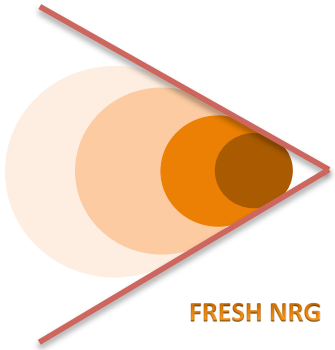


soltigua™
concentrating solutions

Solar Heat for Industrial Processes
Potential for industrial exploitation

FRESH NRG Project, Bruxelles workshop, May 24th 2016

FRESH NRG is a research project co-funded by the European Commission under the 7th Framework Program.
GA 308792, Collaborative Project FP7-ENERGY-2012-1-2STAGE

Overview

FRESH NRG has been analysing the potential in several target regions such as **Italy, Turkey, Jordan and Chile**

In these regions the potential of the new FRESH NRG Fresnel collector has been assesses, also in comparison to the PTMx parabolic trough

In particular, **20+ cases have been assessed in 2013-2014** to determine their energy and economic potential

In **2015-2016 a new analysis** has been performed on new cases and countries, focusing more on the **effect of falling oil prices** across several countries worldwide

This poses a challenges to solar process heat

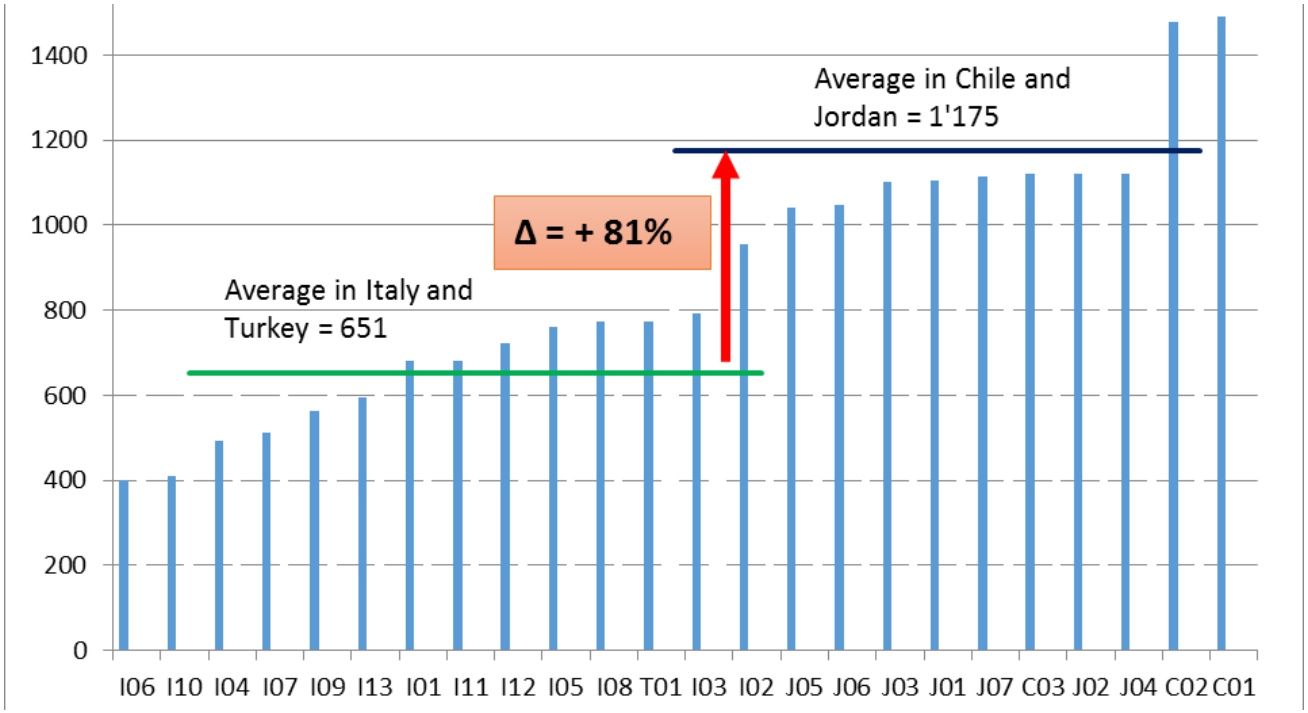
To tackle this challenge we propose to integrate the Solar Thermal Technology Roadmap, with an **initiative called SHIP3**

