

Panel Presentation: “Greening the economy”

Dr. Bernd Dallmann
FWTM Freiburg Management and Marketing
FWTM GmbH & Co.KG
Rathausgasse 33
79098 Freiburg
Germany

“On the road to 100% - the Green City Freiburg”

The Club of Rome is not alone in prophesying “The markets of the future are green”. The renewable energy sector delivers the engineering and expertise needed for an abandonment of atomic energy and the associated switch to sustainable energy sources. In the next ten years in Germany alone, the sector will invest a total of 235 billion Euro in systems for the generation of electricity, heat and fuels from renewable energies.

In terms of both economy and ecology, the city of Freiburg – in the southwest of Germany – has been successful in the application of renewable energies and environment-friendly solutions. A bundle of applied technologies enable the city to reach for sustainability: solar on rooftops, facades and on ground; biomass; combined heat and power, wind, hydro power on the Black Forest hills and a sophisticated waste management to name a few. The statistics show, that in the last 25 years, the City of Freiburg has been on a positive path: The number of inhabitants has risen by 26 % to 225.000, the number of employees by 29 % to 152.000 (incl. state employed, self-employed) and, by 2009, the CO₂ – emissions per capita could have been decreased by 26 % compared to the level in 1992. These numbers demonstrate that Freiburg could achieve green growth, which puts the city on a leading position within Germany at least.

Favorable conditions, such as a long history of “green thinking”, the high level of environmental awareness of the citizens, the city’s political priorities and a deliberate stimulation of the economy are the principal reasons behind Freiburg’s status as Green City. One of the success factors of Freiburg has been its special interplay known as the “Freiburg mix” of political, economic geographical and historic attitudinal factors. Since 1986, the city has been supporting the expansion of solar energy by funding specific projects, using its own

roof spaces and launching information campaigns – e.g. via one of the first solar registers on the internet. By recognizing the opportunities offered by the renewable energy in terms of climate protection, the economy, and urban development early, Freiburg's pioneering and model projects have been rewarded with prizes and high visitor numbers to such groundbreaking constructions as the world's first energy self-sustaining solar building, the Heliotrope, the solar village created by the solar architect Rolf Disch, or the zero-energy houses of the Vauban neighborhood – and the world's first football stadium with its own solar plant. The local utility company, badenova, encourages the expansion of renewable energies with a number of programs and the innovation fund for water and climate protection. The City has dedicated itself to reduce carbon emission by 40% until 2030, and now is aiming to be 100% carbon-neutral by 2050. Climate protection needs international and national agreements and goals, but towns and regions can also act as pioneers and set examples for others to follow. Freiburg took climate protection seriously long before the issue was on the general political and economic agenda and, as a result, is nowadays considered as a role model far beyond Europe. In 1996, the city council resolved to cut by 25% Freiburg's CO₂ emissions by the year 2010. The successes achieved were remarkable. It introduced a package of measures which succeeded in making significant reductions, especially in the transport and energy sectors. Previously, nuclear powered electricity had provided 60% of the city's requirements – now it is cut to 4%. Since January 2011, the regional utility company, badenova, has been supplying green electricity to private customers as standard. Over 50% of the city's electricity is generated by combined heat and power plants. However, though the city did not achieve its original aim of 25% less greenhouse gas by 2010, it saw this as an incentive rather than grounds for mute acceptance. In the summer of 2007, the city council decided to proceed with its climate protection concept and raise its sights even higher. Now there was to be 40% less CO₂ by the year 2030 - admittedly an ambitious goal, but not unrealistic, given improvements in recent years in the underlying national and international conditions for climate protection. The city is currently working with the reknown Oeko-Institut on a strategy to achieve climate neutrality by the year 2050. A local climate protection policy must rest on genuine commitment to realistic, political and financial action. Since 2008, 10% (1.2 million Euro) of the concession dues paid to Freiburg by the regional utility company badenova AG has been invested in climate protection projects, especially in the transport and building sectors. Targeted public awareness campaigns have been launched to mobilize the city's residents. The CO₂LIBRI and CO₂ Diet climate campaigns call on all Freiburg's residents to play their part in cutting CO₂ emissions. The successful series of events entitled 'Sustainability as the Art of Living' lives on in the project '200 Families Proactively Protecting the Climate'. For a

whole year, Freiburg residents can experiment with creating greater quality of everyday life through climate protection, fitting them out to be ambassadors for sustainability.

