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Energy Efficiency Policy Challenges for 2025

－Two key elements for promoting energy efficiency: sustainable investment and consistent policies－

<Summary>

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Global trends in improving energy efficiency

1. At COP28, it was agreed to accelerate the pace of improvement in energy efficiency globally from 2% in 2022 to 4% per year by 2030, in order to achieve the 1.5°C target.
2. The global rate of improvement in primary energy consumption per unit of GDP (2015 basis, PPP) for 2022 was 2%, but the improvement rate is expected to remain at around 1% in 2023 and 2024, suggesting that there is a long way to go before achieving the target.
3. There is significant growth in energy demand in emerging economies such as India and the ASEAN countries, and it will become increasingly important to strengthen energy conservation efforts in these countries in the future.

Trends of investment in energy conservation, electrification, and other energy demand-side initiatives

4. The amount of investment in energy conservation, electrification, and other initiatives in 2024 is expected to increase by 2.2% compared to 2022. On the other hand, under the IEA's net zero scenario, by 2030, we will need energy conservation investment of approximately $1.9 trillion, which is three times the 2022 level.
5. Investment in electrification, such as electric vehicles and heat pumps, is increasing as a measure for improving efficiency on the energy demand side, while investment in electrification, etc. in 2024 is expected to increase by approximately 18% compared to 2022. On the other hand, energy conservation investment in 2024 is expected to fall by approximately 7% from the 2022 level.
6. Investment in energy conservation, electrification, and other initiatives has been driven mainly by Europe, China, and the United States. Our challenge for the future is to expand investment in emerging and developing countries that have great

potential for energy conservation.

Energy conservation by industries

7. Globally, the amount of investment in energy conservation in the industrial sector declined in 2023 on the back of a fall in investment caused by the real estate downturn in China but is expected to recover to 2022 levels in 2024.
8. With regard to energy conservation policies, energy management systems are gradually being reinforced in developing countries such as Thailand, Indonesia, Singapore, and the Philippines, with the progress made in making energy management systems mandatory in the industrial sector and the expansion in the scope of application. In addition, developed countries are working to strengthen the disclosure of energy information by companies.

Energy conservation in the private sector

9. Due to the impact of high interest rates, a slowdown in China's construction industry, EU measures to reduce subsidies, and other factors, investment in energy conservation and electrification in buildings is expected to decline in 2024 after peaking in 2022.
10. In the EU, the revised Energy Performance of Buildings Directive (EPBD) was enacted in April 2024 with the aim of making all buildings in the EU zero-emission by 2050. Additionally, efforts are being made to strengthen energy conservation through the renovation of existing buildings. In China, from 2024, support will be expanded for energy conservation in the area of replacing building materials and equipment.
11. In addition, against the backdrop of rising electricity demand from data centers, the EU is calling for the disclosure of information on the energy consumption and efficiency performance of every data center, while China has strengthened its PUE targets for new and existing data centers. In Japan as well, data centers have been added to the scope of the energy conservation benchmark system.
12. While attention has been focused on the increase in electricity demand due to the use of AI, research and demonstrations on the use of AI and energy conservation are also progressing around the world. There are also studies suggesting that the use of AI clouds could reduce energy consumption and CO_2 emissions of commercial buildings in the United States by 8% to 19% in 2050 compared to BAU levels.

Energy conservation in the transportation sector

13. Partly due to the impact of the reduction or abolition of subsidies in the EU, there has been a slowdown in the rapid growth of EV sales.

14. More than 90% of global EV sales are made in China, the EU, and the United States. However, EV sales are growing in emerging and developing countries other than China, growing by approximately 40% in 2024 compared to the previous year.
15. The U.S. Department of Transportation has tightened fuel economy standards, such as the Corporate Average Fuel Economy Standards (CAFE) for passenger vehicles and light truck (light duty vehicles or LDVs) models released between 2027 and 2031, but there is a strong likelihood that the Trump administration will revise these standards by significantly relaxing them.

Energy conservation in Japan

16. In Japan, there are calls to make the transition to non-fossil fuel energy alongside the amendment of the Act on Rationalizing Energy Use. However, in order to achieve the goal of transitioning to non-fossil fuel energy, Japan needs to address the issue of procuring stable supplies of non-fossil fuel electricity in the future.
17. Other future challenges include supporting business operators for whom improvements in energy efficiency have stalled, promoting energy conservation efforts among small and medium-sized enterprises, designing systems that not only conserve energy in equipment but also encourage a shift to non-fossil fuel energy, and promoting energy conservation efforts through the utilization of AI and digital technology.

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