soltigua™ concentrating solutions

soltigua™
concentrating solutions

EARLY ANALYSIS AND RESULTS

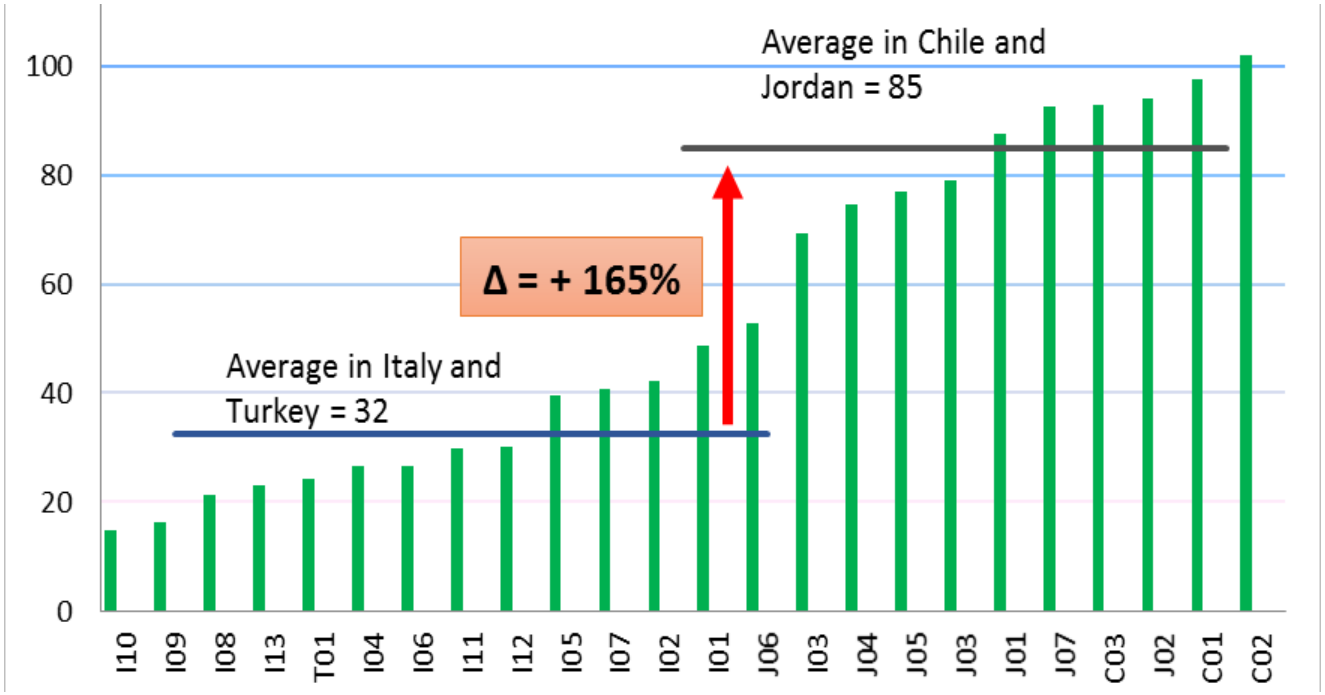
Variance in solar potential (2013-2014)



Energy gross specific yield for FRESH NRG across the 24 cases assessed.
Data are expressed in kWh/m²/year

*: installed or under construction

Variance in economic potential (2013-2014)

