

Renewable
Energy
Specialists



+ WEBINAR

Webinar: Solar for commercial and industrial (C&I) heat

16 Nov, 11:00 CET (Check your local time)

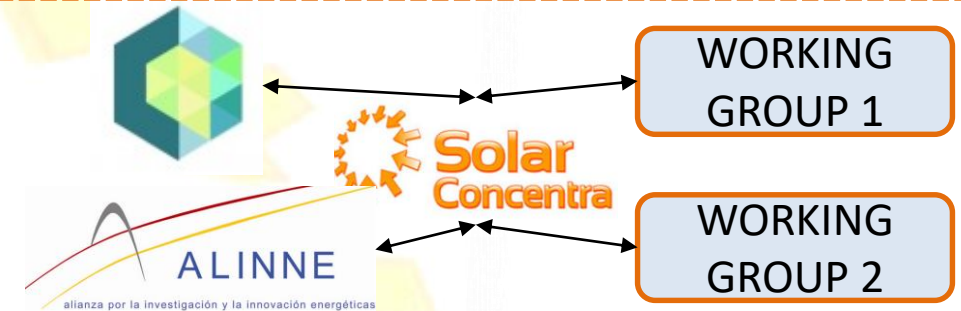
Fostering Solar Heat for Industrial Processes (SHIP) in Spain

1. *Who are we? History, Targets, Members, Activities...*
2. *SHIP market situation in Spain*
3. *Past and current Platform activities focused on boosting SHIP in Spain*
4. *Next Steps for making the market happen in Spain*

Who is SOLAR CONCENTRA?

DESCRIPTION

- Technological Platform
- Forum build up by the most representative agents in the Solar Thermal Energy Industry
- An active tool that fosters the R&D activities



HISTORY



2010

Technical Secretariat



MINISTERIO
DE CIENCIA
E INNOVACIÓN

Financing Entity



MINISTERIO
DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD

Technical Secretariat



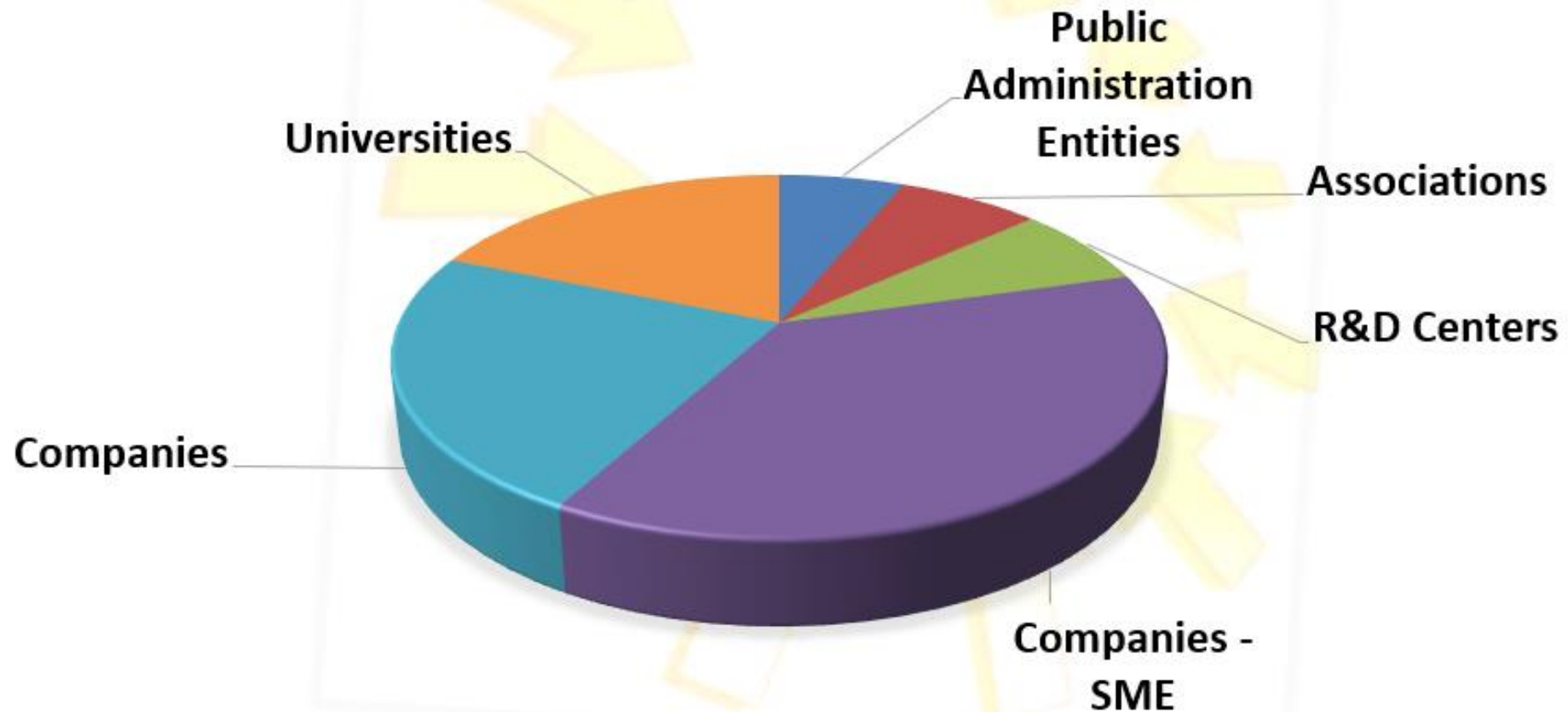
06.2016

GOALS

- Capitalization of knowhow targeting market implementation of Concentrating Solar R&D activities
- Fostering the cooperation among members → Strengthening the STE industrial network



