INDUSTRIAL SOLAR
renewables onsite

Symposium: Energy-efficient building technologies with the integration of renewable energies

Solar heating, cooling, and power

Irapuã Ribeiro

Industrial Solar GmbH

20 of October 2020 – Lisbon - PT

AHK Deutsch-Portugiesische Industrie- und Handelskammer
Câmara de Comércio e Indústria Luso-Alemã

65 JAHRE ANOS 1954 - 2019

About us

Founded in 2008 in the environment of the Fraunhofer Institute – Freiburg/Germany

World leader in Fresnel projects for energy supplies. Complete and customized solutions.

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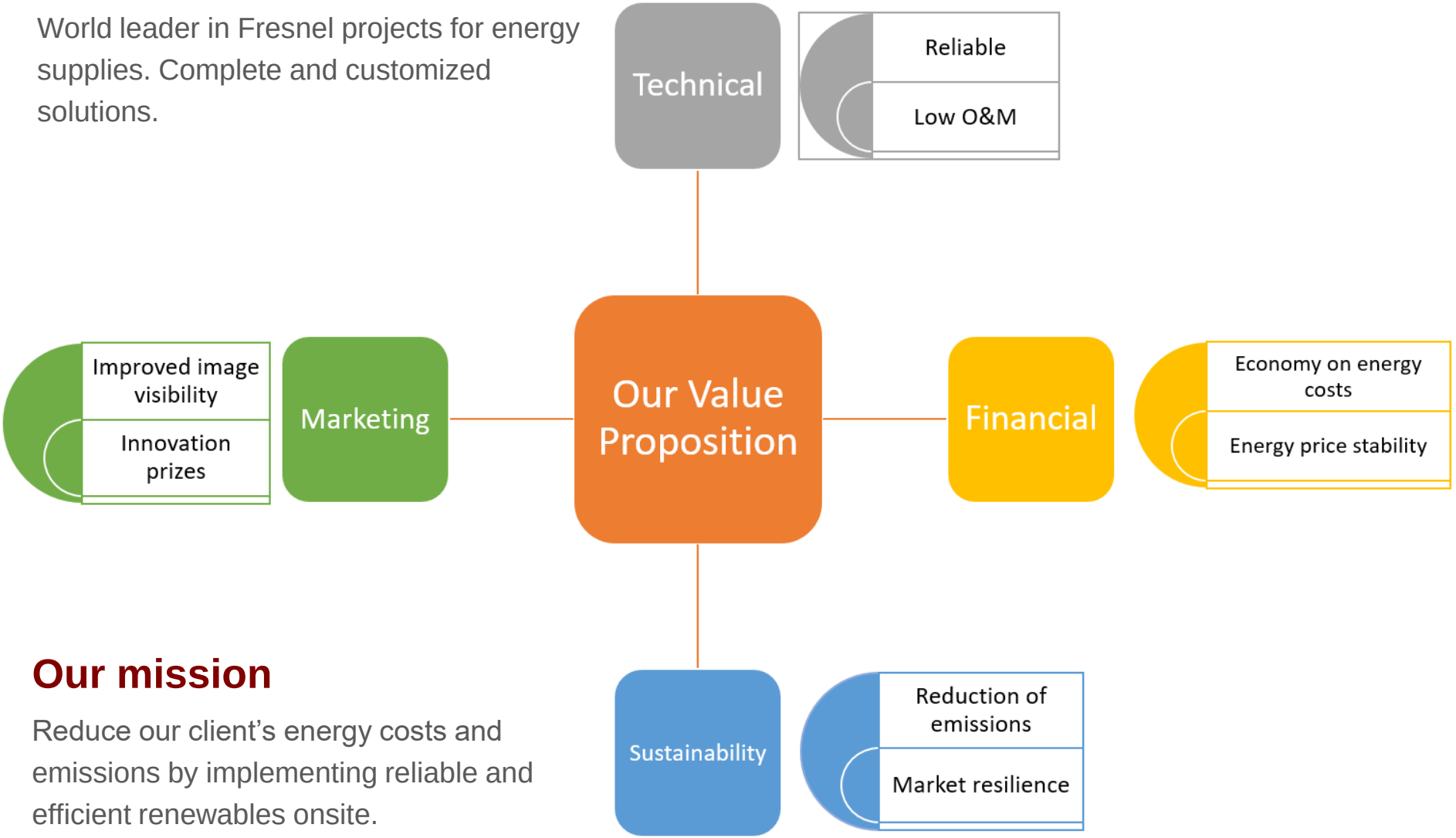
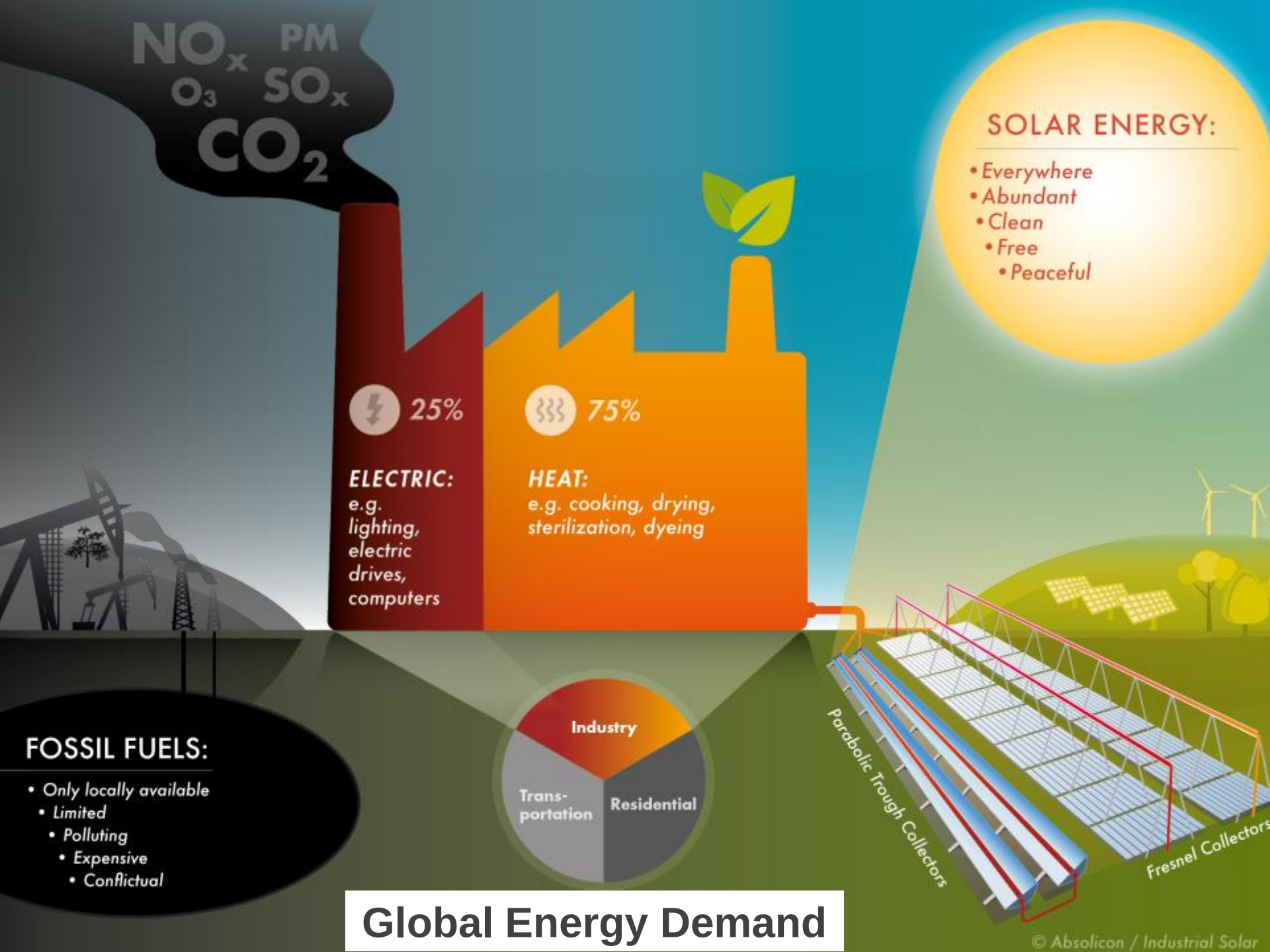


Our mission

Reduce our client's energy costs and emissions by implementing reliable and efficient renewables onsite.



