

# CoolSkin

Austrian research project  
Facade integrated PV cooling

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IEA SHC TASK53

6th Experts Meeting

10th and 11th October 2016

University of Balearic Island's (UIB), Palma de Majorca / Spain

# COOLSKIN Projekt Goals

## Challenge

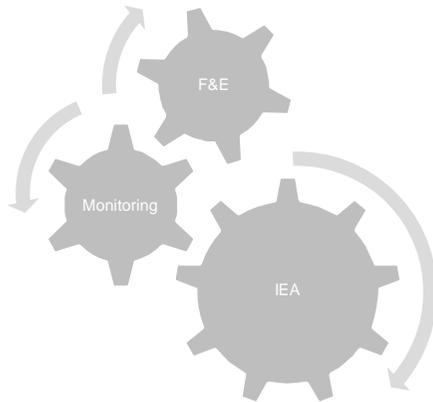
- Development of a functioning affordable, secure, reliable façade integrated PV electric driven cooling system
- Stand alone PV driven compression motor

## Deliverables

- functional model of a photovoltaic façade-integrated cooling system will be available, that has been optimized by means of simulations and experimental work and that has been tested under real conditions in a test façade.

# COOLSKIN – Projekt Structure

## Facts



## Partner

- Institut für Wärmetechnik – Technische Universität Graz
- AIT Austrian Institute of Technology GmbH (AIT-Energy)
- Hans Höllwart-Forschungszentrum f. integrales Bauwesen AG
- qpunkt GMBH
- Architekturbüro Reinberg ZT GesmbH

