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Climate protection, added value and quality of life

Hybrid Center for Renewable Energy Sources to be implemented in Colombia

German companies SUNfarming and bioltec systems are developing training and demonstration centers for renewable energies, energy efficiency and sustainable mobility in Colombia together with local partners. Support is provided by Fördergesellschaft Erneuerbare Energien e.V. (FEE, Society for the Promotion of Renewable Energies) and Deutsche Energie-Agentur GmbH (dena, the German Energy Agency).

SUNfarming GmbH combines food and energy production in greenhouses with photovoltaic modules for double use of soil in its award-winning "Food & Energy" concept. Thanks to a self-powered drop irrigation system, water resources and fertilizers are spared. The system has been successfully tested on semi-arid soils. Utilization of diverse local biomass for an efficient combined generation of power and heat, renewable mobility and smart grid management are bioltec systems GmbH's specialties. The company upgrades commercial diesel engines so that they can be operated with various fuels based on sustainable biomass.

Both companies strive to likewise promote climate and resource protection, close regional value chains, provide energy, create jobs and ultimately increase quality of life sustainably. Both companies' competencies have been integrated into the design. Demonstration, training, application and technology transfer of approved high technologies are the key words for this "Colombian - German Hybrid Center". Additionally, it delivers the base for future joint research and development, including business models for commercial applications. The partners are bringing together different technologies for system integration, be it for on-grid or off-grid applications, that are adaptable to local conditions and customer needs.

With its concept of producing food and energy economically in one place while saving resources, SUNfarming is the winner of the Intersolar Award 2017, category "Outstanding Solar Projects". The jury of Intersolar, one of the world's most important solar fairs, was impressed by the global development potential as well as the great social benefits, including the creation of new jobs, of the system already in operation in South Africa.

In the Hybrid Center, electricity will be produced from sunlight and high-yield vegetables, fruits, flowers or medicinal herbs will be cultivated in greenhouses. Additionally, a charging infrastructure will be used to power electric bicycles and scooters. The electricity generated by means of photovoltaic and cogeneration will feed its own battery storage system. Subsequently, the energy can be used locally or be fed into the public power grid. Hot water from the cogeneration plant can be used for instance in sanitary installations, a kitchen or for subsequent treatment of the greenhouse products. If refrigeration is needed to cool fresh products or nearby premises, an additional unit can convert the waste heat into cold.

Locally produced vegetable oils are the fuel for bioltec's converted cogeneration plants and heavy vehicles (lorries, buses etc.) for cleaner urban or rural transport.

Both electric and vegetable oil powered vehicles will deliver the harvest to surrounding markets and consumers as a showcase application of renewable mobility.

The conversion system also works with fuel produced from used and refined kitchen oils (UCO - Used Cooking Oil) or fats. In a first step, virgin oils will be used, which are obtained directly from the plants for this purpose.

Back in 2005, the FEE (Fördergesellschaft Erneuerbare Energien e.V., Society for the Promotion of Renewable Energies) started to establish long-standing contacts in Colombia. This project, initiated by FEE, emerged out of this carefully cultivated network in the sectors of renewable energies, energy efficiency, storage and sustainable mobility, comprising research centers, highly innovative small and medium-sized companies and associations. These are the owners of best-practice technologies in Germany, ready for long-term cooperation with Colombian or Latin American counterparts.

"Transfer of technology and management competence is only one component of the package provided by the German companies", points out Wolfram Kangler, Managing Director of bioltec systems GmbH. An elaborated marketing and training concept will support the know-how transfer with the participants in Colombia – such as academics, sales partners, vegetable growers, visitors of all ages but also entrepreneurs, bankers, engineers or stakeholders from administrations or politics.

"We do not want to confront the people in the training centers with our concepts. Rather, people are always an integral part; it is 'their' hybrid center on the way to more climate protection, value creation and sustainable quality of life!" Kangler can also boast impressive figures and facts: "In synergy with SUNfarming, bioltec and our local partners, we can easily scale up this concept to a commercial plant with a capacity of several megawatts. With each megawatt capacity installed, we can create up to 50 permanent jobs and save several thousand tons of CO₂ every year!"

Recently, the "Hybrid Center" in Colombia has been successfully integrated into the worldwide Renewable Energy Solutions Programme, coordinated by Deutsche Energie-Agentur (dena) - the German Energy Agency - and co-financed by the German Federal Ministry for Economic Affairs and Energy (BMWi) within the German Energy Solutions Initiative. This programme focuses on developing long-term relationships by establishing sustainable energy systems.

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For further information, find a brochure “Centro Híbrido Colombo – Alemán” in the site www.bioltec.de and please refer to:

<http://sunfarming.de/es/blog/sunfarming-gana-el-intersolar-award-2017>

<http://sunfarming.co.za/en/blog/sunfarming-wins-intersolar-award-2017>

<http://www.german-energy-solutions.de/GES/Navigation/DE/Home/home.html>

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Deutsche Energie-Agentur (dena)

The Deutsche Energie-Agentur (dena) – the German Energy Agency – is Germany’s centre of expertise for energy efficiency, renewable energy sources and intelligent energy systems. As the Agency for Applied Energy Transition it helps achieve energy and climate policy objectives by developing solutions and putting them into practice, both nationally and internationally. In order to do so, it brings together partners from all areas of politics and business. dena’s shareholders are the Federal Republic of Germany and the KfW Group. www.dena.de/en

German Energy Solutions Initiative

The transfer of energy expertise, the promotion of foreign trade and the facilitation of international development cooperation are part of the German Energy Solutions Initiative, which is coordinated and financed by the German Federal Ministry for Economic Affairs and Energy. The initiative offers networking and business opportunities in Germany and abroad, it showcases reference projects and facilitates capacity building. www.german-energy-solutions.de/en

dena Renewable Energy Solutions Programme (dena RES Programme)

The dena RES Programme was developed by the Deutsche Energie-Agentur (dena) – the German Energy Agency. This programme, co-financed by the Federal Ministry for Economic Affairs and Energy within the German Energy Solutions Initiative, helps German renewable energy companies enter new markets. Within the framework of the programme, reference and demonstration projects are installed near prestigious institutions. The installation is accompanied by comprehensive PR, marketing and training programmes. These projects showcase high-quality German renewable energy technology and help participating companies gain a foothold in new markets. www.german-energy-solutions.de/en/res

