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## Case study – Photovoltaic

PROJECT: RES-CHAINS  
PROGRAM: SOUTH BALTIC PROGRAM  
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LANDKREIS NORDWESTMECKLENBURG  
FOR: SOUTH BALTIC PROGRAM USERS  
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### Solar centre Mecklenburg-Vorpommern (Climate-House „Envelope“)



## Summary

THE SOLAR CENTRE MECKLENBURG-WEST POMERANIA is solar information, demonstration, congress and research centre, solar technology and industrial centre. They pursue the aim of long-term support of climate protection and the creation of innovative workplaces thanks to the use of regenerative energies. The ecologically restored manor house, a listed building, is used for conferences, congresses, exhibitions, training courses, information and advice and is also open to external event organisers.

The Climate-House „Envelope“ is a part of exhibition and research at this place.

## Site details

Start of operation (year): 2009

Location : Wietow

Coordinates (for the map): 53.83725 / 11.52544

Area (m<sup>2</sup>): 300

Orientation (north, east, ...): south

Angle: sun orientated

## Construction and installation

What type of material is basically used?	Silicon monocryst. seacial
Wafer-based or thin-film cells?	wafer
Where have the solar cells been manufactured?	Norway (Space application)
How has the grid connection been established? (in case)	Modul integrated invertors

## Other important information

Building integrated, in house application

## Core process

What is the solar irradiance? (W/m <sup>2</sup> )	1150 kWh/m <sup>2</sup> y Light concentration by fresnell-lenses factor 50
What is the installed capacity? (MW)	0,02
Yearly electricity generation? (MWh / year)	Unknown – investigation process
What is the conversion efficiency of the cell?	18

## Downstream process

Grid-connected or off-grid system?	Grid-connected
What average annual performance ratio? (grid- connected PV)	unknown

## Decommissioning

Any non-recyclable elements / materials?	
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## Environmental aspects

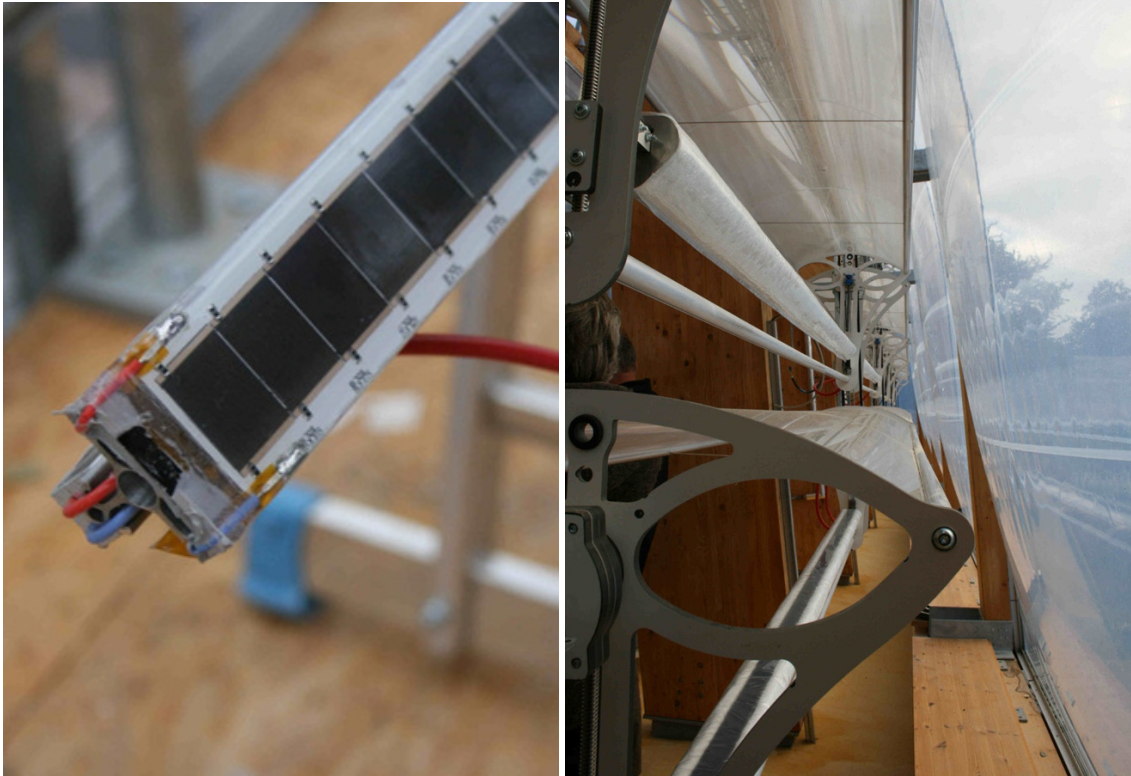
Use of harmful or hazardous substances?	Toxic or explosive gases, corrosive liquids
Average lifecycle GHG emissions?	
What are the yearly emissions to air and water?	
CO to air	
CO <sub>2</sub> to air	
SO <sub>2</sub> to air.....	
NO <sub>x</sub> to air	
Other to ...	
Other to ...	
Other to ...	

## Financial aspects

The costs need be roughly estimated so as to reflect the total annual cost of the plant. The fundamental assumption is that the total annual cost comprises capital costs + O&M costs but if there is anything more important, please add that under the heading “Other costs” so as to make up 100 %.

What are the overall investment costs and interest rate?	300000 €
What are the operational and maintenance costs?	0
Other costs?	0
What is the life time of the PV facility?	unknown

## Summary



detail photovoltaic fresnell-lenses in transparent wall