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Energy transition to lower carbon emission may take longer time, particularly in emerging countries where coal remains the major energy source to fuel the economy due to its affordability and reliability of supplies. A number of Asian countries, including Indonesia, are expected to keep relying on coal for next decade while in parallel accelerating the development of renewable energy.

As of 2021, Asia Pacific's energy consumption was 46 percent came from coal and 90 percent of 195 coal-fired power plants being built will be located in Asian region. Indonesia plans to achieve net zero emission by 2060 by, among others, committing itself to stop development of new coal-fired power plants, except those under construction and secured financial close.

Indonesia has abundant sources of new and renewable energy, such as solar, hydro, bioenergy, wind and geothermal, at an estimated potential generation capacity of 648,300 MW. But so far only 2.0 percent of that potential has been utilized.

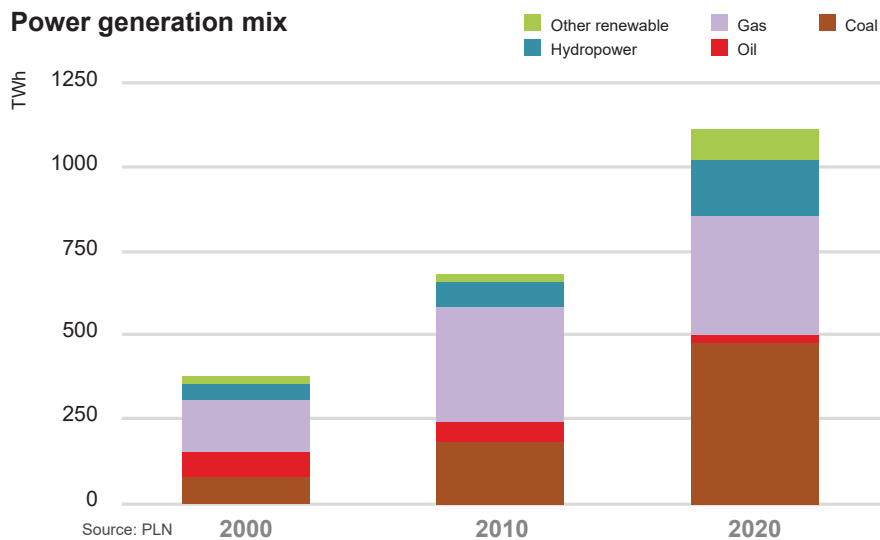
“Coal will still be the main energy source in Indonesia for the next 10 years due to the potential of Indonesia's current coal resources and reserves which are still abundant,” Irwandy Arif, Ministerial Special Staff for the Acceleration of Mineral and Coal Governance at Ministry of Energy and Mineral Resources (MEMR), said recently during the Indonesia Coal Outlook 2022 Conference hosted by *Petromindo* and *CoalMetalAsia* Magz in Jakarta.

Based on MEMR's data, Indonesia has 36.28 billion tons of coal reserves and 110.07 billion tons of coal resources. With the current production level at 600 million tons per year, Indonesia can utilize the coal reserves for the next 60 years. In 2022, the government aims to produce 663 million tons of coal,



## MAINSTORY

### Power generation mix



higher than 625 million target in 2021.

China and India are expected to remain the major coal market drivers in Asian region, while at the same time, Southeast Asian region shows growing trend of fossil-fuel demand since the region developed rapidly over the past two decades and the region is a major engine of global economic growth.

International Energy Agency (IEA) recently stated in its new report that energy demand in Southeast Asia has increased at the average of around 3 percent a year over the past two decades, and this trend will continue to 2030 under today's policy settings. Southeast Asian countries are in different stages of their development, but almost all of their economies have more than doubled in size since 2000.

Total power generation has almost tripled over the past two decades. Coal-fired power generation expanded by a factor of six, and it made up more than 40 percent of total generation in 2020. Fossil fuels made up more than 90 percent of the growth in energy demand. Coal demand alone expanded by a factor of six, and its share of total energy supply increased from 8 percent to 26 percent between 2000 and 2020.

Beni Suryadi, Manager of Power, Fossil Fuel and Alternative Energy and Storage of ASEAN Centre for Energy (ACE), stated that developing countries in Southeast Asian region require energy security to fuel its recovering economy in post-pandemic period. "Southeast Asian region has the youngest coal-fired power plant fleets with average of 12-13 years compared to average of 40-45 years in developed countries which are phasing out of coal," he said.

Despite heavily depending on coal, Beni mentioned that Southeast Asian countries have announced its commitment to achieve net zero emission targets in next decades. "However, one of the key challenges in developing renewable energy in the region is the intermittency of renewable energy sources," he said.

Indonesia's state-owned power utility, PT PLN (Persero), aims to achieve net zero emission by 2060 by implementing a number of initiatives, including early retirement of inefficient coal-fired power plants and biomass co-firing in a number of operating coal-fired power plants.

"Implementation of early retirement of PLN's coal-fired power plant fleets

require great financial supports (with low-cost of fund) from international funding," Edwin Nugraha, Executive Vice President of Electricity System Planning of PT PLN (Persero), said.

In PLN's low carbon scenario, renewable energy will have 23 percent share by 2025, which consists of: 8 percent from hydro, 7.3 percent from geothermal, 1.8 percent from wind and solar, and 5.8 percent from others (biomass, waste, etc). The renewable energy share in 2025 (23 percent) will increase gradually up to (24.8 percent) by 2030, while coal will be reduced to 59.4 percent.

### Supply vs demand

The energy transition agenda has to deal with the current facts that show fossil-fuel energy sources demand in the market keeps increasing. The staggering increase of coal prices since last year showed the growing demand of coal from the market, while at the same time the supply side has been struggling due to some factors, such as weather-related issues and ongoing geopolitical tension between Russia and Ukraine.