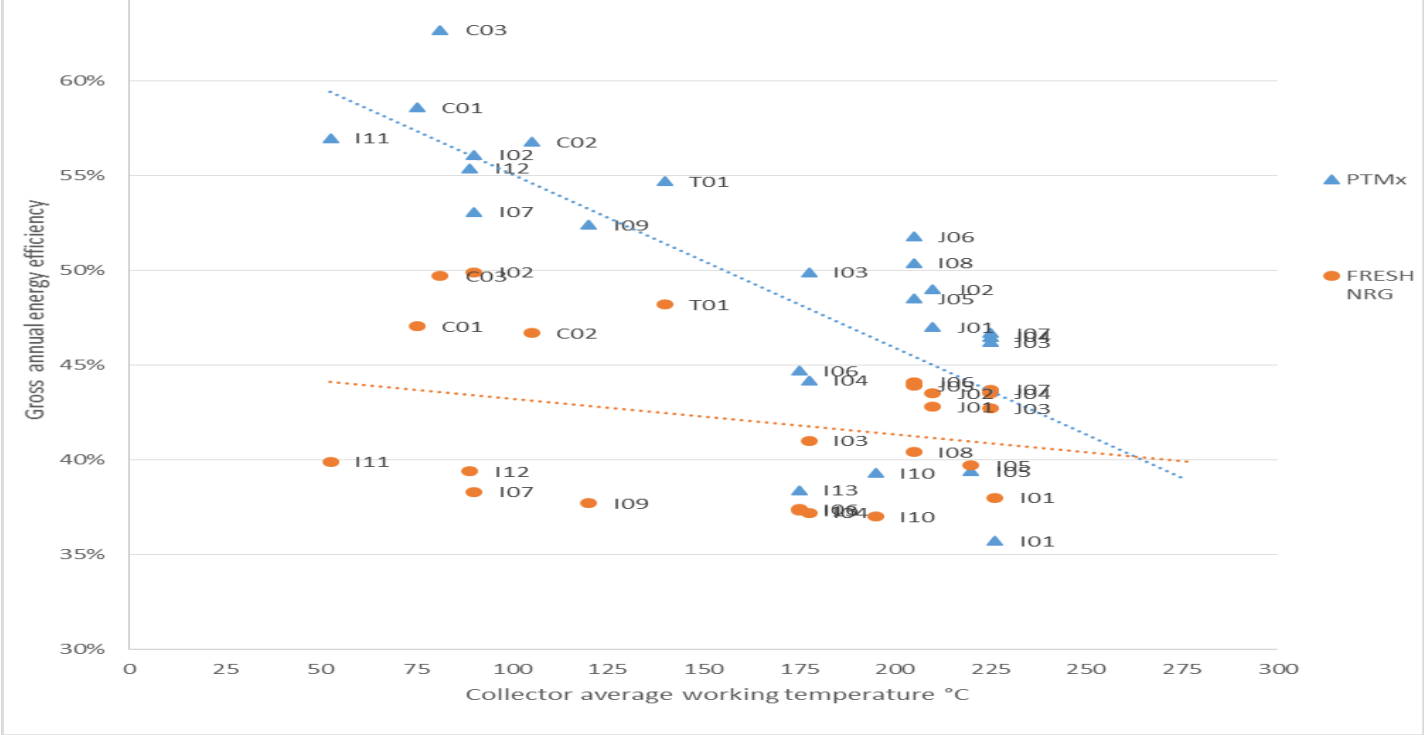


Economic gross specific yield of actual saving generated for FRESH NRG across the 24 cases assessed. Data are expressed in €/m²/year

