**RenewableReindeer**

**Extended summary**

Hydropower developed extensively during the last century in Norway, and the resulting network of infrastructures has changed mountain landscapes dramatically. Most hydropower concessions are (or will be) subjected to a relicensing process aimed at increasing focus on sustainability. In these same mountains, Norway hosts the last remaining population of wild mountain reindeer, and has national and international responsibility for its conservation. The infrastructure network has contributed to blocking most traditional migration routes and fragmenting the population into 23 isolated units. Norway is now faced with the challenge of revising, re-structuring and expanding the renewable energy system while granting long-term wild reindeer conservation.

This project relies on a large group of scientists worldwide from the fields of ecology, mathematics, computer-science and sociology to help Norway meeting this complex challenge form an ecological, technical and socio-political perspective.

The project aims to develop an innovative Habitat Functionality Metric quantifying the cumulative impact caused by infrastructures in terms of habitat loss and fragmentation. We further aim at developing cutting-edge simulation tools to forecast changes in reindeer movement corridors and habitat functionality under scenarios of changes in the infrastructure network. We expect these tools to become invaluable for reindeer-oriented impact assessment, for the identification of cost-effective mitigation options, and for the development of sustainable land development strategies.

The iterative involvement of stakeholders through dialogues and scoping processes will ensure relevance, minimize conflict potential, and will allow identifying realistic mitigation options. Finally, an in-depth examination of the regulatory framework and of multilevel governance will allow exploring possibilities for improvements aimed at ensuring feasibility in the implementation of mitigation measures.