



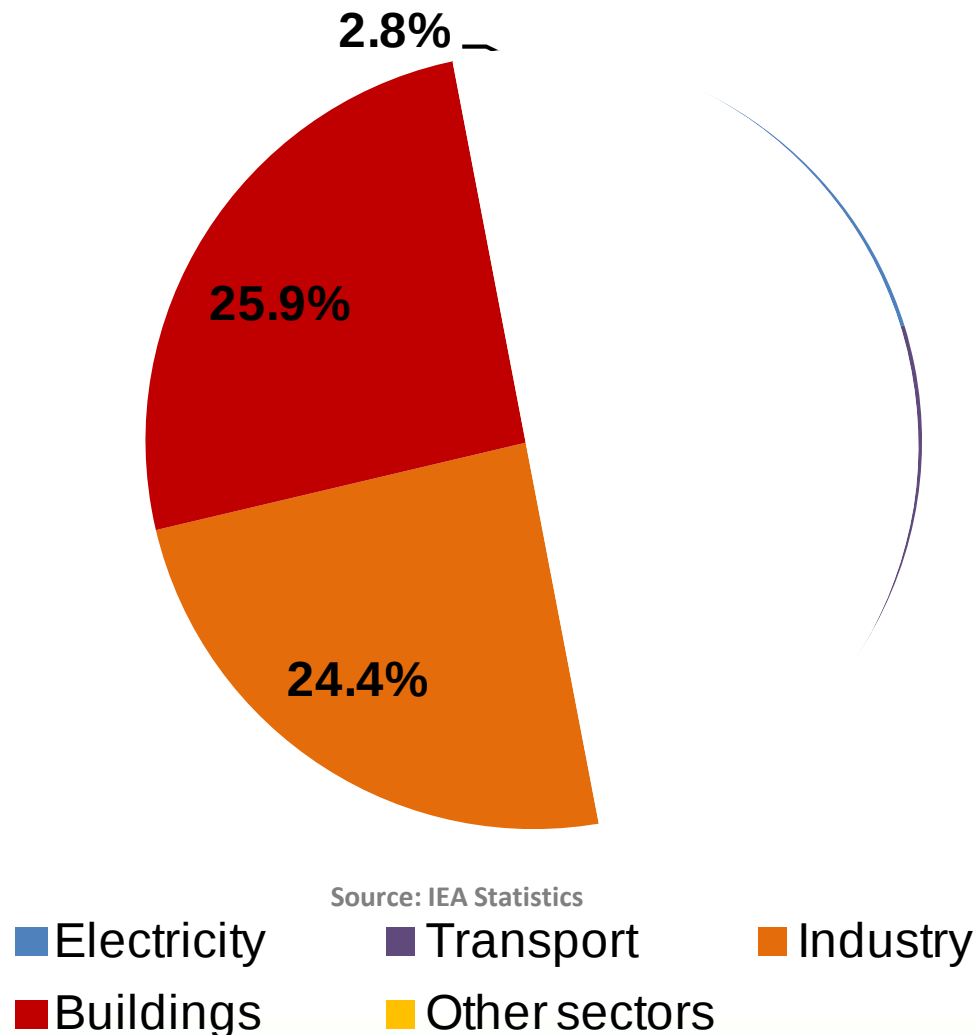
Solarwärm e Energiepolitische Option!?

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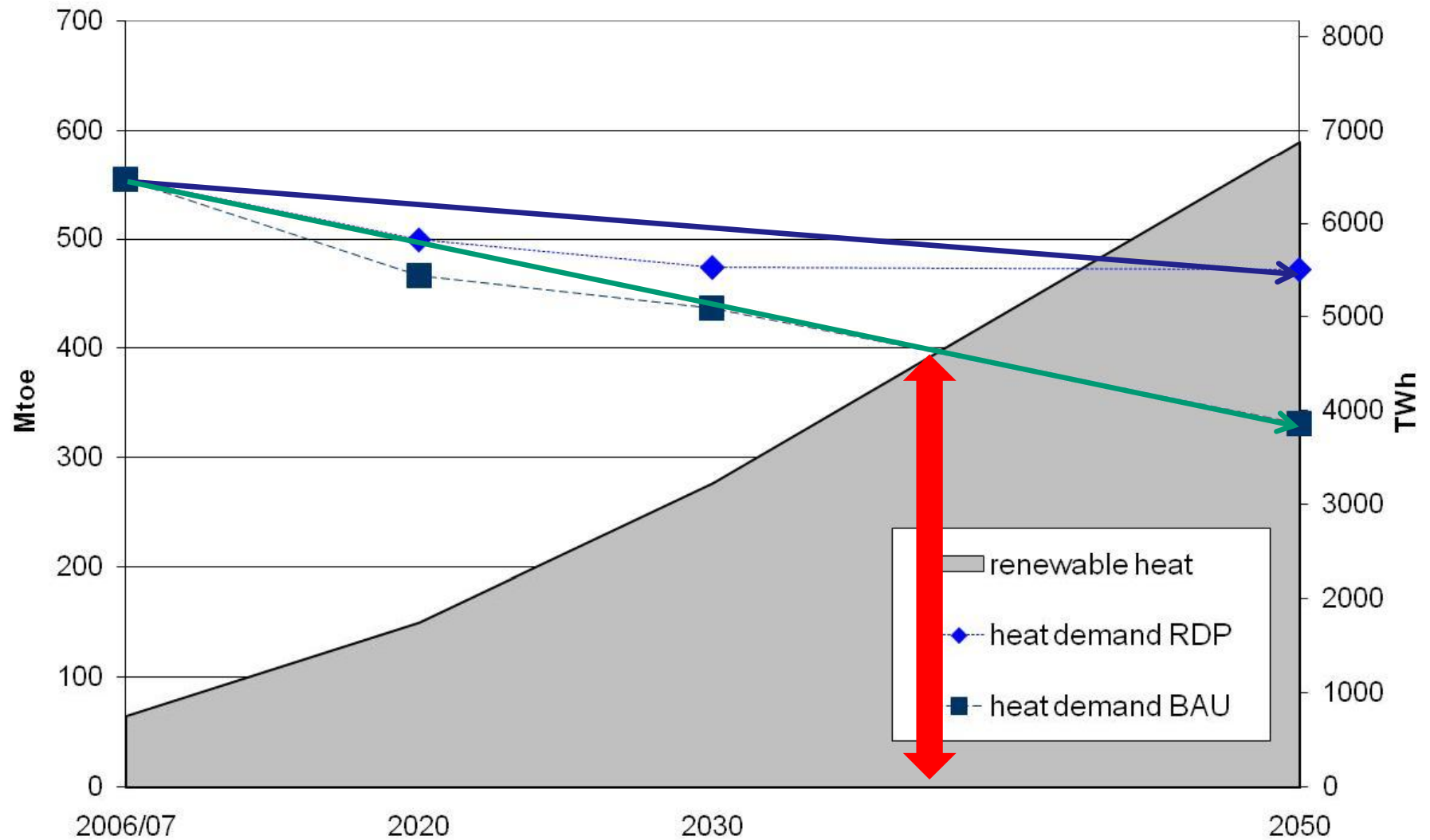
Heat accounts for more than half of world's total final energy consumption today

World total final energy consumption, 2011 (322 EJ)



