Press release

Enforcing more stringent air pollution controls at Banten-Suralaya would prevent over 1,000 deaths and save USD billions: Health impact assessment (HIA)

JAKARTA, 12 September 2023 - Indonesia's growth and development in recent years have seen it become the largest economy in Southeast Asia, yet this has come with a heavy price for the nation. As Jakarta withers under suffocating air pollution and the USD 20 billion Just Energy Transition Partnership (JETP) meant to aid Indonesia in their green transition is delayed, Indonesia's outsized fleet of coal-fired power plants (CFPPs) continue spewing air pollution unabated to the detriment of the country. While the fossil fuel driven power sector has expanded to meet the needs of this fourth most populated country in the world, so has poor air quality, profoundly affecting the nation's health and economy by contributing to air pollution that reduces life expectancy by up to five years and costs Indonesia over USD 220 billion each year.

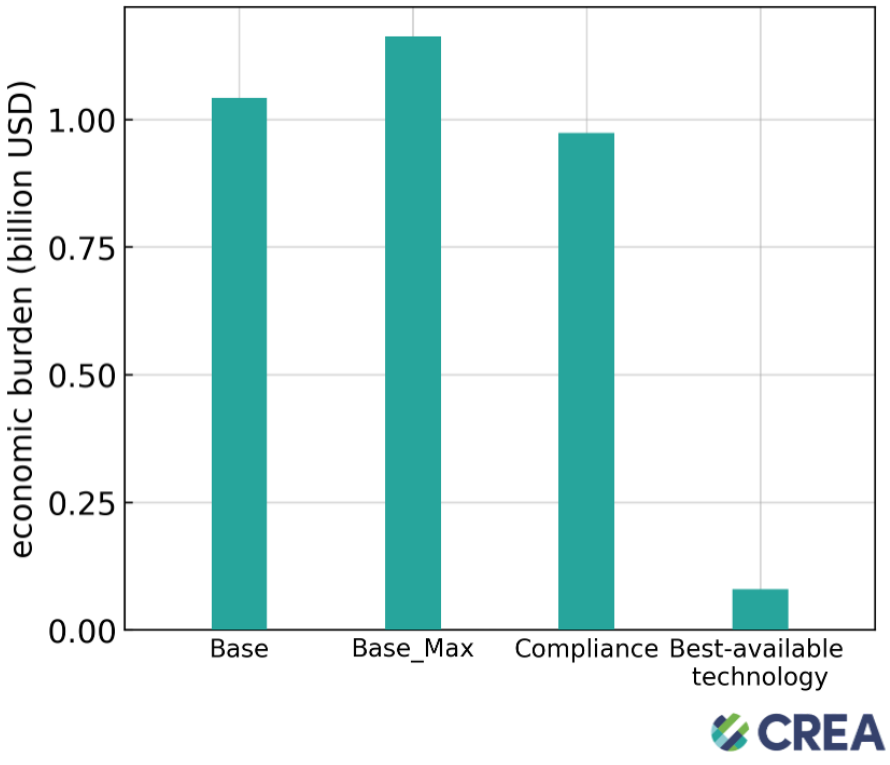
A new health impact assessment (HIA) from the Centre for Research on Energy and Clean Air (CREA) shows that air pollution from Indonesia's Banten-Suralaya complex of coal-fired power plants (CFPPs) located on the Indonesian island of Java has a devastating impact on public health and the economy. Air pollution from the Banten-Suralaya complex reaches the cities of Serang, Cilegon and Jakarta, which has been subject to an air pollution crisis for years. Although the government has tried to downplay the contributions of coal-fired power plants (CFPPs) and plans to introduce work from home (WFH) policies in Jakarta to reduce air pollution from commuters' vehicles, CREA analysis shows that fine particles (PM2.5) from nearby coal combustion contribute to Jakarta's yearly spikes of air pollution, including from the Banten-Suralaya complex, with terrible consequences for populations all across northwestern Java.

