



# Horizon2020 Information Days on Public-Private Partnerships

Brokerage event  
16 October 2015

***CALOR***

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# ORGANIZATION/COMPANY



To drive the process of transforming the Basque Country into an innovating society in all spheres. We are working to weave complicities, define priorities, forge a strong bond between public and private agents and foster the demand and necessary stimulus in companies and society as a whole

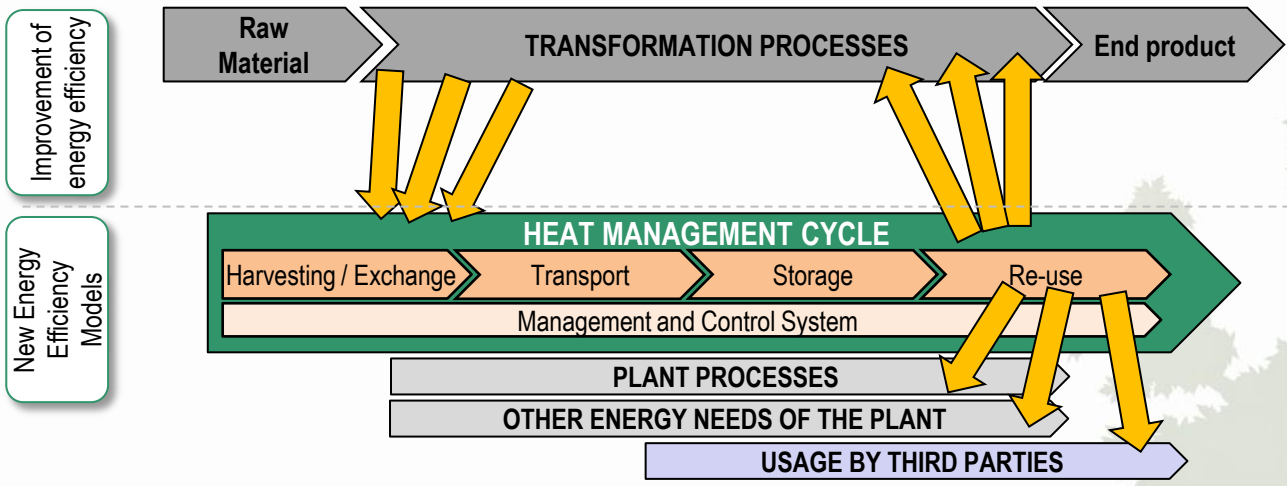


The main objective of the CALOR Project is to develop, implement and market innovative solutions (technologies and business models) that enable the valorisation of waste heat from the manufacturing industry in an efficient and profitable way

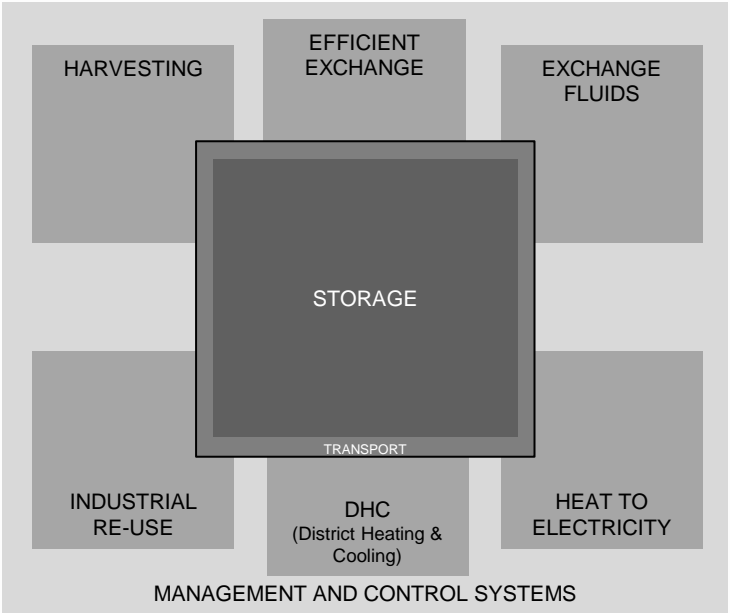
Other partners



# PROJECT IDEA



Heat Management Cycle



EE – 17 - 2016

Aligned with key component/key action of SPIRE's roadmap

Project areas to be worked on in order to achieve integrated and efficient waste heat management