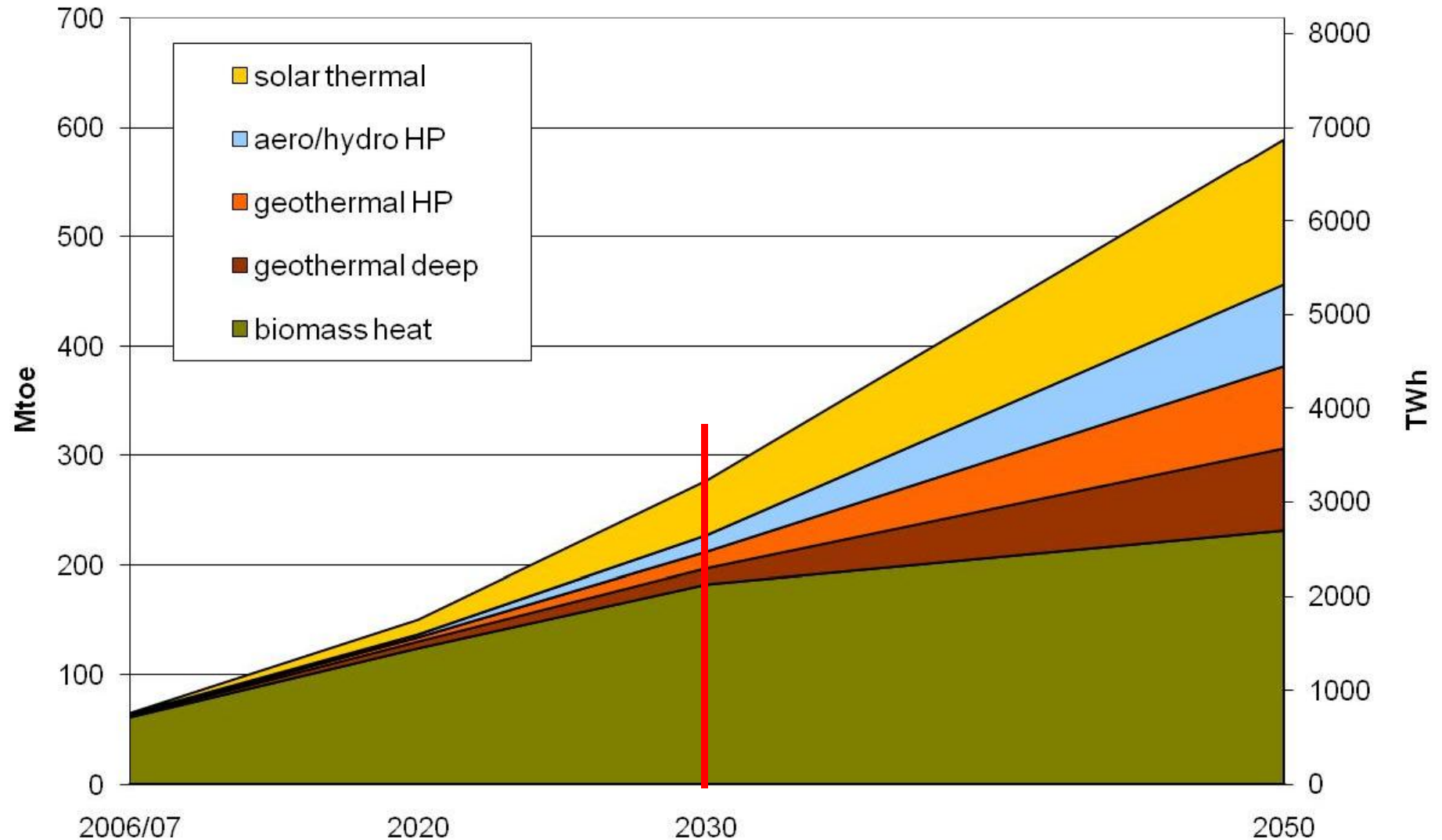
Source: Paolo Frankl, IEA, Paris

Heat Supply from Renewable Energy Sources EU



Source: ETP RHC 2010

Heat Supply from Renewable Energy Sources EU



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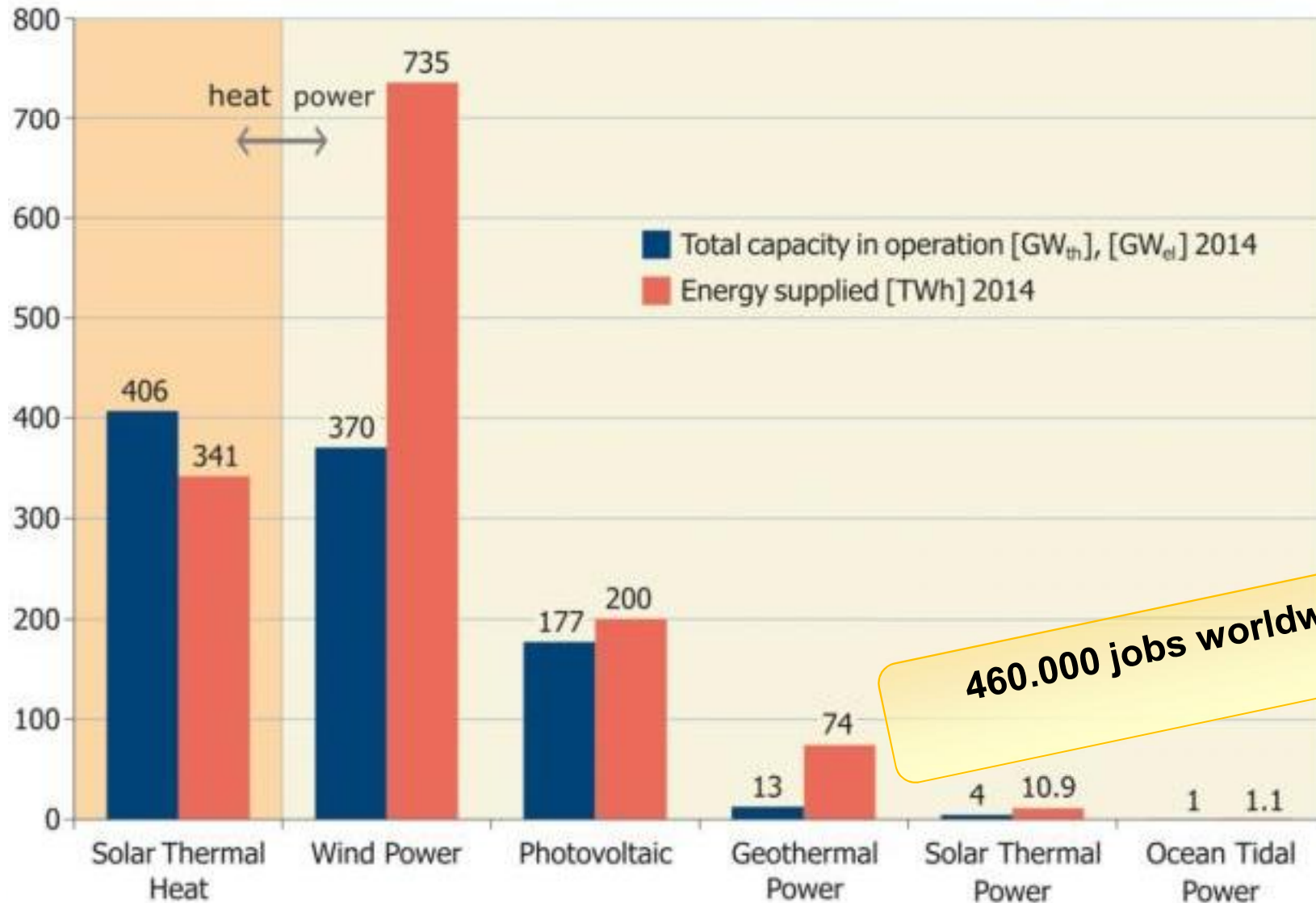
Global Capacity in Operation in 2014

Total capacity in operation [GW_{th} , GW_{el}]