112 entities build up **SOLAR CONCENTRA**





Working Groups: Solar Thermal Energy

WG – CONCENTRATING TECHNOLOGIES

✓ Find out synergies among members in order to add value to the STE / CSP Industry

- ☐ Focused on STE Power Generation
- ☐ Being up to date regarding CSP generation data at world level
- ☐ Sharing STE / CSP country development programs
- ☐ Discussing the development guidelines for the future
- ☐ Focusing on STE / CSP cost reduction
- ☐ Useful tool and dissemination place for sharing entities capabilities linked to STE / CSP industry

WG – MEDIUM TEMPERATURE

✓ Fostering Solar Heat for Industrial Processes (SHIP)

- ☐ Beyond Power
- ☐ Medium range temperature applications 100 -400 °C
- ☐ Promising new market with huge potential development
- ☐ Aiming firms creation and job growth
- ☐ Decarbonizing the Spanish Industry

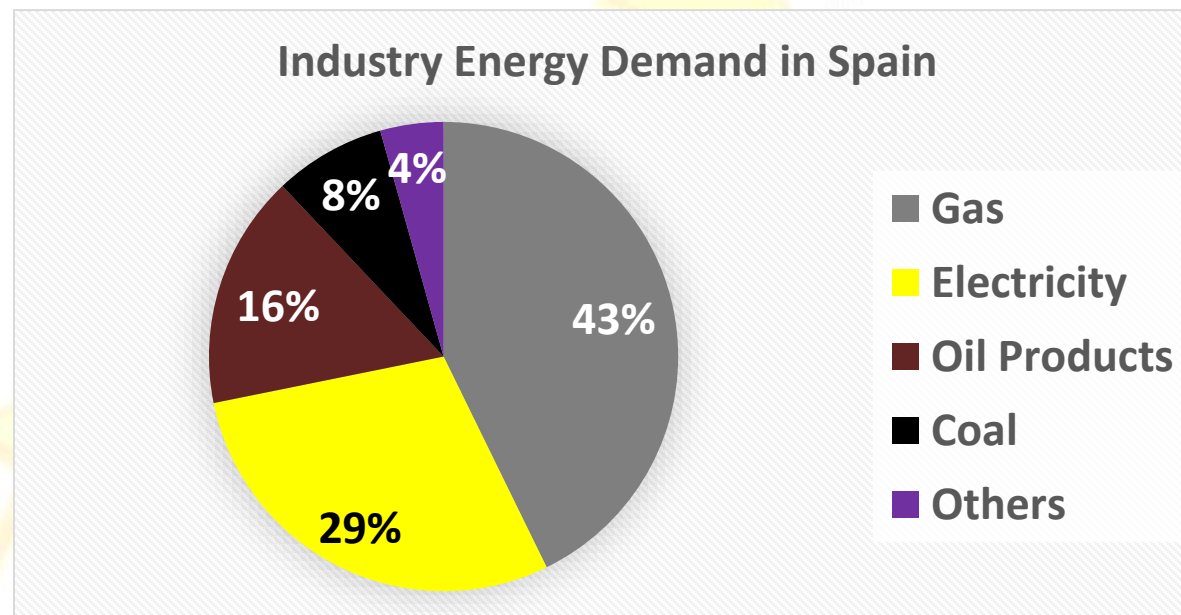
1. *Who are we? History, Targets, Members, Activities...*
2. ***SHIP market situation in Spain***
3. *Past and current Platform activities focused on boosting SHIP in Spain*
4. *Next Steps for making the market happen in Spain*

Market Sizing carried out by IDAE back in 2007, showed great business opportunities for SHIP in Spain



768 pages

- SHIP Potential Market Size – 36.8 GW
- SHIP (including cold generation) – 53.4 GW
- 41% of Industry Heat needs are below 250 °C



Source: IDAE. 2007 data. Evaluación del Potencial de la Energía Solar Térmica en el Sector Industrial

SHIP Market in Spain, nice start but... the technology has not achieved commercial level of development