Global Energy Demand

Energy Landscape in Portugal

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Figure 7: Final energy consumption trends (ktoe) [Source: Directorate-General for Energy and Geology (DGEG)]

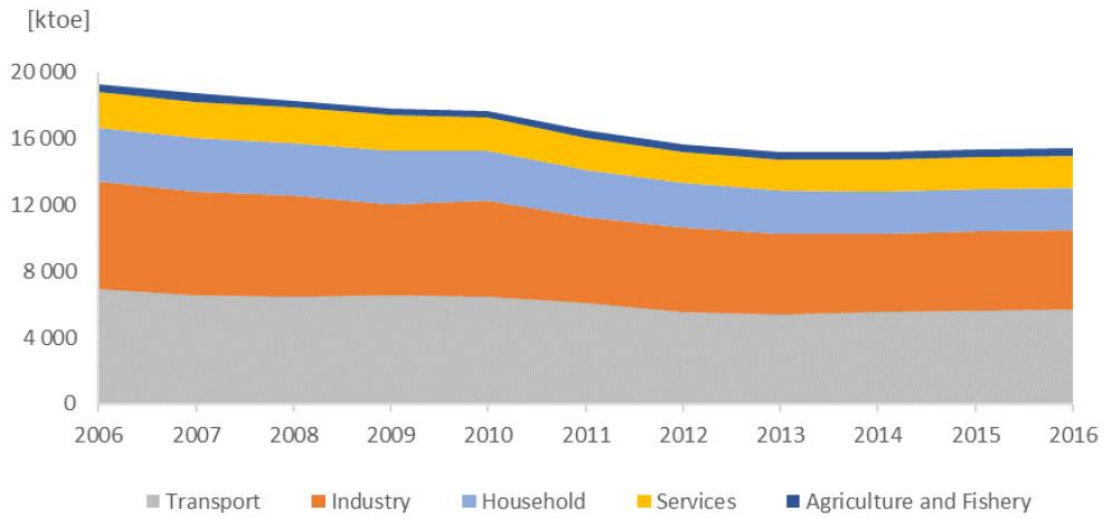

Table 2 - Portugal Efficiency Programmes [Source: NEAAP – Portugal Energy Efficiency Plan 2016]

	Areas					
	Transport	Residential and Tertiary	Industry	State	Behaviour	Agriculture
Programmes	Eco car (vehicle renewable)	Home renewal & offices renewal	Intensive Energy Consumption Management System	Energy Certification of Buildings	Communicate Energy Efficiency	Efficiency in agrarian sector
	Urban Mobility	Energy Certification of Buildings				
	Energy efficiency system in transport	Solar Thermal				