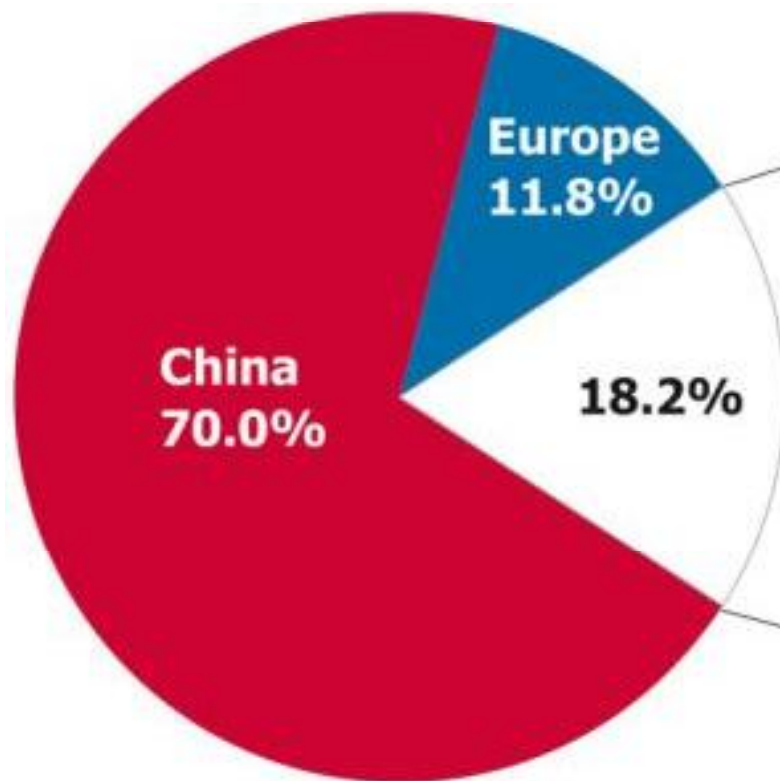


Global Capacity in Operation in 2014

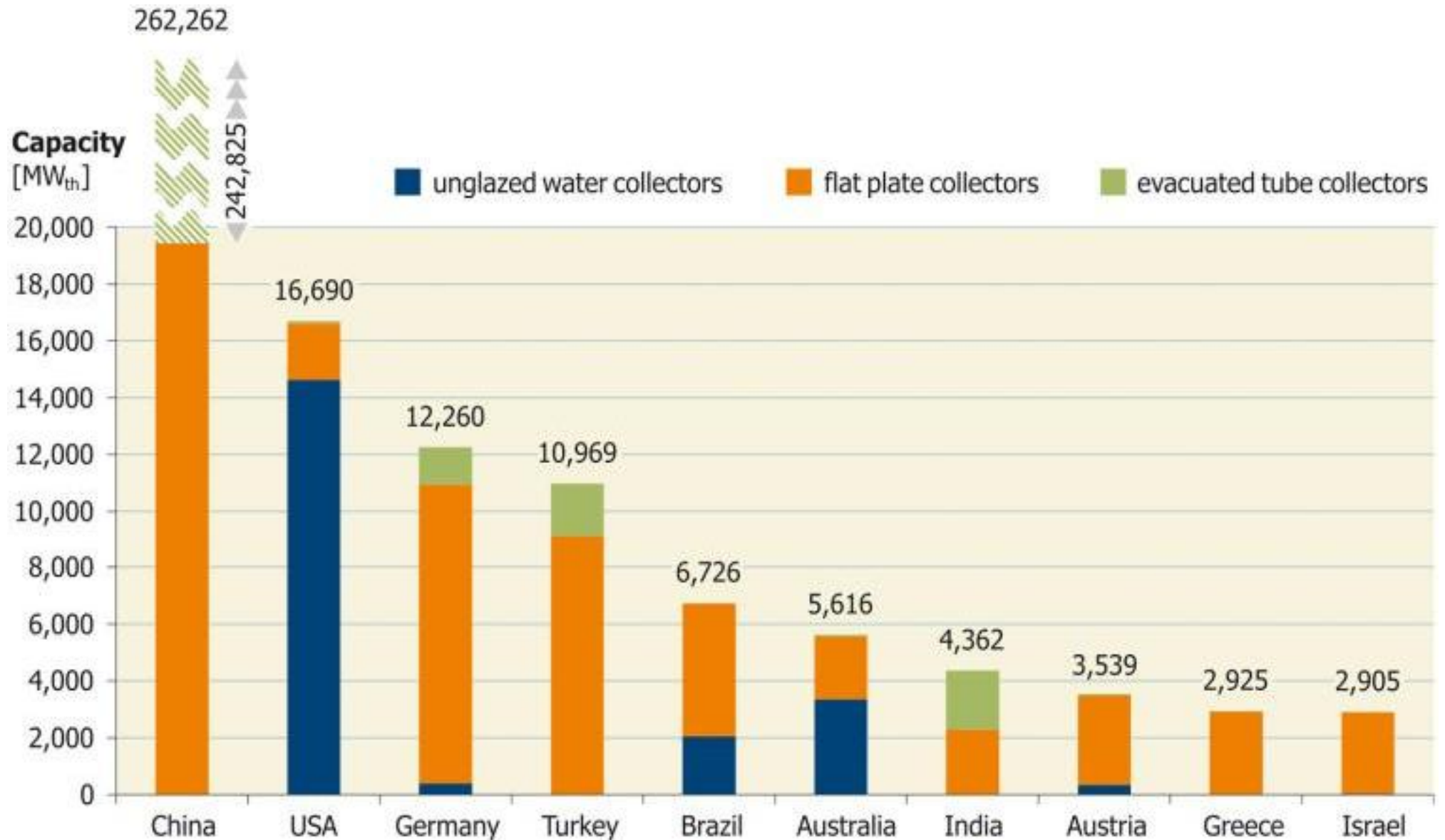
Total capacity in operation [GW_{th}], [GW_{el}] and energy supplied [TWh_{th}], [TWh_{el}], 2014