# PROJECT IDEA

Develop efficient **waste heat harvesting systems** from gas, liquid and solid streams for all temperature ranges (including very high and very low)

Handle **abrasion / corrosion / fouling** in existing equipment (gas and liquid)

New **more efficient materials** / less maintenance for heat exchangers

Develop and test **alternative and advanced waste heat carrier materials** (e.g. harvesting fluids / storage / re-use)

Develop equipment with effective **insulating materials**

Develop **heat storage systems** to solve the problem of intermittent energy flows

Improve the performance of existing innovative solutions to **turn heat into electricity** (or other energy form)

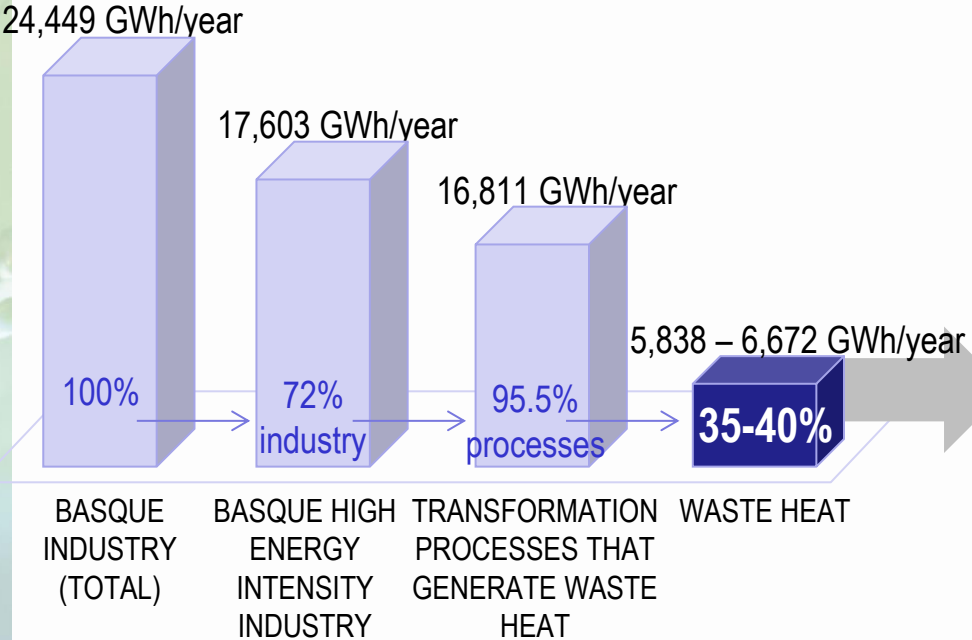
Improve the performance of waste heat **re-use solutions to be used in plants** (processes and other needs) **and/or by third parties** (industrial uses, DHC)

Develop **integrated management ICT tools** to optimize re-use and efficiency

# EXPECTED IMPACT

## Initial analysis conducted for the Basque Country

- FINAL ENERGY CONSUMPTION (2013) -



6,6 M€\*\*\* in emission rights ← ≈ 1M tonnes of CO2

Distribution of harvestable heat	Efficiency in harvesting and reusing	GWh/year	M€
Medium-High temp.: 40% (>260°C)	70%	1635 - 1868	102 - 117
Low temp.: 60% (<260°C)	35%	1226 - 1401	77 - 88

