



## **Solar Industrial Heat: Markets, Innovation and Outlook**

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# Highlights of SHIP market 2024

(SHIP = Solar Heat for Industrial Processes)



Photo: Mongolia XuCheng Energy

**120 MW**

new solar industrial heat plants in 2024 – a 28 % increase from the previous year

**125 MW**

SHIP capacity under construction by year's end



China, Germany and the Netherlands led the SHIP market in terms of new capacity

**69 %**

of new SHIP capacity uses concentrating collectors

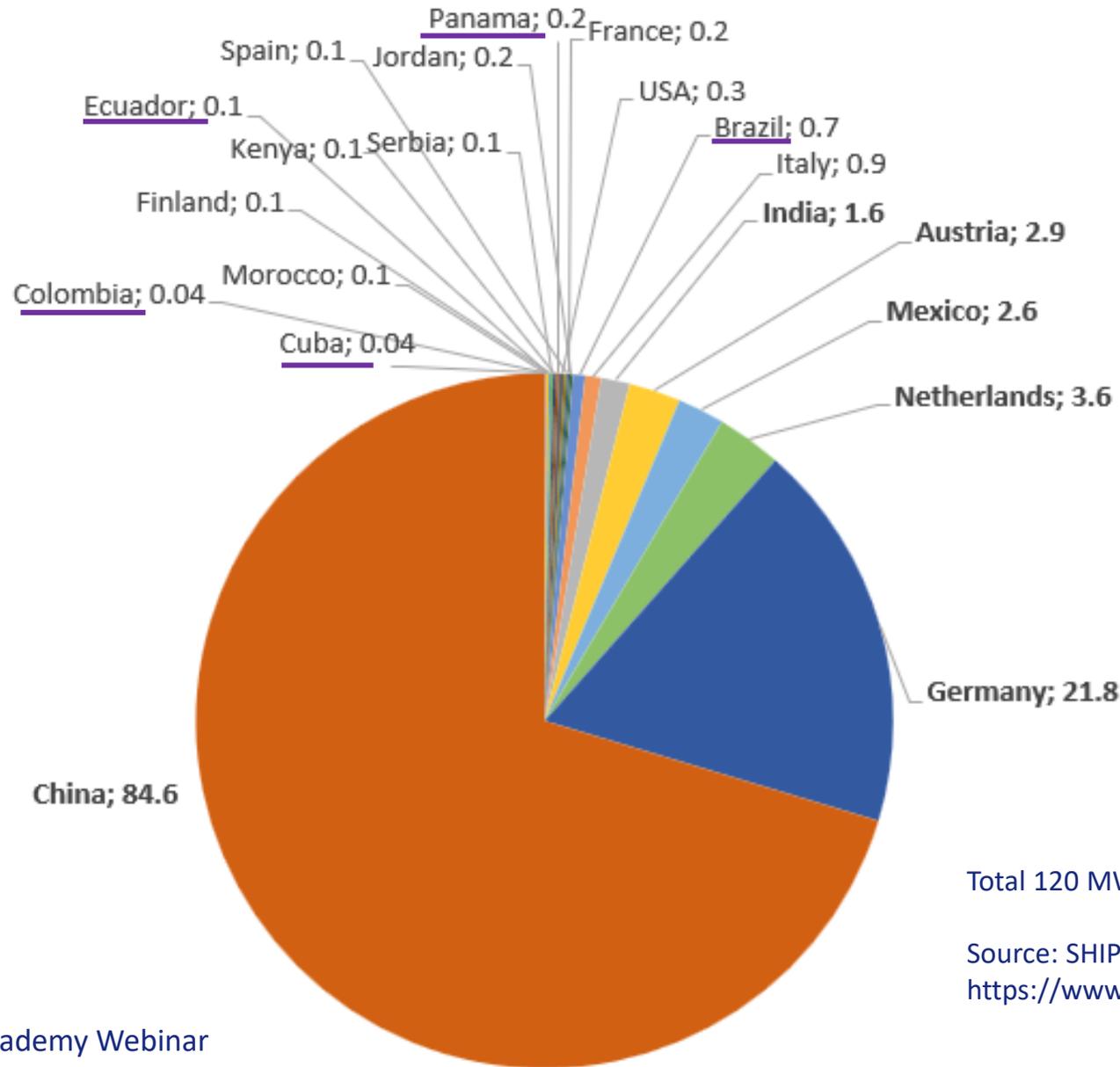


Solar heat is most popular among food, agricultural and chemical businesses

**80 MW**

largest plant commissioned in 2024 – Snow making in leisure resort in China

# SHIP capacity additions in 2024 in MW per country



Total 120 MW new SHIP capacity in 2024

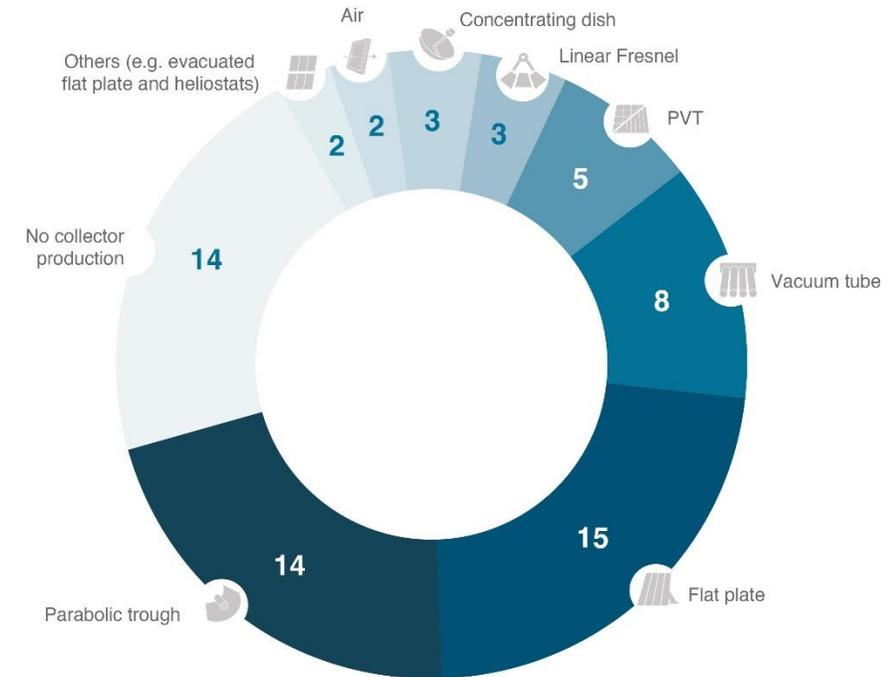
Source: SHIP Supplier World Map:  
<https://www.solar-payback.com/suppliers>

