



**Bringing Industrial Solar Heat to Market**

**Miguel Frasquet**

# The company in 1 minute



Tech startup founded in 2016  
Transportable Fresnel collector **FLT20**

+



Industry brach of SIMETRIA  
Manufacturing process  
Engineering & project commissioning

=



Joint-venture for the SME market  
Spanish reference with 7 plants in  
operation/construction

-  In operation
-  In construction
-  In development

-  Thermal oil
-  Pressurized water
-  Hot air
-  Steam



 Thermal oil  
225°C



 Hot air  
350°C



 Pressurized water  
120°C



 Focus on the **SME** market





# Traditional vs SME approach

Meat processing industry  
(Valencia) Spain

## Large company



## SME



Annual thermal energy demand  
Available surface

27,6 GWh

12.400 m<sup>2</sup>

1,34 GWh

1.790 m<sup>2</sup>

**Fuel price**  
**Decision process**  
**Energy density**  
**Market\***

0.0187 €/kWh (NG)

> 3 decision makers

2.22 MWh/m<sup>2</sup>

0.9 %

0.059 €/kWh (Fueloil)

1 decision maker

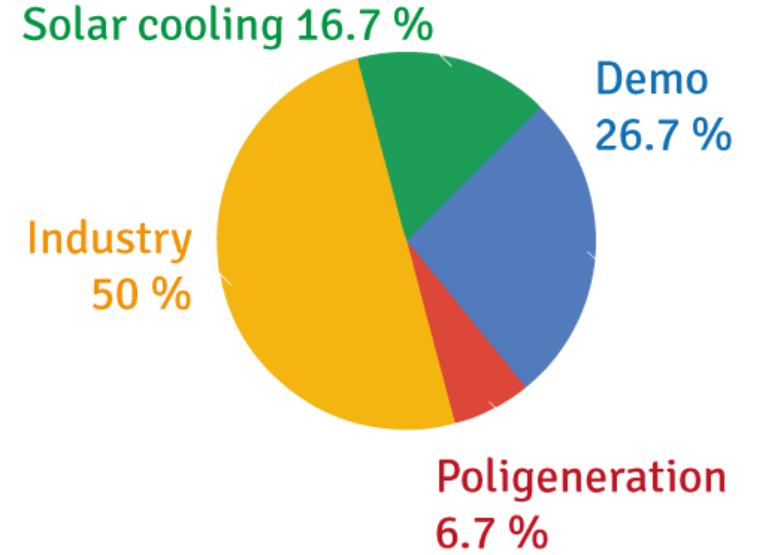
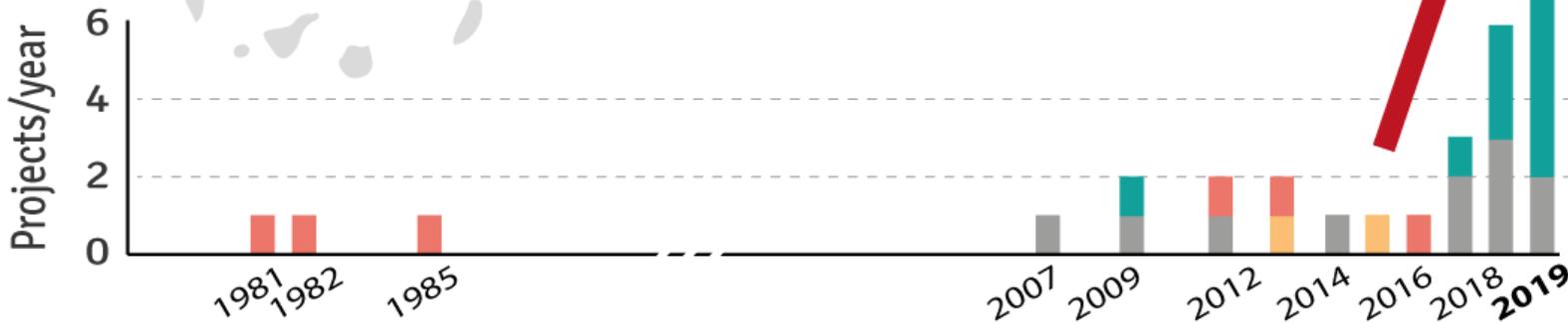
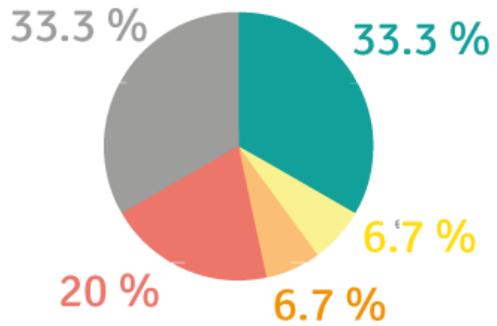
0.748 MWh/m<sup>2</sup>