The coal combustion used in coal-fired power plants (CFPPs) like the Suralaya-Banten complex leads to air pollution consisting of fine particles (PM2.5), nitrogen dioxide (NO2), sulfur dioxide (SO2), and ozone (O3), all of which undergo dispersion across long distances and lead to illness in humans, ranging from chronic cough as experienced by Indonesia's president this summer, all the way to death. In Indonesia, the annual mean PM2.5 concentrations sometimes exceed 50 µg m-3, breaching the WHO guidelines annual limit of 5 µg m-3 by a factor of 10.

CREA's health impact assessment (HIA) finds that if national standards for coal-fired power plants (CFPPs) were enforced, the impact could be reduced, and if best available technologies (BATs) were implemented, the impact could be even greater.

If national standards alone were enforced, air pollution would decrease, preventing 97–268 deaths, 141–300 emergency room visits, 17–236 new asthma cases in children, 74–157 preterm births, 48–103 underweight births, and 59,000–125,000 work absences. These reductions in health damages would save the Indonesian economy IDR 0.940–2.6 trillion (USD 70–190 million).

However, if best available technology (BAT) for emissions controls were implemented at the Banten-Suralaya complex of CFPPs, annual mean $PM_{2.5}$ concentrations drop to less than 0.2 µg m^{-3} and a maximum annual saving of 1,527 lives could be achieved. Implementing best available technology (BAT) could also prevent 1,642–1,792 emergency room visits, 932–1,164 new asthma cases in children, 853–942 preterm births, 561–615 underweight births, and 680,000–746,000 work absences per year. All of this translates into IDR 14.7 trillion (USD 1.08 billion) in terms of possible economic gains.



Source: CALPUFF model (Exponent, 2015) and health impact assessment (Myllyvirta, 2020)

Health-related economic damages (billion USD each year) of air pollution from the Banten-Suralaya complex

The size of Indonesia's fleet of CFPPs, their close proximity to cities, and their complete lack of implementation of emissions controls has contributed significantly to one of the most serious air pollution crises on the planet, having huge consequences for the people and the economy of Indonesia.

'*The government of Indonesia should take more serious measures to tackle emissions from coal plants. It is very important to enforce compliance with standards, implement best available technology (BAT), and ultimately replace them with renewable sources of energy as soon as possible*', said Jamie Kelly, Air Quality Analyst at CREA.

Although Indonesia's Just Energy Transition Partnership (JETP), which is set to allocate USD 20 billion for Indonesia's green transition has been delayed, there are affordable measures the government can take to reduce air pollution from coal-fired power plants (CFPPs) without further delay, including:

- replacing coal-fired power plants with renewable energy sources
- mandating the installation of air pollution control measures
- setting ambitious limits on pollutant emissions and ensuring enforcement
- enforcing the publishing of industrial emissions with transparent documentation and methodology.

'The Just Energy Transition Partnership (JETP) is a crucial step taken by the government of Indonesia towards its climate commitments. However, air pollution from coal based power plants will continue to pose significant health impacts until Indonesia completely shifts to clean renewable energy. The government of Indonesia must not delay implementing the very accessible air pollution control measures it has at its fingertips to protect its economy and people from the impact of coal power plants,' said Lauri Myllyvirta, Lead Analyst at CREA.

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Note to editors

The publication related to this press release is available here.

About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions, to air pollution. CREA was founded in December 2019 in Helsinki and has staff in several Asian and European countries. The organisation's work is funded through philanthropic grants and revenue from commissioned research.

www.energyandcleanair.org

About the methodology

In this study, we calculated the air quality impacts from the Banten-Suralaya complex under measured pollutant emissions, if the complex was fully compliant with national standards for pollutant emissions, and if best available technology for mitigating pollutant emissions was implemented. To calculate the air quality impacts under each of these pollutant emission scenarios, we modeled pollutant concentrations in the atmosphere using an air dispersion model (CALPUFF), and calculated the human and economic impacts using our globally-implementable health impact assessment (HIA) methodology, which uses health and population data from peer-reviewed scientific literature. We considered the 8 existing units, as well as the 2 units under construction.