DEMONSTRATION PROJECTS

Lactaria, Madrid 1981
Milk Industry
Pre-sterilization
Solar Fraction = 20%
600m²

Carcesa, Badajoz: 1982
Food Industry
Support for sterilization
1.120m²

Enusa, Salamanca: 1985
Absortion machine
Solar Fraction = 20%
600m²

ONGOING PROJECTS



**University of
Seville, 2009**
Building cooling
Peak Power 180kW
HTF max T = 180°C
512m²



**Barcelona, Mafrica
Slaughterhouse.**
AIRA



Cordoba, 2015
Pilot Project
INERSUR, Food
Industry



Dadelos, Valencia,
Agrochemical -
SOLATOM

1. *Who are we? History, Targets, Members, Activities...*
2. *SHIP market situation in Spain*
3. ***Past and current Platform activities focused on boosting SHIP in Spain***
4. *Next Steps for making the market happen in Spain*

2015

Potential market study for medium temperature concentrating solar applications in Spain



Estimating the cost of heat generation through medium temperature (100°C - 400 °C) concentrating solar technology



**MERCADO POTENCIAL EN ESPAÑA Y
APLICACIONES EN TECNOLOGÍAS
SOLARES DE CONCENTRACIÓN DE
MEDIA TEMPERATURA**

Diciembre, 2015

1. SOLAR RESOURCE ANALYSIS (SPANISH REGIONS I – V)
2. THERMAL ENERGY PRODUCTION OF THE SOLAR FACILITY
3. COST ESTIMATION OF THE kWh_t FOR 10 & 20 YEARS
4. COST ESTIMATION OF THE kWh_t OF THE FOSSIL FUEL FOR 10 & 20 Ys

OUTCOMES → good IRR figures for 20 year projects

10.2017

From paper to commercial actions → Finding out the lowest payback periods (could be <5years)

IDENTIFICATION OF THE BEST 130
POTENTIAL CUSTOMERS IN SPAIN

Who is who

Estudio geolocalizado del potencial de aplicaciones de calor solar de proceso en media temperatura



ARRANGING MEETINGS FOR
SHARING INFORMATION AND
FOR DATA VALIDATION



DIRECT CONTACT WITH
POTENTIAL CUSTOMERS → CASE
STUDIES, RAISE AWARENESS



<http://www.solarconcentra.org/wp-content/uploads/2017/10/Estudio-Anualidad-2016.GT-MT.pdf>