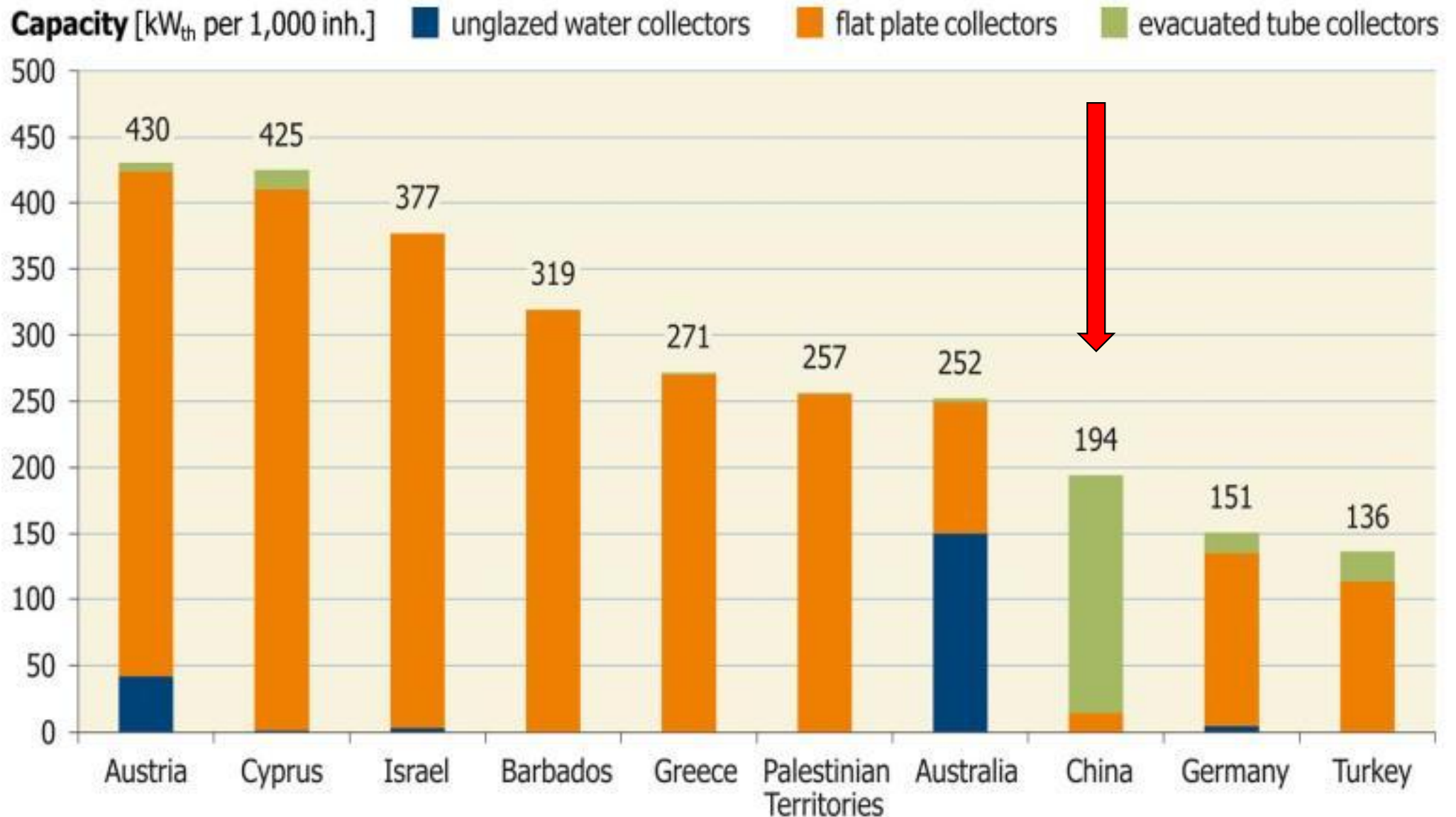
Total installed capacity



Total installed capacity in the 10 leading countries



Top 10: Total capacity in kW_{th} per 1,000 inhabitants

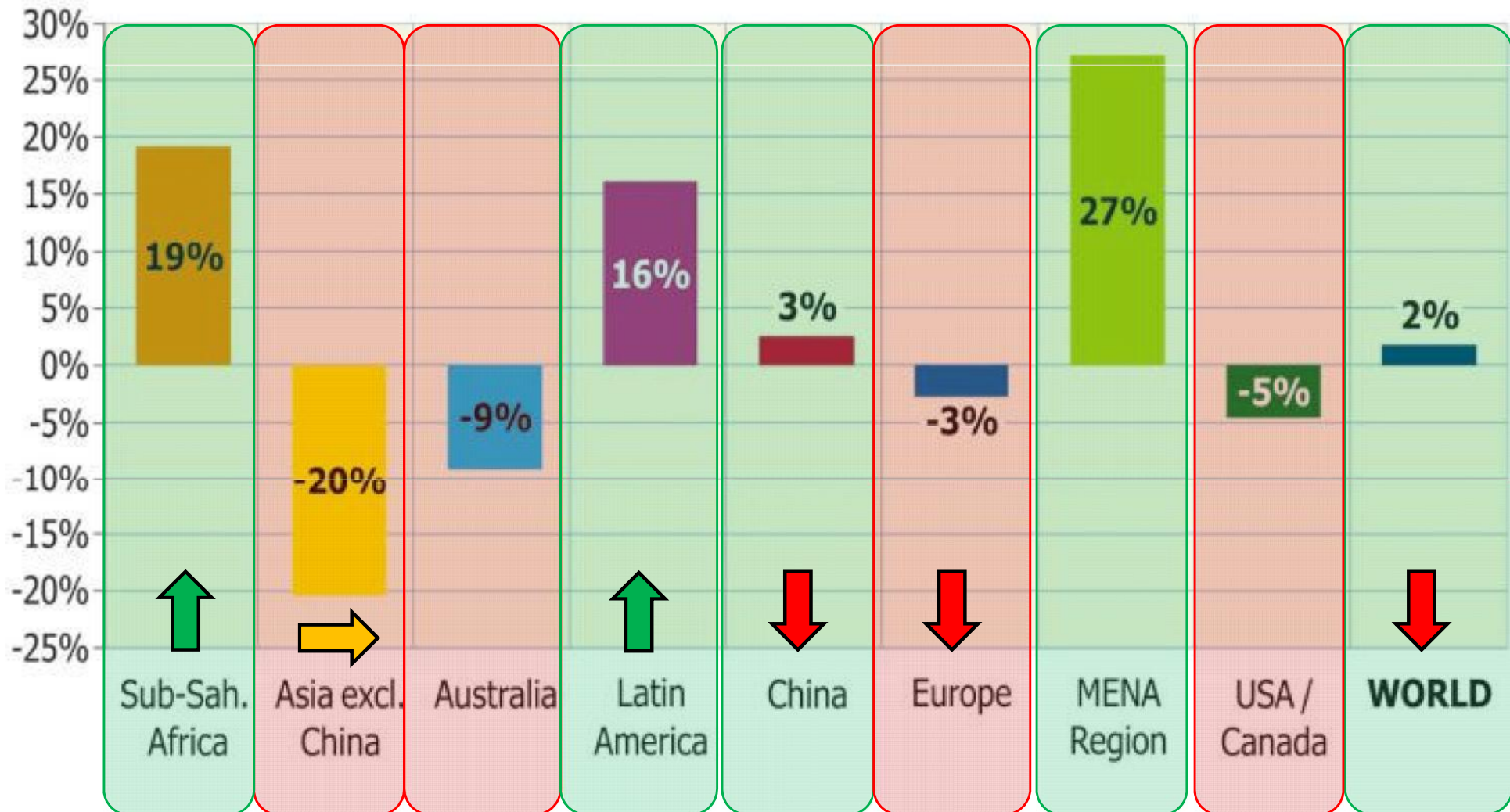


Market development - 2000 to 2013

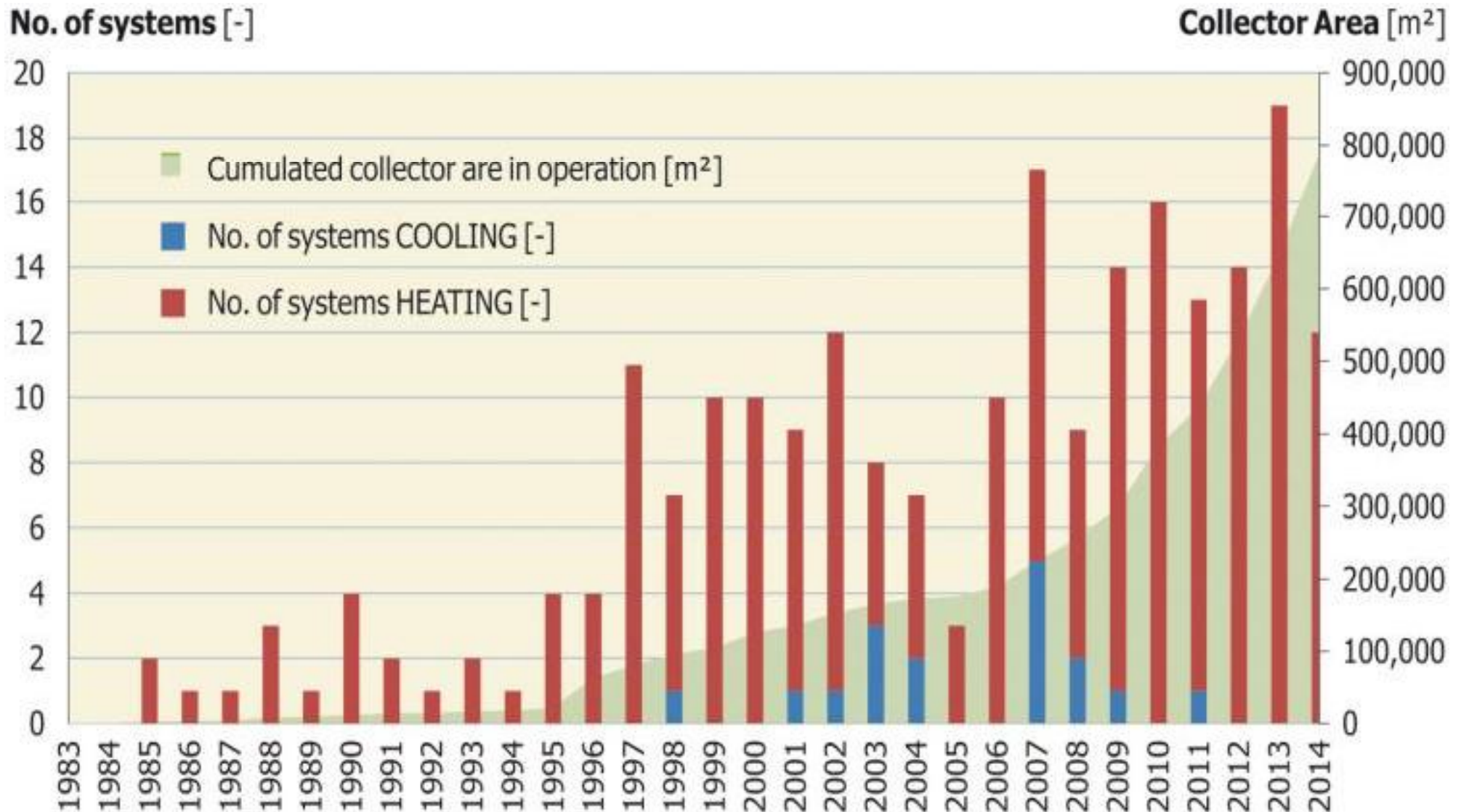


Market growth 2012 / 2013

Market growth 2012 / 2013



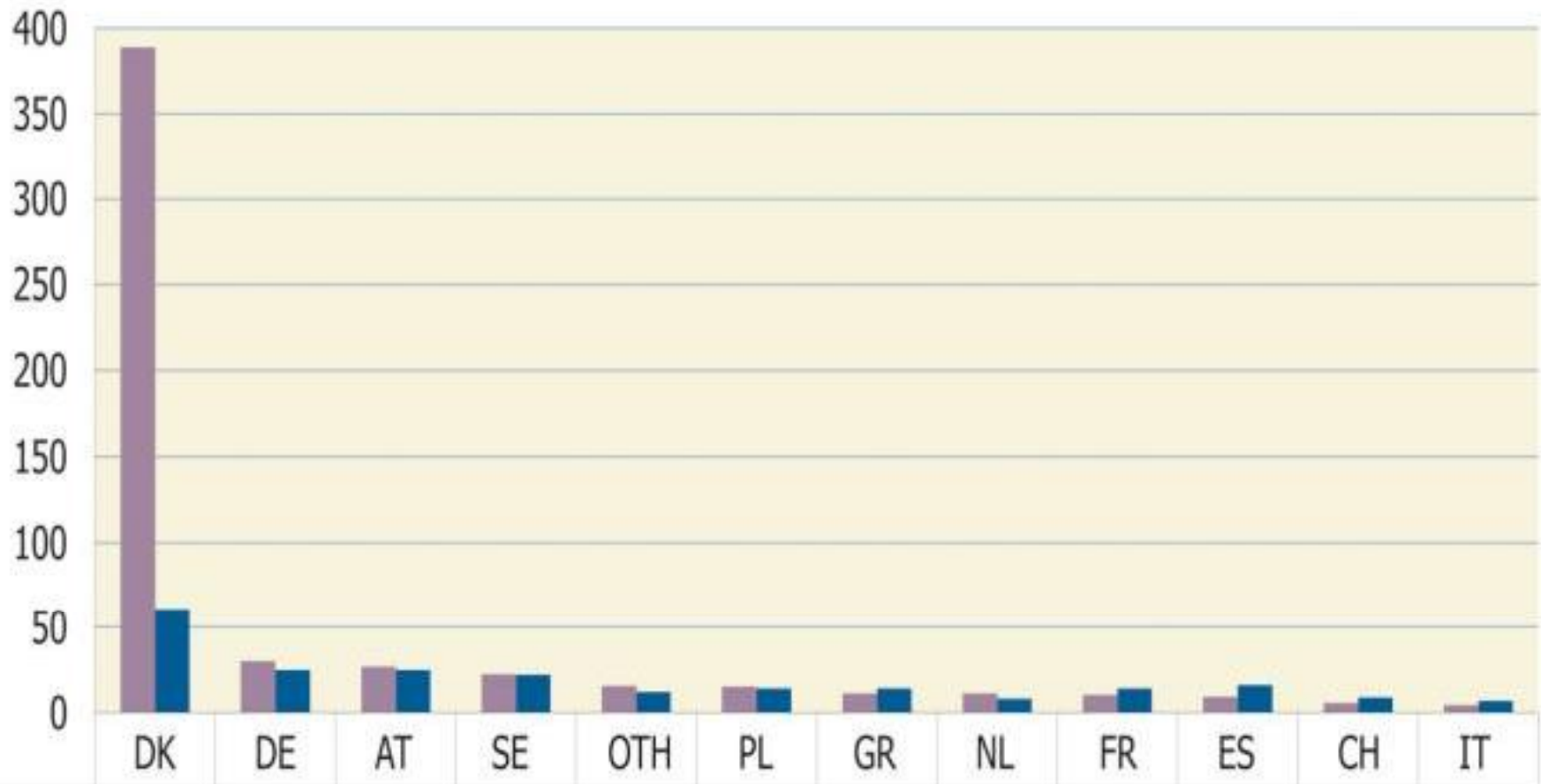