## Suppliers of Turnkey Solar Process Heat Systems

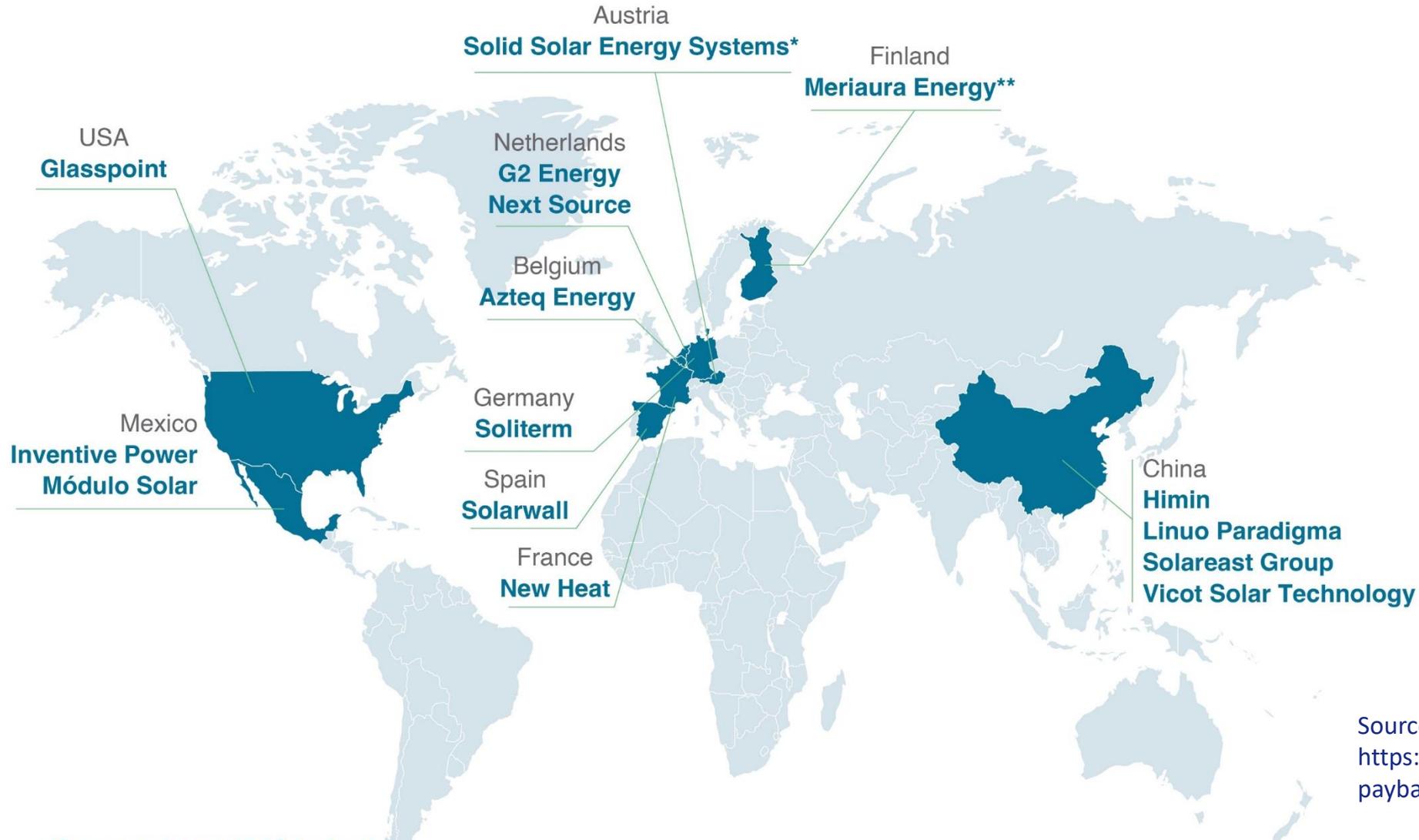
Search	
Solar supplier without references	2
Solar supplier with collector production and without references	9
Solar supplier with references	13
Solar supplier with collector production and references	44