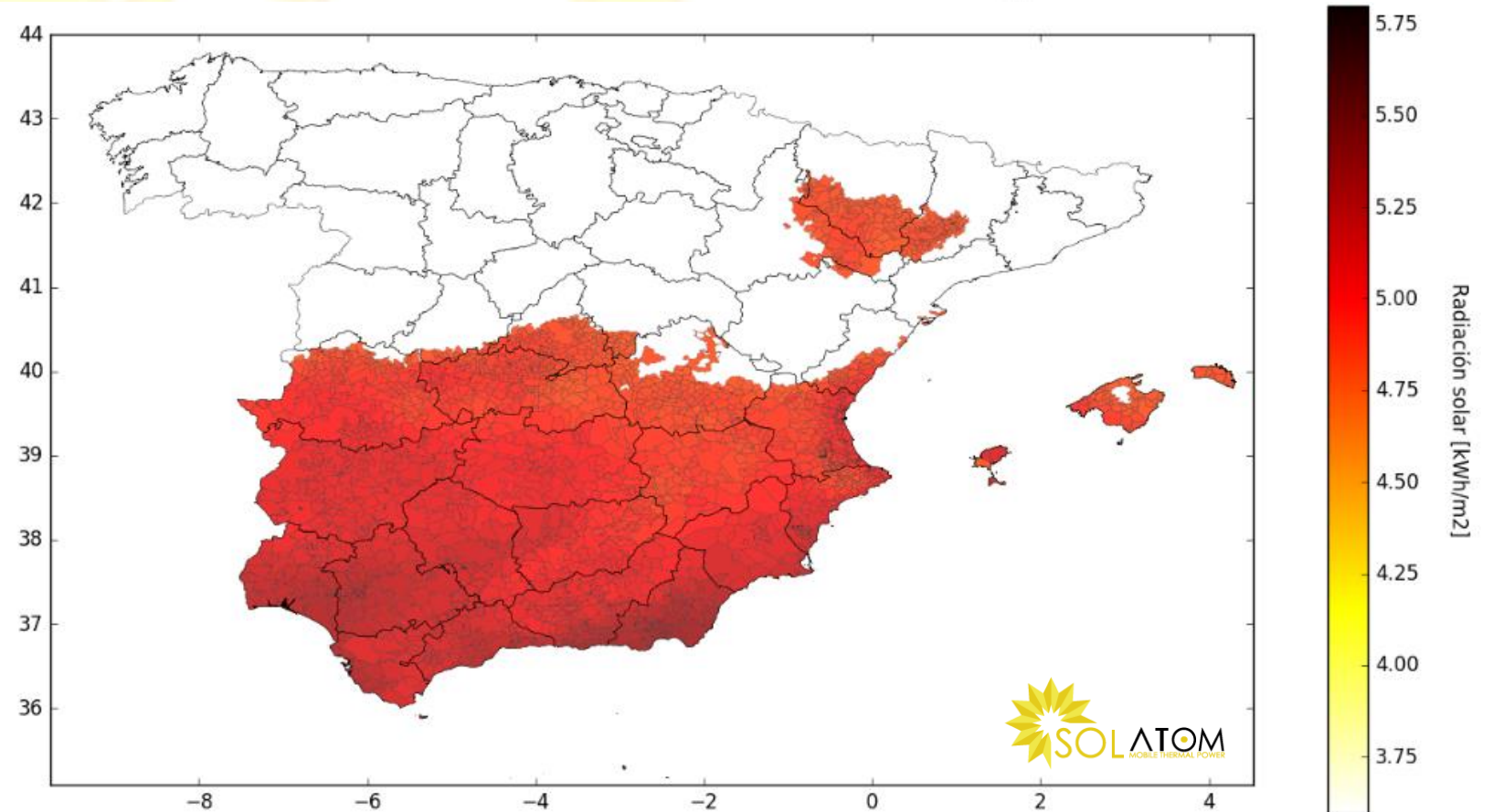
16/11/2017

Diego Crespo - Solar for commercial and industrial heat

PROTERMO
SOLAR

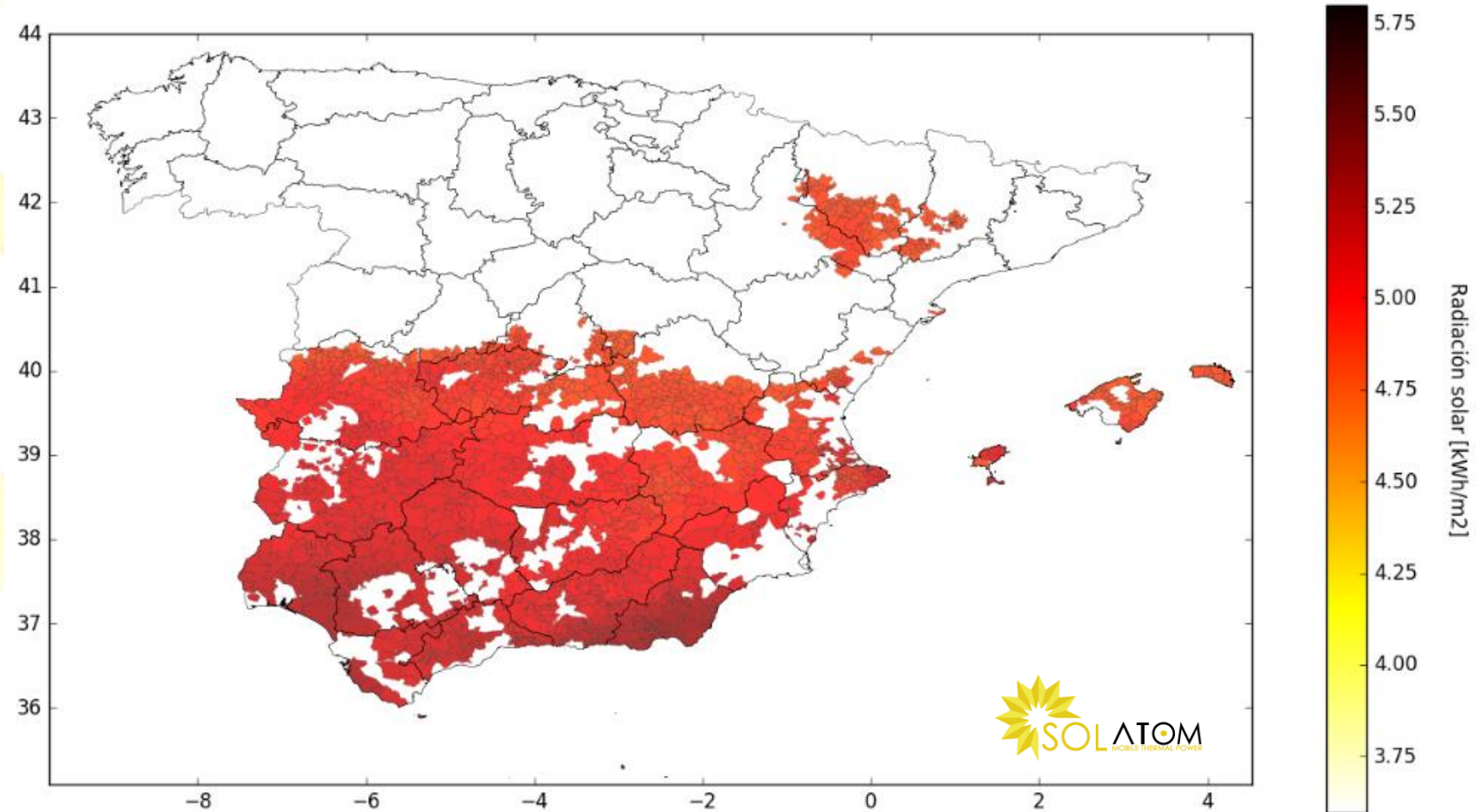
Detailed methodology for the identification of the best 130 potential customers in Spain

