APERC COAL REPORT 2024

Introduction

The APERC Coal Report 2024 provides updated insights into current coal policies, consumption, production, trade, pricing, decarbonization technologies, and greenhouse gas emissions across the APEC economies. This report is a part of the APERC Fossil Fuel Reports Series, published annually to support discussions within the APEC Expert Group on Clean Fossil Energy (EGCFE) and the broader APEC Energy Working Group (EWG).

Outline

The report is organized into five chapters:

Chapter 1 highlights recent developments in coal policy among APEC member economies, as well as potential measures and technologies for decarbonizing coal-based power plants.

Chapter 2 examines recent trends in coal consumption across APEC economies, with a focus on major consumers such as China, the United States, Japan, Russia, and Indonesia.

Chapter 3 discusses recent trends in coal production within the APEC region, where some of the world's largest producers of thermal and metallurgical coal are located.

Chapter 4 details the recent changes in coal imports, exports, and prices.

Chapter 5 presents data on greenhouse gas emissions from APEC economies across the entire coal value chain, including methane and carbon dioxide emissions.

Key findings

More economies have committed to phasing out coal-fired power plants by a certain year, while they are being built at some economies.

- Australia, Canada, Chile, 'Hong Kong, China', Korea, Malaysia, New Zealand, Peru, Singapore, Chinese Taipei plan to phase out coal.
- Coal-fired power plants are being built in China, Viet Nam, and Indonesia. In 2024, China began building 94.5 GW of new coal-power capacity, the highest level of new construction in the past 10 years.

Four key technologies are expected to be game changers in decarbonizing the existing coal-based plants.

- Improving thermal efficiency in coal-fired power generation and boilers can reduce coal consumption and CO_2 emissions. Integrated Coal Gasification Combined Cycle technology enhances efficiency and lowers CO_2 emissions by 15% compared to ultra-supercritical technology.
- Co-firing biomass in coal-fired power plants can further cut CO_2 emissions by reducing coal usage, a strategy being considered by several APEC economies. Co-firing ammonia with coal at a 20% ratio has been successfully tested in Japan and is also being explored in Korea, China, Indonesia, and Viet Nam.
- Additionally, carbon capture, utilization, and storage (CCUS) technology offers a pathway to decarbonize coal-based plants, with the United States, Canada, and China leading advancements in this area.

APEC-wide coal consumption rose slightly in 2023 but was not uniform across all economies.

- Coal consumption in China, the world's largest coal consumer, grew by 4.7% in 2023. It was the highest growth in coal consumption over the last five years.
- Coal consumption in Indonesia fell slightly in 2023 after a notable increase in 2022. However, it remained considerably higher than levels recorded in 2021, primarily due to the introduction of new coal-fired power plants and the growth of the nickel industry.
- In the United States, coal consumption continued to fall in 2023, declining by 17.3% compared to the previous year.
- Viet Nam coal consumption grew by 22.2% in 2023, the highest growth among APEC economies, mainly due to heatwaves in summer driving up cooling demand and low hydropower electricity production.

APEC coal production rose approximately 2.6% in 2023, though the rising trend was not uniform across all economies.

- In China, the world's largest coal producer, coal production increased by approximately 2% in 2023, the lowest growth over the last three years.
- Indonesia's coal production rose 12.7% in 2023, the highest growth among APEC economies. The increased coal production was both for export and domestic use.
- Coal production in Australia increased by 3.8% in 2023, the highest growth over the last four years due to high coal demand for exports.
- Viet Nam, the United States, and Russia showed a drop in coal production in 2023.

In 2023, thermal coal exports from the United States, Australia, and Indonesia grew, but exports from Russia dropped.

- Indonesia increased coal exports by 29 Mt in 2023 due to high coal demand for power generation in China, India, and some Southeast economies.
- Australia's thermal coal exports increased by 15Mt as the result of ending the unofficial ban of the Chinese government on coal imports from Australia in early 2023.
- The United States's thermal coal exports increased by 5Mt in 2023, while Russia's coal exports dropped by 3 Mt in the same year.

Coal prices dropped substantially in the second half of 2023 and 2024, but they were still much higher than they were before the energy crisis.

- In September 2022, thermal coal spot prices hit a record high of about USD 450 per tonne, nine times higher than in September 2020. By early 2023, prices fell from USD 400 per tonne to around USD 130 per tonne in July. In 2024, prices fluctuated between USD 100 per tonne and USD 150 per tonne.
- Metallurgical coal prices peaked at approximately USD 630 per tonne in March 2022, then dropped to around USD 200 per tonne by June. In 2023, prices fell in the first quarter and further in June due to increased Australian supply, but rebounded in the second half. By early 2024, coking coal prices fell dramatically from USD 330 per tonne to about USD 200 per tonne by December.