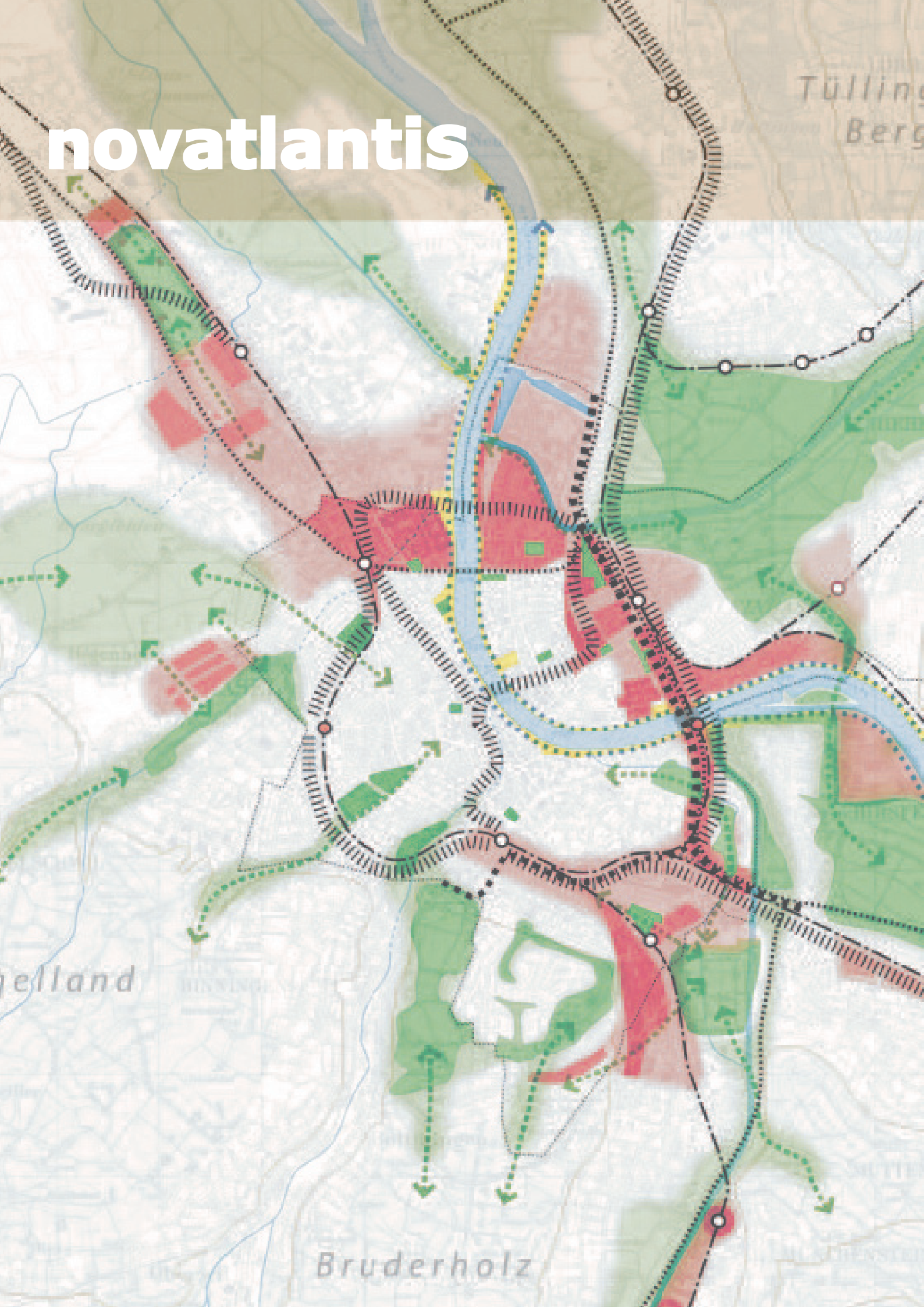


novatlantis



novatlantis

Sustainability at the ETH Domain – Promotion of Transdisciplinary Science

Sustainability at the ETH domain
novatlantis



Scope of activities

novatlantis – Sustainability at the ETH Domain – is the interface between research (ETH Zurich, EPFL, PSI, WSL, Empa and Eawag) on the one hand and industry, society and the public sector on the other. The aim is to contribute towards the sustainable development of our society whilst taking the ecological, economic and social dimensions of sustainability into account. Broad-based pilot projects are used to promote the transfer of the latest research results for the sustainable development of cities, municipalities and regions. The basis for this is the initiation of transdisciplinary projects in close collaboration with scientists from the ETH Domain and other research institutions, as well as with authorities and companies.

