

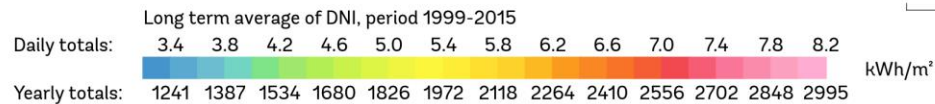


Webinar: Concentrating Solar Heat: Lessons learned in Mexico. 16th October 2019
Industrial heat demand in the Mexican context and parallel to MENA KIP country: Jordan

DNI resource

SOLAR RESOURCE MAP

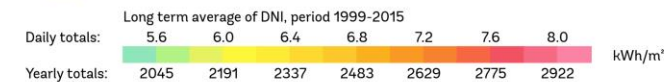
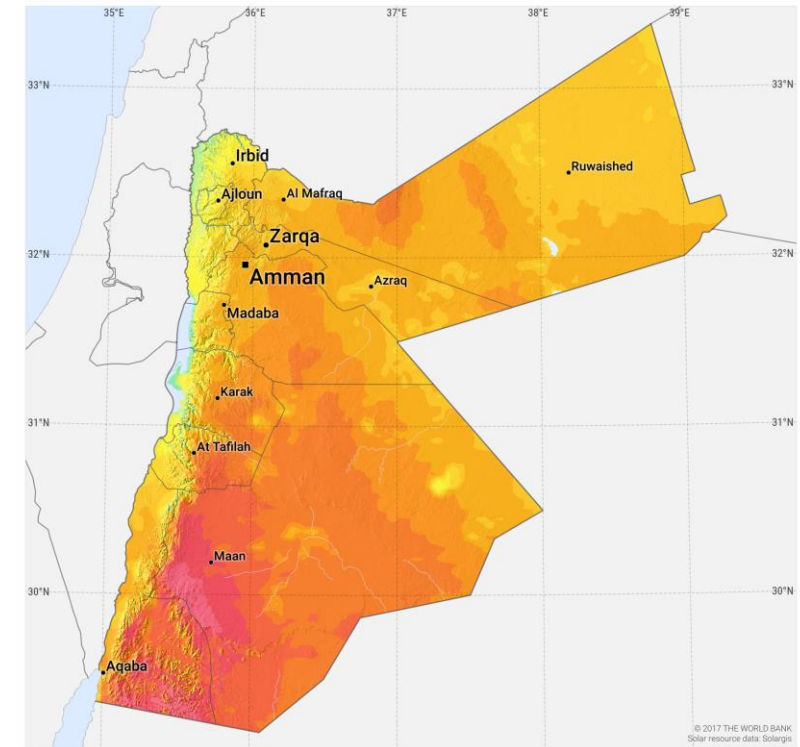
DIRECT NORMAL IRRADIATION MEXICO



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SOLAR RESOURCE MAP

DIRECT NORMAL IRRADIATION JORDAN



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Industrial sectors vs. Temperature level

