Press release

AI-driven fossil power growth for Taiwan semiconductors risks 90 lives, nearly half a billion USD in economic losses by 2030

An accelerated pivot to renewables by TSMC alone would avoid nearly USD 169 million in air-pollution-related health damages per year.

Taipei, 24 March - Taiwan's power consumption from AI semiconductor manufacturing increased by 350% in 2024, with government utility Taipower estimating the island's semiconductor energy demand will exceed 5 GW by 2030. As it draws the vast majority of its power from Taiwan's highly fossil-reliant grid, the electronics manufacturing (EM) industry is therefore linked to an estimated 90 premature deaths, 19,000 work absences, 277 child asthma cases, and USD 500 million in economic losses by 2030 due to health complications from air pollution, according to a joint report from the Centre for Research on Energy and Clean Air (CREA) and Greenpeace.

The report's projection, which assumes companies' renewable procurement rate persists at the 2023 level, also reveals that accelerating these targets for AI chip producers TSMC, Micron, and UMC would substantially reduce the related air-quality impacts, saving around 41 lives and USD 229 million per year. TSMC, which has the highest renewable electricity target for 2030 (60%), would alone account for almost USD 169 million in avoided health damages per annum.

Taiwan's electronics manufacturing industry accounts for around one-quarter of national electricity demand, which is still supplied by a fossil fuel-dominated grid, 34% from coal and 44% from natural gas in 2023, with renewables making up only a modest share of the mix. Taiwan's economic ministry recently announced the island will miss its target of generating 20 percent of its electricity from renewable sources by the end of 2026.

The report's authors strongly advise Taiwan's government along with its energy-intensive semiconductor companies to review and enhance their current energy transition targets, setting 2030 as the milestone for 100% renewable energy (RE100) and providing a transparent, trackable roadmap to reduce fossil power-related health and economic impacts. Moreover, annual improvements can immediately reduce pollution from fossil fuels while decreasing related healthcare and economic costs, delivering measurable public health benefits. Coupled with energy

storage, these measures enhance grid resilience, ensure a stable electricity supply, and support the growing demand from AI and electronics manufacturing.

'As Taiwan's power demand rises with the expansion of the AI industry, replacing fossil fuels with renewable energy sources delivers substantial public health benefits by reducing air pollution exposure. Evidence clearly shows that advancing beyond current commitments to a complete renewable transition is not only a climate imperative but also a public health and economic necessity. Achieving this goal would deliver cleaner air, healthier communities, and significant economic savings—solidifying Taiwan's global technology leadership while safeguarding the health of its people,' said Daniel Nesan, Analyst at CREA and one of the report's authors.

'Taiwan's semiconductor industry – led by companies like TSMC, UMC, and Micron – makes the island a crucial link in the global AI supply while often serving as a "shield" to global economic disruptions. But the sector can also serve as a "life preserver" by transitioning more quickly to renewables and directly deploying distributed energy and energy storage systems locally. At the same time, semiconductor companies must be responsible for residents who have long suffered from air pollution by subsidising their health checkups, medical care, and long-term care costs,' said Lena Chang, Campaigner at Greenpeace.

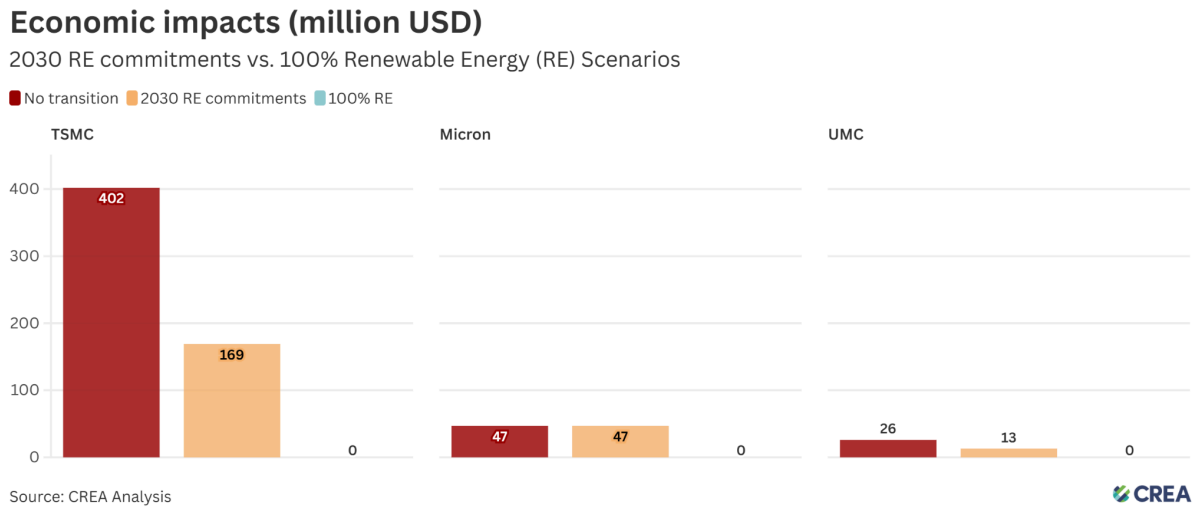


Figure 4 – Economic impacts of Taiwan's EM industry in 2030; under three different renewable energy scenarios.

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Note to editors

The publication related to this press release can found here.
All CREA publications can be found here:
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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.

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