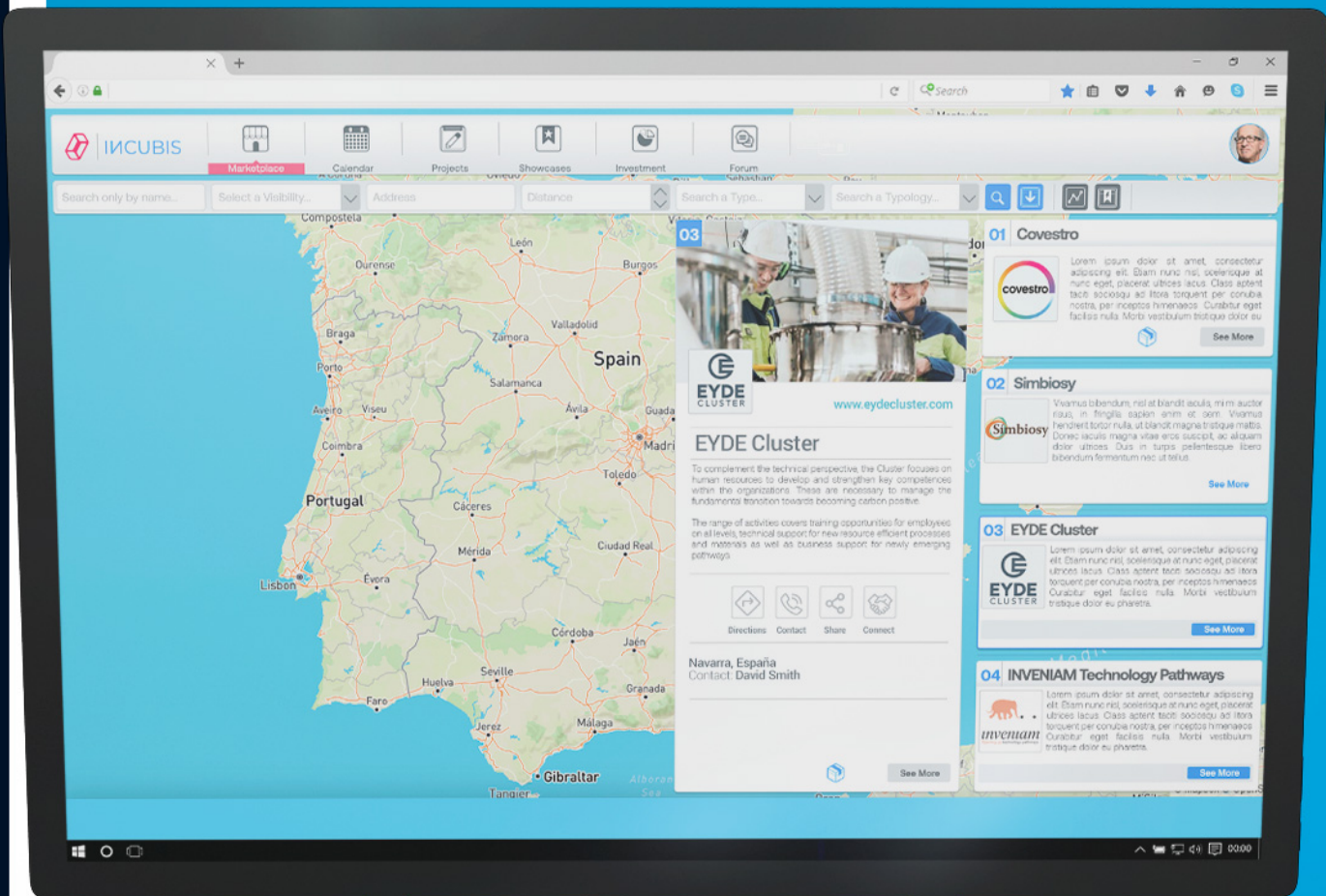


INCUBIS



INCUBIS

VIRTUAL PLATFORM



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement

No 894800.