99,1 %



# The situation in Spain

- In operation
- In construction
- No operation
- Dismantled
- Unknown ???



	with Dismantled	without Dismantled
Total refs:	30	24
Tot. Surf:	9259 m <sup>2</sup>	3615 m <sup>2</sup>
Avg. Surf:	462 m <sup>2</sup>	200 m <sup>2</sup>
Hot water:	22	20



# Main **challenges** in the SME approach

## Market

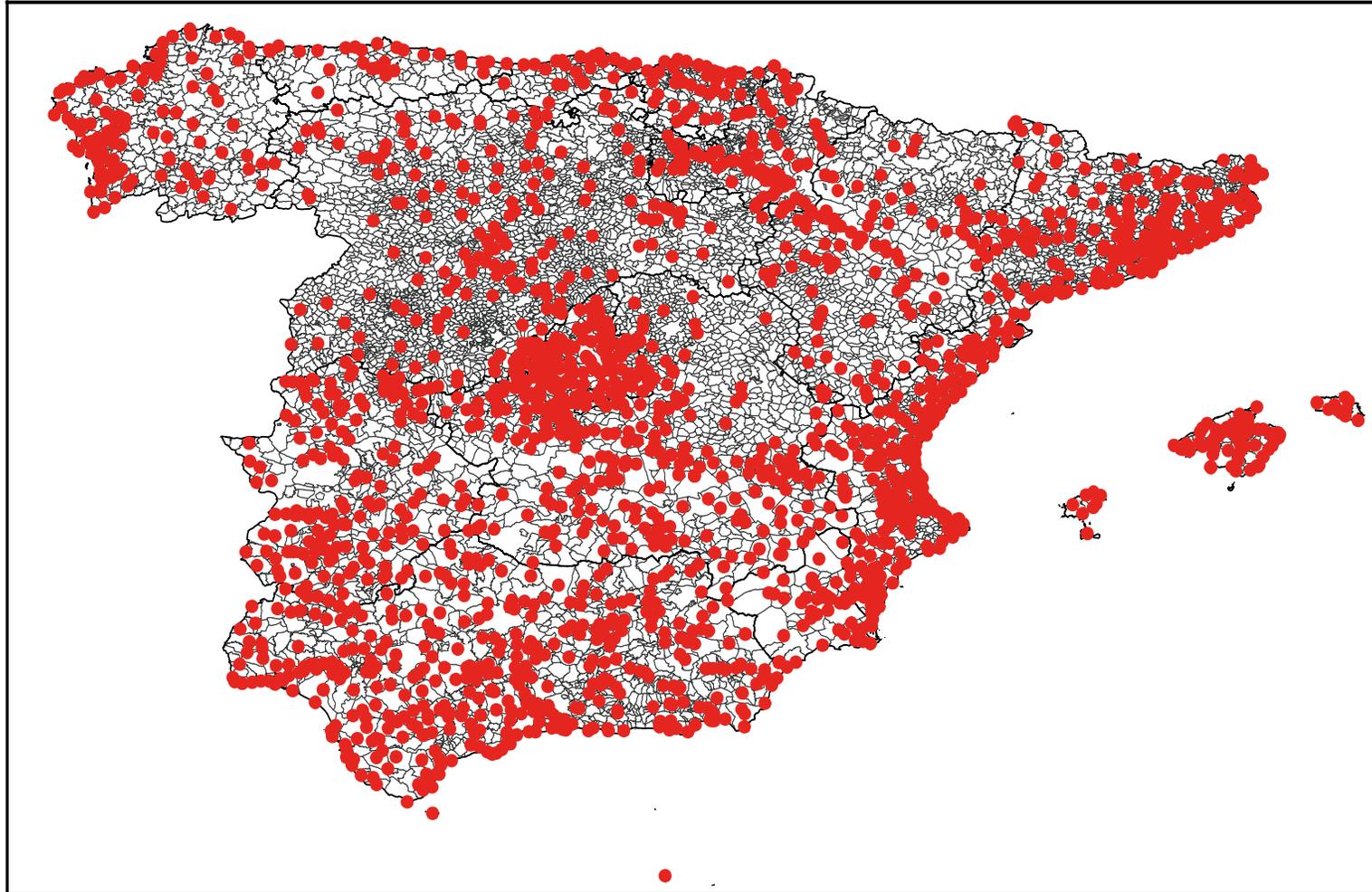
Extremely **atomized** market (In Spain +3M companies)  
Very difficult to reach them