Large-Scale District Heating and Cooling Applications in Europe by the end of 2014



Source: Jan-Olof Dalenbäck, Chalmers University of Technology, DK

Large-Scale District Heating and Cooling Applications in Europe by the end of 2014

Capacity [MW_{th}]; No. [-]



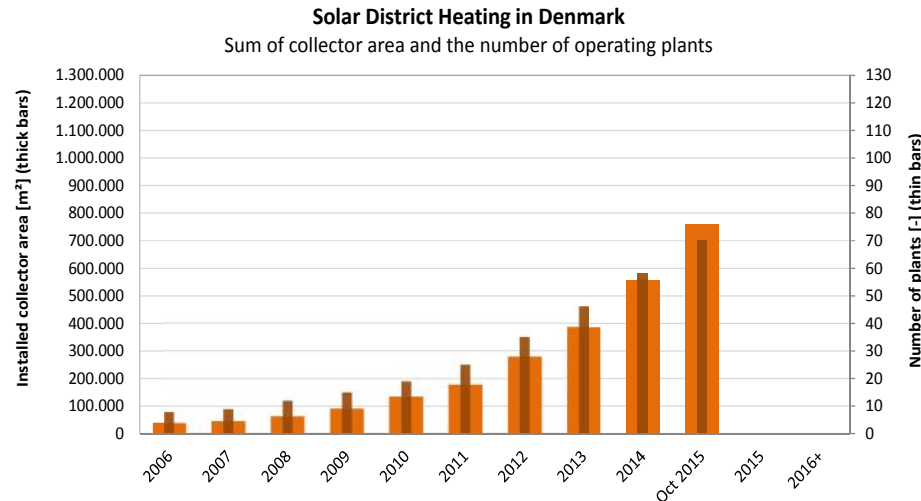
Capacity [MW_{th}]	389	30	27	22	16	15	11	11	10	9	6	4
No. of systems [-]	61	25	25	22	12	14	14	8	14	16	9	7