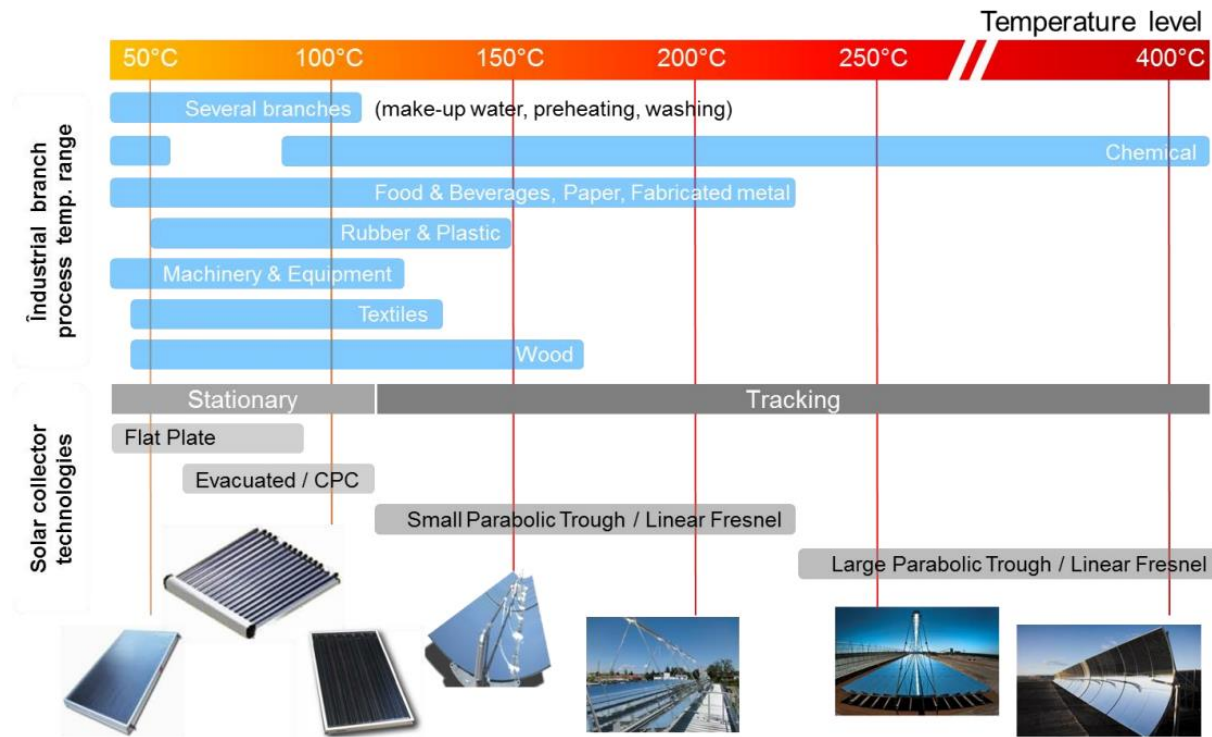


Fig.3.1 – Stationary and tracking solar collector technologies related to operation temperature and process temperature range in different industrial branches

Comparison of process heat collectors with respect to technical and economic conditions, Technical Report A.2.1
IEA-SHC Task 49

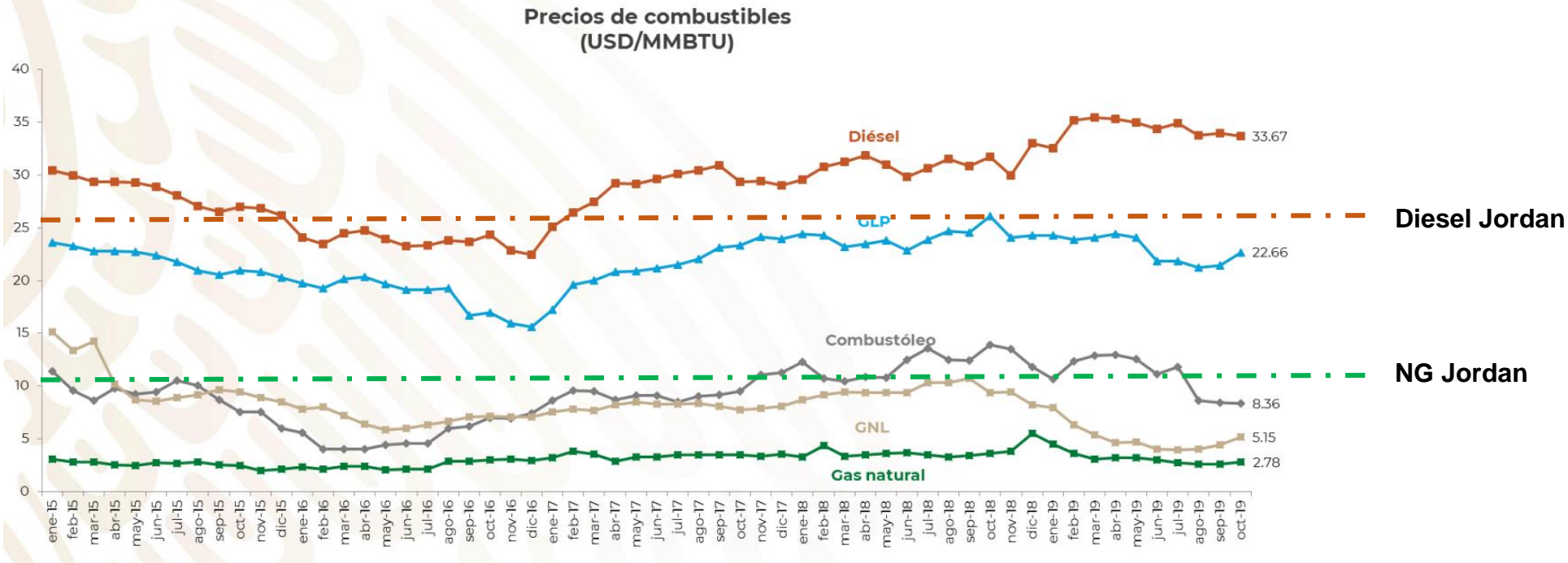
	Mexico	Jordan
Food and beverages	21,18	20,12
Tobacco products	1,46	7,03
Textiles	1,1	0,94
Wearing apparel, fur	1,12	6,44
Leather, leather products and footwear	0,65	0,36
Wood products (excl. furniture)	0,17	0,44
Paper and paper products	2	2,42
Printing and publishing	0,43	2,58
Coke, refined petroleum products, nuclear fuel	11,1	9,29
Chemicals and chemical products	9,03	17,42
Rubber and plastics products	3,68	3,19
Non-metallic mineral products	3,92	9,25
Basic metals	5,52	5,29
Fabricated metal products	3,69	5,52
Machinery and equipment n.e.c.	2,7	2,42
Office, accounting and computing machinery	3,19	0,42
Electrical machinery and apparatus	3,09	1,97
Radio, television and communication equipment	0	0
Medical, precision and optical instruments	0	0
Motor vehicles, trailers, semi-trailers	22,8	0,38
Other transport equipment	0,81	0
Furniture; manufacturing n.e.c.	2,36	3,46
Recycling	0	0
T < 200°C	65,9	51,37