## 66 turnkey SHIP project developers from 25 countries



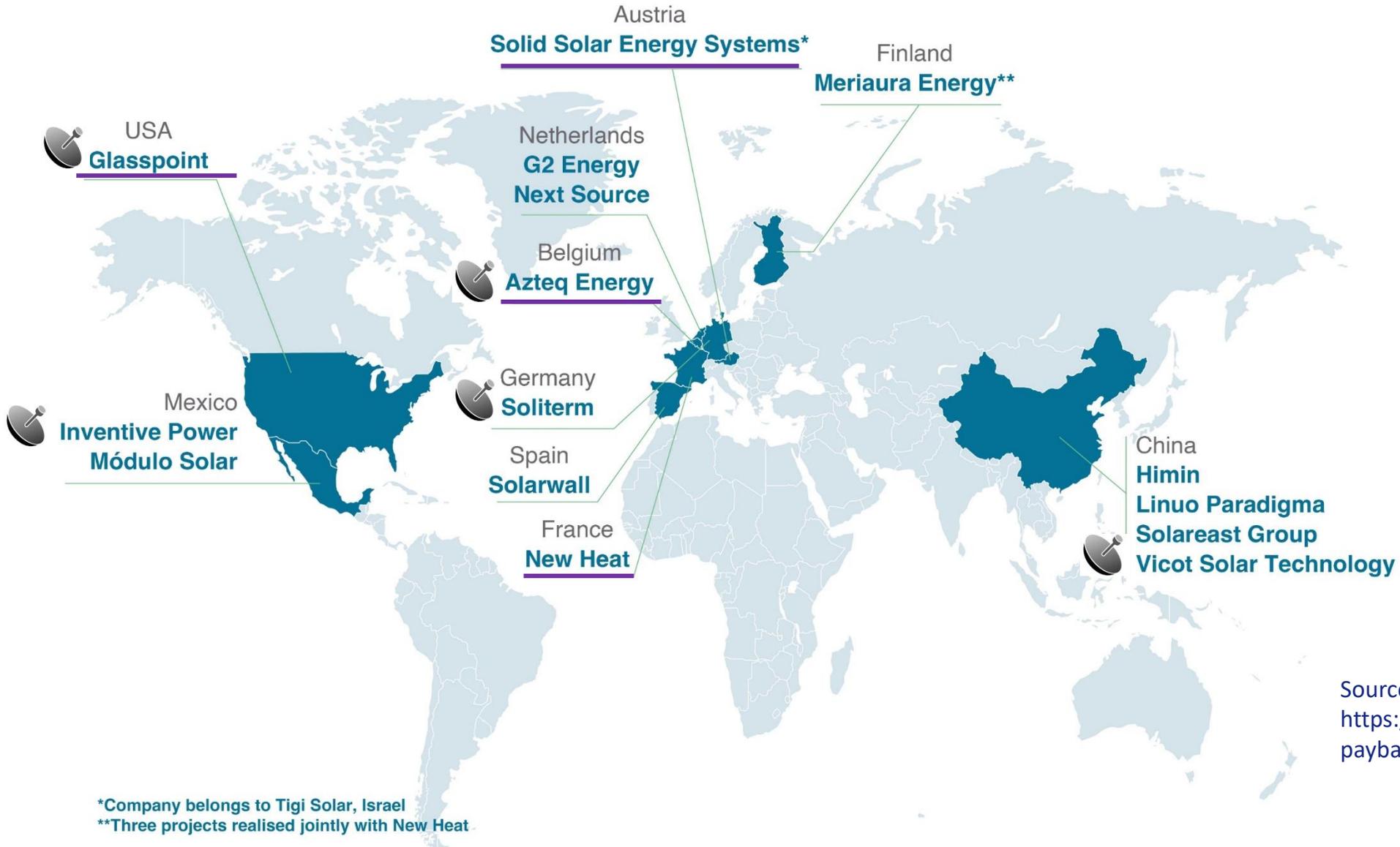
# Top SHIP Suppliers with more than 7 MW capacity installed



Source: SHIP Supplier World Map:  
<https://www.solar-payback.com/suppliers>

\*Company belongs to Tigi Solar, Israel  
\*\*Three projects realised jointly with New Heat

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Not even every fifth company has been satisfied with the business development in 2024

- Slow decision making processes at industrial clients
- Challenges in meeting payback expectations or heat cost requirements
- Conventional energy (coal, oil, gas) is still way too cheap
- Lack of trust into this rather new technology



“Although we have many leads in various countries, we have not closed any project during 2024.”

### **Bankruptcies / closure of business in the field of concentrating solar collectors:**

- Heliovis, Austria (inflatable tunnel with foil receiver)
- Heliac, Denmark (point focused fresnel with lenses)
- Kalido, Spain (concentrating dish technology)

### **Continuation of the business after insolvency**

- Tigi Solar, Israel, acquired a 90 % stake in SOLID Solar Energy Systems, Austria
- Azteq Energy, purchase of assets of insolvent Azteq group, Belgium

### **New listed companies on the SHIP Supplier World Map**

- **Elianto**, Italy, Linear Fresnel manufacturer with first demonstrators
- **Neoenergy**, Panama, project developer with imported collectors
- **Master Solar**, Serbia, flat plate collector manufacturer and project developer
- **H-Solar**, Mexico, newly started flat plate collector manufacturer
- **Autonomize**, Austria, newly founded project developer
- **Synhelion**, Switzerland, developer of solar towers for fuel production



Solar tower with reactor for fuel production at 1,500 °C in Germany, demonstrator by startup Synhelion, Switzerland  
Photo: Synhelion



Using molten salt as a heat transfer medium and storage reduces CAPEX by about 20 % Photo: Glasspoint

