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Upper Rhine Cluster for
Sustainability Research
(URCforSR)

Albert-Ludwigs-University of
Freiburg, Tennenbacher Str. 4
79098 Freiburg

info@sustainability-upperhine.info
www.sustainability-upperhine.com

 **Dear cluster members,
dear friends of sustainability research on the Upper Rhine,**

Our first newsletter of the year 2020 is all about our current projects. The pooling of the expertise of all the universities involved in the Upper Rhine Cluster for Sustainability Research - University of Strasbourg, Mulhouse, Basel, Karlsruhe, Koblenz-Landau and Freiburg - creates exciting and extremely diverse cross-border activities. Check it out for yourself and read further! Have fun with the insights into our sustainability research.

Your URCforSR team from Freiburg

Call for "Living Lab Climate"



IDEAS FOR AN EMISSION-FREE PILOT REGION FESSENHEIM

As stipulated in the Aachener Treaty and the Fessenheim territory project, the French-German Council of Ministers agreed to the joint development of the area around the Fessenheim nuclear power plant after its decommissioning. One of the goals is to make the region a pilot region for a greenhouse gas emission-free, innovative economic region on the basis of a sustainable energy and transportation concept while promoting the creation of added value and employment. As this is the endeavour of all actors, it offers the unique opportunity to develop the necessary transformation concepts and strategies bi-nationally as part of a living lab and to assess their feasibility in the long term with regard to the upcoming transformation.

Within the framework of the call "Living Lab Climate" of the Ministry of Science, Research and the Arts Baden-Württemberg, our preliminary project proposal for an emission-free pilot region on the basis of sustainable transformation pathways got accepted to stage two. The aim of this living lab called "**Living Lab CO2-neutral innovation region Upper Rhine (CO2Inn0): The conception of an emission-free pilot region on the basis sustainable transformation paths for energy and mobility**" is to design viable transformation paths for sustainable energy and mobility systems, eco-industries and innovation concepts to demonstrate the networking of society, business and research and to work out concrete steps for their implementation – together with citizens and stakeholders from science, business, politics, administration and civil society on the French and German sides. Innovative ideas for future-oriented research and development are to be developed using the existing research competence of the existing research network and the existing location in Fessenheim.

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Living Lab CO2Inn0: the conception of an emission-free pilot region on the basis sustainable transformation paths for energy and mobility (2nd stage of proposal development)

Consortium Lead: Prof. Dr. Barbara Koch, Albert-Ludwigs-University of Freiburg, Chair of Remote Sensing and Landscape Information Systems (FeLis); Contact via: Anna Ledford, anna.ledford@felis.uni-freiburg.de

RES-TMO



NEW ENERGY FOR 3 COUNTRIES

The transition to **renewable energy sources (RES)** is regarded worldwide as a major challenge for meeting climate policy goals. However, the planned phase-out of nuclear and coal-fired power plants and the high proportion of renewable energies produced in the **Upper Rhine Trinational Metropolitan Region (TMO)** pose challenges, especially with regard to the security of energy supply and the flexibility of systems.

The solution lies in the complementary use of energy systems and the improvement of storage capacities. The partners of the Interreg project RES-TMO are developing an energy concept for the Upper Rhine region, in which cross-border potentials are efficiently exploited.

This concept, which is also a "Roadmap for an integrated RES-based energy market in the Upper Rhine", will contain scenarios, tools and recommendations for action for the optimal cross-border use of complementary potentials on the basis of optimised transnational network structures. The aim is to identify and dismantle border-related barriers to increase the RES share in the energy mix, to make optimum use of the complementary generation, demand and storage potentials for RES and thus to achieve synergy effects.