## Product

In medium and small projects,  
**Engineering & fixed costs** become significant



# SOLATOM's approach to bring CSH to market



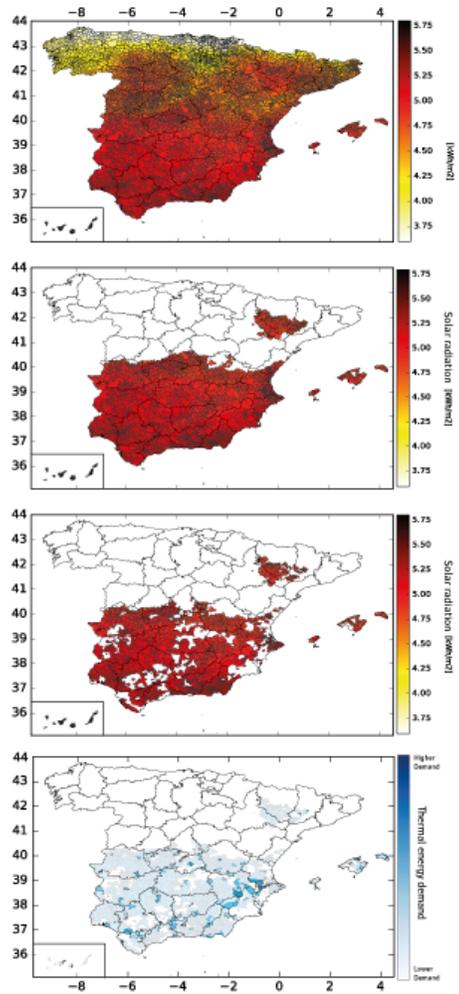


# SOLATOM's approach to bring CSH to market





# Case-by-case approach for assessing the market



## PABLO - Probabilistic Algorithm for Better Lead acquisition

PHASE 1 - Municipality resolution

$X = 8142$

Example for textile industry

100%

57%

43%

4,8%