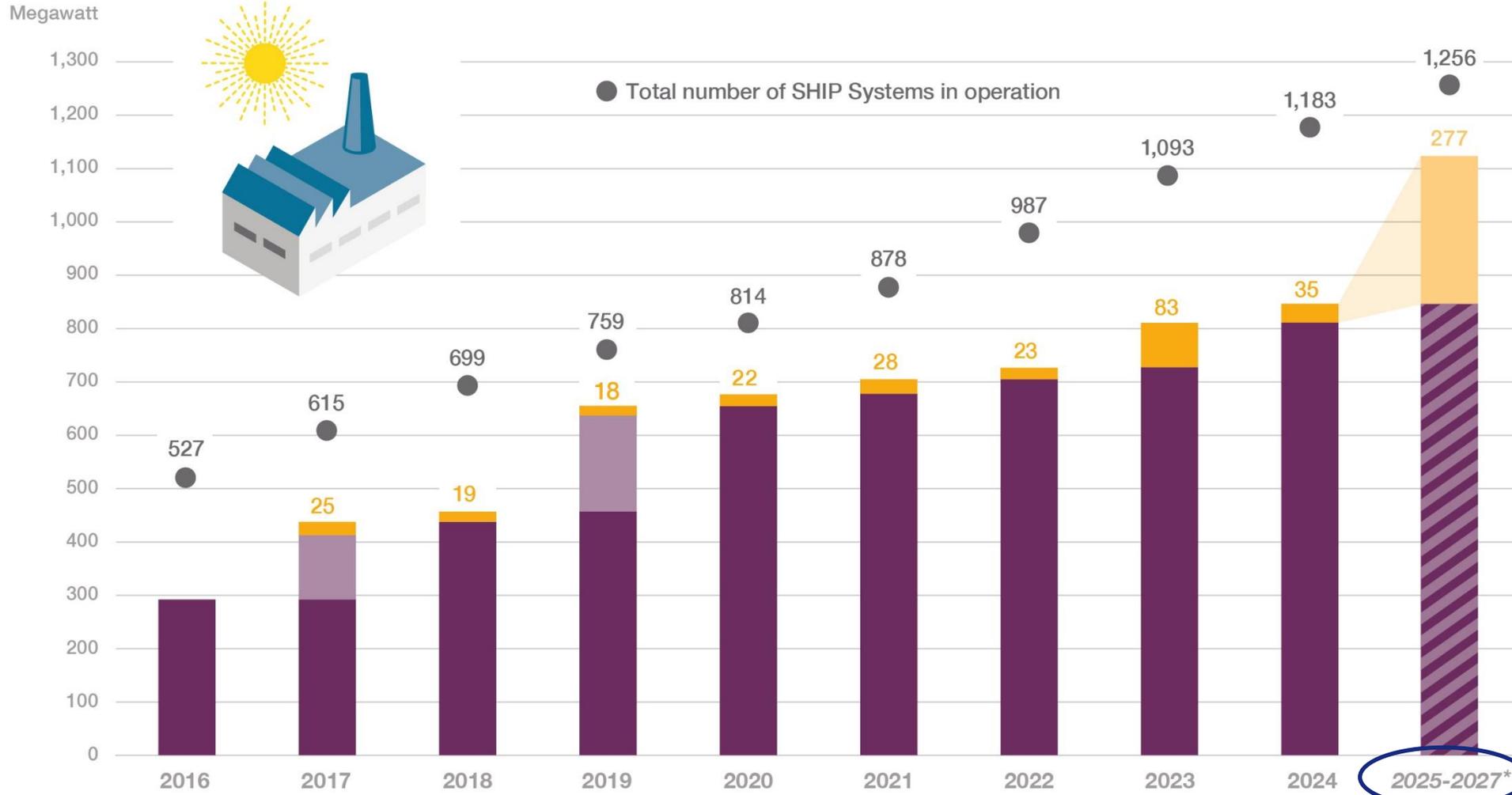
- Solution for low pressure steam production commercialised by TVP Solar, Switzerland
- Control system for large solar mining project developed by Flemming Jorgensen, Mexico
- Cost reduction measures for installation work developed by Phoenix Solar Thermal, Canada