Sustainable Process Industry through Resource and Energy Efficiency

Project Title: An Industrial Symbiosis Incubator for Maximizing Waste Heat/Cold Valorization in Industrial Parks and Districts



INCUBIS

Project Acronym: INCUBIS

Grant Agreement No: 894800

D3.2: INCUBIS Virtual Platform

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Dissemination Level	Public

1 INCUBIS IN A NUTSHELL

The Energy Problem

EU is currently responsible for 11.6% of the world's final energy consumption (9425 Mtoe in 2014) and for 10.8% of the world's final CO₂ emissions (33.3 GtCO₂ in 2014) with Industry accounting for 25.9% of the energy consumption and for 47.7% of the final CO₂ emissions. Energy in industry is mostly used for process heating and cooling, which represents about 63% of the total industry final energy demand. A rather significant theoretical waste heat potential, accounting to 370.41 TWh (Waste heat) per year, has been estimated in the European industry. Energy Intensive Industries (EIs) are unsurprisingly the top heat emitters.

An Opportunity awaits: Energy Symbiosis

It is estimated that at least 50-70% of EU households could be served more cheaply by thermal infrastructure through district heating networks. Today, an estimated 20-50% of the energy used in industrial processes is lost as waste heat, while as much as 370.41 TWh/year could be recovered and used. There is therefore a tremendous opportunity for increasing energy efficiency in the European industrial and urban sector by substituting conventional heat sources with the vast, underutilized energy resources that exist across European EIs and thereby contributing significantly to the decarbonization targets of European Industry. Yet, district heating currently provides only 8% of the heating demand in Europe.

Traditional energy efficiency improvements, focused on a single process or site, are not enough to exploit this potential. We need to look to exploitable opportunities based on 'symbiotic' relationships between different sites. Energy Symbiosis (the selling and buying of excess energy) can lead to energy efficiency improvements, CO₂ and cost reductions, new revenue, jobs and local investments. Yet despite its high potential, 'energy symbiosis' remains a niche market in Europe as a series of challenges need to be overcome in relation to: (1) coordinating multiple stakeholders, (2) applying knowledge in assessing and de-risking investments, and (3) dealing with high transaction costs and long development times.

INCUBIS: helping Europe to capitalise on this opportunity

With the mission of helping to decarbonise European industry by 2050, INCUBIS is unlocking the market potential of ENERGY SYMBIOSIS through the development and deployment of five Energy Symbiosis Incubators across Europe, with the goal of enabling the utilization of waste energy from EIs.

INCUBIS is catalysing the following impacts:

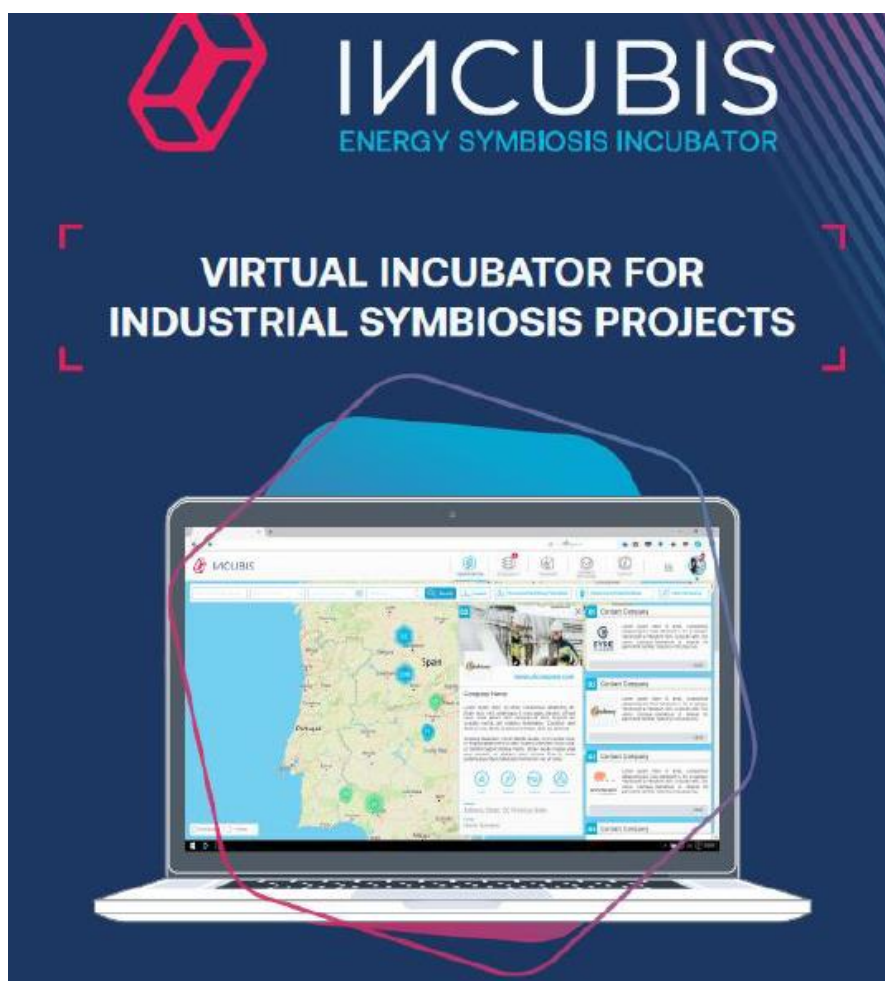
- total energy savings of 200GWh/year
- €6 Million in investments in sustainable energy
- €4 Million in added value
- GHG reductions of 55k tCO₂-eq/year
- 1450 business from over 40 industrial parks are being convinced to commit to energy cooperation.