Source: Jan-Olof Dalenbäck, Chalmers University of Technology, DK

Solar District Heating in Denmark

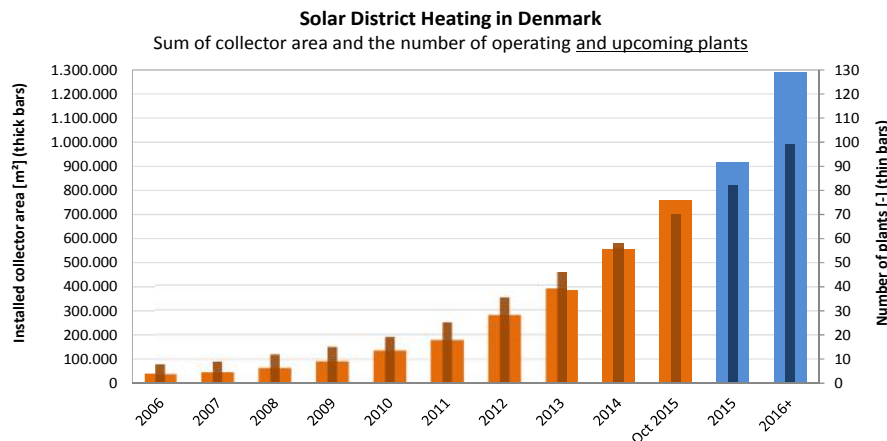
October 2015: 70 Solar District Heating Systems - 531 MW_{th} (759.000m²) in operation in Denmark

Ø system size: 10.850m²



End of 2016: Another 39 systems with 470 MW_{th} (672.000m²) will be installed

- Ø system size: 17.000m²



Vojens Fjernvarme, Denmark



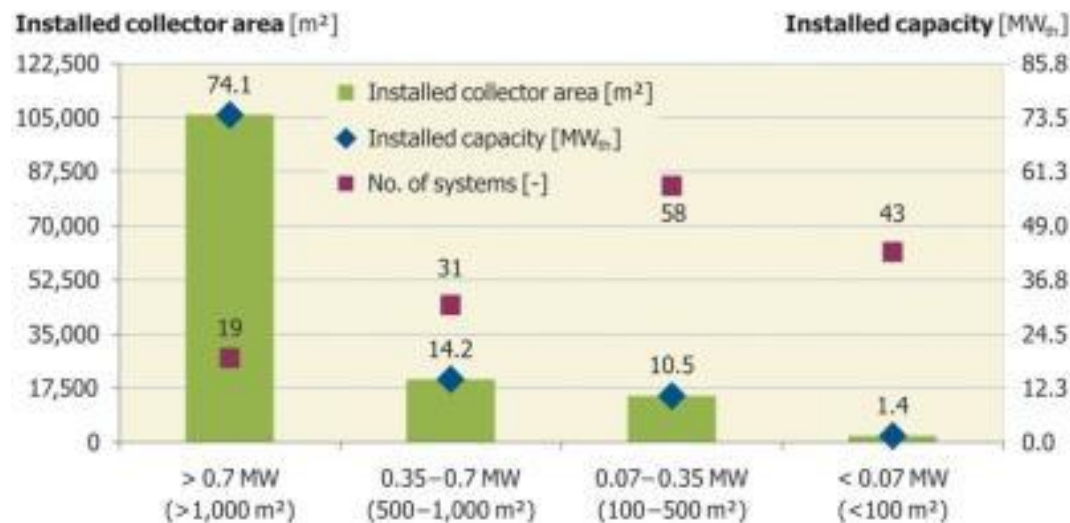
Solares Fernwärme, Riad, Saudi Arabien

36.000 m² / 25 MW_{th}



Global Solar Process Heat Applications - 2015

51 Systems with of 100 MW_{th} installed capacity (143.000m²) are in operation and documented worldwide



<http://ship-plants.info/>



Göss Brewery



Source: AEE INTEC

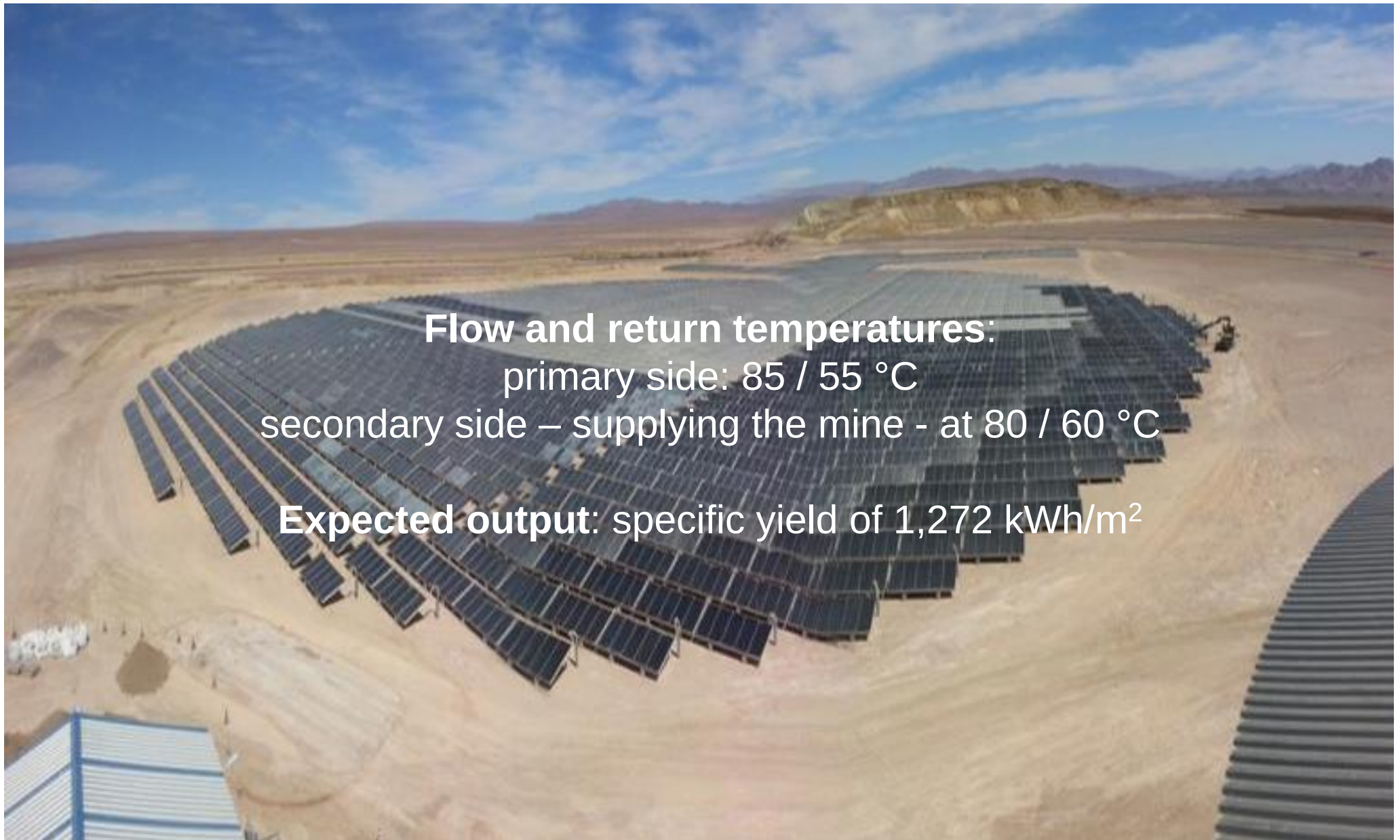
Göss Brewery

➤ Göss – construction of collector field



Source: AEE INTEC

Copper Mine “Gabriela Mistral”, Chile, 39,300 m²



A vibrant blue sky with a bright sun in the upper left, casting long, sharp rays across the frame. Large, fluffy white clouds are visible in the lower right and middle left. The text "Near Future" is centered in the upper half of the image.