Value added in % Total Manufacturing (2017), UNIDO
<https://www.unido.org/resources/statistics/statistical-country-briefs>

Competitiveness vs. energy source cost



El gas natural es el combustible más económico comparado contra otros combustibles uso industrial y para generación eléctrica



Prontuario Estadístico, Oct.19, DG Gans Natural y Petroquímicos
https://www.gob.mx/cms/uploads/attachment/file/500465/Prontuario_octubre_2019.pdf

EY for
The big picture: Competitiveness and investment perception for CSH in Middle East & North Africa
World Bank MENA KIP CSP



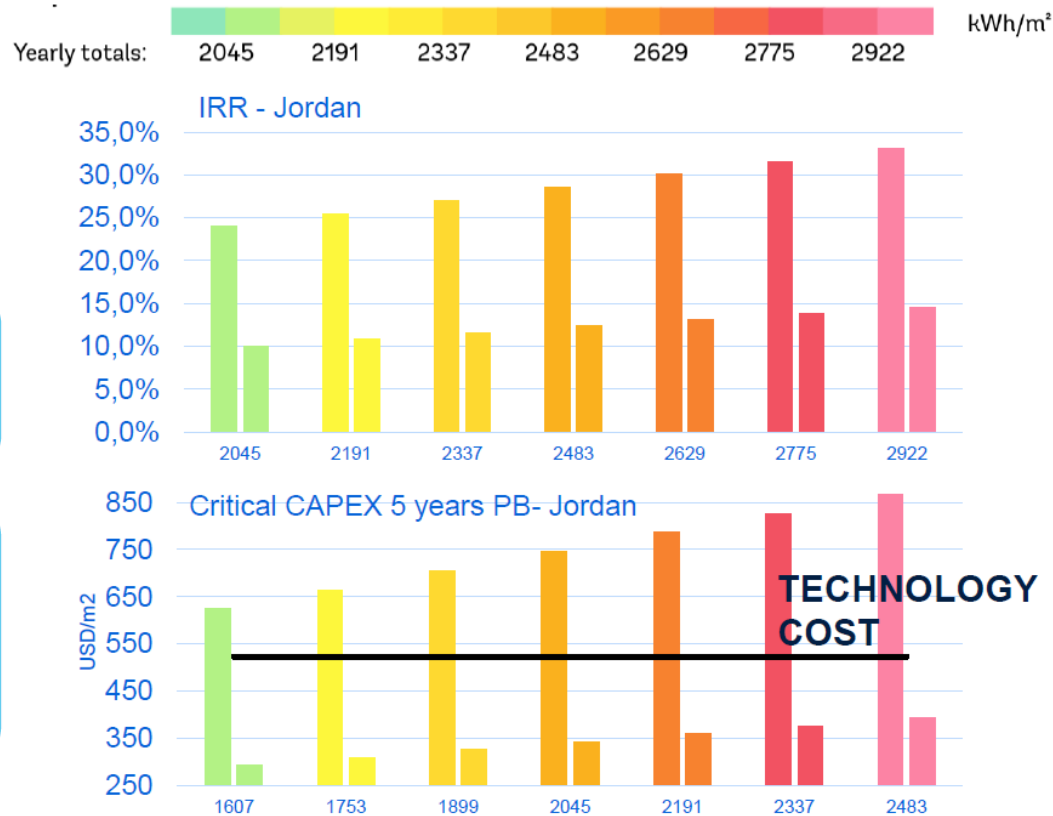
Competitiveness vs. energy source cost

Jordan: IRR and Critical CAPEX for a 5 year Payback

General Inflation	Diesel	LPG
	USD/MWh, net	USD/MWh, net
1.95%	108.9	45.2

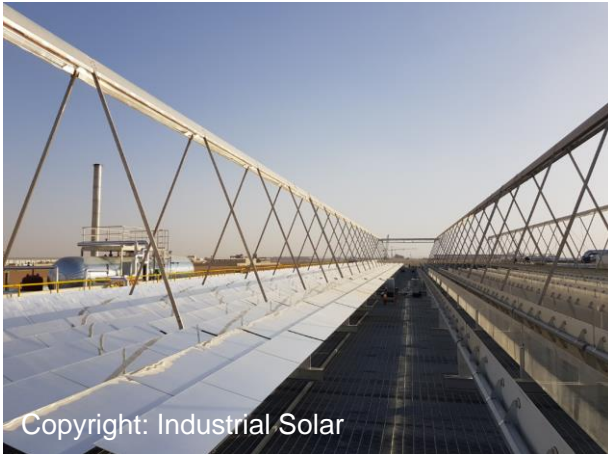
Jordan can have 10-33% IRR for a CSH investment

