



CINES

Cluster of Excellence »Integrated Energy Systems«

Why does CINES exist?

Complex challenges require integrated solutions

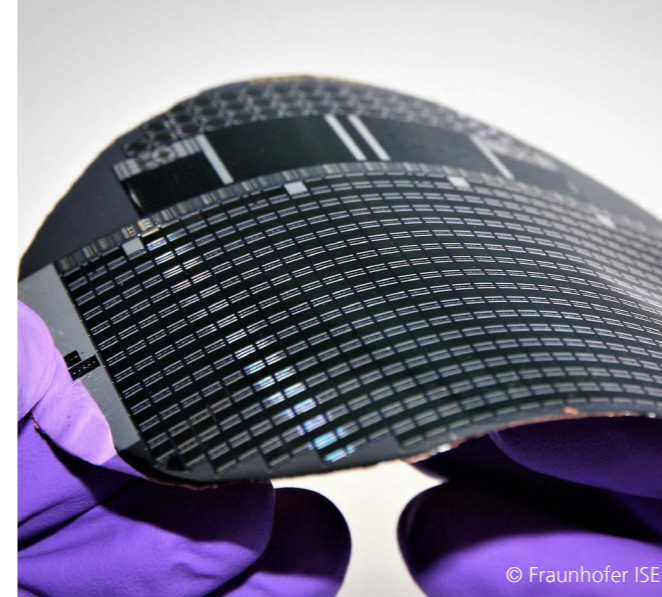
In the light of rapidly advancing climate change, the transformation of the energy system towards carbon neutrality is an absolute necessity - and at the same time offers enormous economic and technological development potential. International conflicts resulting from dependence on fossil fuels can have unpredictable geopolitical consequences.

The transformation of the energy system is one of today's most pressing challenges. The Fraunhofer Institutes involved in CINES have been researching the implementation of the energy transition from a technological and systemic perspective for decades. Since 2019, the Cluster of Excellence »Integrated Energy Systems « (CINES) has been making a decisive contribution to this research. We are working

on the challenges of a sector-coupled energy system based on 100% renewable energies along the entire technological value chain. At the same time, our solutions will be combined and validated against each other at different levels of the energy system.

We provide significant added value to our energy industry clients and policymakers in answering the increasingly complex questions about the future of our energy system.

[Find out more here!](#) ✨



What do we do?

Our contribution to the transformation of the energy system:

Twelve Fraunhofer Institutes from the field of applied energy research are anchored in CINES. The focus of our Cluster of Excellence is on the key challenges of the energy system transformation, both from a technological and an economic perspective. We have around 110 colleagues working on these tasks.

The aim of our work is to integrate high shares of variable renewable energies into the energy system. To achieve this, we at CINES carry out analyses of a wide range of systems, research and develop the necessary technologies and develop solutions for the successful communication of the energy transition. We are also very active in the field of science-based policy advice.

Our portfolio:

We are currently working on several large-scale public projects and industrial projects of varying sizes. These include projects on large heat pumps, the infrastructure requirements for hydrogen, secure data exchange in the energy system and the regulatory barriers to local energy transformation. We are also active at international and European level, for example in exploring the potential for cooperation on hydrogen. You can find an overview of our services on our homepage.

Not exactly what you are looking for? Further questions?

Do not hesitate to get in touch! ✎

Our projects:

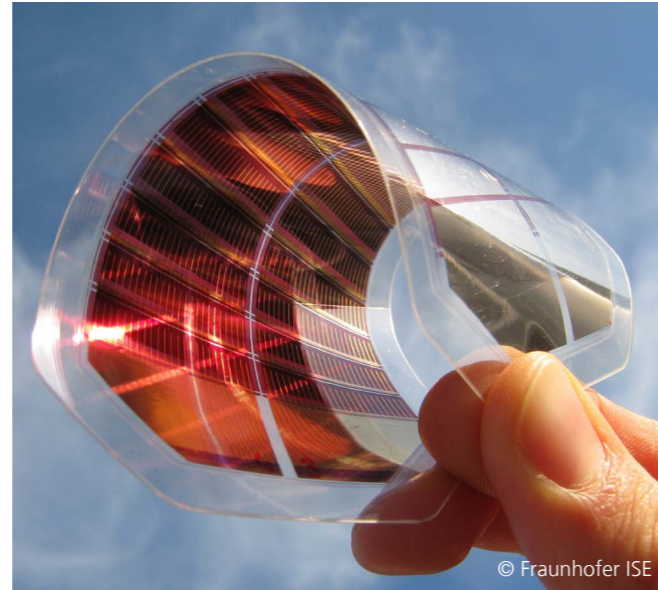
Our expertise extends across various sectors and levels of the energy system as well as different technological aspects of the energy system transformation. Specifically, we cover the research areas of energy system analysis, analysis of municipal and on-site systems and heat transition and develop power electronics and digital solutions for the energy system. On our homepage you will find selected reference projects from the public and private sector.

If you are interested in a cooperation, please contact us! ✎





© Dirk Mahler



© Fraunhofer ISE

What is a cluster of excellence?

Bundled, cross-institutional expertise

A total of six so-called Clusters of Excellence exist within the Fraunhofer-Gesellschaft. The Fraunhofer Clusters of Excellence were founded to work on system-relevant topics across institutes. The Fraunhofer-Gesellschaft currently has 76 institutes dedicated to different areas of research. The Clusters of Excellence bring together the expertise of various Fraunhofer Institutes in order to offer synergetic, interdisciplinary and excellent research work.

A Cluster of Excellence thus forms a larger, virtual institute that is organized across locations and brings together the main research areas from different institutes. The long-term and intensive cooperation enables the development and continuous optimization of an overall strategy

and the long-term and institutionalized development of systemic and technological solutions for the energy system.



© Dirk Mahler



Working together to implement the energy transition?

Contact us!

The Cluster of Excellence »Integrated Energy Systems« CINES addresses the key technological and economic challenges of the energy transition.

We offer politicians and companies in the energy industry: energy system analysis at local, regional, national and global level, developments in the field of digital energy systems, technological expertise in the areas of heat transition, electrolysis and power electronics.

Website

<https://www.cines.fraunhofer.de/en.html>

E-Mail

cines@zv.fraunhofer.de

Newsletter

[cines.fraunhofer.de/en/newsletter](https://www.cines.fraunhofer.de/en/newsletter)

Social Media



