

Aiming to Build a Discipline of Regional Symbiotic Renewable Energy Planning



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Solving the Green Dilemma Is Essential to Decarbonization

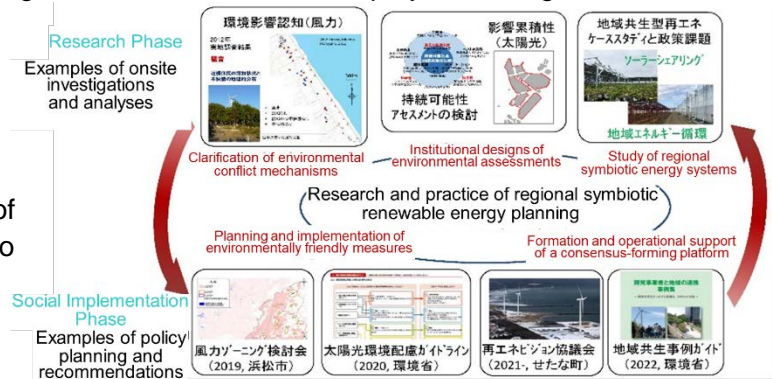
A decarbonized society is a shared global goal, and various initiatives aimed at achieving it are currently underway in Japan. Achieving this goal will require a structural transformation of society. In the energy sector, the optimal implementation of renewable energy has been set as a national policy of the highest priority. Wind and solar power are expected to become our main power sources.

Although wind, solar, and other clean energy sources are generally known for not emitting greenhouse gases, the reality is that there are endless problems and complaints associated with the implementation of clean energy projects in the regions where power generation facilities are constructed. While electricity is essential to our lives, it is impossible to completely negate the impacts and risks associating with energy production. In Japan, people have recently started to refer to renewable energy facilities using the acronym NIMBY (for “Not In My Backyard”). The term refers to the phenomenon of people being in favor of renewable energy in theory but against it in practice (namely, against facilities being constructed near their homes). The question we need to answer is how to simultaneously solve both the *global* warming problem and the *local* environmental problems that introducing renewable energy causes. We refer to this conundrum as the “green dilemma.”

Our Research Mission: Building a Discipline of “Regional Symbiotic Renewable Energy Planning”

Our laboratory’s research will lead to policy recommendations from the standpoint of environmental planning to resolve such energy dilemmas. We are taking a two-pronged approach to find (1) measures that mitigate environmental impacts and (2) measures that create local benefits. More specifically, we are developing a methodology for simultaneously achieving two goals: formulating measures that reduce the negative impacts associated with renewable energy projects, and ensuring that those projects have a positive impact on the community. We call this academic discipline “regional symbiotic renewable energy planning.”

The local problems related to renewable energy vary from case to case, but include noise, spoiled scenery, deforestation, bird collisions, and sediment disasters. Often local residents and environmental conservation groups oppose these projects, even in some cases by local governments. We are working to clarify the mechanisms of such environmental conflicts. Taking the characteristics of each project and region into account, we use surveys, analyses of location characteristics and other means to determine what factors lead to such conflicts and their resolution. We are striving to develop a methodology to achieve the aforementioned two goals. For the first goal, we consider the use of environmental assessments as a mechanism to clarify environmental concerns to help prevent problems before they arise. For the second goal, we explore options for creating local benefits by promoting energy circulation and other measures to build consensus in the community.



Conceptual Diagram of Nishikizawa Lab

Contributing to Society through Policy Recommendations and Planning Support

We will feed the knowledge we acquire through our research back to the real world in the form of policy recommendations. We collaborate with the Ministry of the Environment, local governments and the private sector to implement renewable energy plans. Our feedback is incorporated into policies and initiatives such as zoning, which refers to location guidance planning aimed at the smooth introduction of renewable energy in a region. That feedback is also used to create environmental consideration guidelines, regional renewable energy visions, and collective best practices. While these activities are meant to help achieve goals such as a sustainable society and decarbonization, they are also valuable opportunities to discover new research needs.

