

Dissertation Abstract

論文の内容の要旨

Environmental Impact Assessment Regulations and Renewable Energy Development in OECD Member Countries: Comparative Analysis of Procedural Frameworks in Japan, New Zealand, the European Union and the United States

(経済協力開発機構加盟国における環境影響評価規制と再生可能エネルギー開発：
日本、ニュージーランド、欧州連合、米国における手続枠組の比較分析)

Kim Deepak Guy SCHUMACHER
キム ディーパック ギー シューマツハー

Anthropogenic climate change is among the most complex and urgent global issues and requires a radical change in how we address globally connected systems and socio-environmental interactions. The main contributing factor to anthropogenic climate change is greenhouse gas (GHG) emissions, most notably the massive output of carbon dioxide in the atmosphere, which saw increases for the past 200 years. Energy generation, either for transportation, heat or electricity, constituted always the largest share in overall GHG emissions. Finding comprehensive solutions on how to mitigate energy related GHG emissions represents one of the most crucial ongoing challenges in the fights against anthropogenic climate change and global warming.

Due to the rapidly amplifying risk of uncontrollable global temperature rises, in combination with the world's population expected to surpass nine billion people mid-century and an increasing pressure on our natural resources, the benefits of renewable energy (RE) for the climate, clean air, clean water, and local economies, the expansion of RE, are garnering increasing political support. Many governments have thus started to promote RE deployment more actively and incentivize developers to invest in large-scale projects, aimed at cutting GHG emissions and enhancing energy independence. The expansion of RE development can however put strains on local ecosystems and civil society stakeholders.

In order to investigate how to balance the interests and concerns of various stakeholder groups, this research focuses on legal, socio-environmental and comparative data to identify the determinants to RE development in OECD member countries. By looking at the environmental impact assessment (EIA) frameworks, we can progressively identify the complex multi-levelized structures of environmental review and approval procedures with regards to RE project development. These represent one of major natural resource management tools to enable controversial RE installations, especially large scale, to coexist with the natural environment in proximity to communities in the least intrusive manner possible. Given the strong resistance among local community stakeholders, understanding what role EIA frameworks have in either stifling or promoting RE will be crucial in order to increase public acceptance and minimize environmental impacts while simultaneously satisfying basic economic viability requirements for RE installations.

Investigating the political ecology of EIA and participatory governance frameworks, this research first tries to identify the procedures in order to obtain development consents. The conceptualized comparative national EIA framework analysis will reveal the individual strengths and weaknesses of the environmental regulatory procedures that affect RE growth. In order to understand how societal perceptions as well as regulatory and legal requirements influence overall rates of RE deployment as well as overall market penetration, this research is divided into three subsections, each representing an academic paper covering the EIA review and development permitting systems from different angles.

The first research paper performs a comparative analysis of the EIA procedures of Japan and New Zealand, which revealed that in terms of overall efficiency, Japan's environmental review rules are among the most extensive and stringent in all of the OECD, whereas New Zealand engaged in a profound administrative reform in 2009 in order to facilitate environmental approval procedures for projects of national significance. The particular targets of this reform were large scale RE facilities, given their role in mitigating greenhouse gases and securing energy independence. A system that was previously cumbersome, lengthy and relatively expensive, offering only little planning security to prospective developers was subsequently streamlined to reduce the approval duration from formerly several years to only 9 months in total. The few projects that went through this process afterwards, obtained consent much faster with less regulatory delays or civil society obstruction.

These intriguing results then lead to the research question of whether or not regulatory and procedural reforms could stimulate RE growth and how countries that instituted reforms similar to New Zealand did approach these streamlining efforts. The second paper thus looked at some recent EIA reform efforts and if these bear the potential to facilitate RE project development. One of the most frequent criticisms directed at EIA rules is that they allow members of civil society to obstruct RE projects under what is called nuisance law or the "Not-in-my-Backyard" (NIMBY) effect. Local stakeholders living in proximity of proposed sites or non-profit organizations that have programmatic interests in any of the development activities, most notably environmental degradation or species protection, cite numerous environmental and socio-economic concerns substantiate their RE project opposition. Therefore, EIA reforms can be a way to take into account the subjective nature of these claims and the well-founded negative externalities of LS-RE development. The paper concludes that the reform measures in Japan and the EU tend to discount public concerns in favor of economic development and GHG mitigation efforts. However, procedural streamlining remains stagnant due to organizational barriers within the structural hierarchies of most national administrations in the EU and Japan.

The final paper however already permits us to assess how various degrees of environmental regulation influence RE development and growth figures. The United States empirical case study analyses how several demographic, regulatory, geospatial, environmental and administrative factors impact wind energy share and wind energy share growth in all of the 50 states. The United States governance system being divided into federal and state levels enables a detailed look at how state-level policies and procedural variances in the environmental review and regulatory frameworks could serve as blueprints for future EIA reforms in the aforementioned OECD member states. Investigating the determinants of wind energy share and growth showed that environmental provisions and rigid permitting and siting procedures do impact growth rates only to limited degrees, whereas overall wind energy potential and financial incentives show much stronger correlations with high share and growth rates. We found also that states with designated agencies in charge of wind permitting did show higher wind energy share and growth rates, thus reinforcing the significance of one-stop-shop regulatory processes and coordinated procedural review approaches.

In conclusion, it becomes apparent that environmental regulation can act both as a barrier and driver to RE development in that it does prolong the overall approval process for development consent applications, but on the other hand, it can act as mediating tool between local stakeholders and project developers, increasing public acceptance and reducing the risk of legal obstruction. EIA represents one of the most efficient ways to address stakeholder concerns and reinforce communication and joint fact-finding in RE planning and environmental disputes. Therefore, future research should determine if the conceptual approaches of these reforms lead to increased RE growth and stakeholder satisfaction, given the small lead-up time for these reforms to show any noticeable impacts.