Fraunhofer
CHILE

FRAUNHOFER CHILE RESEARCH - CENTER FOR SOLAR ENERGY TECHNOLOGIES

A SOLAR ECONOMY FOR CHILE

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Fraunhofer Gesellschaft

Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. Its research activities are conducted by 69 institutes and research units at locations throughout Germany.

Fraunhofer-Gesellschaft employs over 24,500 scientists and engineers, who work with an annual research budget totaling more than 2 billion euros. Of this sum, around 1.9 billion euros is generated through contract research.

International collaborations with excellent research partners and innovative companies ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.

Fraunhofer Chile Research

Fraunhofer Chile Research Foundation (FCR) is a wholly owned subsidiary of the Fraunhofer Gesellschaft in Germany. Arrives to Chile with the support of the program for the Attraction of International R&D Centers of Excellence of Corfo. Its aim is to improve industrial competitiveness through applied research in Chile and Latin America.

FCR was established as an umbrella organization under which different Fraunhofer Institutes can operate.

It develops applied research in several specialized areas, including agriculture, aquaculture, nano-technology and nano-medicine, biocomputing, renewable resources, therapeutic peptides, and solar energy technology.

FCR develops improved products and services with companies; it develops prototypes and provides certifications; FCR carries out market analysis and technology assessments; it incorporates new technologies and manages intellectual property.

Fraunhofer Chile Research - Center for Solar Energy Technologies (FCR-CSET)

FCR-CSET is aiming to support a solar economy in Chile. We provide consultancy for industry and public stakeholders and together with industry we develop innovative technical solutions to achieve large scale implementation of solar energy into the main industrial, commercial and residential sectors in Chile.

Our specific objectives are:

- Investigate and address the specific scientific, technological, economical and market challenges for solar energy technologies in Chile.
- Develop technologies which are adapted to the particular conditions in Chile.
- Implement certification schemes and other measures to support high quality of solar installations.
- Bridge the gap between academic research and industrial entrepreneurship.

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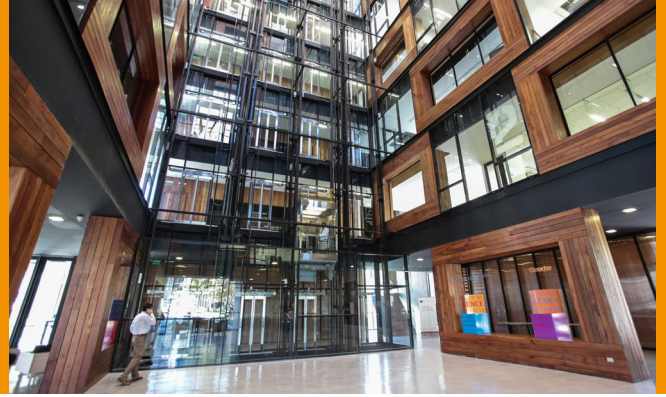

Founding Institutions

Fraunhofer ISE

With a staff of above 1,100, Fraunhofer ISE is the largest solar energy research institute in Europe. The work at the Institute ranges from the investigation of scientific and technological fundamentals for solar energy applications, through the development of production technology and prototypes, to the construction of demonstration systems.

Why Fraunhofer ISE works with FCR-CSET?

Chile is one of the most interesting countries for applying technologies with high demand of direct normal irradiation (DNI). It has in its North territories the highest DNI levels worldwide. Moreover its environment provides a challenge for the durability of solar materials and components.

Therefore from a technical viewpoint Chile is an ideal site for testing and utilization of many solar technologies which have been developed in Fraunhofer ISE or which are currently under investigation, and through FCR-CSET will be adapted and prepared for Chile.

In Chile, FCR-CSET works in close collaboration with local Universities, Institutions, Companies and Research Organizations. Our co-founding partner and co-executor is Pontificia Universidad Católica de Chile.

Pontificia Universidad Católica de Chile

Pontificia Universidad Católica de Chile is a leading Chilean university with a strong record of basic and applied multidisciplinary research. Currently the University is performing important activities in the renewable energy sector in Chile. Universidad Católica has a powerful international network for collaborations and contributes first class facilities by the schools of Engineering, Chemistry and Geography.

Business Development

We want to support the introduction of renewable energy into the Chilean national energy system and become a major partner for industry in local developments. Our Business Development unit actively generates projects aiming to offer practical, efficient and innovative solutions for Chilean companies in energy issues, based on extensive know-how and first-class R&D in solar energy.

We focus in this unit on integration issues of renewable energy into the national energy system, the electricity grid or the energy supply system of a company on the technical level. Similarly we investigate integration into the market or into business models on the economical and social level. Our approach is interdisciplinary and market-oriented.

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Research Lines

Solar Electricity

We want to help develop reliable and optimized components for Concentrated Solar Power (CSP) and Solar Photovoltaic (PV) power generation in Chile and support the installation and successful operation of large scale solar power supply in Chile.

- We test and monitor the performance and durability of solar components in different climate zones.
- We offer individual quality certification and monitoring of solar projects in order to ensure high quality and thus maintain the trust of investors.
- We provide high quality solar resource data for Chile in order to support bankability and operation of solar power plants.
- We help developing new concepts for storage and hybrid power plants.
- We support the strategic development of a solar economy by means of system analysis and system simulation.

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Solar Heat

The solar generation of heat for industrial use is a field with very high potential for replacement of fossil fuels in the mining, food, chemical and textile industries. We want to help transferring the high technical potential into an attractive market for Chile by supporting the development of reliable technologies and also the development of adapted business models.

- We investigate the integration of solar thermal technologies into industrial processes for heating, cooling, drying, sterilizing, washing and for any temperature treatment processes.
- We develop system solutions for combined heat and power and poly-generation concepts.
- We support energy efficiency concepts including the optimization of heat distribution and storage networks, heat loss reduction and integration schemes for renewables.

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Solar Water Treatment

We develop water treatment technologies adapted to individual specifications of feed water salinity for complete stand-alone systems, powered by solar electricity or solar/waste heat.

- We develop thermal desalination systems powered by waste heat or solar thermal heat, based on membrane distillation technology.
- We work on small to medium scale PV powered reverse osmosis systems as well as ultrafiltration, detoxification, and sanitization technologies.
- We offer system simulation and the development of individual design tools.

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With the support of:

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