"Coal exports in 2022 will struggle to match 2021 level despite extraordinary profits," Neil Sebastian D'Souza, Principal Projects Consultant of Argus Media Group, said.

D'Souza confirmed that Southeast Asia, as a single market, is an incredibly dynamic region and expected the coal consumption in the region will increase this year up to 139 million tons or 8 million tons higher than 2021. Going forward, he predicted that Southeast Asia's coal consumption will be back to pre-Covid level in 2023 and the coal consumption is estimated to reach 153 million tons.

Under the current supply-demand condition, D'Souza predicted that the Newcastle price index in 2022 is around

US\$232 per ton and would come down next year to US\$140 per ton due to LNG and coal market rebalancing and easing tension of geopolitical issue.

Dileep Srivastava, Director & Corporate Secretary of PT Bumi Resources Tbk, shared common view regarding the coal supply and demand outlook. “I do not see any prospect coal supply will be normal this year, if not much of next year,” he said. Regarding coal price outlook, Srivastava mentioned that the current record-level coal prices is expected to stay this year and might be up to next year.

However, Srivastava highlighted that financing for coal industry is the real challenge amid the increasing trend of renewable energy while global banking sector exits from coal-related funding. “The pressure on coal will continue for the next decade. In an absence of any

increase of coal supply, it will always be shortage. The export capacity from Indonesia will be limited as the country prioritizes domestic market,” he said.

### Balancing market

China as one of global coal market drivers has tried to balance the market by implementing intervention policies in domestic market, as most of coal producers and coal consumers are state-owned entities. NDRC boosts domestic production capacity when coal prices surge.

“NDRC planned 300 million tons per year of new capacity increase for this year by upgrading existing mines and reopening of previously suspended projects. The production target annualized to around 4.6 billion tons,” Kiara Zhong, Senior Research Analyst of McCloskey Coal Team, said.

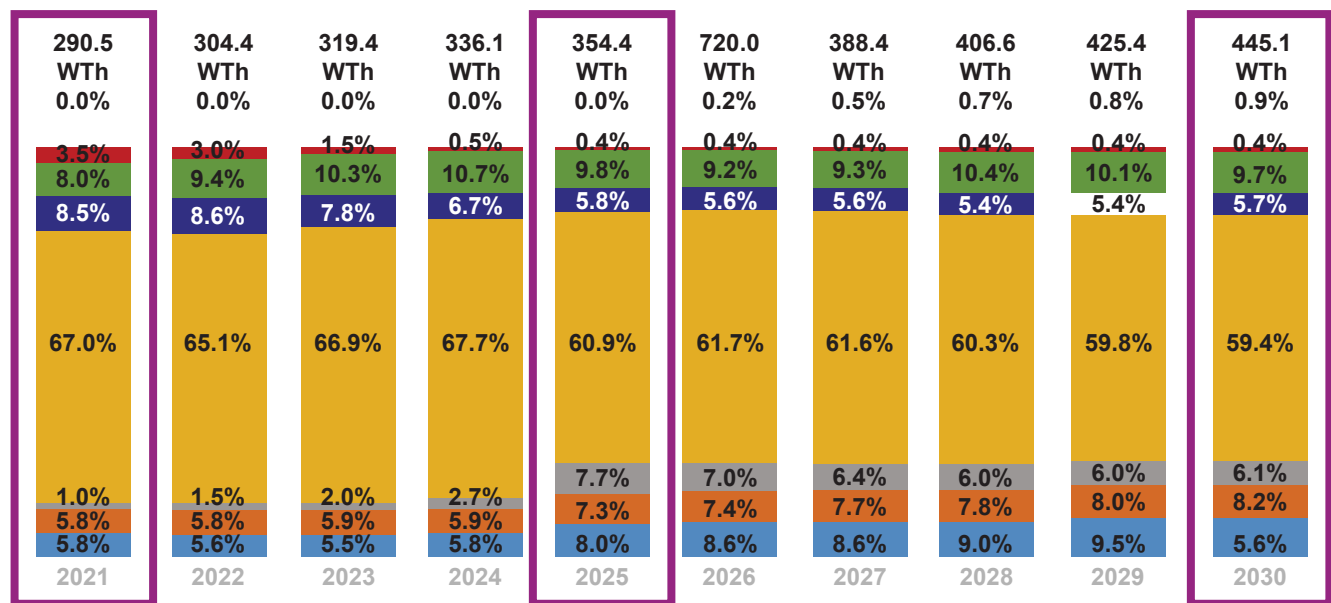
Meanwhile in India, The Ministry of Coal is continuing efforts to further enhance coal production and dispatch to meet the increasing power demand in India due to sustained economic growth and also the seasonal factors. Dispatches were recorded at 540.14 million tons in full financial year 2022, up 22 percent year-on year.

“Power sector consumption to be nearly 770 million tons in the financial year 2023,” Aditi Tiwari, Senior Research Analyst of CoalMint India, said.

Aditi Tiwari added that logistic bottleneck in India is the key challenge in achieving supply target this year. Coal supply crunch continues to incentivize imports this year. India’s thermal coal import in full year 2022 stood at 134 million tons. “India’s thermal coal imports seen rising by 20-30 million tons in full year 2023,” she said. 

## Energy mix projection (low carbon scenario)

RE: 12.6% Coal: 67.0% Gas: 16.6%      RE: 23.0% Coal: 61.0% Gas: 15.6%      Coal: 59.4% Gas: 0.4% RE: 24.8% Gas: 15.4%



■ Hydro ■ Geothermal ■ Other RE ■ Coal ■ Gas ■ LNG ■ Oil ■ Import ■ RE potential

Source: IEA (2022)