Our Portfolio

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Photovoltaic

Absorption Chiller

5 MW

100 kW

Power Generation

Electric Heating

Evacuated Tube Collector

-10 ° C

+70 ° C

Heat Pumps

+90 ° C

Heat Recovery & Cooling

Solar Process Heat

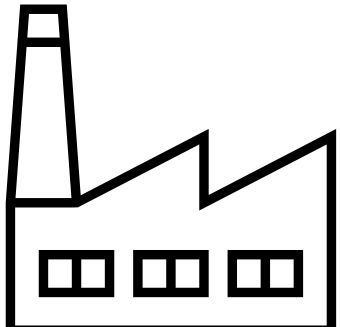
500 kW to 30 MW

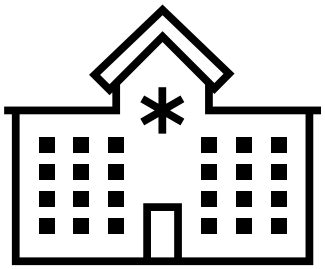
Flat Plate Collector

Water Treatment

+400 ° C

Fresnel





Water Treatment - Multi Barrier System Design

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automatic operation

online monitoring

Media Filter

Activated carbon filtration

Ultrafiltration

Ultraviolet disinfection

SolarSpring membrane solutions

Multi Barrier System Design modularity

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System	UF 0.1	UF0.25WM	UF0.5WM	UF0.25	UF0.5	UF 2.5
Energy supply				grid or solar for all systems		
Nominal capacity [l/h]	100	250	500	250	500	2,500
Max. capacity [l/h]	250	600	900	600	900	6,000
Nominal daily capacity [l/d]	2,400	6,000	12,000	6,000	12,000	60,000
Nominal supply for [persons] *	120	300	600	300	600	3,000
Max. well depth [m]	40	40	200	40	200	200
Nominal power consumption [W]	40	80	150	80	150	500
Dimensions [mm]	1200x400x168	1270 x 550 x 292	1270 x 780 x 292	1400 x 1000 x 300	1400 x 1000 x 300	1800 x 1400 x 400
Weight [kg]	22	37	51	98	105	315