The *novatlantis* team developed very positively in 2014. Dr sc. techn. ETH Anna Roschewitz took over the helm as Managing Director and Agnieszka Hamburger-Nowakowska, who holds an MSc in business administration, joined the team as a new assistant to the management.

The major milestones in the 2014 financial year were the activities and projects in the Zukunftsregion Novatlantis Argovia and for the 2000-watt society in the pilot region Basel. The *novatlantis* Bauforum «City Vision 2050» on the neighbourhoods of the future, which was held in Lucerne in collaboration with the Lucerne University of Applied Sciences and Arts and the Canton of Lucerne for the first time, was met with great interest. Moreover, *novatlantis* boosted its PR work – via its new homepage with up-to-date information and an appealing appearance, and through stands at events or sponsoring a sustainability occasion.

Zukunftsregion Novatlantis Argovia

Initial situation

The Zukunftsregion Novatlantis Argovia was founded in 2013. It stems from a joint initiative of the Canton of Aargau, the energy supplier IBAarau AG, Regionalwerke AG Baden, AEW Energie and *novatlantis* – Sustainability at the ETH Domain. In collaboration with the municipalities in the Canton of Aargau, the Zukunftsregion Novatlantis Argovia is looking to make a contribution towards the energy transition, especially in the fields of energy, mobility and buildings. As a result, the partners joined forces to promote sustainable development. They realise pilot projects, encourage dialogue within the network of municipalities and help disseminate knowhow and experience in energy and efficiency-related topics throughout the region.

The new *novatlantis* team

In May 2014 Dr Anna Roschewitz became Managing Director at *novatlantis*. Her predecessor Urs Elber, who had held the position since the beginning of 2012, has joined Empa as director of the Research Focus Area Energy and continues to supervise the Competence Center Energy and Mobility (CCEM) at the Paul Scherrer Institute (PSI).

Anna Roschewitz completed a doctorate in environmental economics at ETH Zurich and was co-director of the Economics Department at the WSL from 2000 to 2007. She was also head of environmental and health pro-

tection, and environmental and energy city officer in the city of Winterthur until the end of 2013.

In March 2014, *novatlantis* and CCEM gained a qualified expert in the person of Agnieszka Hamburger-Nowakowska, who holds an MSc in business administration specialising in public and non-profit management. In her capacity as assistant to the management team, she is in charge of exacting project correspondence, accounting, reports, webpage design, and event management.

The PSI remains the leading house for *novatlantis*.



Managing Director

Dr Anna Roschewitz

Project Partners

ETHZ
EPFL
PSI
Empa
Eawag
WSL
Pilot Region Basel
Zukunftsregion Novatlantis Argovia

Project Websites

novatlantis.ch
2000watt.ch
novatlantis-argovia.ch



novatlantis

Sustainability at the ETH Domain – Promotion of Transdisciplinary Science



Figure 1:
The municipalities of the Zukunftsregion
Novatlantis Argovia.

The partners regard the Zukunftsregion Novatlantis Argovia as a practical laboratory for sustainability. New and established research results and technologies should rapidly find an application, tailored to the individual parameters and needs in the cities and municipalities. Please visit the website for further information: www.novatlantis-argovia.ch

Potential analysis

In 2014 a potential analysis was conducted in twenty interested municipalities in a bottom-up approach. The aim was to obtain an overview of how the topic of sustainability with a focus on energy, mobility and buildings is rooted in small, medium-sized and large municipalities in the Canton of Aargau. This should enable the identification of promising pilot projects – explicitly for different community types and needs, and for network solutions. A two-pronged approach was adopted to compile the information: on the one hand, as structured, openly conducted interviews with representatives of the municipalities on location to gain «an impression of the mood» in the muni-

palities; and on the other hand as a collection of key quantitative figures on energy, mobility and buildings.

Twenty municipalities – Aarau, Attelwil, Baden, Bottenwil, Erlinsbach, Gränichen, Hirschthal, Kölliken, Muhen, Oftringen, Reitnau, Schöftland, Seon, Suhr, Unterentfelden, Wiliberg,

Wohlen, Wohlenschwil, Zofingen and Zufikon – took part in the potential analysis. These communities have around 130,000 inhabitants, which corresponds to approximately 20 % of the canton's population. With populations ranging between 170 and 20,000 citizens, both small, rural communities and larger towns could be illustrated.

A summary of the results of the potential analysis reveals that the data bases for the determination of relevant key figures in the municipalities are very different. For a uniform calculation of an energy and CO₂ footprint per municipality, the collection of data would have to be developed further for the majority of the districts. Moreover, key qualified and quantified figures on the expansion potential of renewable energy sources are often lacking.