Digitally 'incubating' Energy Symbiosis projects

Facilitation is considered one of the most important aspects to foster the establishment of ES.

Facilitated ES networks largely benefit from establishing a central role whose main endeavour is to identify the business opportunities related to excess heat recovery within the industrial ecosystem, as well as to accompany the different stakeholders to implement them, by offering support and advice to overcome the multiple barriers that can hamper an industrial energy symbiosis project implementation.

The INCUBIS project has built a platform for facilitators, industry, managers and stakeholders of industrial symbiosis programmes in order to digitally transform how energy symbiosis projects are identified, optimised and managed.

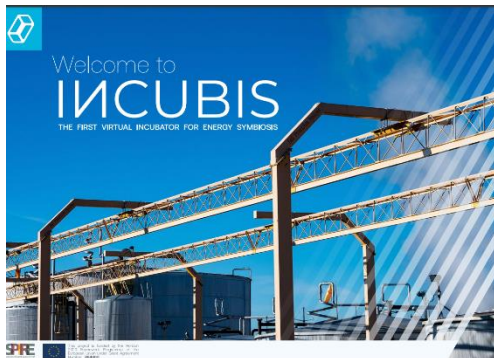


INCUBIS is a platform that integrates matchmaking functionalities, ranking tools, feasibility tools, best practices, guidelines, training materials and funding opportunities: a complete toolbox for the facilitation of energy symbiosis projects. The platform allows users to: 1) identify energy symbiosis opportunities; 2) evaluate them for optimised synergy matching; 3) remove barriers to activate energy symbiosis.



WANT TO LEARN MORE?

