recharge green

BALANCING ALPINE ENERGY AND NATURE

Alpine SPACE

EUROPEAN TERRITORIAL COOPERATION

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## Why are scenarios so important for energy policy?

Jun 25, 2014

As a partner in the recharge.green project, IIASA's role is to provide modelling tools and support the project consortium in the development of scenarios that can help define possible futures. Scenarios are a valuable tool for researchers and policymakers to come to optimal solutions in places where there are many factors driving a decision, some of which may conflict with each other. In the case of renewable energy in the Alps, we must take into account not only a growing need for energy, but also values that lie in biologically intact ecosystems and their services. By carefully crafting scenarios that take all these factors into account, we will produce information that policymakers can rely upon to make well thought-out decisions that provide for ecosystem protections, and better quantify both the costs and benefits related to different types of renewable energy production in the region.

Florian Kraxner, IIASA, leader of the work package „Economic dimension"

## A view into the future of energy

Jun 25, 2014

When politicians decide on future uses of renewable energy in the Alps, there are consequences: For nature, if new plants have a negative impact on protected areas; for energy production costs, if new plants can only be built far from settlements. Scenarios help to compare different possible paths, and what their consequences might be.Members of the recharge.green project are discussing scenarios for the potential of renewable energy in the Alps. Researchers from IIASA and EURAC presented their latest research results. Four main scenarios will be used to explore the costs and benefits of various policy choices.

- Baseline scenario: assumes current energy consumption and fossil fuel prices
- 10% increase scenario: Assumes a 10% increase of renewable energy production from baseline
- 100% renewable energy: Maximum contribution of renewable energy from the Alps to a 100% renewable region by 2050, reducing all fossil and nuclear energy use in the region to close to zero over the next decades.
- Full protection scenario: Assumes full protection of parks and other important biodiversity areas, as well as ecosystems (and associated services) to be based on important connectivity area maps.

The scenarios will be further expanded with sub-scenarios that explore the potential mixes of wind, solar, hydro, and biomass power potentials. These sub-scenarios include limitations that have been defined by consulted stakeholders. For example, wind power mills will be placed at a minimum distance from settlements, solar power will exclude flat (highly productive) agricultural areas, hydropower would also explore increased efficiency of existing plants as well as new small and medium-sized plants, and biomass scenarios would explore different forest management options.

## Dialogue between population and project team

Jun 25, 2014

How does the production of renewable energy affect a specific area? And how much space is needed to cover personal energy consumption with renewables? Around 300 visitors discovered the answers to these questions during the "Long Night of Research" in Vorarlberg, at the recharge.green information stand.Visitors were able to calculate their personal energy consumption in terms of home use and transport using an online program. The program also indicates the surface area needed to cover the calculated energy demand through the production of

energy from biomass, wind energy and photovoltaic sources.

The “sample hectare” method illustrates how the production of renewable energy may affect a given sample area. Visitors ran through various usage scenarios on questionnaires and discussed them with the project team. The scenarios ranged from the installation of photovoltaic systems outdoors to the establishment of a wind power plant in a forest area and more intensive forest management (“energy forest”). The various productions of renewable energy were considered on the basis of selected ecosystem services and local factors.

The crucial insight gleaned from the discussions with local people was that the sample hectare method works. Completion of the questionnaires by citizens, however, requires a prior introductory explanation by experts. The project information stand was organised by the Vorarlberg Regional Development Agency.

For further information contact Markus Berchtold-Domig.

## Cost-benefit analysis for renewable energy

Jun 25, 2014

The loss of ecosystem services comes at a cost for society. The goal in recharge.green is to quantify this cost in the pilot areas, in order to carry out an effective and comprehensive analysis of renewable energy use.

Through different environmental goods evaluation techniques, current monetary values of ecosystem services are assessed at a local scale. In addition, local experts in environmental and energy issues are surveyed through questionnaires, in order to understand the expected loss in ecosystem services values due to renewable energy exploitation. The information provided by these activities allows a cost-benefit analysis for the renewable energy sector, in which not only the costs related to power plant implementation are considered, but also the costs of damaging nature.

The recharge.green project provides energy strategies not only for pilot areas, but also for the entire Alpine Arc, which is too large in scale and has too many differences to undertake a complete economic analysis is not possible. At this level ecosystem services will be included as constraints to energy production. The Alpine territory will be ranked based on its importance for ecosystem services conservation, in order to identify the most suitable areas for renewable energy exploitation.

Ecosystem services analysis is an objective of work package 4, developed by a joint collaboration of the University of Innsbruck, the European Academy of Bozen/Bolzano, and the Agricultural Research Council – Forest Monitoring and Planning Research Unit in Trento.