1. SHIP shall be located in the best solar irradiation locations



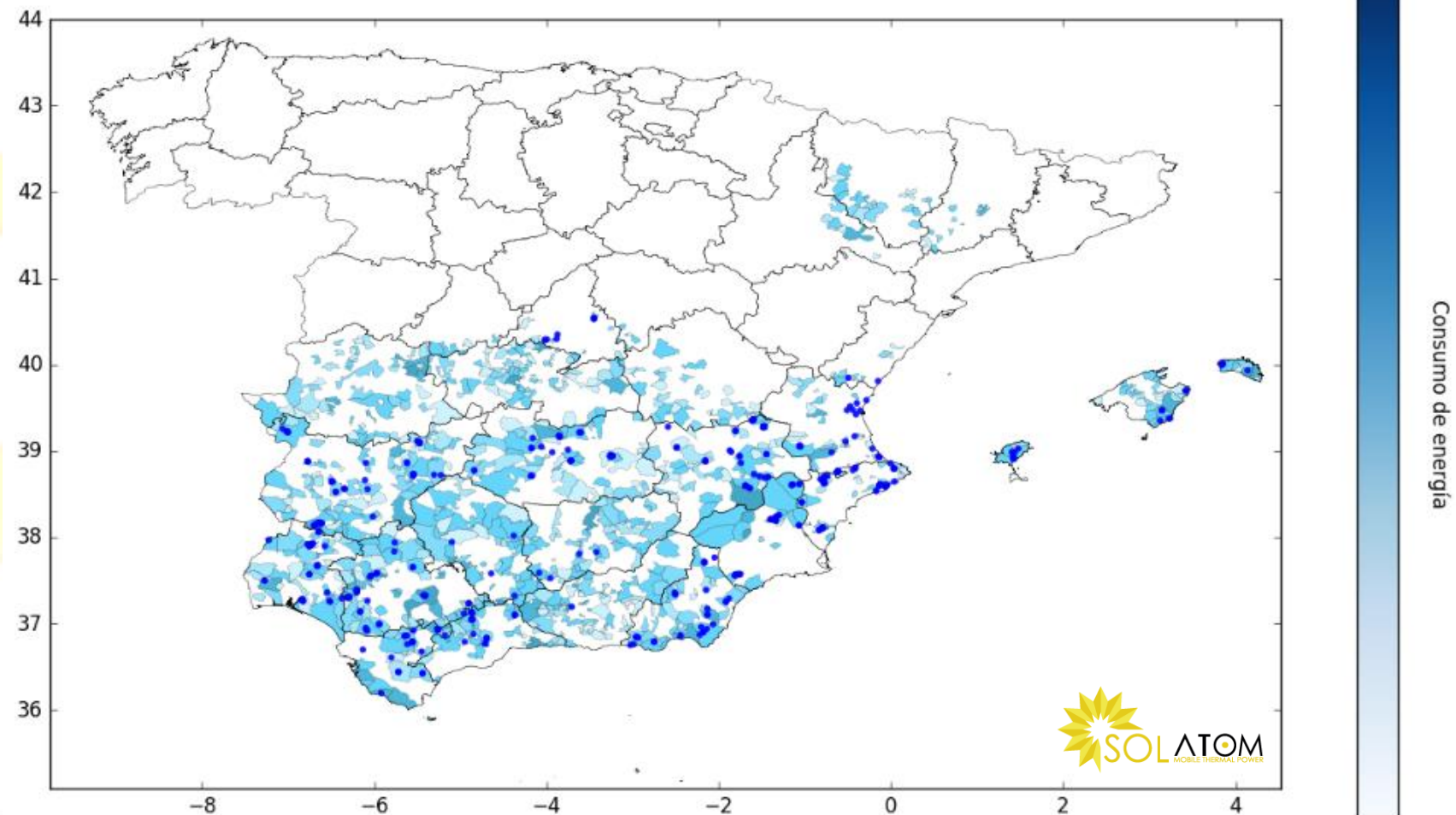
Detailed methodology for the identification of the best 130 potential customers in Spain

1. SHIP shall be located in the best solar irradiation locations
2. **SHIP strongest competition is piped natural gas → municipalities with piped natural gas are out of the scope of analysis**



Detailed methodology for the identification of the best 130 potential customers in Spain