Source: Istock



# SHIP World Market Development 2016 to 2027

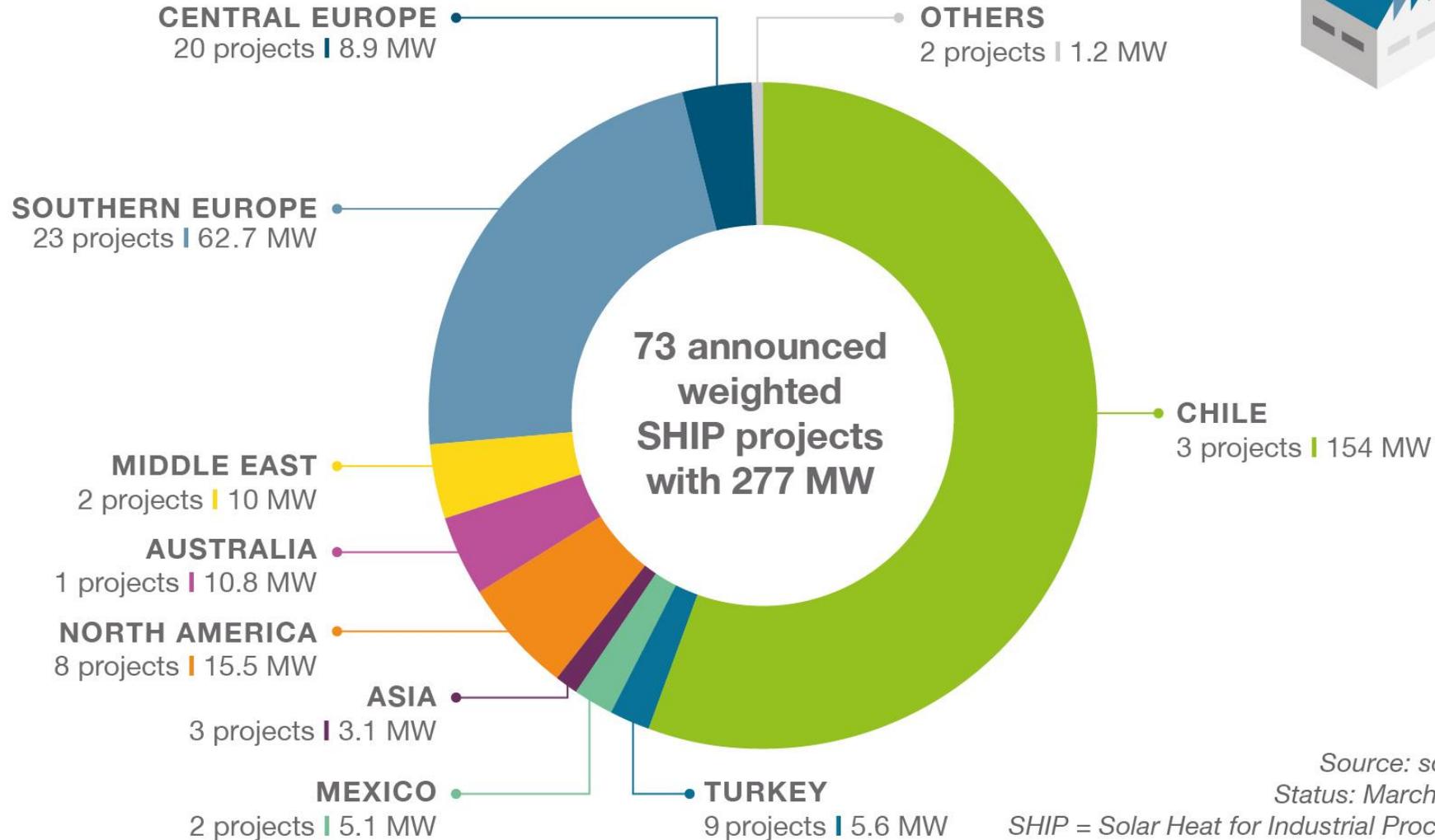


- Cumulated SHIP capacity in MW
- Forecast for cumulated SHIP capacity in MW
- Capacity additions to SHIP plant in Oman in MW
- Annual SHIP capacity additions in MW