soltigua™ concentrating solutions

*: installed or under construction

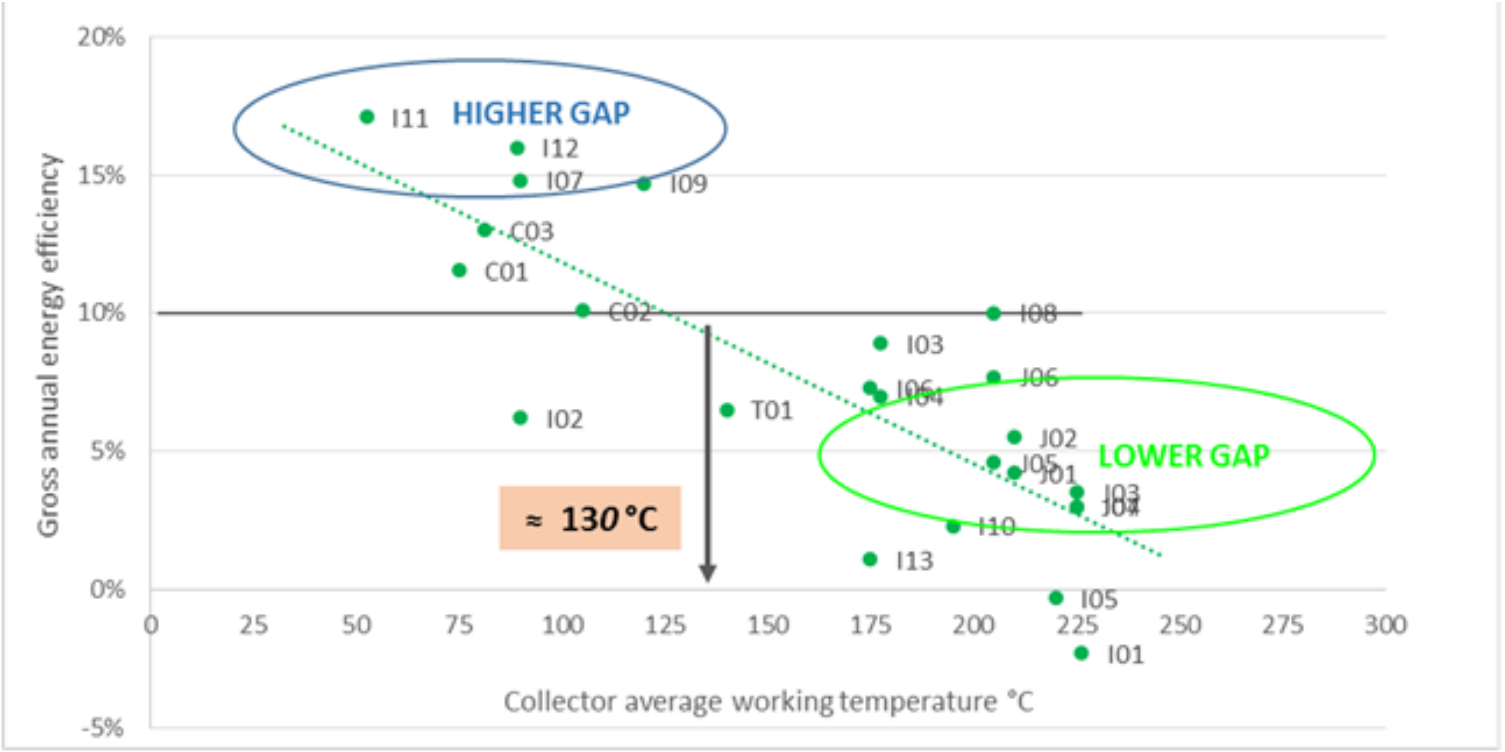
Performance across different cases



Gross annual energy efficiency of PTMx and FRESH NRG collectors versus collector average working temperature in °C

*: installed or under construction

FRESH NRG: better thermal performance



Difference in gross annual energy efficiency of FRESH NRG to PTMx collector versus collector average working temperature in °C