$X' \subseteq X$

PHASE 2 - Industry resolution

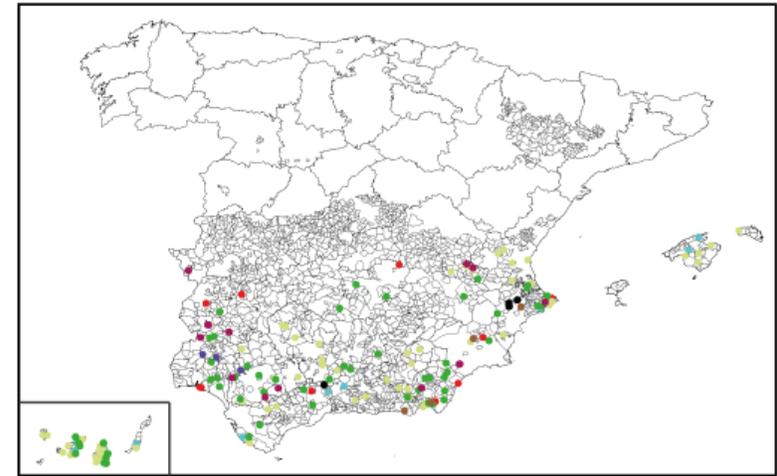
$Y_{x'}$

100%

43%

26%

$y_{x'}$



- Mining (3)
- Food&Bev (42)
- Chemical (14)
- Agro (15)
- Sewage TP (62)
- Textile (5)
- Laundries (21)
- Paper (4)

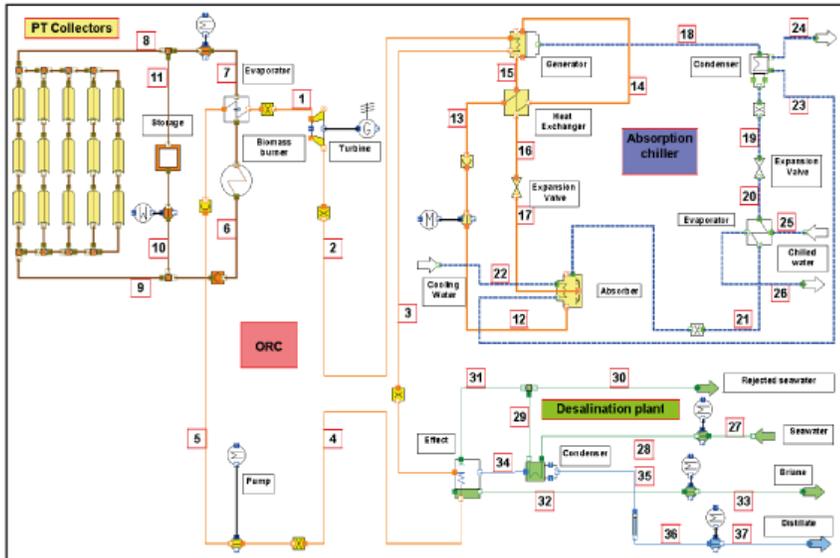


# How to study 400 industries in 5 months

## Large industry approach

>4200 €

2 weeks

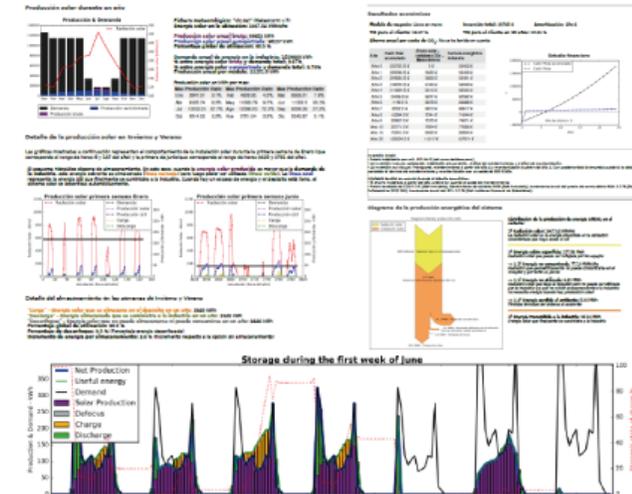
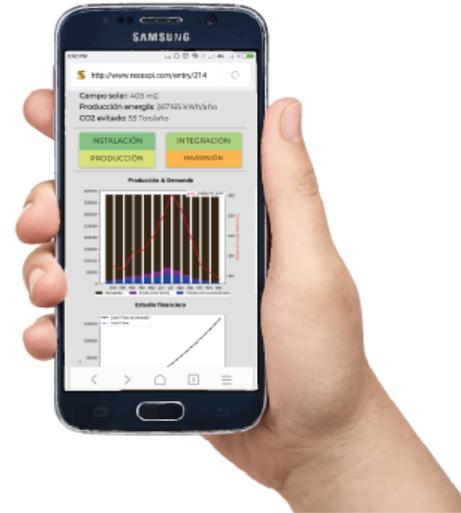


