

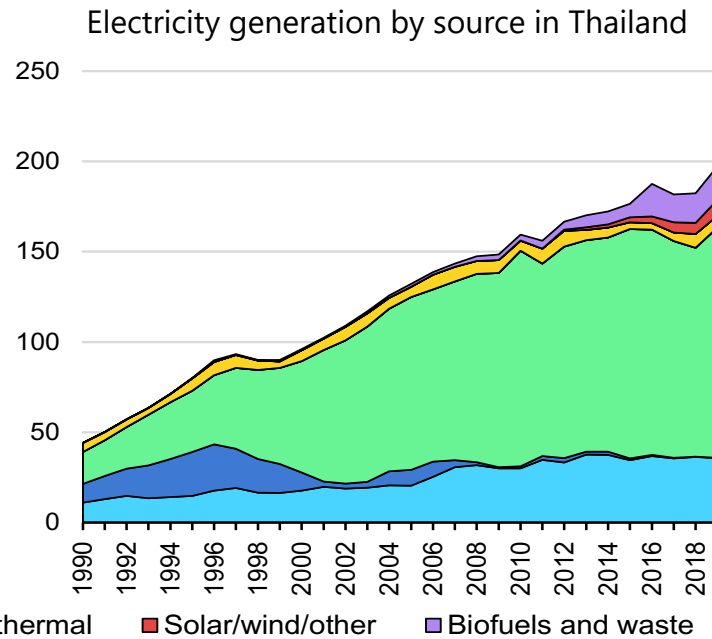
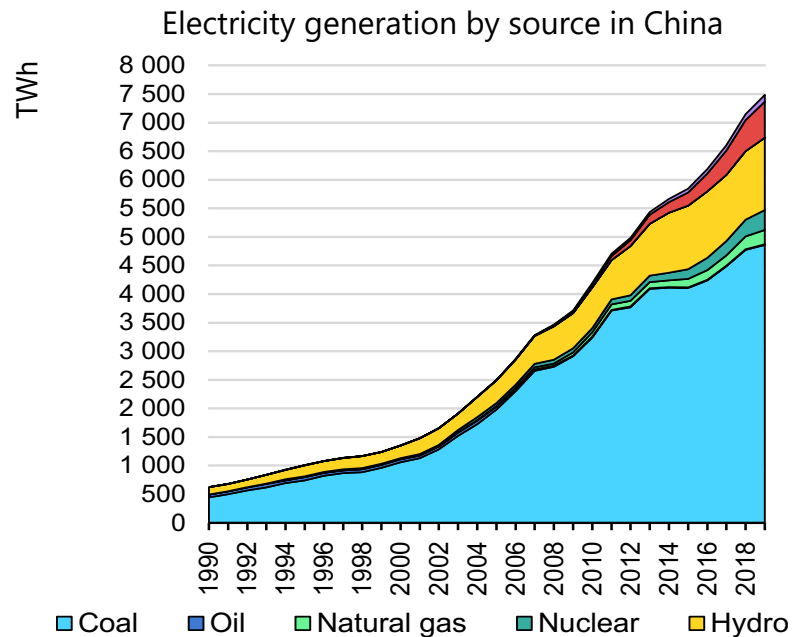


Carbon Pricing and the Power Sector: Illustration with China and Thailand case studies

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National circumstances make each country's power sector unique