Click [Here](#) to Read Our Booklet



Click [Here](#) to watch our Trailer Video

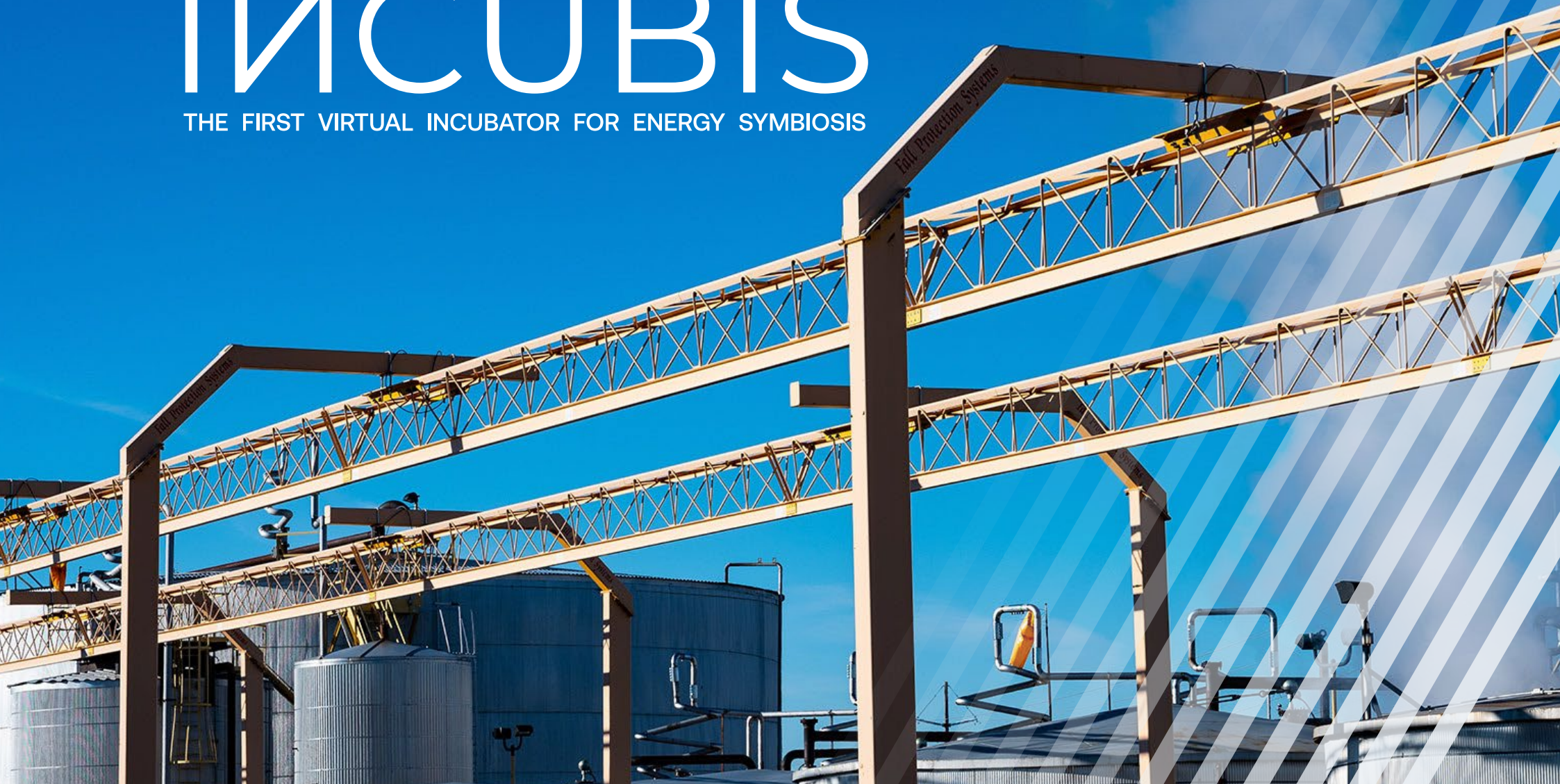


Access the Platform and register for free: www.incubis.org



Welcome to INCUBIS

THE FIRST VIRTUAL INCUBATOR FOR ENERGY SYMBIOSIS





INCUBIS

ENERGY SYMBIOSIS INCUBATOR

WWW.INCUB-IS.EU



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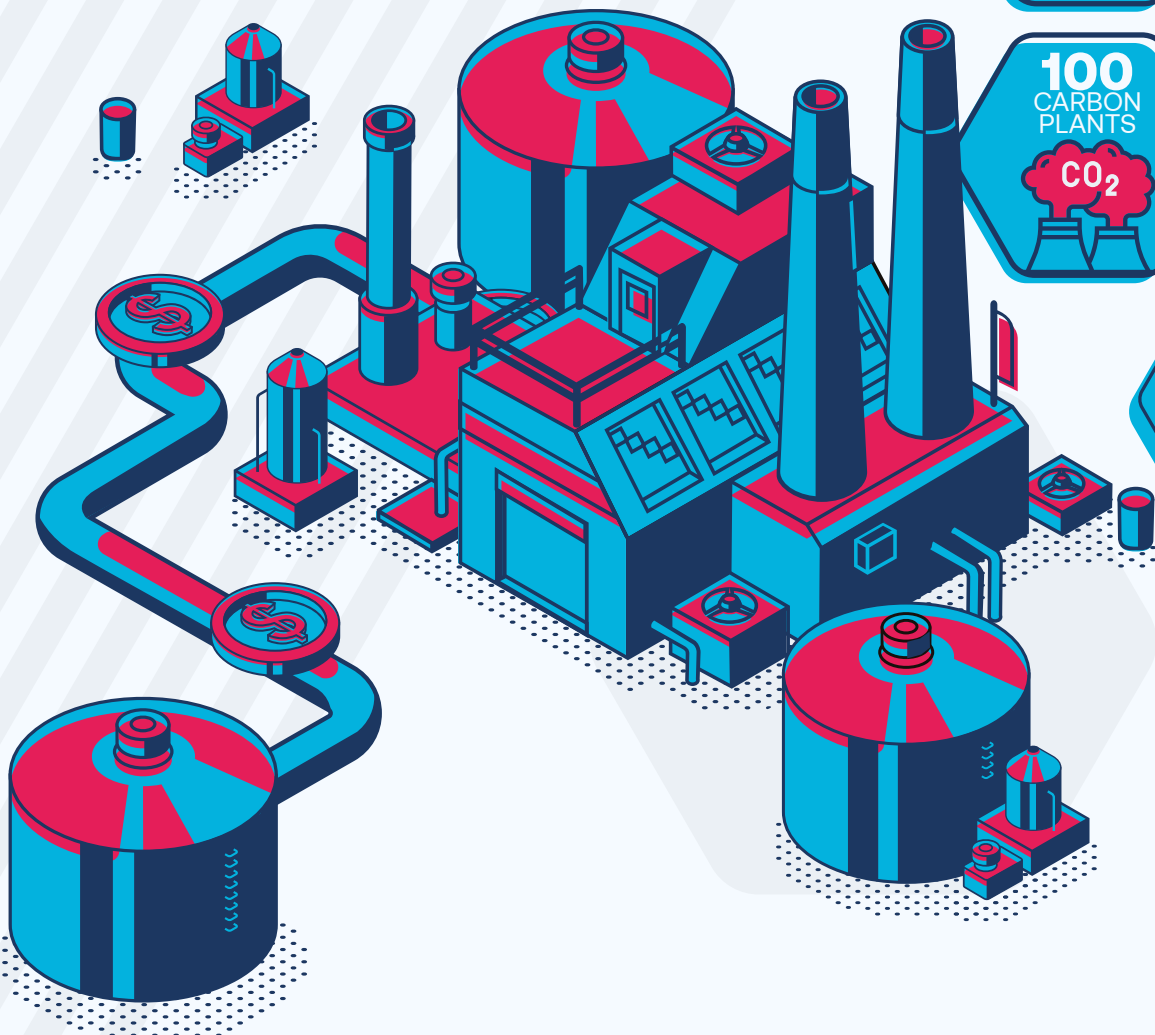


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Did you know?



20-50%
LOST WASTE HEAT



An estimated **20-50%** of the energy used in industrial processes is lost as waste heat.

100
CARBON
PLANTS



As much as **370.41 TWh/year** could be recovered and used. This is equivalent to the annual energy consumption of a country the size of Spain or Italy. It is also equivalent to the total electricity generation of more than **100** coal-fired power plants.



Traditional energy efficiency improvements, focused on a single process or site, are not enough to exploit this potential.

Here is where industry needs to look beyond its own site, and identify exploitable opportunities based on 'symbiotic' relationships between different sites.