For diesel critical CAPEX between \$625-\$850/m², above current market prices



(Reported) current plants: Jordan

- 3 projects
- 2 550 m²
- Largest plant:
JTI (Jordan) – Tobacco
1 880 m² Fresnel

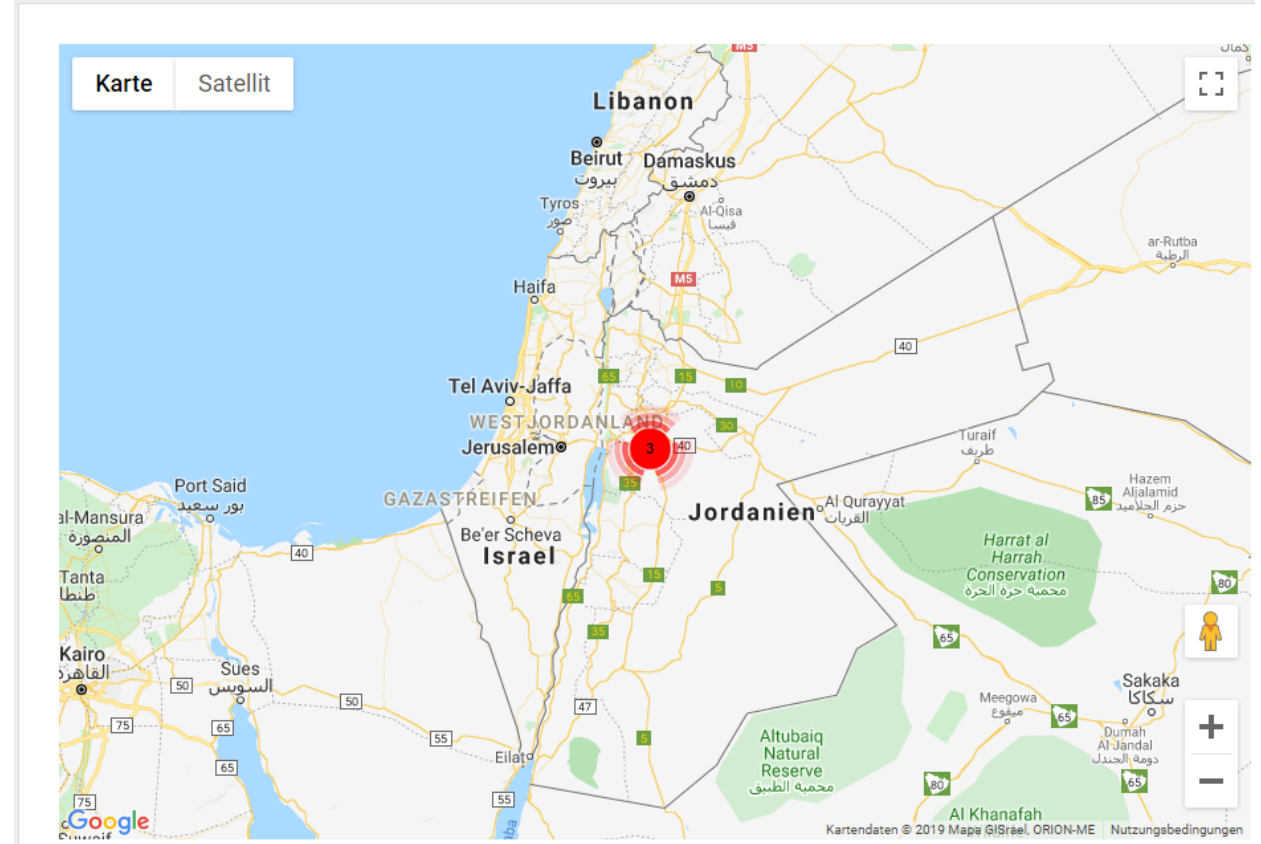


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SHIP Plants ©2013-2019 AEE INTEC

<http://ship-plants.info>

World Map of Solar Thermal Plants 3 projects