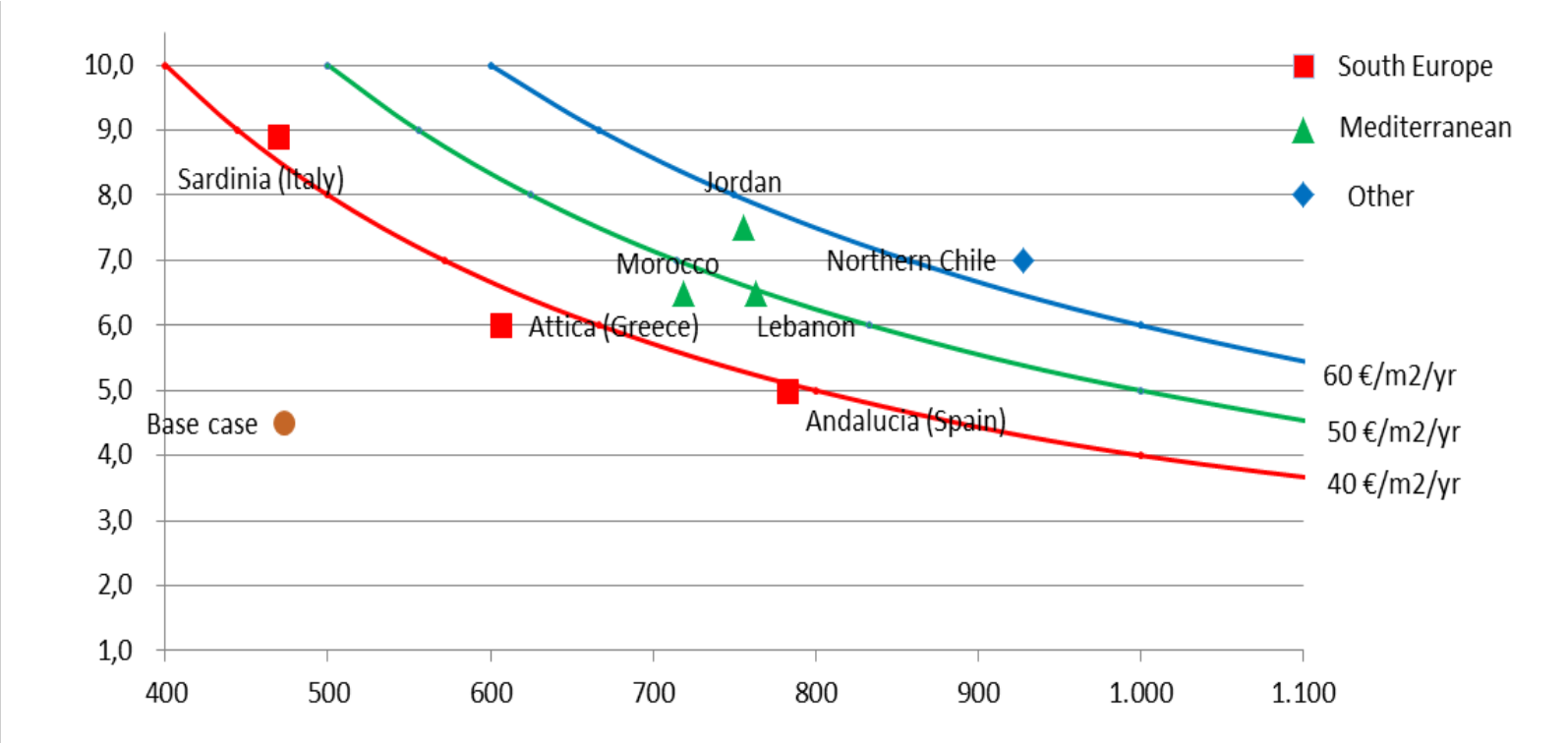
soltigua™ concentrating solutions

*: installed or under construction

soltigua™
concentrating solutions

A KEY ISSUE – FALLING OIL PRICES

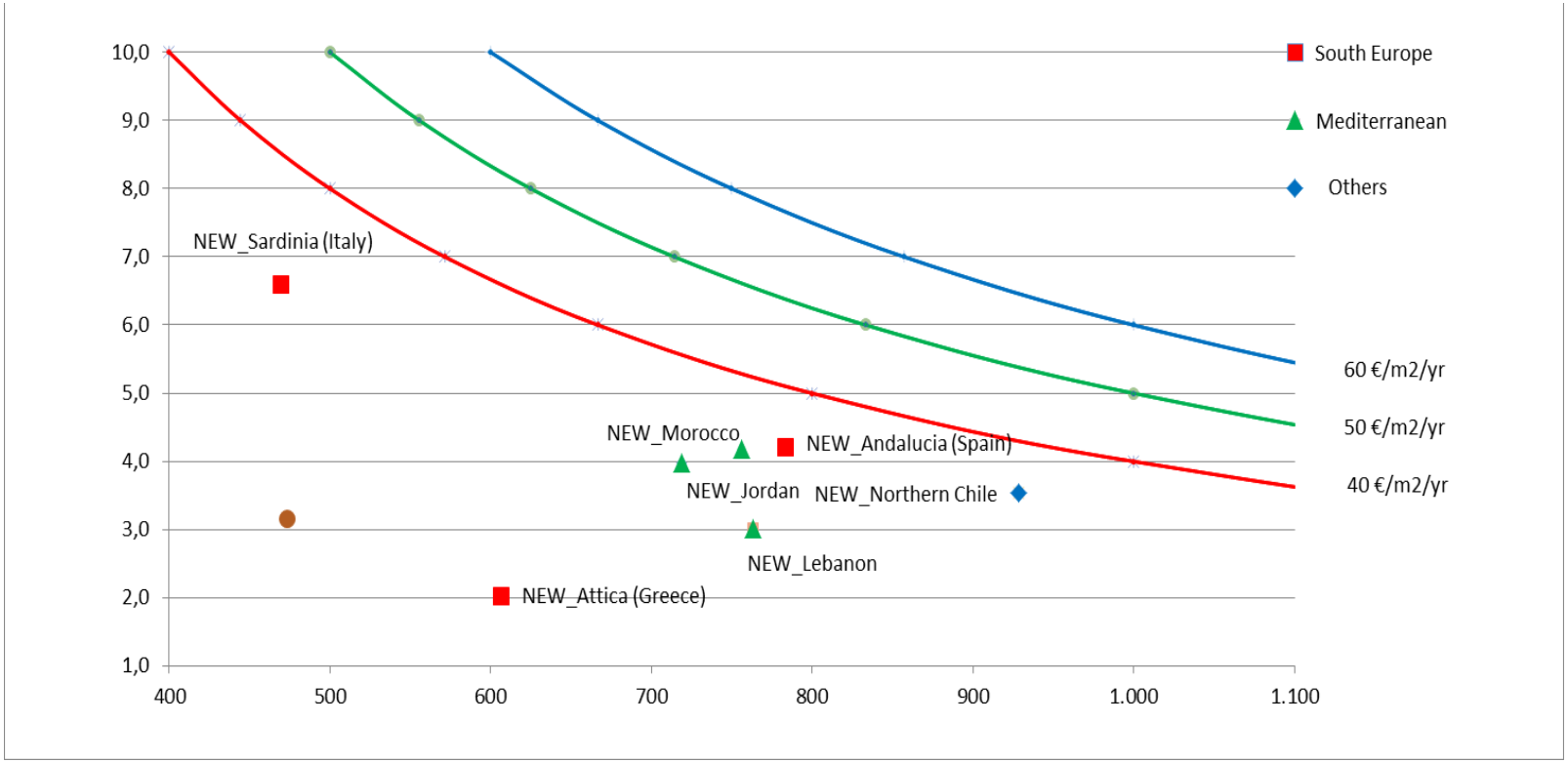
Economic potential in 2015



kWh/m²/year on horiz.axis; €cent/kWh on vert.axis

soltigua™ concentrating solutions

Economic potential in 2016

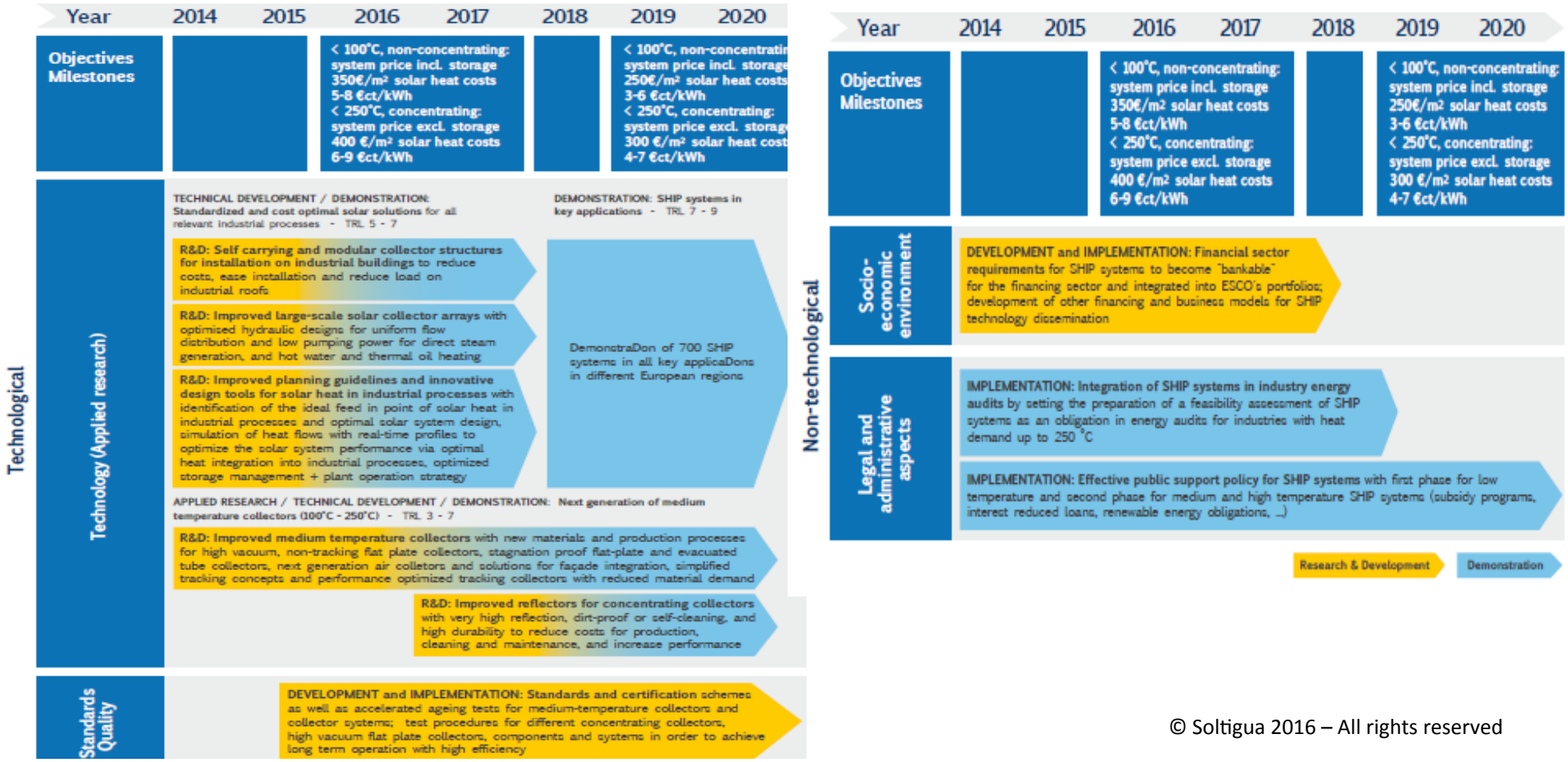


kWh/m²/year on horiz.axis; €cent/kWh on vert.axis

soltigua™ concentrating solutions

PROPOSED WAY FORWARD

The starting point: 2014 ESTTP SHIP roadmap



Industrial exploitation – findings & challenges*

Section	Main findings	Key challenges
Product	User expect a full turn-key solar process heat solution not only a solar component	To provide turn-key solar solutions companies need to be technically strong enough to coordinate the supply chain