Concepts for an Integrated, Efficient and Sustainable Energy Supply and Storage in the Upper Rhine Region

Lead Partner: Albert-Ludwigs-University of Freiburg

Project Lead: Prof. Dr. Barbara Koch, Chair of Remote Sensing and Landscape Information Systems (FeLis)

Project Management: Ines Gavrilut

Contact: ines.gavrilut@felis.uni-freiburg.de . www.res-tmo.com

SuMo-Rhine



SUSTAINABLE MOBILITY

Mobility is a central factor in society, both economically and socially. In its current form, however, it contributes to approximately 30% of the national harmful CO₂ emissions in France and Switzerland and approximately 20% in Germany.

The aim of the **SuMo-Rhine (Promotion of Sustainable Mobility in the Upper Rhine Region)** project is to support cities and municipalities in the Upper Rhine region in setting up and expanding cross-border sustainable transportation systems.

The cross-border transportation systems existing in the Upper Rhine region are comprehensively analysed and evaluated using the example of the conurbations of Strasbourg and Lörrach. The project partners are developing a novel "decision support system". Via web application, the system makes measurable and comparable indicators for sustainable mobility accessible. With this application cities, municipalities, mobility offices and mobility service providers shall be able to identify the potential for improvement of the transportation services with low environmental impact and to increase market share of alternative modes of transportation much more precisely than before.



Promotion of Sustainable Mobility in the Upper Rhine Region

Lead Partner: French-German Institute for Environmental Research (DFIU), Karlsruhe Institut of Technology (KIT)

Project Lead: Dr. Kira Schumacher, DFIU

Project Management: Nora Baumgartner

Contact: nora.baumgartner@kit.edu . www.sumo-rhine.com

SMI



A NEW SMART METER

The **Smart Meter Inclusif (SMI)** project: **artificial intelligence to support the proactive control of energy consumption by end users** is part of a perspective that combines artificial intelligence and micro-social analysis.

One of the aims of the project is to develop a new smart meter that is more efficient, safer and better accepted by consumers. Users of the smart meter would be able to record and predict the consumption of their electrical devices. The information of the consumers, which is forwarded to the energy supplier, is made anonymous.

In parallel, the project will assess the suitability of new techniques to improve the security level of the smart meter in a very heterogeneous network.

Ultimately, the project will lead to the development of a laboratory prototype that aims to optimize individual energy management by the user.

Finally, cooperation between the partners at cross-border level will make it possible to propose recommendations for a common market that take into account the advantages and disadvantages of the three countries and promote the development of businesses internationally.



Artificial intelligence to support the proactive management of energy consumption by end users

Lead Partner: Université de Haute-Alsace - UHA

Project Coordination: Djaffar Ould Abdeslam, IRIMAS – Institut de Recherche en Informatique, Mathématiques, Automatique et Signal

Projekt Management: Julie Vuerli
Contact: djafar.ould-abdeslam@uha.fr . www.smi.uha.fr

NAVEBGO



PROTECTING GROUNDWATER

Biocides used on building facades to protect against algae and fungal attack, enter the urban water cycle and finally reach the groundwater. In the **NAVEBGO** project – **Sustainable reduction of biocide input into groundwater in the Upper Rhine region** – a team of scientists is developing concepts on how this biocide input can be sustainably reduced in the Upper Rhine region.

In cooperation with the respective city administrations, existing input risks are identified in the cities of Landau, Strasbourg and Freiburg and, based on this, effective measures for input reduction are compiled. Structural precautions counteract algae and fungal infestation without the use of biocides and are therefore relevant for architects as early as the building planning stage. Alternative products for facade protection are tested for eco-toxicological safety in the project and are available to craftsmen and do-it-yourselfers. Finally, the project is investigating the most important routes of biocide entry into groundwater in order to propose effective technical measures to minimise the input. These can then be implemented directly by the municipal authorities.



Sustainable reduction of biocide input to groundwater in the Upper Rhine

Lead Partner: Albert-Ludwigs-University of Freiburg

Project Lead and Coordination: Prof. Dr. Jens Lange, Chair of Hydrology

Contact: jens.lange@hydrology.uni-freiburg.de .
www.navebgo.uni-freiburg.de