* calculated with 20 liter per person per day according to WHO-standards

SolarSpring membrane solutions

Solar Heat and Cooling
Fresnel Collectors Technology

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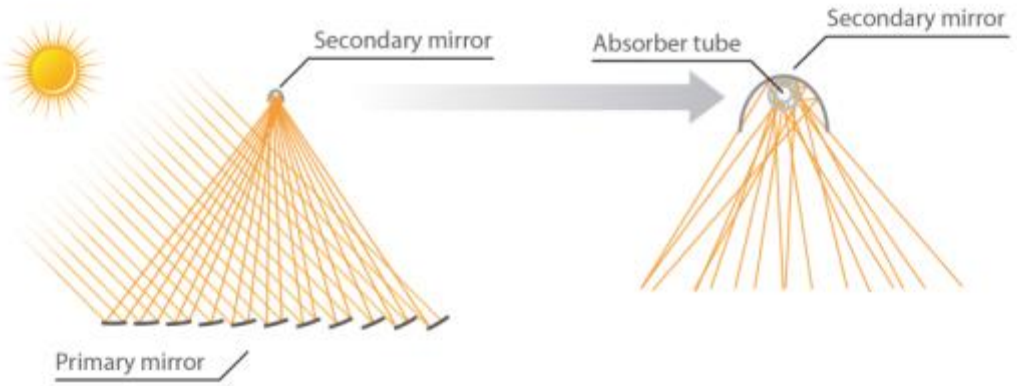
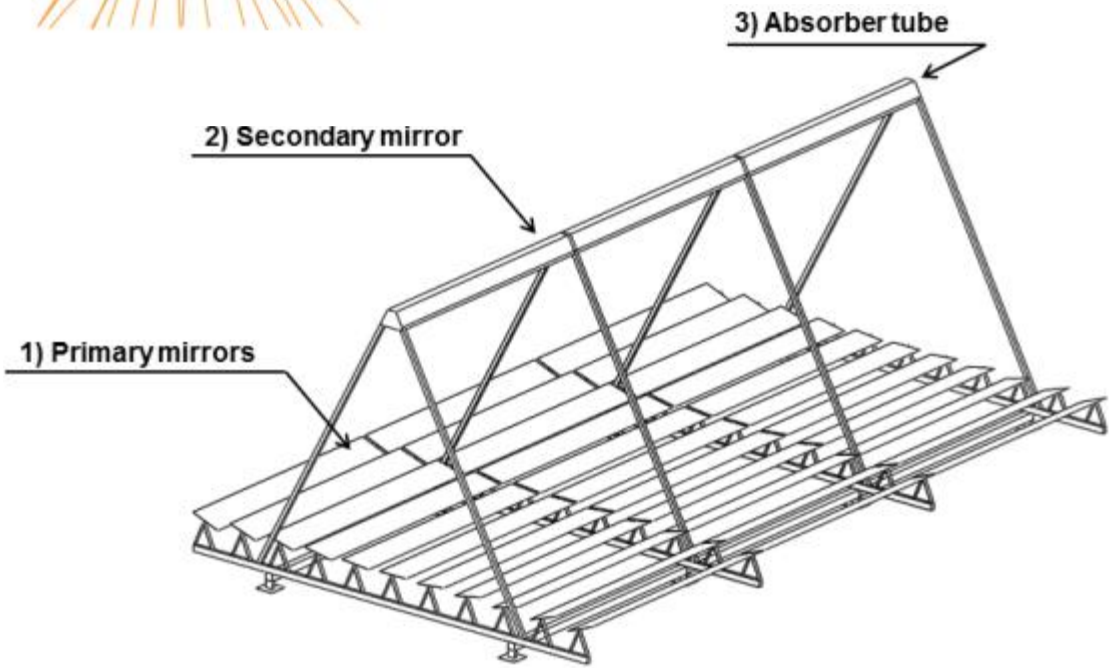
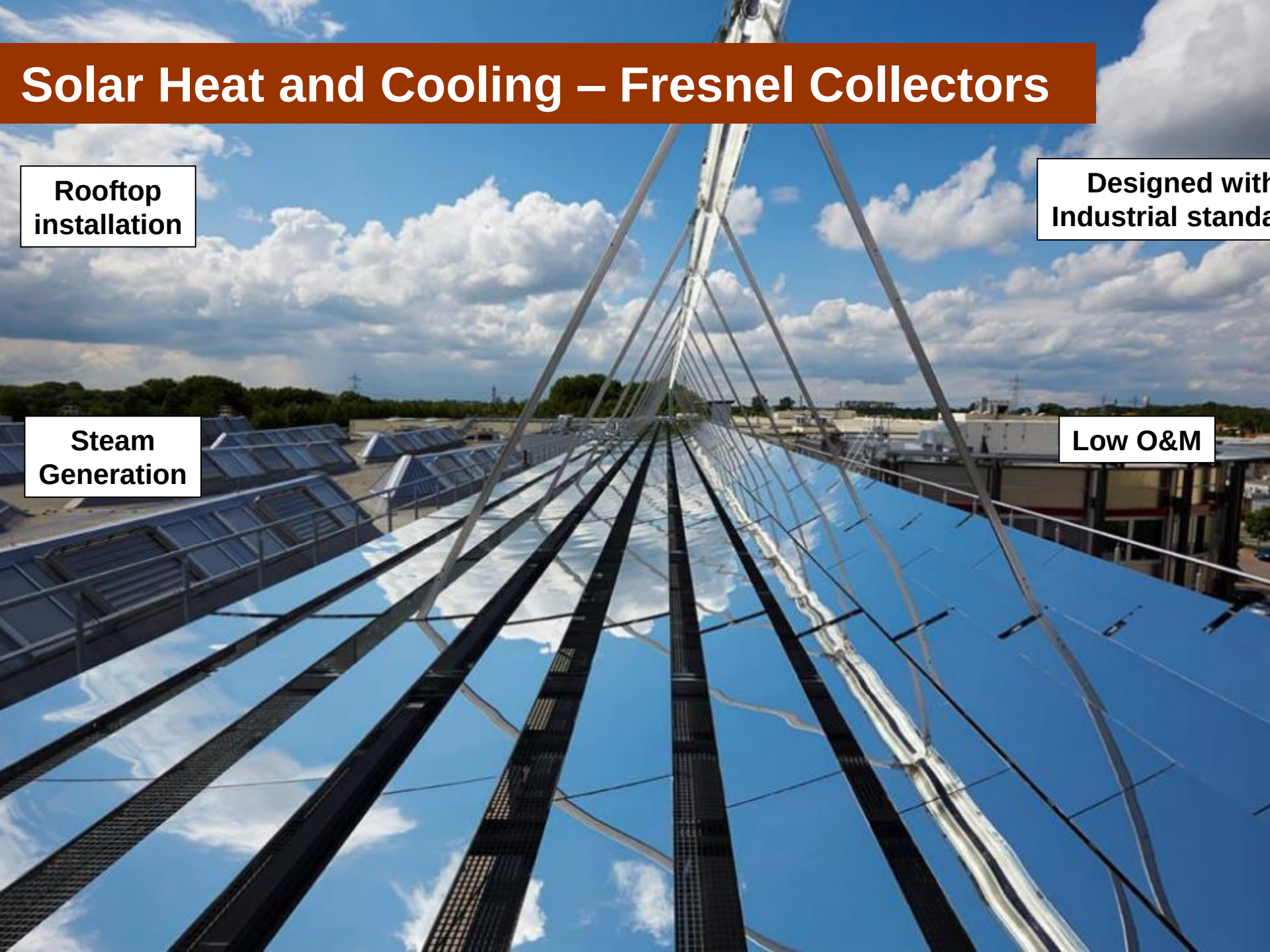
- Uniaxially tracked mirrors concentrate sunlight onto an absorber where heat is generated