(Reported) current plants: Mexico

- 73 projects
- 31 096 m²
- Largest plant:
La Parrena copper mine –
Mining
6 270 m² Flat Plate



Copyright: Arcon-Sunmark

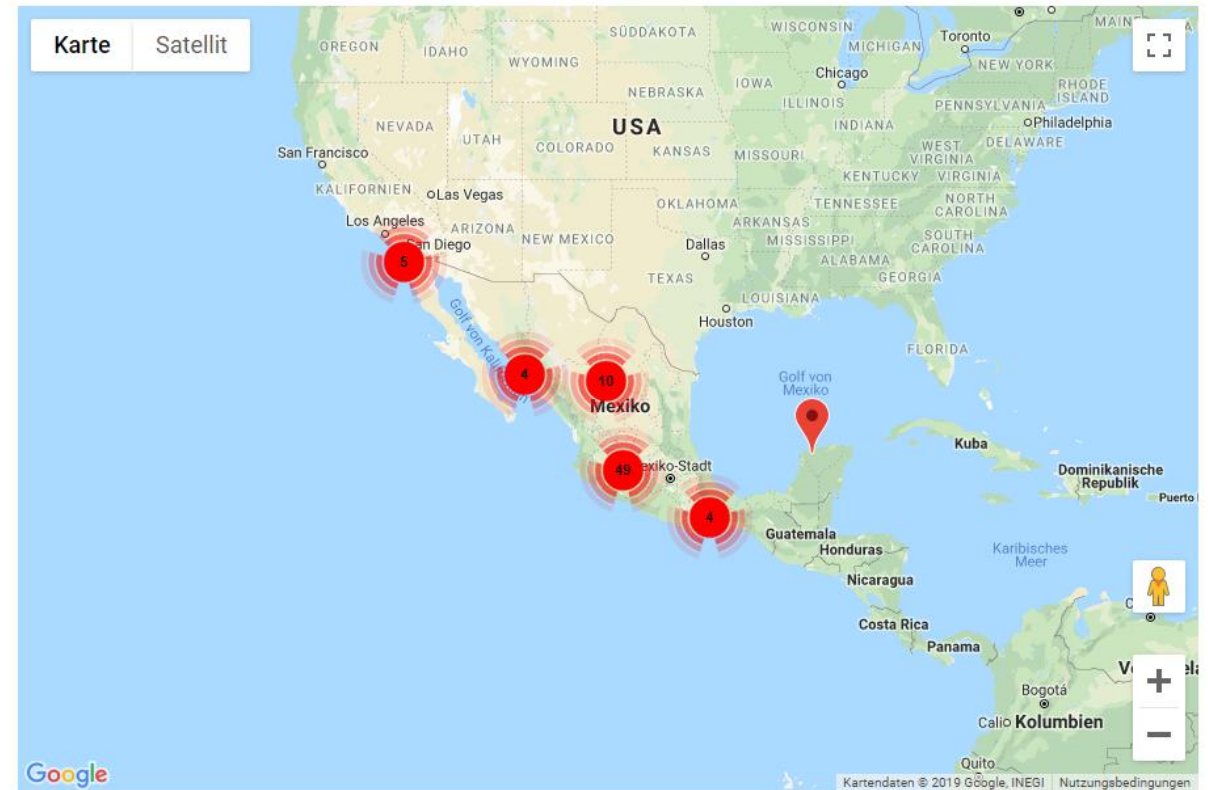
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World Map of Solar Thermal Plants

73 projects (10 projects without coordinates)





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