Based on discussions in the communities, it is evident that sustainability is actively being processed as a political topic in virtually all municipalities. Important projects tend to be launched by the larger municipalities as they usually have greater financial resources and

more favourable organisational structures at their disposal. In some smaller municipalities, however, this is compensated with marked self-initiative. There is synergy potential in the collaboration between the communities, in the development and use of effective communication tools and in the organisation of financial resources for the realisation of projects.

The discussion on potential in the energy sector mostly focuses on the renewable energies photovoltaics, district heating and biomass, and the implementation of LED-based lighting. An interest in the use of wood and small-scale hydropower is repeatedly expressed. The topics of wind energy, geothermics and power-to-gas are only mentioned occasionally.

In the field of mobility, two types of municipality with very different challenges can be ascertained: cities and rural centres refer to overcoming through-traffic, the creation of 30 km/h-zones and the further development of combined mobility (incl. slow traffic) as current challenges. Smaller municipalities in rural development areas, however, primarily raise the issue of poor connections to public transport and the resulting high degree of motorisation. In both cases, solution measures present a challenge because they concern a complex transport system and/or require changes in behaviour.

The topic of Minergie is frequently mentioned as a benchmark in the interviews on sustainability in the building sector. In particular, the renovation of



novatlantis

Sustainability at the ETH Domain – Promotion of Transdisciplinary Science

the municipal administration’s own building is frequently discussed. Often, scarce financial resources are a major obstacle for an extensive renovation or new construction. Supporting private building contractors on energy-efficiency measures or renewable energies also plays a key role in the discussions.

The Zukunftsregion Novatlantis Argovia records the challenges and needs of the municipalities and has developed an initial portfolio of project proposals, which examine a number of the needs mentioned. Various pilot projects are currently being reviewed and finalised together with the

interested municipalities in the network.

The aim for 2015 is to launch an exchange of experience among the participating municipalities on the one hand and realise pilot projects on the topics of energy, mobility and buildings on the other.

Basel as a pilot region for the 2000-Watt society

Review

More than ten years ago, novatlantis – Sustainability at the ETH Domain – developed a visionary model of a sustainable energy future with the 2000-Watt society. Pilot regions were sought that were willing to put the latest research results into practice. Conversely, these regions were also supposed to take concrete questions to the research institutes. The Canton of Basel-Stadt agreed to this collaboration. Thanks to a network of science, industry and administration, a «practical laboratory for sustainability» with different pilot and demonstration projects in the fields of construction, mobility and spatial development took shape.

granted another loan of CHF 2.6 million for 2013 to 2016. As a result, the broad-based network that has been established between research institutes, companies and administration in recent years can remain active.

In collaboration with the research institutes and in consultation with the Construction and Transport Department, the Department of Economics, Social Affairs and Environment (WSU) in charge identified topics to be developed further in the pilot region. As P+D projects, they contribute towards the transfer of research and development into practice.

Project overview

For the current period from 2013 to 2016, eleven projects were selected in the topic areas of construction, renewable energies and vehicles.

They are designed to highlight how Basel can continue on its path towards the 2000-Watt society. The Office for Environment and Energy of the City of Basel, the Institute of Energy in Construction at the University of Applied Sciences and Arts Northwestern Switzerland (FHNW), novatlantis and Sustainserv GmbH are responsible for realising the projects.

Projects in the fields of construction and renewable energies:

- Prefabricated Facade Modules
- High-Performance Insulating Plaster
- Solar Facades
- Network Optimization with Buildings
- Local Electricity Storage

Projects in the field of vehicles:

- Hydrogen Service Stations – for a small fleet of fuel-cell vehicles
- Hydrogen Admixture Natural Gas

The Great Council approved various loans to the tune of CHF 3.9 million between 2003 and 2012 to initiate and promote «lighthouse projects». Thanks to these funds, a vast range of pilot and demonstration projects (P+D projects) were developed in the canton. The Great Council



Figure 2: View over a PV construction on the roof of Messe Basel with city skyline in the background.



novatlantis

Sustainability at the ETH Domain – Promotion of Transdisciplinary Science

- Electromobility – public, battery-operated electric buses
- Natural Gas Hybrid – vehicle concept for various vehicle classes

Other projects:

- Local Energy Hub
- River Water Usage – Thermal Use of the Rhine.

Eleven projects were planned in more depth and their feasibility studied in 2013.

Current project status

Seven projects were launched in 2014; pilot studies exist for three of them. The project «Prefabricated Facade Module» has not started as an investor is yet to be found.

The projects «High-Performance Insulating Plaster» and «Solar Facades» have progressed well and are on the

brink of completion. Smaller projects were initiated for «Network Optimization with Buildings» and «Local Storage of Electricity». In the building sector, the pilot region did not succeed in realizing a large-scale project. The study on the topic of the «Thermal Use of the Rhine» has almost been completed and is due to be presented in the spring of 2015.