## SME approach



Free

30 seconds



# Fast assessment of feasibility

<https://github.com/mfrasquet>

1819 simulations

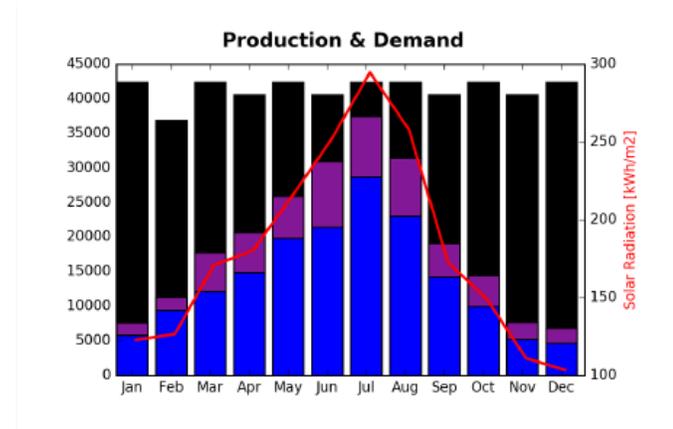
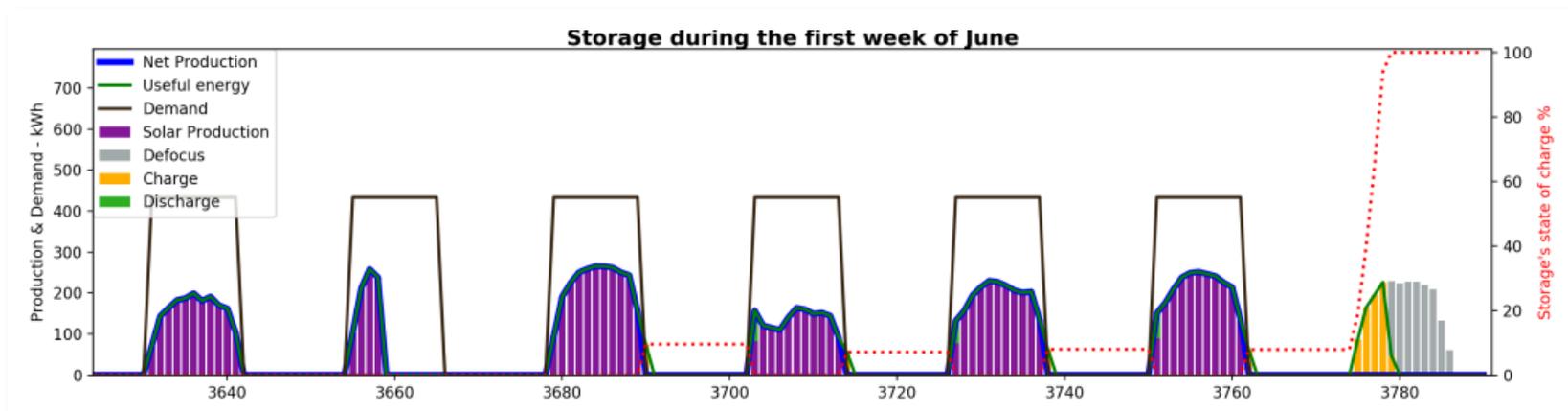
**ReSPI**  
www.resspi.com



Open-source online calculator for CSH

Python 3

139 users (18 countries)





# How to make SME projects **cost-competitive**

**Large industry approach**

**In-situ ad-hoc construction**



**SME approach**



**Pre-assembled standard modules**



ref: Soltigua 2014 - InSun project



# Pre-assembled units - fast deployment





# Pre-assembled units - fast deployment





# Pre-assembled units - fast deployment



Standard **solar module**



**Self-calibrated**



**Fast deployment**



Standard **BOP in rack**

Have **fun**, and enjoy the **sun!!** Thank you



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