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Article / Book Information

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## 論文要旨

THESIS SUMMARY

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### 要旨 (英文 800 語程度)

Thesis Summary (approx.800 English Words)

Thailand has set wind energy is the one of renewable energy to implement for low carbon electricity generation in the future. Although, the average wind speed potential was in moderate to low levels. As captured in this study's field survey, some locals complain that wind turbine operations are inconsistent with daily life in their communities. Such operations cause considerable amounts of noise; especially if it is a windy day, local people are unable to communicate properly because the noise is constant and loud; during the night, some local people are unable to sleep. Considering agriculture, some projects have installed wind turbine pillars on cultivated areas. During the day, these wind turbines overshadow the farms' cultivation area, preventing crops from fully receiving sunlight and making them less productive than before. Considering visual pollution, the projects are mainly in rural areas of Thailand, with scenery overlooking mountains and forests. The installation of wind turbines in the countryside means the natural view will be marred by wind turbines. Some locals and nature-seeking tourists have been unimpressed to see spectacular views replaced by wind turbines. About bird impact, based on IBA data from The Bird Conservation Society of Thailand (BCST) shows that Thailand has a total of 62 bird conservation areas distributed in all ecosystems, forests, marine and coastal and water resources in 54 provinces. The bird protected areas are located in the national park area, wildlife sanctuary area and the non-hunting area which are the high risk area in the site selection of wind turbine installation. So the government considered that these areas are a stringent area where cannot construct any building or something may cause a disturbance to the ecosystem. There thus remain numerous challenges in meeting Thailand's goal of greater energy independence through wind power. Furthermore, under project regulations, locals are not allowed to plant perennial plants because taller trees will change the wind patterns; as such, locals are unable to plant certain kinds of lucrative crops to increase income in the communities surrounding the projects. This project regulation makes local people feel unfair because they unable to find more income for supporting their expenses and the attitudes towards future wind turbine power plants are disagreement because it would negatively affect their livelihood.

As a result of the current negative impacts to communities, The troubleshooting guidelines for above impacts; for currently implemented projects, the complaint to the government is going to be difficult because local people entered into an agreement for allowing to construction in urban areas. It shows that the communities are aware of the effects that followed as well. For future projects, sites selection of the wind turbine project avoid urban community areas and prohibit areas as a guideline for sustainable solutions. But in sites selection area, the wind energy potential is an important factor. Thus, it is led to conduct a research to estimate an area with sufficient wind power potential and appropriate to install wind turbines by avoiding all of prohibiting areas along with reducing the realistic impacts occurring in the community as a guideline for future projects. In this study, The GIS analysis results suggest that the suitable area for wind turbine installation in this study located in the northeast of Thailand specifically in Nakhon Ratchasima province. The wind power potential calculated by the formulas of the Ministry of Energy of Thailand and the Ministry of Economy, Trade and Industry of Japan in all four case studies are quite different than the policy target. Due to the Thailand formula by the Ministry of Energy only considers the air density calculated using air pressure, temperature, and humidity in each sub-district. On the other hand, the formula by the potential survey of Ministry of Economy, Trade, and Industry of Japan considers the wind turbines of 2 MW and available ratio of wind turbines. These characteristics make the results from the Japan formula more realistic and suitable to use in evaluating the wind power potential in this study. The current policy target of wind energy for electricity is not appropriate and quite difficult to achieve because it does not consider realistic conditions

備考 : 論文要旨は、和文 2000 字と英文 300 語を 1 部ずつ提出するか、もしくは英文 800 語を 1 部提出してください。

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