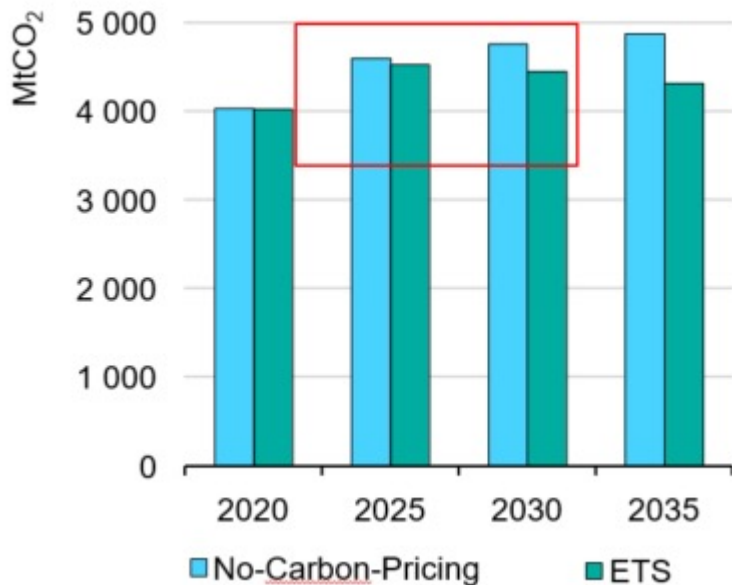


Source: IEA data

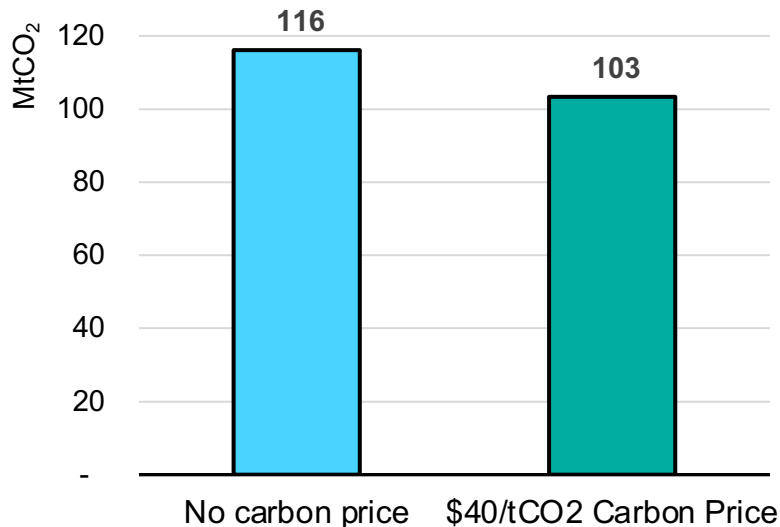
- Domestic energy resources and past development strategies result in different power mix
- Countries have a unique power market regulation system. But most of them do not take into account the cost of externalities

Carbon pricing can support cost-effective power decarbonisation

CO₂ emissions from electricity generation in China



CO₂ emissions from electricity generation in Thailand, 2030



Source: IEA data

- ETS can cost-effectively peak power sector CO₂ emissions well before 2030 for China
- A \$40/tCO₂ carbon price can deliver 11% additional CO₂ emission reduction for Thailand in 2030 from the projected level based on the Power Development Plan

Carbon pricing can trigger multiple layers of actions in the power sector

In 2030, China ETS could yield **333Mt CO2** additional emissions reduction mainly by encouraging more efficient coal to run more and displace generation and capacity from less efficient coal

Power generation



Early retirement or retrofitting



A \$40/tCO2 carbon price in 2030 could reduce the running hour of coal power plant with generation **down by 66%** in Thailand, which encourage consideration for retrofit, repurpose or early retirement strategy

Carbon price can be a key driver for technology innovation. Thanks to incentives provided by the China ETS, CCUS technology could enter the generation mix by 2030 and could help avoid **291Mt CO2** emission in 2035

Investments



Consumption



Carbon pricing may lead to **increase in the cost of electricity**, which could potentially help encourage more efficient use of resource but face strong social and political challenges that should and can be addressed

A \$40/tCO2 carbon price could generate **over 3 Billion USD** revenue in 2030 for Thailand and an ETS with auction could generate **99 Billion USD** revenue in 2035 for China to further accelerate clean energy transition and mitigate distributional effect

Use of carbon pricing revenues



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