90 Exposure, meanings and landscape-technology fit. A hierarchical analysis of people's preferences towards landscape related energy scenarios and what they are based on

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In response to the effects of climate change, many countries are realigning their energy systems to the principle of sustainability. An energy system change will lead to the development of substantial renewable energy infrastructure (mostly wind and photovoltaic) in landscapes with effects on perceived landscape quality and socio- political acceptance. Both direct perceptive effects of physical landscape structures and latent meanings associated with those structures potentially affect their acceptance.

Until now it is mostly unclear how these effects affect people's decision making. Recently discussions arose regarding the importance of individual concepts supporting interpretation and weighting of already existing knowledge and experience before decision making. This work evaluates the role of landscape-technology fit (Salak et al. 2021) (derived from place- technology fit (Devine-Wright 2009; McLachlan 2009)) representing the extent to which alternatives within each of these two components "fit" together (e.g., does a given type of renewable energy infrastructure fit well within some landscapes but not others?). It also evaluates the role latent meanings ascribed to landscapes and renewable energy infrastructure within that mentioned "fit" decision as well as the role of prior experience (exposure) to both.

The study is based on a survey of Swiss citizens in a representative online panel (n=1062). To estimate preferences for diverse renewable energy infrastructure scenarios across landscape types, a discrete choice model was implemented. Meanings ascribed to landscapes and renewable energy infrastructure were included in a second component of the survey. Usually, latent and observed variables are analyzed independently which leads to potential lack of information especially regarding their interoperability. To avoid this, an innovative hybrid choice model approach facilitated integration of latent and observed variables in a hierarchy of predictors.

As results show that most effects were statistically significant the hybrid choice model enhances understanding of landscape transformation preferences. It retrieves that Landscape-technology fit functioned as a moderator between choice attributes and preferences and can therefore be seen as a moderator of public preferences across energy scenarios. Meanings ascribes to both landscapes and renewable energies predict landscape-technology fit and are predicted by relevant prior experience (landscape/renewable energy exposure). Also, it can be seen that renewable energy in natural landscapes triggers passive place-protective behavior.

References (in the order of appearance)

Salak, B., Lindberg, K., Kienast, F., und Hunziker, M. (2021): „How landscape-technology fit affects public evaluations of renewable energy infrastructure scenarios. A hybrid choice model". Renewable and Sustainable Energy Reviews 143:110896. Devine-Wright, P. (2009): „Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action". Journal of Community & Applied Social Psychology 19(6):426–441. McLachlan, C. (2009): „'You don't do a chemistry experiment in your best china': Symbolic interpretations of place and technology in a wave energy case". Energy Policy 37(12):5342–5350.