

Centre for Energy and Emissions Modelling 2.0 (CE2M 2.0)

What is it?

The Centre for Energy and Emissions Modelling (CE2M) is an initiative led by the Agency for Science, Technology and Research (A*STAR), in collaboration with National Climate Change Secretariat (NCCS), Ministry of Trade & Industry (MTI), Energy Market Authority (EMA), Public Sector Science & Technology Policy & Plans Office (S&TPPO), National University of Singapore (NUS), Singapore-ETH Centre (SEC) and TUMCREATE.

CE2M's pilot project demonstrated the importance of modelling interdependencies between key sectors to effectively plan for a net-zero future for Singapore.

The project combined two models:

- a) **Singapore Integrated MARKAL-EFOM System Model (SG-TIMES)** – optimises national decarbonisation pathways across sectors based on economic and technological factors.
- b) **Singapore Integrated Transport and Energy Model (SITEM)** – simulates nationwide additional energy demand required to support vehicle electrification.

Key findings from the pilot have provided useful policy insights to support vehicle electrification. For example, modelling a shift in electric vehicles (EV) charging demand from peak to off-peak periods showed that electricity generation capacity could be optimised while meeting drivers' needs. This could moderate infrastructure costs that are required to meet electricity demand from EVs.

Building on these insights, CE2M 2.0 aims to model national decarbonisation pathways that consider cross-sectoral interdependencies between the power, industry, and transport sectors. This system will generate simulations to support Singapore's net-zero policy planning. CE2M 2.0 commenced in May 2024 and will run for three years.

How does CE2M 2.0 work?

CE2M 2.0 is the first-of-its-kind integrated modelling tool in Singapore that evaluates cross-sector trade-offs by considering how decarbonisation efforts in the power, industry, and transport sectors interact. By mapping these interdependencies, CE2M 2.0 can help policymakers better understand the broader implications of climate- and energy-related decisions.

How can Singapore benefit from CE2M2.0?

CE2M 2.0 will present various potential pathways and scenarios that consider broader national priorities, and assess synergies and trade-offs between sectors. Insights derived from CE2M 2.0 will guide the Government's plans to achieve Singapore's climate targets.

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About the Agency for Science, Technology and Research (A*STAR)

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