*\*2025-2027: Project capacities are weighted according to their probability of realisation  
 The conversion factor of 0.7 kW/m<sup>2</sup> aperture area is used for most projects.  
 Projects in China are not considered in this chart.  
 Source: solrico, Status: March 2025; SHIP = Solar Heat for Industrial Processes*



# SHIP projects planned on all five continents

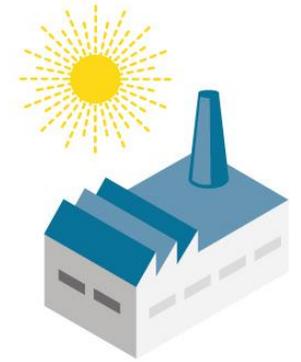


Source: solrico;  
Status: March 2025

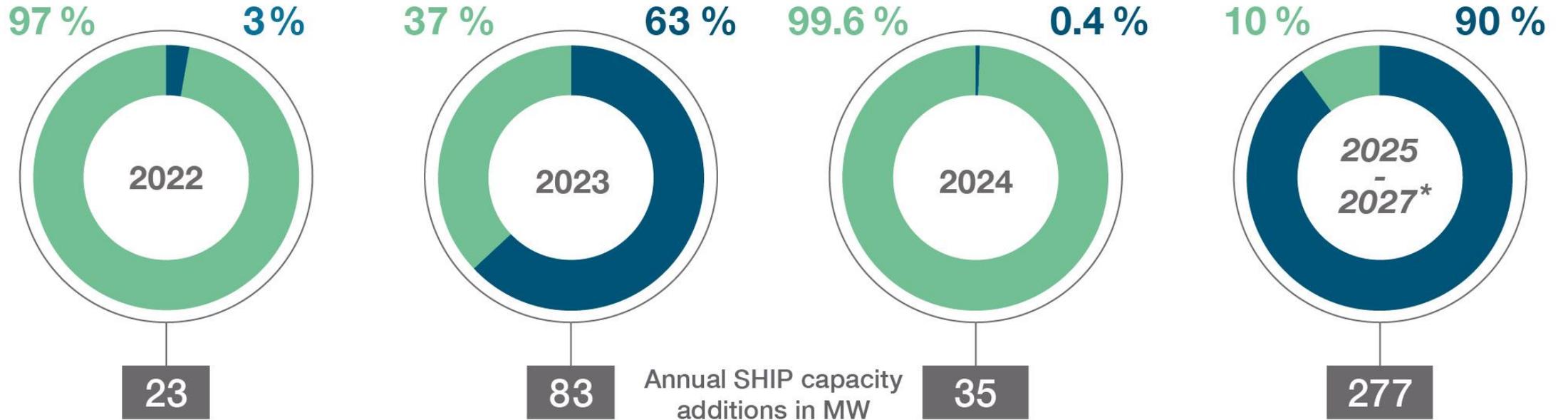
SHIP = Solar Heat for Industrial Processes

- Chilean power utility **Gasco** invests **USD 71 million** in three flat plate collector fields with total capacity of 154 MW for two copper mines Minera Escondida and Spence
- Canadian company **Solarsteam** received grant agreement of **CAD 2.8 million** from the Government of Alberta to build the first demonstration project using its enclosed parabolic trough technology for water treatment at a factory.
- **Tigi Solar** from Israel started a cooperation with EREN Group from France to develop ESCO SHIP projects with up to **EUR 40 million**.
- **Glasspoint**, USA, announced a 750 MW SHIP plant with Searles Valley Minerals in California for which Glasspoint received a **USD 168 million** tax credit allocation within the American Recovery and Reinvestment Act (48C).
- **Australian Renewable Energy Agency (ARENA)** allocated **AUD 17 million** for a 18 MW parabolic trough collector field at Mars Petcare facility in Victoria, Australia.