Next to addressing the resident's consumer behavior, the main focus continues to be energy savings, energy efficiency (through combined heat and power) and the wide use of renewable energies. Apart from making progress in these sectors, cooperation, especially with industry, commerce and trade, will be promoted. Since 2010, the City of Freiburg has been making the ECOfit program available to companies. This program entails training participating companies on environment management issues in workshops and on-the-spot teaching events. The 'Energy Efficient Restoration' incentive program has proved its worth. This makes available an annual grant of 450,000 Euro for the restoration or renovation of old buildings. The 'Energy Efficient City Master Plan' is a major factor in Freiburg's efforts to achieve its climate protection goals. A planning tool is being developed for the creation of efficient, decentralized energy supply solutions, such as combined heat and power. This master plan has three main planks: a heat register to collate basic data, a strategy aimed at expanding the use of combined heat and power and the utilization of it district by district.

Environment protection as an economic growth engine

In the region of Freiburg, the green economy, environment management and science play a significant role. With nearly 12,000 employees (i.e. almost 3% of all people in employment), in 2,000 business entities, this sector injects some 650 million Euro into the value-added chain, adding much to the positive image of the region. In the solar sector alone, the level of employment (currently over 2,000 and approx. 100 business entities) is three to four times the national average, according to a 2009 potential study. Centers of private and public research, such as the Fraunhofer Institute for Solar Energy Systems, act as centers of gravity surrounded by hundreds of spin-off companies, service providers and organizations.

Diversity of business is wide, reaching from PV- and solar thermal producers to consultancies and solar architects, zero-emission hotels and eco-financing institutions. In the field of environmental education alone, 700 new jobs have been created, including a university chair of environmental economics. Under the auspices of the Solar University, which since 2007 has enjoyed the status of Elite University, an interdisciplinary Center for Renewable Energies (CEE) and the international Renewable Energy Management (M.Sc.) master's degree course have been established. The new demonstration center, i.e. the Green Therm Cool Center of the Chamber of Skilled Crafts and its partners in industry and elsewhere in the region deliver innovative and modern technologies supporting both the theory and practice.

Industry sectors such as machine building are also benefiting from the continued upsurge in the solar economy, be it machinery for solar module manufacturing, precision printing machines for silicon wafers or hydro power generators.

As a result, more and more new value-added chains have been and continue to be created, ranging from basic research to technology transfer and worldwide marketing. The environment and the economy are not antagonists here. On the contrary, the environmental industry is the leading business sector in both city and region. Within the regional initiative "Cluster Green City Freiburg", FWTM as a local economic development agency, supported by the European Union and the state of Baden-Württemberg, creates cross-sector links between companies and institutions in the environmental and solar energy fields. Through its activities, the cluster acts as a platform for collaborations in the research and development of innovative green products and assists in positioning the region's products and services in the energy markets of the future. Early in 2012, the network had 130 member companies. The main areas of activity of the companies cover energy-efficient planning and construction, the utilization of solar energy and other renewable energies, environmental engineering and sustainable mobility.

In conclusion, Freiburg has taken political decisions and a bundle of measures to aim for a sustainable development of the city and the regional economy for now almost three decades. The statistics show that the development of jobs, tax income and number of businesses has been on the high road while merging ecology with economy. Consequently, Freiburg is globally regarded as one of the role models in greening the urban economy.