119 Nature-based tourism and renewable energy infrastructure: tourism industry's perceptions of the impact area of power plants on tourism

Edita Tverijonaite[1], **Anna Dóra Sæþórsdóttir**[1], **Rannveig Ólafsdóttir**[1], **C. Michael Hall**[2,3,4], [1]University of Iceland, Iceland. [2]University of Canterbury, New Zealand. [3]Lund University, Sweden. [4]University of Oulu, Finland

Due to its reliance on natural landscapes nature-based tourism is sensitive to other land uses which lead to landscape changes, such as renewable energy harnessing. For identification of locations most suitable for renewable energy infrastructure knowledge regarding the spatial extent of the impacts of such infrastructure on nature-based tourism is highly needed.

Estimating the impact area of renewable energy infrastructure on nature-based tourism is, however, challenging. Besides taking into consideration the characteristics of the energy infrastructure and of the surrounding landscapes it is important to investigate how power plants change the meanings assigned to the areas by various tourism stakeholders. Moreover, natural areas used for tourism can be defined as places which are constructed via numerous relations and processes going on within these areas and in larger networks (Massey, 2005; Urry & Larsen, 2011). Therefore, it should be taken into consideration how renewable energy infrastructure affects surrounding areas as elements of tourism systems (Leiper, 1979, 1990).

This study focuses on the views of the tourism industry in Iceland and aims to i) map the impact area of renewable energy infrastructure on tourism as perceived by the tourism industry; and ii) investigate the factors affecting the size and shape of the perceived impact area. To achieve these aims 49 semi-structured interviews were conducted with the managers of the tourism companies operating near six existing and proposed hydro-, geothermal and wind power projects situated within or at the border of the Icelandic Central Highlands. This area is an important venue for nature-based tourism as well as of high interest for further energy infrastructure development due to abundance of renewable resources. During the interviews, participants were asked to map their perceived impact areas of renewable energy infrastructure on tourism using participatory mapping software and, among other topics, to discuss the reasoning behind their estimated impact areas.

The results of the study revealed three main trends behind the reasoning used by the participants while estimating the impact areas: i) visibility of renewable energy infrastructure and of its environmental impacts, ii) tourist mobility, and iii) changes in tourist movement, travel patterns and consequently in other tourism processes. Thus, while according to some participants the impacts of power plants on tourism end with visibility of the energy infrastructure and environmental impacts related to it, others stated that the impacts on tourism extend far beyond the visibility. Participants who based their impact areas on tourist mobility took into consideration routes and destinations used by tourists where visitor experience, their perception and image of the area is affected due to traveling passed the renewable energy infrastructure. Participants who based their estimated impact areas on changes in tourism, took into consideration, for example, avoidance of certain areas due to decreased attractiveness, shorter stay in the estimated area, lower demand for tourism services and consequent economic impacts, as well as increased tourist flows due to construction of roads and bridges for the energy projects, which opens up new areas for tourism and allows inclusion of the Central Highlands destinations into larger itineraries. This stresses the importance of the interrelationships of the areas surrounding energy projects with other destinations and other elements of the tourism systems for the perceived spatial extent of the impacts of renewable energy infrastructure on tourism.

The results furthermore revealed significant differences in the character of the perceived impacts of renewable energy infrastructure on tourism. The participants were more negative towards the proposed power plants and majority of them estimated negative impact areas of the proposed renewable energy infrastructure on tourism, while

the impacts of existing energy projects were most often perceived as positive or mixed/neutral. Such findings are in line with previous studies showing higher acceptance of existing energy projects among tourists compared to the proposed ones (Brudermann et al., 2019; Sæþórsdóttir & Hall, 2018; Sæþórsdóttir & Ólafsdóttir, 2020). According to Brudermann et al. (2019), this can be due to status quo bias (Samuelson & Zeckhauser, 1988), or people's preference of current state over change. Moreover, participants perceived wilderness areas, which are an important resource for the tourism industry, as less suitable for energy development compared to already developed areas.

This study points to the importance of tourism stakeholder inclusion while planning renewable energy infrastructure developments in areas which are of high value for tourism. Inclusion of tourism stakeholder knowledge and perceptions allows identification of potential conflict areas and is likely to lead to higher acceptance of renewable energy projects.

References

Brudermann, et al. 2019. **https://doi.org/10.1007/s10098-019-01734-9**. Leiper, N. 1979. **https://doi.org/https://doi.org/10.1016/0160-7383(79)90003-3**. Leiper, N. 1990. Tourism systems: An interdisciplinary perspective. Occasional papers no. 2. Department of Management Systems, Business Studies Faculty, Massey University. Massey, D. 2005. For Space. Sage. Sæþórsdóttir, A. D., & Hall, C. M. 2018. **https://doi.org/10.3390/su10072315**. Sæþórsdóttir, A. D., & Ólafsdóttir, R. 2020. **https://doi.org/10.1016/j.esd.2019.11.004**. Samuelson, W., & Zeckhauser, R. 1988. **https://doi.org/10.1007/BF00055564**.