

Carbon-Neutral Energy System in 2050 – System Analysis

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The Japanese energy system in mid-century is assessed using optimization type TIMES-JAPAN energy model. The assessment framework includes coupling of energy demand-supply bottom-up model and detail power system model, by sharing power capacity assumptions and total power demand as well as electric vehicle and electric heating of hot water demand, via soft-linkages. Sensitivity analysis was conducted by changing the assumption of CO₂ mitigation scenario including carbon-neutral in 2050, CO₂ storage potential, availability of negative emission technologies, wind power potential, and carbon-neutral imported fuel. Drastic changes in energy demand and supply as well as feasibility issues were discussed.