Price	Price target have been achieved. Payback time depends also on location. Extra EU countries are an attractive market segment.	Solar solution providers need to be internationally and financially strong enough to sustain the effort of pursuing extra EU markets.
Promotion	The investment made in promotional activities has payback time of 2 or more years.	Solar solution providers need to be commercially and financially strong enough to sustain this effort
Placement	Partnerships are required to support distribution of the proposed solutions.	Solar solution providers need to be organisationally strong enough to create and mantain useful partnerships

* Findings also from EU supported FP7 project InSuN

soltigua™ concentrating solutions

Global competition

Country	Technology	Notes
India	SHIP	Provided SHIP incentives limited to companies tested and approved by the Indian Ministry of Renewable Energies
China	CSP and SHIP	Launched programme to create at least 20 CSP power stations of 50 MW each to create a national industry
Brazil	CSP and SHIP	Obliged electricity companies to invest in innovative concentrated solar thermal projects 1% of their operating income "in order to foster the creation of a national supply chain"

NEED TO SUPPORT EU's SSPs
(SOLAR SOLUTION PROVIDERS)!

soltigua™ concentrating solutions

The SHIP3 initiative

Start High Impact Promotion (SHIP)

of

Solar Heat for Industrial Processes (SHIP)

by

Supporting Highly Innovative Players (SHIP).

Key to this initiative is the belief that the EU has still a clear technological leadership in the field of solar process heat.

This technological leadership is already in the hands of highly skilled European SMEs, which now need to be supported during their transformation into fully competitive players at a global level.

This is all the more true while considering the current exceptionally low oil prices, which pose additional challenges to SHIP development in the medium term.

soltigua™ concentrating solutions

SHIP 3 overview: Phase 1 and Phase 2

YOUR FEEDBACK IS WELCOME!

soltigua™ concentrating solutions