Average recovery: 49%

**ANNUAL SAVINGS OF UP TO 179 - 205 M€**

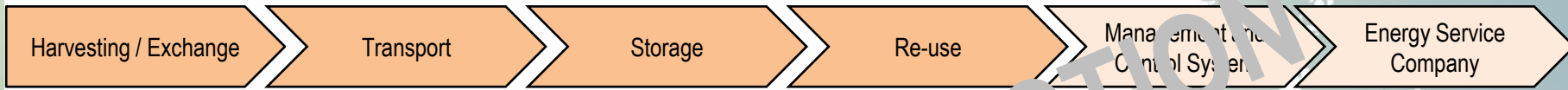
# EXPECTED IMPACT



18 companies participating

Develop, implement and market integrated and efficient solutions to be used in high energy intensity sectors

# EXISTING PROJECT CONSORTIUM



INNOVATIVE SOLUTION PROVIDERS



FINAL USERS

Directly involved



Other possible beneficiaries contacted



## FINAL USERS:

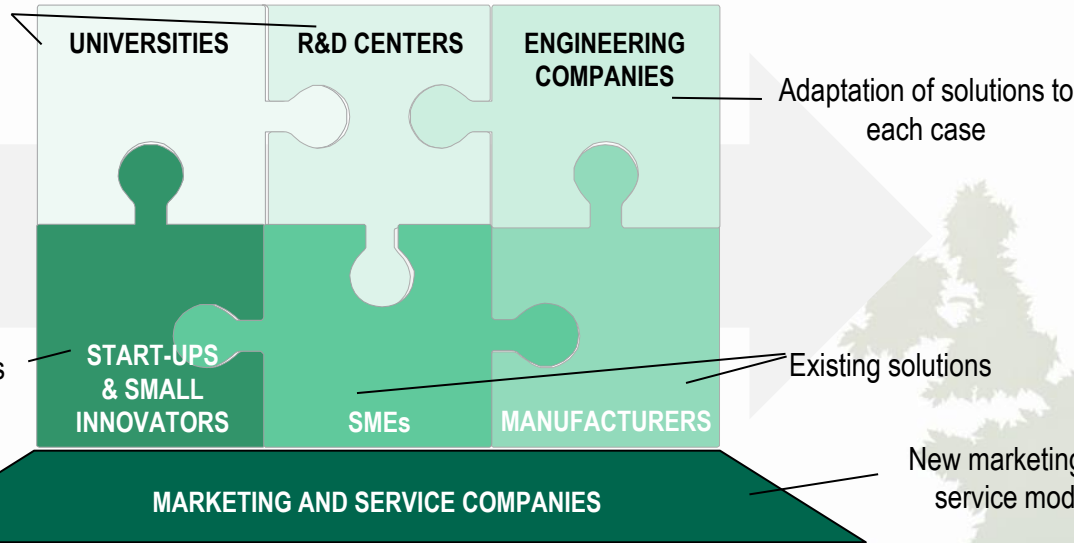
- To solve their waste heat problems
- To provide industrial facilities for full scale demonstration

## PROVIDERS:

- R&D Centers: research into materials, fluids, equipment
- Manufacturers: manufacture solutions to be tested
- Engineering companies: adaptation of solutions for different sectors
- Energy Service Companies: new business models and commercialization

# LOOKING FOR PARTNERS

Basic and industrial research, and experimental development



## MARKET FOR RECOVERED HEAT

### Identified needs

- R&D in liquid and solid heat harvesting
- More efficient exchanger manufacturers
- R&D in and manufacturers of insulating materials
- R&D in and manufacturers of heat storage systems
- Manufacturers of alternative waste heat transport systems
- Manufacturers of heat to electricity systems
- Companies offering efficient re-use solutions
- ESCO

### Project benefits

LESS TIME

FACILITY TO FIND FUNDING

LOWER INVESTMENT AND COST

HIGHER SUCCESS GUARANTEE AND RISK CONTROL

SCALABILITY

BUSINESS OPPORTUNITIES



# CONTACT DETAILS



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