

News

The importance of testing theoretical instruments and models

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Alenka Petrinjak, Triglav National Park, leader of the work package "Testing and implementation" (c) Alenka Petrinjak

The recharge.green project is now in its final phase. Over the next six months our experts will be finalising maps of renewable energy potentials in the Alps. They have developed and continue to refine instruments and models for testing the potential impacts of renewable energy use on nature and ecosystem services.

How will these instruments and models work in different realities in the Alps and for different renewable energy sources? Our six project pilot areas, Triglav National Park (Slovenia), Maritime Alps Nature Park (Italy), Province of Belluno (Italy), Vorarlberg (Austria), Bavaria (Germany), and Northern French Alps (France), are tasked with ground-truthing the models. The pilot areas will also give feedback to the experts on the scenarios developed in the project. Broadly speaking, the entire Alpine space is similar in geographic and cultural features, but at the micro level there are many differences. The feedback from pilot areas is therefore important to take into account location-specific factors that have to be evaluated before planning new renewable energy facilities in the Alps.

Evaluating the impact of renewable energy use on nature

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Quiet zones for wildlife have been included into the maps of the decision support system in the Triglav National Park. The interpretation of the results is still in progress. (c) Triglav National Park

To what extent can renewable energy be reasonably used? And how can conflicts with the biodiversity conservation be minimized? The recharge.green partners rely on decision support tools to answer these questions.

Scientists in the project have calculated the theoretical potential for selected renewable energy sources in the pilot areas. In this context it is important not to overlook nature and its ecosystem services. To tackle this challenge, project partners EURAC with the University of Trento, IIASA and Slovenia Forest Service have developed various decision support systems which can help us evaluate the eligibility of renewable energy use.

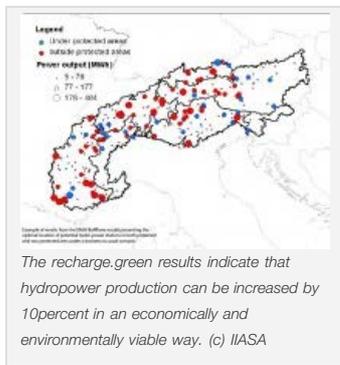
These decision support systems consider technical, theoretical and economic components. They evaluate the potential impact of renewable energy use on ecosystem services under various different scenarios. For example, in the pilot area Triglav National park special attention was paid to Natura 2000 species and habitats. With the help of the decision support system, maps showing the potential for biomass use were overlaid with maps showing selected Natura 2000 species and habitat important areas. When

planning renewable energy use, potential threats to nature can now be evaluated and as a result the natural resource use and nature conservation can be better balanced.

In addition, threats to nature are comprehensively evaluated with the strategic environmental assessment procedure. It should be applied in particular in protected areas and Natura 2000 sites. The existence of various such evaluation systems and procedures allows recharge.green partners to compare the outcomes of the different systems when evaluating the impacts of renewable energy sources. In the end, the project team will make recommendations on how to improve the existing procedures.

Hydropower Scenarios for the Alps

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Hydropower is considered one of the most promising sources of renewable energy in the Alps. With many new plants currently being planned, it is vital to consider not only the cost of their construction and associated infrastructure, but also their likely impact on Alpine ecosystem services.

Hydropower in the Alps currently accounts for around 100 terawatt hours of energy per year (TWh/a). Modelling carried out by EURAC has shown that an additional 80 TWh/a could be achieved. However, restricting the construction of new power stations to locations outside protected areas such as national and regional parks, Natura 2000 or world heritage sites, reduces the additional potential to 35TWh/a.

Using "BeWhere", an economic modelling tool for renewable energy optimisation (www.iiasa.ac.at/bewhere), IIASA researchers further analysed the EURAC results. Their findings indicate that an economically and environmentally viable mixture of smaller and larger hydro-power stations across all Alpine countries might reach 10TWh/a. However, if more stringent regulations (i.e. carbon taxing) were introduced the potential additional capacity might stay clearly below 10TWh/a.

IIASA researcher Sylvain Leduc presented the potential for hydropower in the Alps at the World Water Week in Stockholm, Sweden in September 2014. The session was live-streamed on the Guardian Web site.

Further information: <http://blog.recharge-green.eu/hydropower-in-the-alps/>, <http://blog.recharge-green.eu/world-water-week-water-and-energy-in-the-alps/>

Participatory energy planning in the Maritime Alps

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The recharge.green project has allowed the most suitable renewable energy sources to be identified for the Gesso and Vermenagna Valley area. (c) Maritime Alps Nature Park

The region of the Gesso and Vermenagna Valleys in the Maritime Alps Nature Park is one of the six recharge.green pilot areas. The Renewable Energy Institute at EURAC is supporting energy planning in the valley, in particular as regards the development of forest biomass energy and hydroelectric power by applying a decision support system. This system was developed by the Institute and has been implemented in all of the study areas based on local needs and requests.