# Heat delivery contracts dominate the future SHIP market



■ Share of EPC system contracts    ■ Share of heat delivery contracts

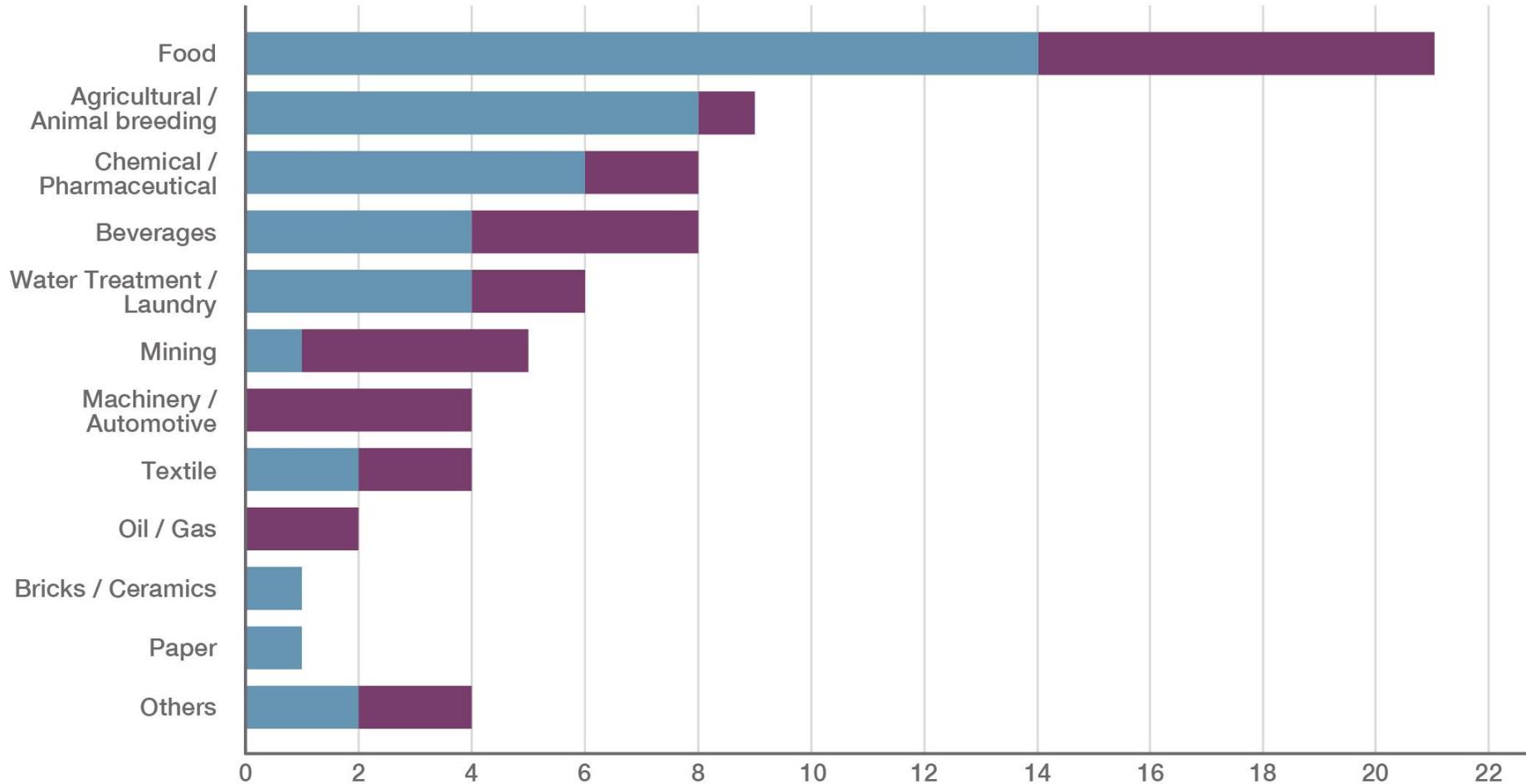


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# A wide range of industrial clients trust solar industrial heat solutions worldwide

■ Europe (43 projects) ■ Rest of the World (30 projects)



Industrial sectors of announced SHIP projects; Source: solrico, Status: March 2025

Thanks for your attention!

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Download charts of Solar Industrial Heat Outlook 2025-2027:

<https://nc.solrico.de/index.php/s/ubhJNTTVaxEGiA4>

Results of SHIP surveys:

<https://solarthermalworld.org/modulus/>

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