## Project duration

- Start Sept 2015
- End March 2018

## Project Budget

- approx. total 700 TEURO

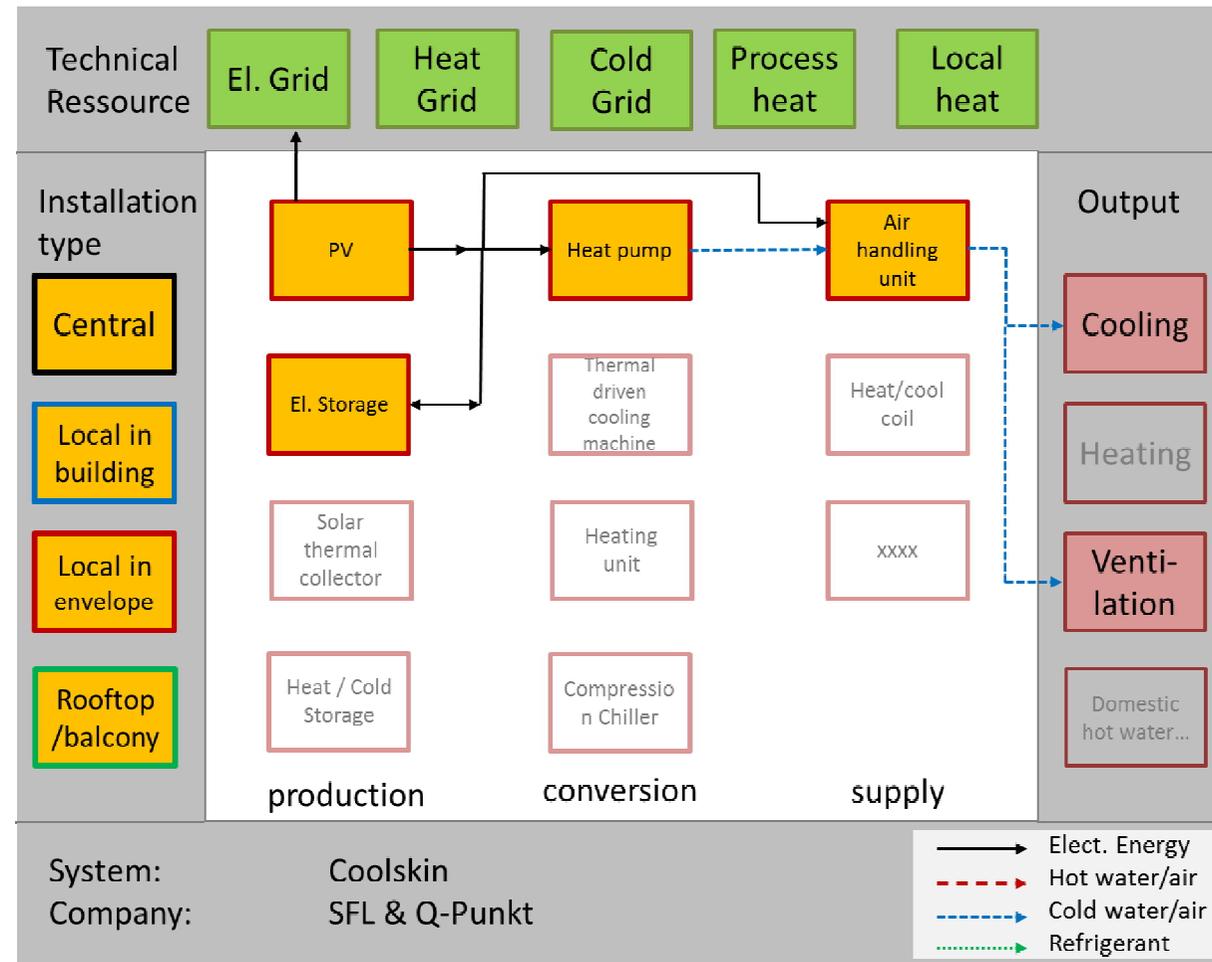
## Funding

- Austrian Funding Agency FFG
- Call Energieforschungsprogramm – 1. Ausschreibung

# IEA SHC TASK 53

Austrian Project COOLskin

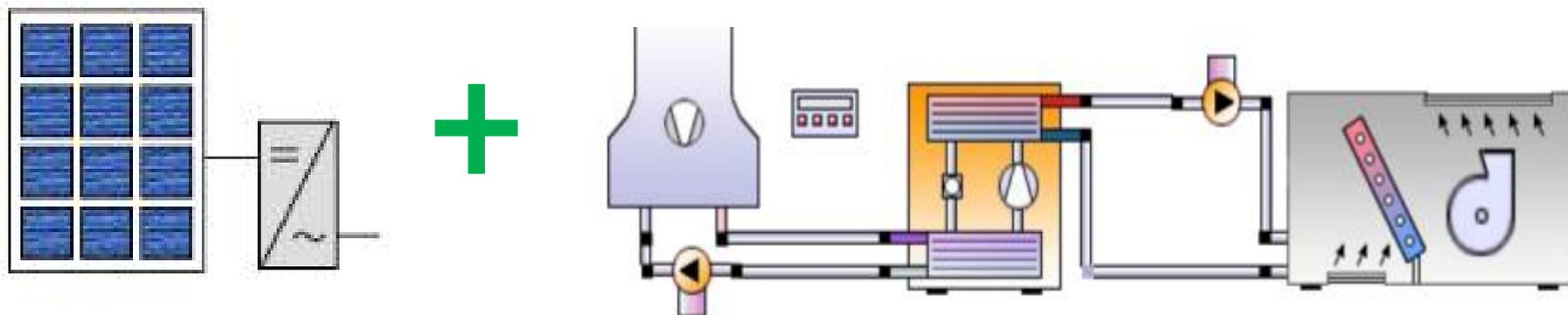
In the reduced schematic view



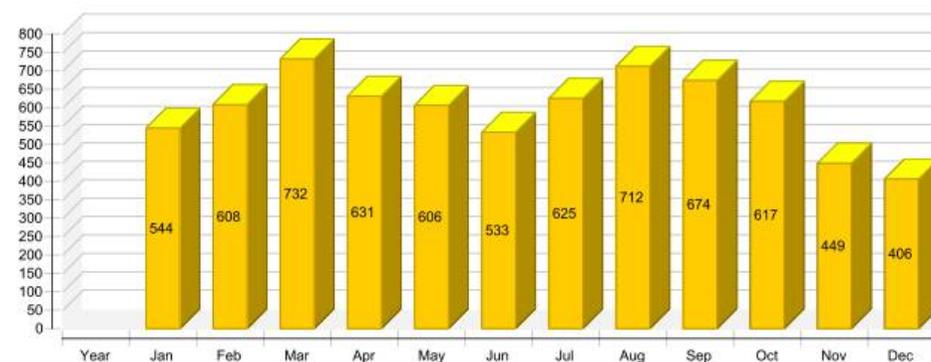
## Work packages

### 1 Documentation and analysis of technical possible system configuration

- To be finished 2
- System configurations (cooling, amount of PV,...)
- Use cases (Refurbishing, new constructions, old/new buildings)
- Simulation for different climate zones (south, middle and north of Europe)

