

Does climate change risk perception influence people's intention to invest in solar farms vs. nuclear power plants?

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Abstract: In the hottest year so far, the COP28 ended with a global pact aiming at “transitioning away from fossil fuels” to tackle climate change. Such transition implies an energy sector’s large-scale modernization, with particular interest in nuclear and renewable energies. Previous research has consistently found that nuclear energy is generally perceived as riskier than solar energy. However, people’s support for large-scale installations to produce solar energy - solar farms - has been little investigated, but it is necessary to rigorously compare solar and nuclear energies. Further, we explored the role of climate change risk perception in this framework. We ran an online survey with a convenient Italian sample (752 participants, 39.3 ± 16.6 y.o., 57% females), implementing a three-between-subjects design using a separate (SE) vs. joint evaluation (JE; Hsee, 1996) of two energy sources: solar farms and nuclear power plants. Thus, depending on the condition, participants were given information about either solar farms, nuclear power plants, or both. Subsequently, they were asked about their energy risk perception, and their willingness to invest public funding (WTPF) in either energy source. Further, participants were asked to report their climate change risk perception. We found that people perceived solar farms as less risky than nuclear power plants, both in SE and JE. Furthermore, people were more WTPF in solar farms than in nuclear power plants, and it also depended on their energy perceived risk. Specifically, for both energy sources, the more people perceived them as risky and the less they were WTPF in them. Finally, exploratory analyses revealed that when comparing the two energy sources in the SE conditions, the interaction between condition and climate change risk perception predicts the energy perceived risk. Specifically, in the case of solar farms, the more risky people perceived climate change and the less risky they perceived the solar farms’ energy. On the contrary, in the case of nuclear power plants, the more risky people perceived climate change and the more risky they perceived the nuclear energy produced by nuclear power plants. Similar results have been found also when people saw information about both energy sources (i.e., in JE). The present study contributes to understanding the psychological mechanism driving people’s perception and decision to support different energy sources and therefore have a great impact on effective communication. These results will be valuable for researchers, behavioral scientists, and policymakers working on climate change.

Keywords: Climate Change; Risk Perception; Energy Communication; Energy Investment; Public Acceptance