

Roadmap toward the substantially zero-carbon and self-supportive local energy system in the year 2050

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[Abstract]

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This research aims to create a tool that can simulate energy supply and demand and CO₂ emissions by setting energy supply and demand scenarios and renewable energy implementation scenarios for each municipality, and to develop a method to visually present it in an easy-to-understand manner. We also aim to provide the information of the trends on the policy concerning energy poverty in Europe. As a result, we succeeded in developing a zero-carbon regional scenario analysis tool and started distributing it in Excel file format. We have also succeeded in creating a GIS-based web application Drawdown Japan with incorporating this tool. Using these tools, it is possible to show graphs of energy consumption and CO₂ emissions by energy type as well as by sector and industry in 2030, 2040, and 2050 for all 1741 municipalities. The Excel file tool can simulate how these values change by changing the parameters of the scenario, and each municipality can now draw a roadmap for a carbon-neutral society.