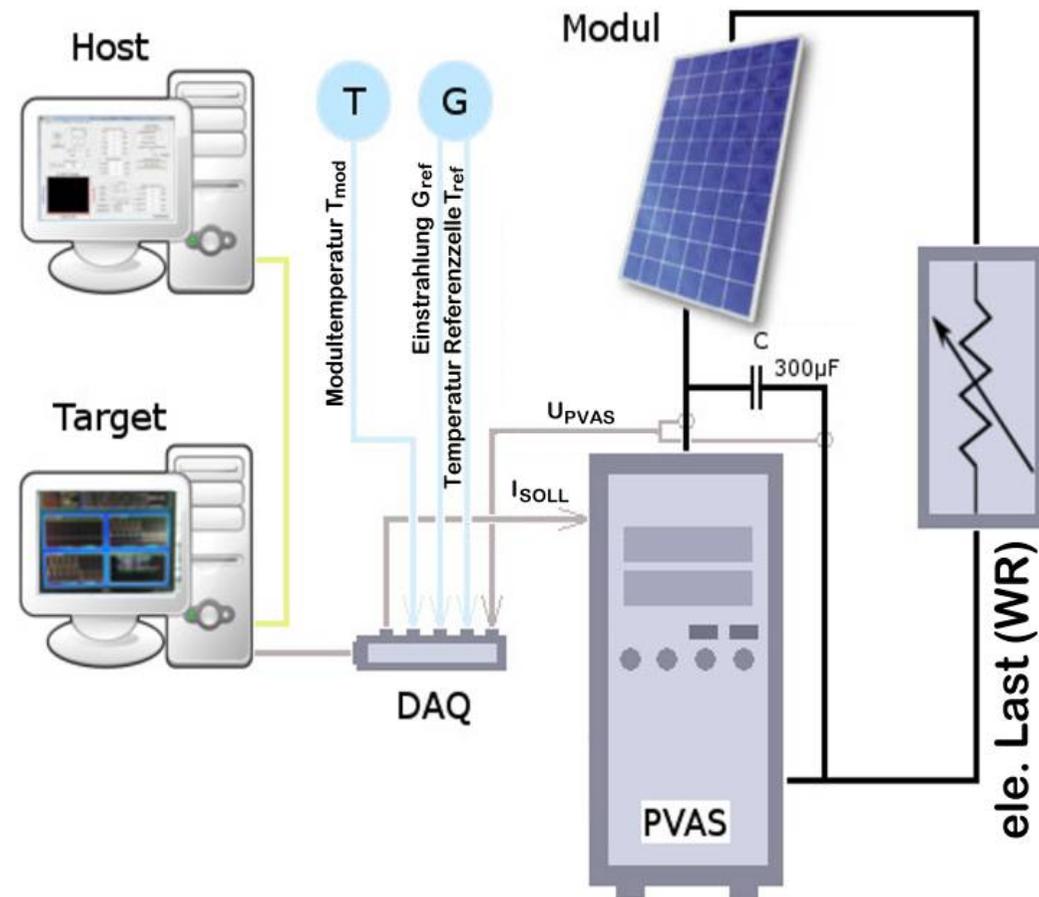


Yield Photovoltaics AC [Qinv] kWh



- 2 Experimental characterization of promising system configuration

- Laboratory
- HIL-Solution
- Partial load test
- Direct coupling PV-HP



- 3 Adaptation of system configuration for facade integration



# IEA SHC TASK 53 Kick-Off

CoolSkin

Expected Contribution for SHC Task 53

- Experience with decentral PV cooling systems (façade integrated and small scale ..)
- Direct use of PV electricity (increased self consumption, ..)
- Requirements of technical adaption of the electrical drive of the cooling unit (critical electrical power .. )
- Operational system observation (monitoring data for energy assessment ..)



# AIT Austrian Institute of Technology

your ingenious partner

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