PRESS RELEASE

German Chancellor Olaf Scholz Visits Fraunhofer ISE in Freiburg

Federal Chancellor Olaf Scholz visited the Fraunhofer Institute for Solar Energy Systems ISE in Freiburg today. At Europe's largest solar research institute, he informed himself about new technologies for energy-efficient buildings and climate-neutral housing. Scientists from Fraunhofer ISE explained the latest research findings on heat pumps, integrated photovoltaics for building façades and vehicles, and charging infrastructures for electric vehicles. The German Chancellor was accompanied by Baden-Württemberg's Minister for Regional Development and Housing Nicole Razavi and Freiburg's Lord Mayor Martin Horn.

“Fraunhofer ISE has been a flagship for Germany's energy research and innovation for many years. Such work is crucial for our country’s future. Thanks to the institute’s research into new energy technologies and their transfer to industrial practice, we are increasing our international competitiveness, creating added value in Germany and contributing to the achievement of our climate targets.”, declared Federal Chancellor Olaf Scholz on the occasion of his visit.
The two institute directors, Prof. Andreas Bett and Prof. Hans-Martin Henning, presented the main research topics of Fraunhofer ISE to the visitors. The research at Fraunhofer ISE supports the successful realization of the energy transition across a wide variety of fields in close cooperation with industry. The rapid expansion of renewable capacity and increased electrification of the heat supply and of the transport sector are key to the transition’s success. At the same time, the transformation of our energy system is a great opportunity to strengthen Germany’s competitiveness as a business location and for creating sustainable jobs.
"We are delighted that the German Chancellor has taken the time to learn more about the latest research results from Fraunhofer ISE. After all, our research shows not only that the energy transition can succeed but also how it can succeed. However, the framework for this success is set by politicians. We are very grateful for the financial support we have received for our research work so far," explained Institute Director Prof. Dr. Hans-Martin Henning.

Solutions for a successful heat transition

Dr. Marek Miara presented the results of a long-term heat pump monitoring program for existing buildings. Fraunhofer ISE has been measuring heat pumps in this building

Contact us
Christina Lotz M. A. | Communication | Phone +49 761 4588-5820| christina.lotz@ise.fraunhofer.de
Fraunhofer Institute for Solar Energy Systems ISE | Heidenhofstraße 2 | 79110 Freiburg | www.ise.fraunhofer.de

segment for 20 years with the clear result that heat pumps can also work efficiently in unrenovated buildings. At present, heat pumps often use climate-damaging refrigerants containing fluorinated greenhouse gases (F-gases). As a replacement, Fraunhofer ISE and industrial partners have developed a refrigeration circuit for heat pumps in the "LC 150" project that requires sufficiently small quantities of the climate-friendly, but flammable, refrigerant propane. As a result, the propane heat pumps can be safely used indoors without carrying out any additional safety measures. Looking into the future, researcher Dr. Katharina Morawietz explained how propane heat pumps will be developed further for applications in apartment buildings in a joint research project with heating manufacturers and the housing industry. What heat sources to use for heat pumps is another research field addressing electrification of the heat supply. For residential buildings, either boreholes, outside air units or heating networks are usually used. Also, a photovoltaic-thermal collector (PVT), which simultaneously provides the heat source and the power for heat pumps, is a viable alternative. PVT collectors can be installed on house roofs like conventional PV systems.

Dual use of space: Integrated photovoltaics

A successful energy transition requires large amounts of PV electricity. The German Chancellor visited Fraunhofer ISE to find out how this expansion can be achieved without unnecessarily sealing off land: The institute develops solutions for photovoltaic systems that are integrated into building facades and roofs, traffic routes, vehicles, bodies of water and agricultural areas. Thus, built-up and cultivated areas can be used for dual purposes. As an example, Dr. Martin Heinrich showed a solar car hood in which solar cells were placed on a standard hood and then laminated with a film. Studies at Fraunhofer ISE show that the driving range of electric cars when fitted with a solar roof and hood can be increased by around 3000 kilometers per year in southern Germany.

Colored solar modules are a good way to aesthetically integrate photovoltaics either inobtrusively or as an architectural statement, for example, on listed buildings or modern façades. The patented MorphoColor® technology, developed by Fraunhofer ISE, can be used to color PV modules without appreciably reducing module efficiency. The technology uses a special structure, which is applied to the module glass and makes the module appear colored to the human eye. Unlike a pigment, however, the structure

allows almost all of the sunlight through so that the reduction in module efficiency is significantly less than 10 percent relative, explained Dr. Thomas Kroyer.

Charging infrastructure for the transport transition

The future charging infrastructure in neighborhoods and residential buildings is greatly important in order to use as much PV electricity as possible to charge electric vehicles. Energy scenarios for 2045 forecast that up to 40 million battery electric vehicles will require around 5 times the current peak electrical consumption. At the same time, the vehicle batteries also offer a huge capacity for storing electricity and stabilizing the grid. Dr. Robert Kohrs and Dr.-Ing. Bernhard Wille-Haussmann explained how smart and bidirectional charging can contribute to stabilizing the power grids. In the Digital Grid Lab at Fraunhofer ISE, researchers use the digital vehicle twin "ev twin" to test the communication between the charging infrastructure, the vehicle and the power grid. In the "Wallbox Inspection" project, the project partners are developing new test procedures for the manufacturer-independent evaluation of wall boxes for private electric vehicles in order to improve the quality and efficiency of solar and bidirectional chargers (vehicle-to-home).
Many of these and other projects in which Fraunhofer ISE is conducting research, mostly in close cooperation with industrial partners, are supported by federal funding. "The continuity of this research funding is an important contribution to maintaining Germany's role as a technology and innovation hub in the long term," said Institute Director Prof. Dr. Andreas Bett at the end of Chancellor Scholz's visit.

German Chancellor Olaf Scholz (middle) is welcomed by the directors of the Fraunhofer Institute for Solar Energy Systems ISE, Prof. Andreas Bett (l.) and Hans-Martin-Henning (r.). © Fraunhofer ISE/Philipp von Ditfurth

More information: https://www.ise.fraunhofer.de/en.html