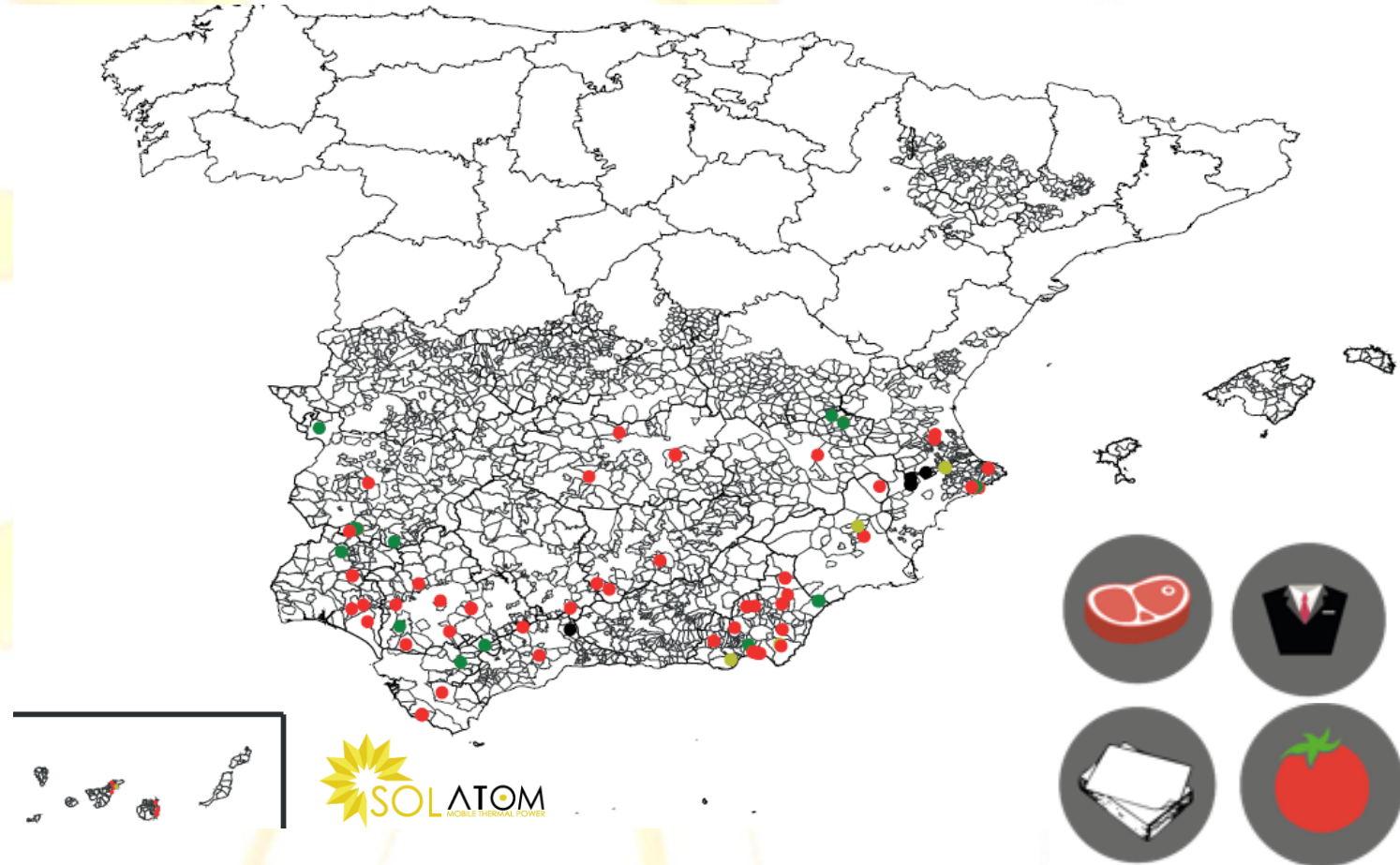
1. SHIP shall be located in the best solar irradiation locations
2. SHIP strongest competition is piped natural gas → municipalities with piped natural gas are out of the scope of analysis
3. **The enhanced municipality resolution of the study enables the identification of high energy consumption municipalities by sector**
4. **Analysis of all industries in the selected municipalities that could fit SHIP in their industrial processes**



