# Optimising the expansion of renewable generation and transmission for the Vietnamese Power System

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Vietnam's energy demand is steadily growing and expected to triple within the next two decades. This poses an enormous challenge to the sustainable development of the Vietnamese power system.

In this work, we investigate renewable pathways for the Vietnamese power system towards 2030. We use ten years of highly spatially and temporally resolved weather and load data, and optimise deployment of renewable wind/PV generation facilities alongside the expansion of the transmission grid.

We show that renewable generation sources are cost-competitive to fossil sources, even if transmission grid expansion is fully considered. As an additional scenario, we extend the model via including lithium-ion batteries in electric vehicles or stationary battery parks as storage solutions. Our simulations, using a state-of-the-art degradation model, show that the electrification of the transport sector has little effect on the need for transmission grid expansion but reduces the need for conventional generation to a large degree.

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