Interview with Giorgio Curetti and Gianluca Grilli, EURAC

Why was the Gesso and Vermenagna Valley area used for a pilot study for the recharge.green project?

There is a need in the study area both to develop renewable energy and to preserve natural ecosystems. Careful planning is therefore necessary to take account of the numerous variables. We interviewed eight experts who each gave their opinions on the impact that various forms of renewable energy (solar-photovoltaic, wind, hydroelectric and forest biomass) could have on a series

of ecosystem services and on local development. Using their answers we have identified the most suitable energy sources for the study area.

The project study areas have seen the start of a participatory process for managing common energy resources. What is the advantage of this sort of process?

This process allows all stakeholders to participate in the early planning stage. Stakeholder meetings are scheduled for the beginning of 2015. Participatory processes are essential in order to increase and improve the democratic involvement and sense of belonging of the people living near with the natural resources in question. They are also important in managing and limiting the conflicts that can arise when decisions are made by a few individuals without informing citizens.

Can the results be compared with other pilot areas?

Each pilot area has its own special cases and needs, but there are some similarities. The Maritime Alps Nature Park can easily be compared with the park in Belluno province. The experts have in fact suggested similar energy planning strategies, in both cases issuing a positive opinion on the exploitation of hydropower and forest biomass. Another very similar case is the Triglav National Park. In fact, both areas are subject to quite strict legal constraints, with a significant environmental protection regime in place.

New hydropower potentials in the Northern French Alps

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Drinking water and waste water pipes networks can be used to produce hydropower. The examples from the pilot sites in the French Alps show how this can be done economically, by taking the environment into account and by avoiding conflicts of use.

In the French Alps, the most favourable sites for hydroelectricity production are already used. How can hydroelectricity still be used and developed at the local scale? The answer to this question developed within recharge.green was the use of drinking water and waste water pipes networks. For three pilot sites the company "Tenevia", on behalf of the Mountain Institute, developed and tested an integrated spatial decision support system. Based on an analysis of the pilot sites and the water availability the hydroelectric potential was modelled for different development scenarios.

At the pilot site "Megève", the municipality is using the drinking water pipes to additionally produce hydropower when tourist frequentation is the highest. Also in the municipality of Valloire touristic frequentation is highly variable and energy production from waste water pipes is managed accordingly.

Further information: <http://www.institut-montagne.org/index.php/nos-realizations/recherche-action/299-recharge-green-balancing-alpine-energy-and-nature>, <http://www.recharge-green.eu/project/policy-testimonials/> (video on the Megève pilot site), <http://www.recharge-green.eu/pilot-areas/northern-french-alps/>



The Mountain Institute presented a poster on its activities in recharge.green at the 4th International Congress of Integrated Management in Upstream Watersheds and won the 1st prize for the best poster. (c) Institut de la Montagne

“Biodiversity plays a growing role in renewable energy”

Jan 15, 2015



Interview with Matteo Cesca of ARPAV (c) Matteo Cesca

Interview with Matteo Cesca of ARPAV, recharge.green project observer

1. What motivated ARPAV (the Veneto Regional Agency for Prevention and Environmental Protection) to become a project observer?

ARPAV decided to become a project observer, working in particular with the Veneto region, in order to ensure the sustainable management of water resources, exchanges of data relating to watercourse flows, databases on hydroelectric plants and technical information on hydroelectric power. ARPAV also benefits from the new results that will be obtained from the project.

2. What do you think might be your contribution to the project?

ARPAV can distribute and utilise the results of recharge.green and previous European projects in which the Agency was a partner. We can also disseminate our knowledge of both the scientific & technical and the administrative aspects of hydroelectric power, renewable energy and water resource management.

3. Does the production of renewable energy also take biodiversity- and landscape-protection in the Alps into account?

Experience with previous European projects makes clear that biodiversity and landscape play a growing role where renewable energy production is concerned. Many recent projects have provided concrete tools for the inclusion of indicators related to environment and landscape in the decision-making process. The decision support systems that are being developed by the recharge.green project are one example.

4. How do you see the impact of renewable energy production on ecosystem services in the Alps?

The impact of renewable energy on ecosystem services in the Alpine space should be considered in its entirety, both during the construction of the plants, and – even more so – when considering the direct and indirect costs caused to the environment and landscape as a whole. A cost-benefit analysis that also considers possible impacts on ecosystem services must be carried out.

Save the date for the final recharge.green conference

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The international conference for recharge.green will take place in Sonthofen, Germany on 20-21 May 2015. It is aimed at decision makers, representatives of administrations, energy companies, NGOs and anyone else interested in the topic to see and discuss the results of the project. The conference programme will be made available at www.recharge-green.eu early in 2015.

Further information

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