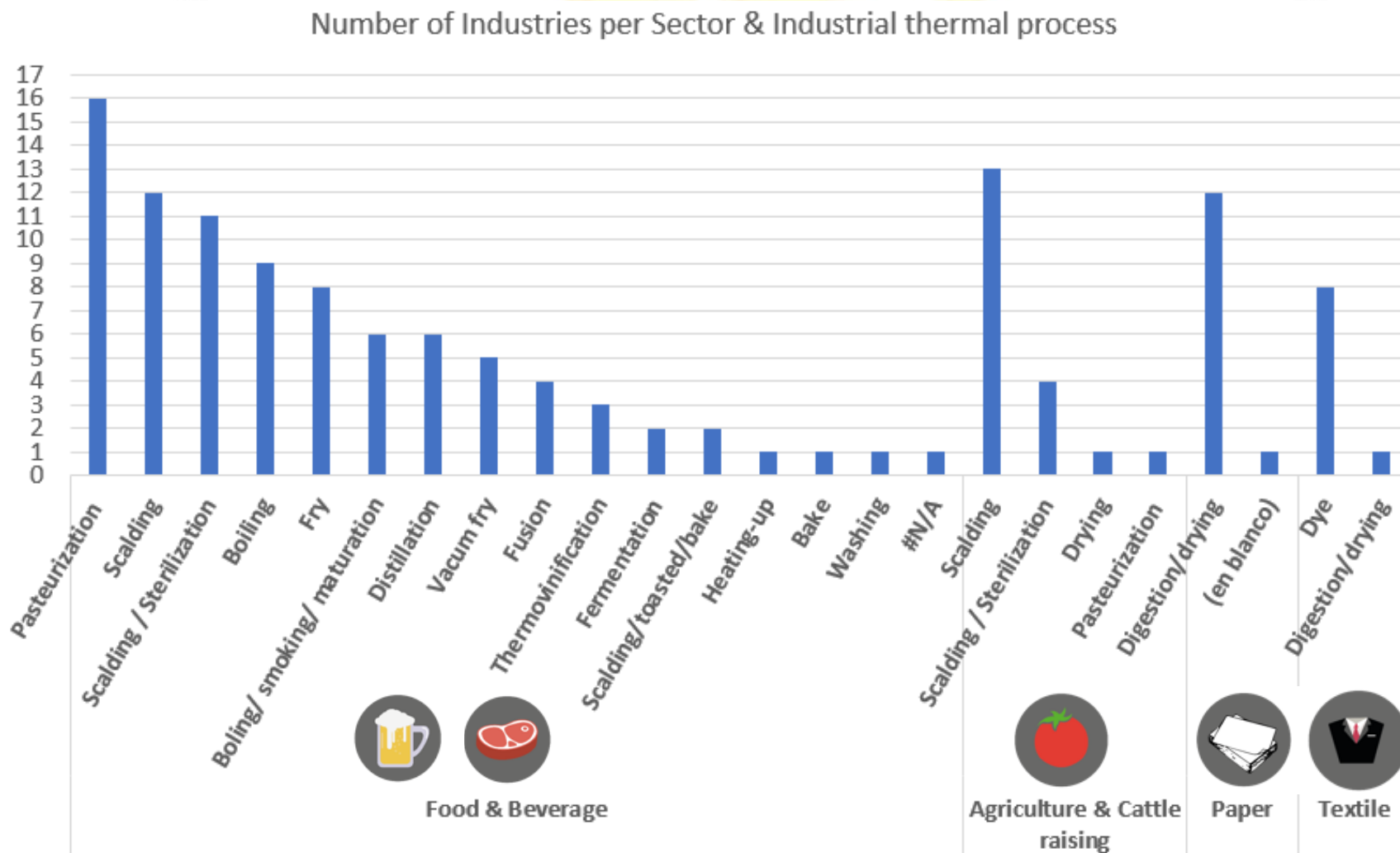
Detailed methodology for the identification of the best 130 potential customers in Spain