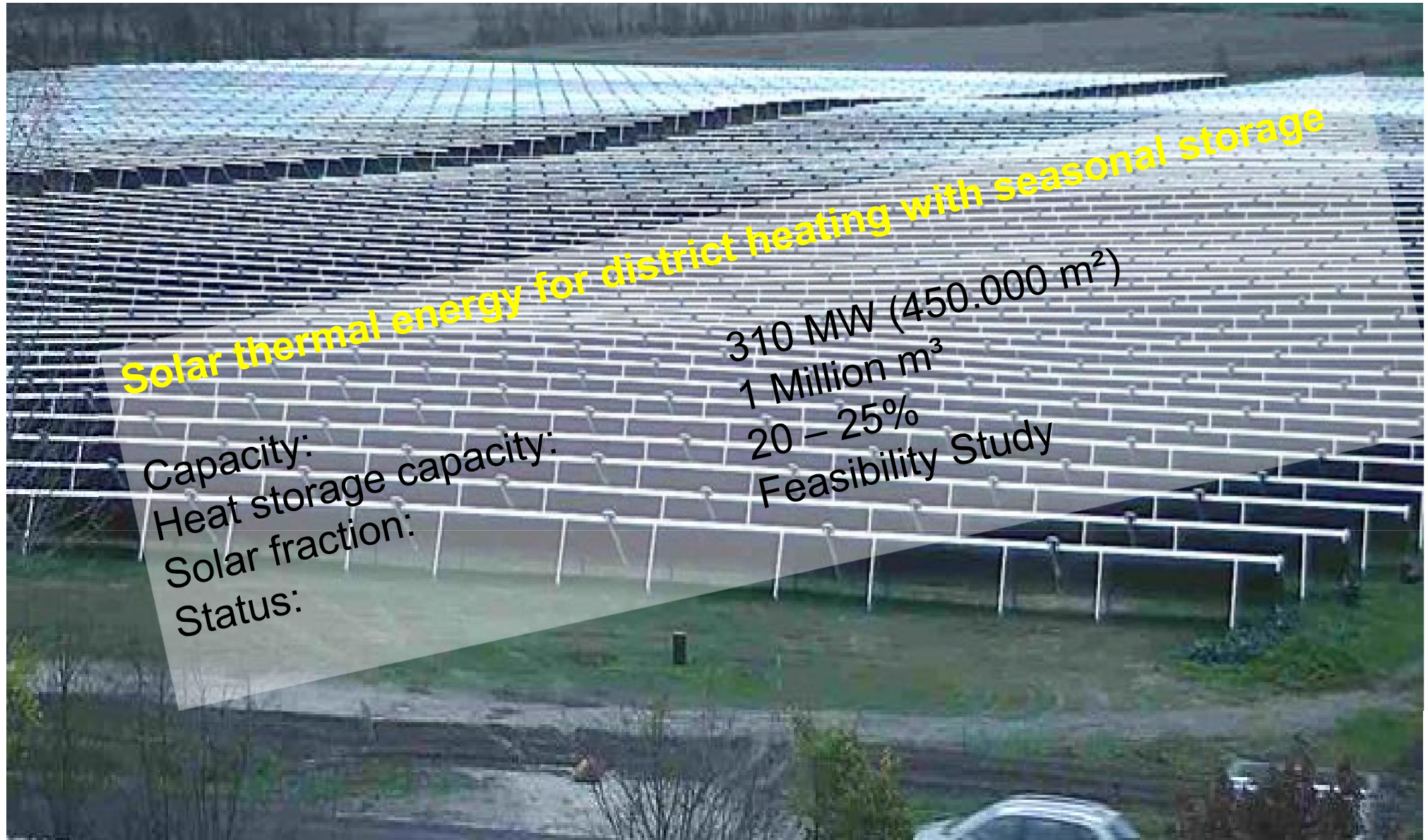
Near
Future

Graz



Graz, Austria

Solar district heating



Solar enhanced oil recovery, Mirrah, Oman

Capacity:
Daily steam output:
Total project area:
Start of construction:
Start of steam production:

1 GW
6,000 tons
3 km² (360 football pitches)
2015
2017

The Miraah plant will produce steam, which will be used in solar enhanced oil recovery to extract heavy and viscous oil at the Amal oilfield

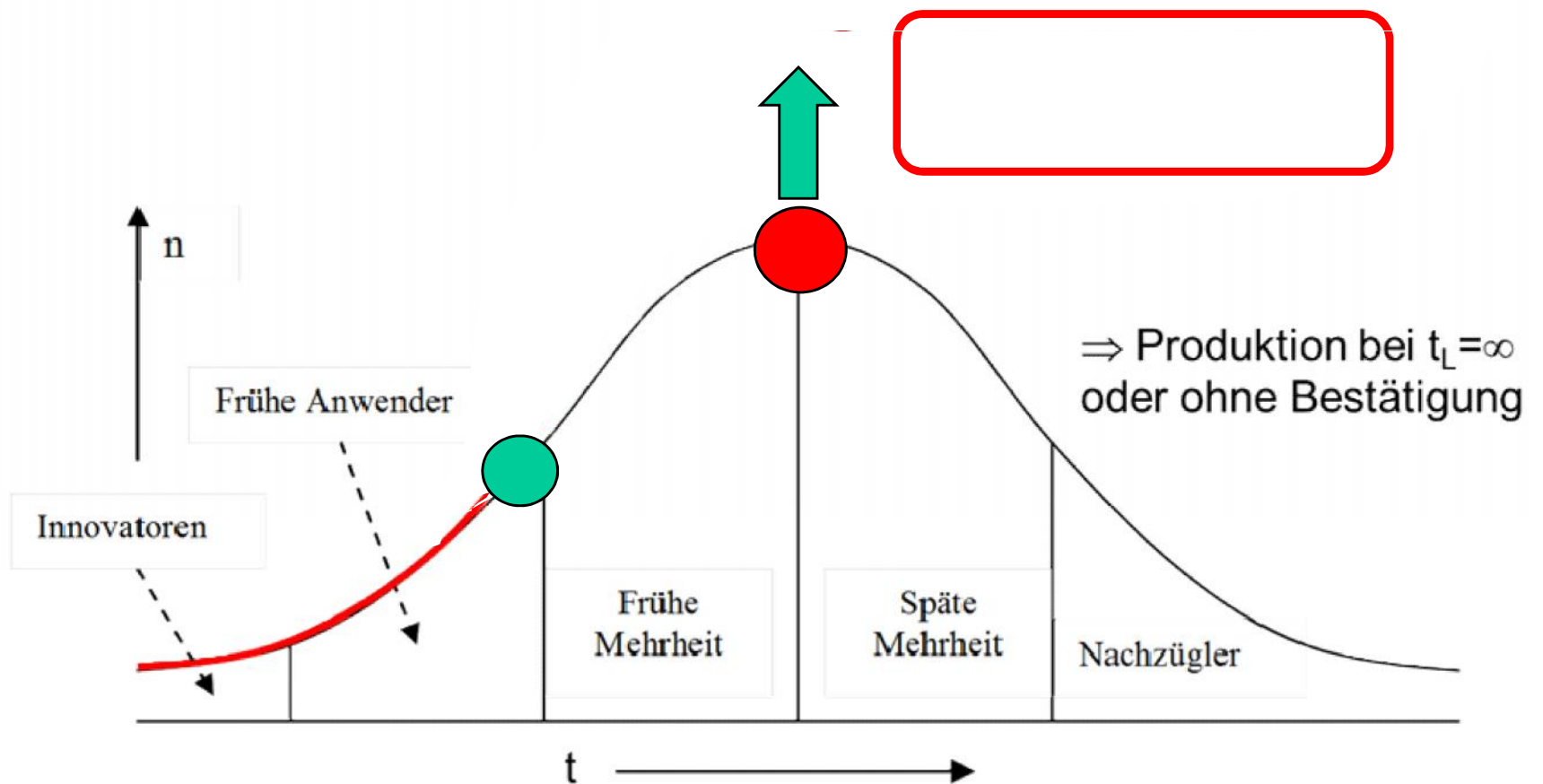
Source: Petroleum Development, Oman GlassPoint