## Maintaining ecosystem services in Triglav National Park

Jun 25, 2014

The Triglav National Park is home for rare and endangered plants and animals, a place for recreation, and has extensive forests offering protection from natural hazards. In addition, the Park delivers biomass from wood. How can Triglav’s renewable energy sources be sustainably managed? This is the challenge the Slovenian partners are facing in the recharge.green pilot area. Their objective: make forest owners, administrations, tourism providers and other key stakeholders more aware of the importance of sustainable use of natural resources for renewable energy production. To achieve it, they rely on scientific research and information work.They have already developed scenarios to illustrate some possible impacts of woody biomass extraction. Inventories of plants and animals are made to estimate the impact of biomass use on biodiversity. Data are fed into a decision support system that helps to explain the pros and cons of biomass use and its impact on ecosystem services.

The results are discussed with stakeholders in meetings. The first meeting in a series was a workshop on multi-objective forest management (see next article). In June, Triglav National Park will hold a summer school for students.

## Forests in Slovenia: multiple talents to be handled with care

Jun 25, 2014

To preserve the biodiversity of forests and the numerous services they provide to society, planning and management must be well thought out. In a recent workshop, scientists, forest managers, policy makers and other experts discussed how to go about it. The 66 participants evaluated the current approach to multi-objective forest management in Slovenia. The main outcomes:

To reduce biodiversity loss and to avoid contradictory management objectives, careful planning and appropriate management are needed. Biomass can be extracted from protected areas when this is harmonised with other uses of forests.
The designation of forest function areas and protected forest areas is important. It allows for collaboration in spatial planning, raising awareness on the importance of forests, the evaluation of ecosystem services, etc.

Clearer management guidelines should be elaborated involving all stakeholders, such as forest owners, nature conservation agencies, local communities, and the public.
As a management tool, forest function maps should be simplified, representing the most important ecosystem services in the area.

The workshop “Multi-objective forest management: forest functions, ecosystem services and priority areas” was organized by Slovenia Forest Service in collaboration with the Department of Forestry and Renewable Forest Resources (University of Ljubljana) in December 2013.

Further information: http://blog.recharge-green.eu/workshop-on-local-biomass-production-and-multi-objective-forest-management/

## “Today, we should also look at biodiversity conservation, but not forget that the production of energy is useful for society.”

Jun 25, 2014

Interview with Stefano Basso from EAWAG and observer of the project recharge.green

1. After your participation in the Mid Term Conference of recharge.green in November 2013 you asked to become an observer, representing the Swiss Federal Institute of Aquatic Science and Technology, EAWAG. What was your motivation?

I have been working on the topic of hydropower production for some years now. I’m trying to develop new tools for stakeholders and gain new insights. The recharge.green project is a good opportunity for me to get in touch with stakeholders, such as public authorities, companies and citizens, to propose these new tools and to get feedback on future research needs.

2. What can you contribute?

I can add to the technical and scientific understanding of the issues, which may be useful to facilitate a dialogue between all stakeholders on the basis of an objective evaluation. Also, I can bring in experience, knowledge and technical tools that can help to explain to producers that their investment is safe and profitable, but at the same time improve the situation of the river.

3. What is your assessment regarding hydropower production in the Alps?

This depends strongly on the area you are considering. There is a huge margin of improvement and there are actions in this direction. I believe that a scientific evaluation of water releases from reservoirs and of different management strategies for hydropower plants is very important.

4. Does hydropower production also consider the protection of biodiversity?

Generally speaking, no. The regulation system, which is trying to protect biodiversity, is based on a minimum flow discharge. This has been shown not to be able to guarantee the protection of biodiversity.

5. How do you see the negative effects of renewable energy production on ecosystem services?

Renewable energy production has negative effects on some ecosystem services, among other reasons because energy is taken from ecosystems. At the same time, production of renewable energy is an important ecosystem service itself. In the past, we made the mistake of making the production of energy our main focus. Today, we should also look at biodiversity conservation, but not forget that the production of energy is useful for society.

## Save the date: Embedding biodiversity – international final conference for the greenAlps project

Jun 25, 2014

Ensuring that biodiversity remains intact in the Alps will require long-term landscape planning, new ways of co-operating and improved measures from local to European level. Alpine regions, protected areas and NGOs have all set themselves the goal, in the context of the greenAlps project, of improving the framework conditions for a sustainable and efficient European environment policy. How can results of projects such as recharge.green regarding biological diversity be used and communicated in the long term? How can the new EU funding programmes contribute to maintaining biodiversity? Partners will be discussing these and other questions and presenting the results of the greenAlps project at the final conference to be held on 13-14 October 2014 in Chambéry, France.

The event is open to the public and we invite you to join the discussion. The programme will be published in the summer. For more information on the project see www.greenalps-project.eu. greenAlps is co-financed by the European Regional Development Fund in the Alpine Space Programme INTERREG IV B.

## New publication: International conference on balancing renewable energy and nature in the Alps

Jun 25, 2014

Local residents need to be involved at all stages of the process when planning renewable energy development. This is one of the central outcomes of the recharge.green mid-term conference. All discussions at the conference are now summarized in a report. The conference took place in Brig, Switzerland, from the 12 – 13 November 2013.

Download: http://www.recharge-green.eu/infoservice-2/events/international-conference/