The project «Local Energy Hub», where the City of Basel's electricity, gas and heat grids are being modelled and optimized at neighborhood level, will reveal possible business models for the energy future based on scenarios. A promising collaboration with the Industrielle Werke Basel (IWB) is underway.

For the projects «Hydrogen Service Station» and «Hydro-

gen Admixture Natural Gas», a key partner is due to make decisions in early 2015 that will influence the detailed planning. While the other mobility projects «Electromobility» and «Natural Gas Hybrid» have been hit by delays, they are due to be completed on schedule.

The involvement of external partners across the board in the projects poses a major challenge. The IWB and the Basler Verkehrsbetriebe (BVB) will play a key role here. A positive cooperation has developed with both.

Two other key partners for the mobility projects from the ETH Domain are the Paul Scherrer Institute PSI and Empa, the Swiss Federal Laboratories for Materials Science and Technology.

Series of events – the *novatlantis* Bauforum «City Vision 2050»

The *novatlantis* Bauforum – platform for sustainable construction – is a series of events where the latest developments from the science sector and the practice of sustainable building are presented and discussed. It is geared towards those responsible for the real estate portfolios of private and institutional investors, pension funds, authorities, building contractors and architecture and planning firms.

At the 2014 *novatlantis* Bauforum in Zurich and Lucerne, experts spoke about current construction topics and responded to questions from the specialist audience. Poster and product exhibitions in the form

of an innovation apéro promoted the knowledge transfer from research to practice and offered an opportunity for networking.

The talks, posters and photographs from the Bauforum can be downloaded from www.novatlantis.ch. *novatlantis* also reports on every event in form of brief articles published in journals and on the homepage. Various sponsors from the private sector and administration supported the *novatlantis* forums financially.

novatlantis Bauforum Lucerne

For the first time, a *novatlantis* forum was held in Lucerne in collaboration with the Lucerne University of Applied Sciences and Arts and the Canton of Lucerne in February 2014 and was met with great interest.

On the topic of «Neighborhoods of the Future – Actors, Funding Models, Examples and Options for the Future», experts explained their findings on cities with short distances, condensed building, networked energy supply and the use of the public transport infrastructure. Different perspectives yielded the common

novatlantis

Sustainability at the ETH Domain –
Promotion of Transdisciplinary Science

denominator that sustainably planned neighborhoods and development areas reduce the need for resources and energy in existing residential areas and improve the quality of life.

Thanks to the success of the first *novatlantis* Bauforum in Lucerne, which can be deduced from the number of participants and the amount of positive feedback in the questionnaires returned, the three partner institutions decided to continue their collaboration and organise further events in Lucerne in years to come.



Figure 3:
Bauforum Luzern, 20.2.2014.

novatlantis Bauforum Zurich

The by now well-established *novatlantis* Bauforum Zurich was held in August 2014. Under the banner of «Housing Quality in the Dense City: More Than Energy and Resource Efficiency?» it focused on aspects of sustainable housing

quality in the sensitive field of concentration, energy and resource efficiency. It especially highlighted the interaction between humans and the constructed environment from various national and international perspectives.



Figure 4:
Bauforum Zurich, 26.8.2014.

Public relations work

In 2014 *novatlantis* laid the foundation for professional and successful PR in the form of a CD manual, a new homepage and an active external profile.

The new CD manual includes business letters, envelopes, enclosure cards, email signatures, power point presentation templates, diverse report templates and a logo redesign, and is a requirement for a modern and uniform corporate identity.

In the autumn of 2014, the new responsive homepage could be activated, which showcases itself to the outside world through current contents

and an appealing appearance, and enables efficient management internally thanks to a content management system.

novatlantis launched a partnership with the association «Filme für die Erde» for the national film festival in September 2014 with the aim of transferring knowledge and creating an awareness of sustainability. Thanks to a national presence in the form of advertisements and logos at the festival and *novatlantis* DVDs with festival films on the three topics of climate change, the scarce resource land, and urban farming, *novatlantis* managed to address a new tar-

get audience, namely multipliers, opinion leaders and those responsible for sustainability in the cities, cantons and companies.

Dr Anna Roschewitz, Managing Director of *novatlantis*, and Dr Jörg Roth, Coordinator of Swiss Competence Center for Energy Research (SCCER) Heat and Electricity Storage, were represented at the *Swiss Green Economy Symposium: Nachhaltige Erfolgsrezepte für die Schweiz* with a joint stand and were able to present the two organisations to the interested public and cultivate contacts with industry and politics.

Websites

More information about the projects in the pilot region Basel is available on www.2000-watt.bs.ch