Solar Heat and Cooling – Fresnel Collectors



Solar Thermal Cooling

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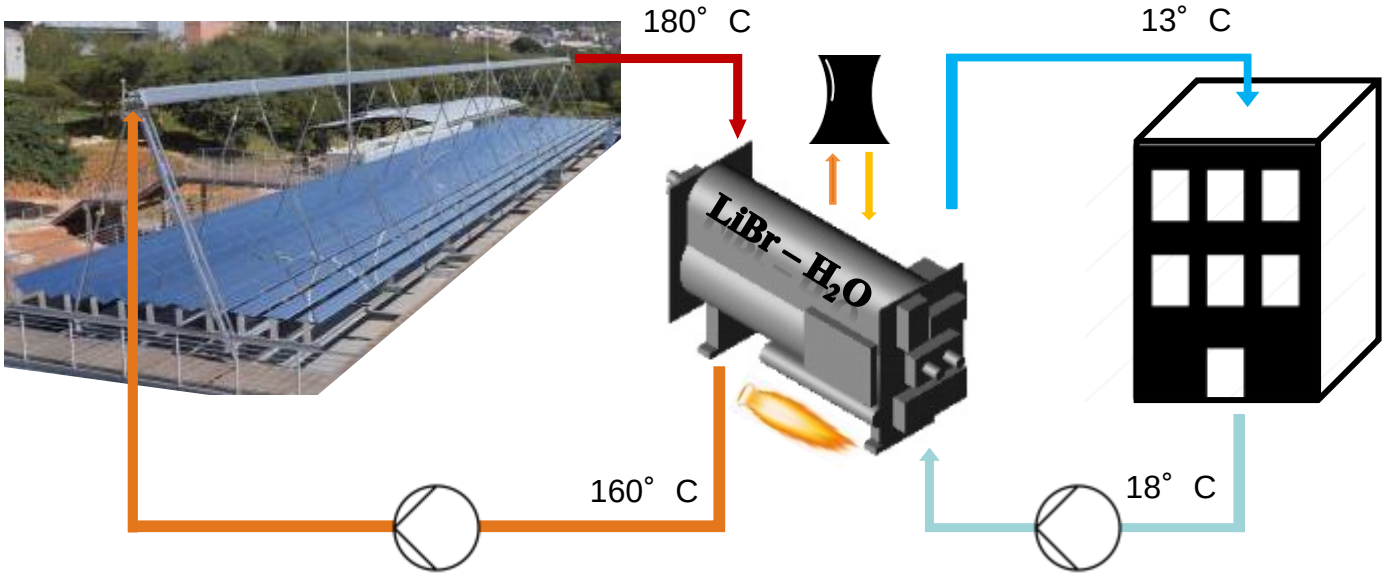

LiBr – H_2O Absorption Chillers

- Solar heat used to regenerate the refrigerant mixture
- Space cooling as low as 6° C
- Capacities available from 20 kW to several MW
- Integrated backup gas burner is possible

Solar Thermal - Cooling of Data Center

Telecommunication Industry

- Fresnel collector
- 484 m2 collector area
- 272 kWth thermal power
- 180 ° C pressurized Water
- Absorption Chiller
- 330 kWth cooling capacity

Solar Thermal - Process Steam & Cooling

Tobacco Industry

- Fresnel collector
- 1254 m² collector area
- 705 kWth thermal power
- 225° C saturated steam
- Absorption chiller
- 580 kWth cooling capacity

Solar PV Carport

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Solar PV Carport

ClickCon Carport System

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- Ideal solutions for carports, commercial roofs and industrial buildings
- Different designs and configurations available

What are we looking for

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✓ Partners

- Projects in commercial/industrial sectors
- Experience/Interest in solar energy
- Project development

✓ Potential Customers

- Large Commercial
- Services
- Industry and Agro
- Food and Beverage
- Pharmaceutical
- Wastewater Treatment

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