Identification of the best 130 potential customers in Spain

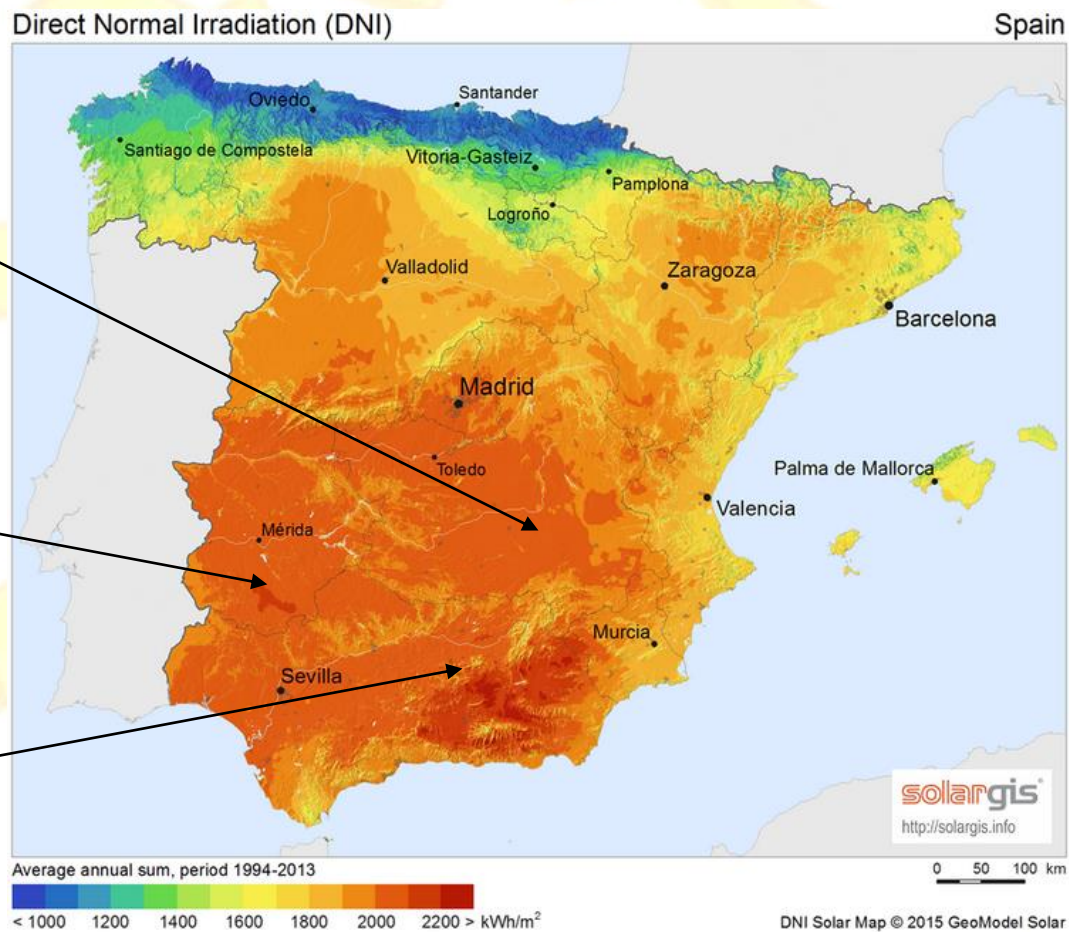
- Name
- Industrial Process
- Location



Outcomes per industrial process



For the time being, we have conducted 3 visits to different industries. These visits confirmed the developed methodology for identification of suitable candidates

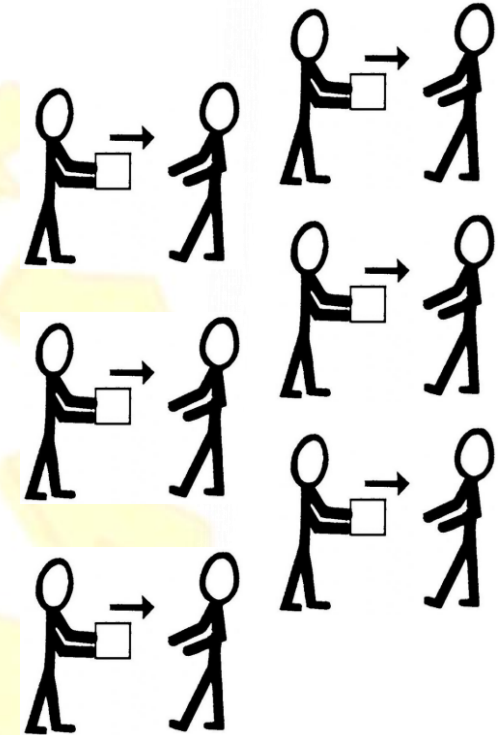


STUDY REPERCUSION

So far, 6 different companies have asked for the list content →
develop SHIP projects

Identification of the best
130 potential customers
in Spain

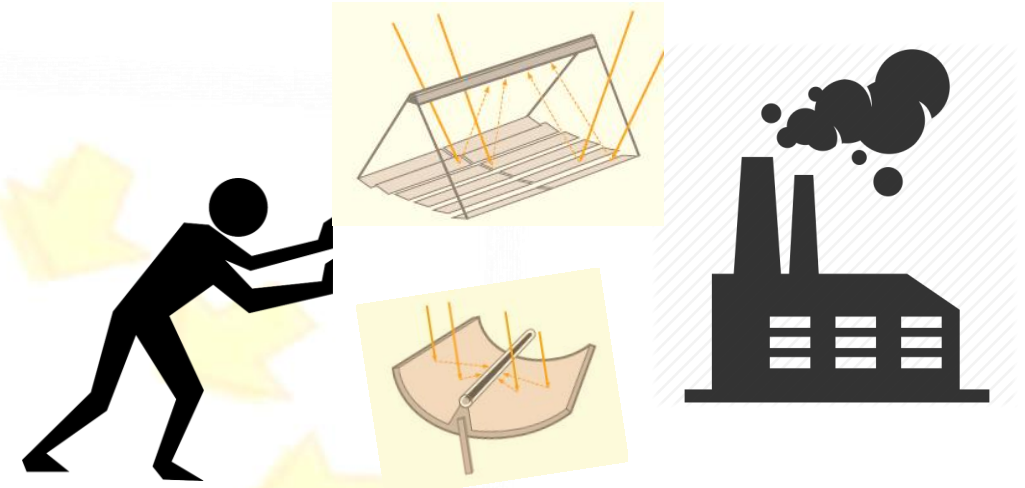
- Name
- Industrial Process
- Location



FOSTERING SHIP PROJECTS IN SPAIN

1. *Who are we? History, Targets, Members, Activities...*
2. *SHIP market situation in Spain*
3. *Past and current Platform activities focused on boosting SHIP in Spain*
4. ***Next Steps for making the market happen in Spain***

1. **Fostering public administration help**
 2. **Fostering ESCO companies to include SHIP among their scope of activities**
 3. **Strengthening industrial network in Spain**
 4. **Dissemination of ongoing SHIP projects outcomes**
- ✓ ***Attracting firms for speeding up the implementation of SHIP projects in Spain***



Thanks for your attention

Technological Platform – **SOLAR CONCENTRA**

Diego Crespo Mencía

diegocrespo@protermosolar.com
solarconcentra@protermosolar.com