustion of fossil fuels, especially thermal power generation and automobile engines. Therefore, reducing the dependence on fossil fuels, expanding the use of renewable energy sources, and improving the efficiency of electric energy usage is essential. For example, electric vehicles (EVs) are an effective means of reducing driving emissions and contributing to CO₂ reduction. However, the manufacturing process of EVs, particularly battery production, may emit more CO₂ than conventional gasoline vehicles. Thus, considering CO₂ reduction throughout the entire product lifecycle is necessary.

Energy demand tends to increase with economic activity, leading to higher CO₂ emissions. The dilemma in today's society is that, while emphasis is placed on people's freedom of movement and the pursuit of convenience, as well as on AI-based data processing and learning activities, these activities involve massive power consumption, which increases the burden on the global environment.

In theory, reducing energy consumption and CO₂ emissions is possible by restricting human behaviors and curbing economic activity. However, such an approach contradicts the fundamental elements of economic growth, making it practically unfeasible.

To solve this dilemma, developing renewable energy sources that do not emit CO₂, researching fuels that do not emit CO₂ when burned, and advancing battery technologies with less environmental impact is essential. Improvements in power consumption efficiency have also significantly contributed to CO₂ reduction. For example, the energy management technologies developed in the automotive industry are considered highly effective and will probably play an important role in improving power efficiency.

By holistically promoting these innovations, we believe we can reduce the demand for fossil-fuel electricity and overall CO₂ emissions without compromising economic activity or personal freedom. Our company is committed to contributing to the reduction of CO₂ emissions in these technological fields and is making every effort to realize a sustainable society.

In this issue, we will introduce specific examples of the following two initiatives:

- Development of Energy-Analysis Platform for Carbon Neutrality
- Development of an Alternative Flame Retardant Gas for Magnesium Melting Furnaces