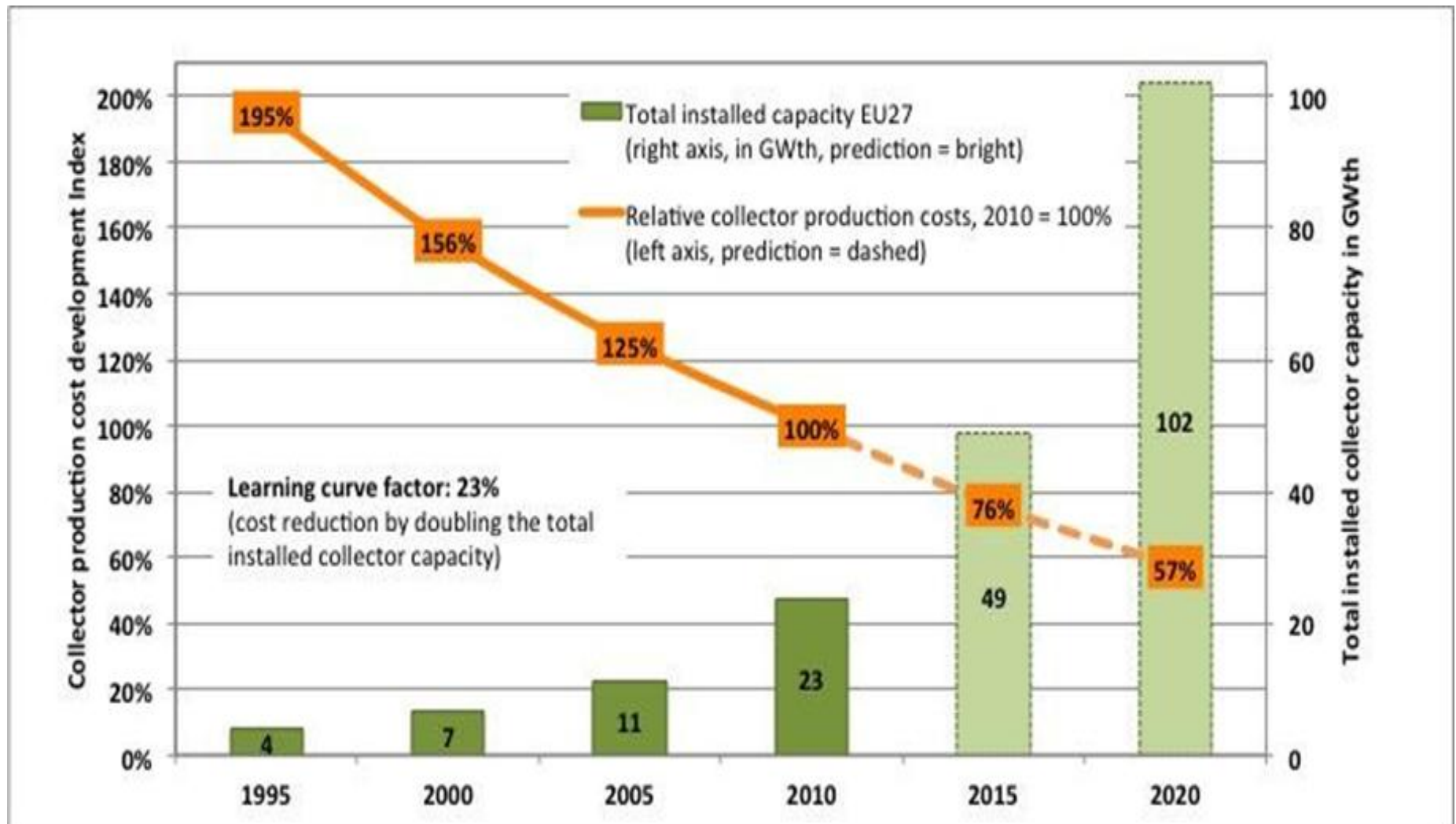
25 Jahre AEE NOW – 3. März 2016

Solarwärme – quo vadis?

Solarwärme – quo vadis?

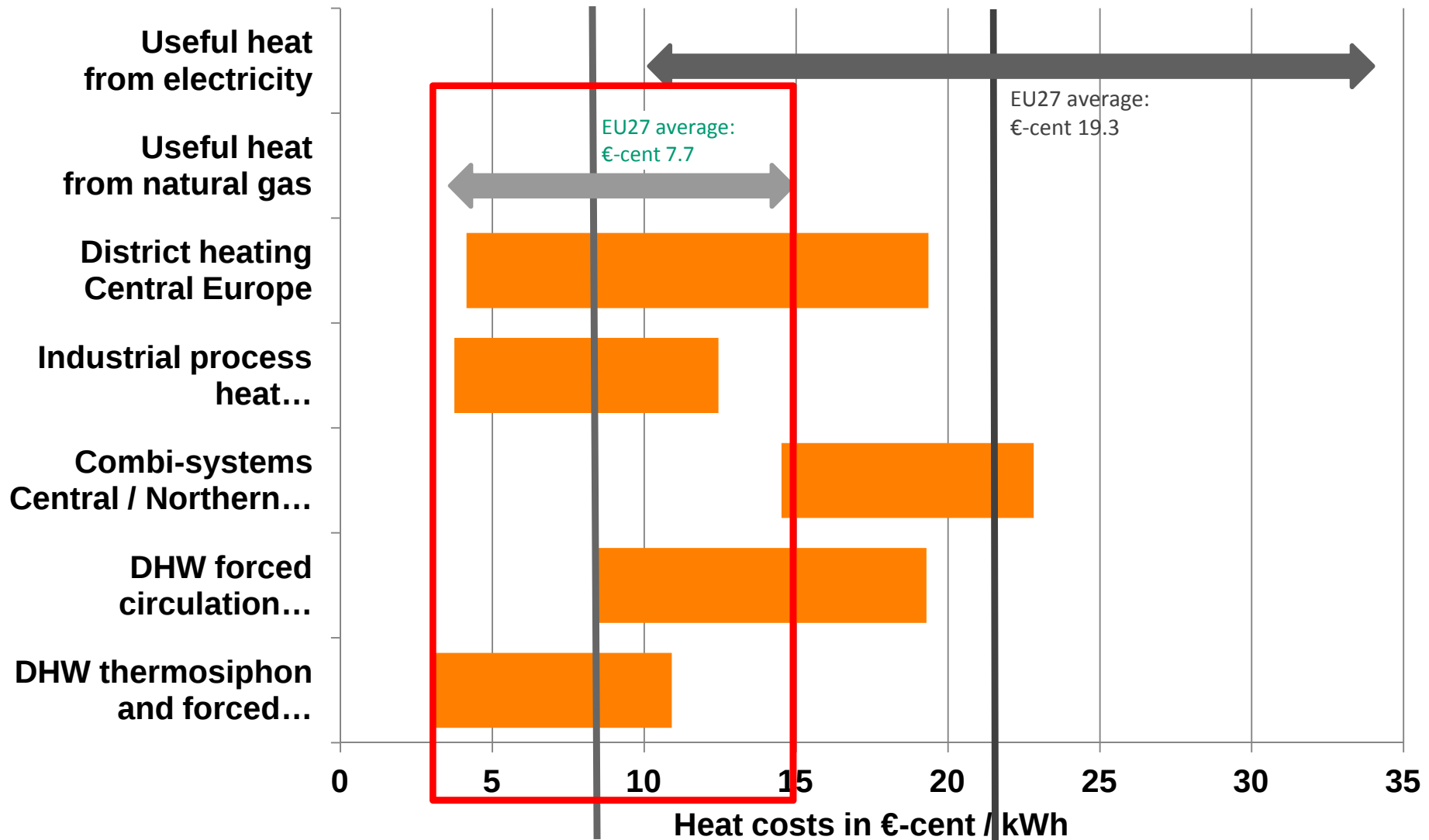


Collector production cost development in Europe



Source: ESTTP - SRP

Cost of Solar Heat in Europe



Thank you for your attention



IDEA to ACTION