Introduction to Energy Symbiosis

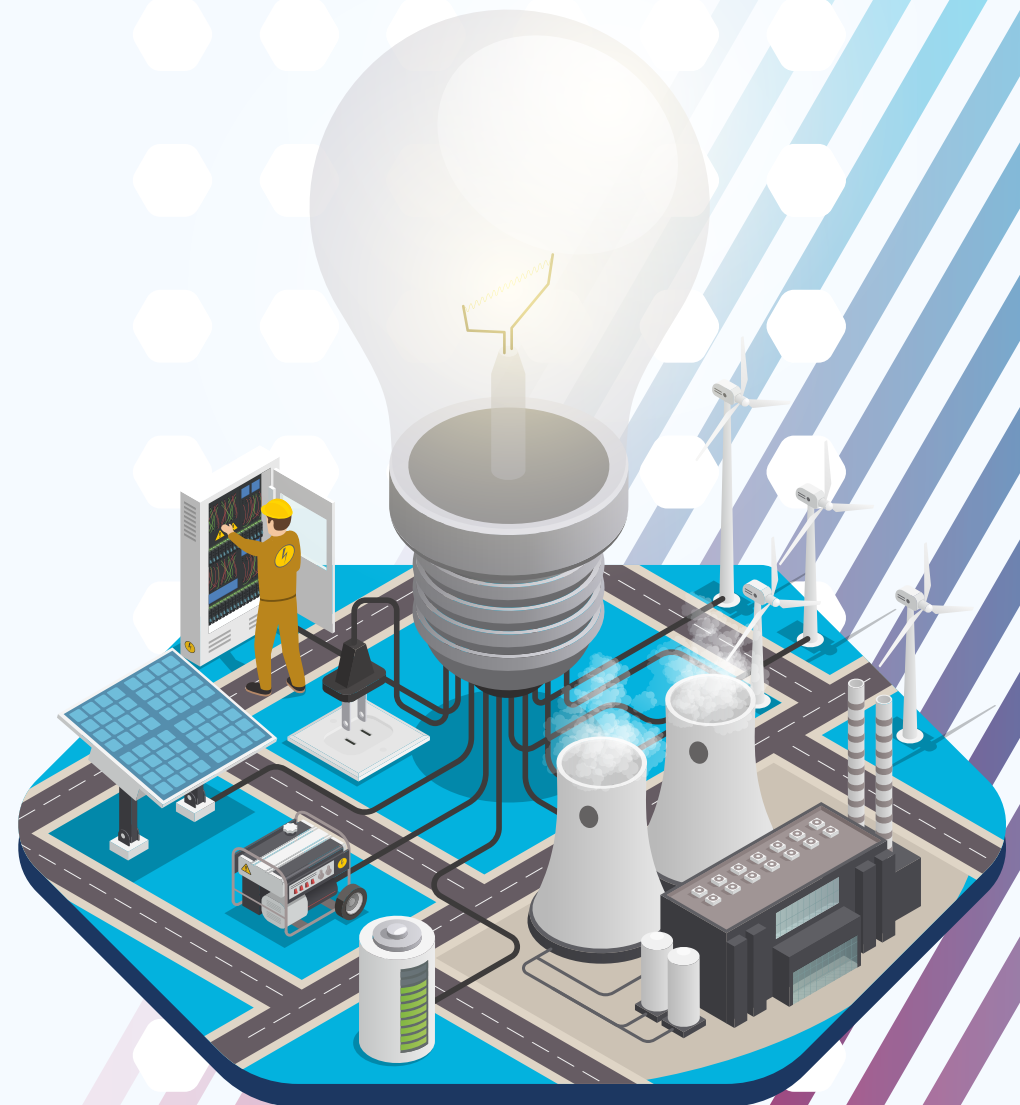
Energy symbiosis is a concept that refers to the efficient and sustainable use of energy resources by different industrial sectors and facilities. It deals with the usage of the waste energetic resources of an industry or industrial process as a substitute to that traditionally used by another industrial process.

In other words, it is based on the idea of utilizing waste heat, by-products, and other forms of energy that would otherwise be discarded, and redirecting them towards other processes or facilities that can use them.

Given that it can lead to significant energy savings and reduced greenhouse gas emissions, as well as improved resource efficiency, it has been recognized as part of the European strategy to use resources efficiently.

An example of energy symbiosis:

In an industrial park, a steel factory may produce waste heat that can be captured and used to heat nearby buildings or greenhouses.





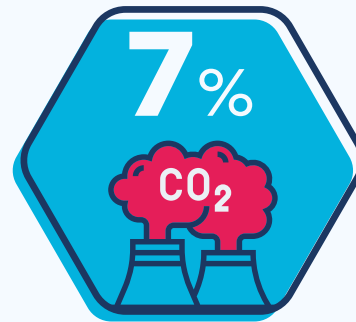
Massive potential impacts for Europe

According to a study by the European Commission, the implementation of energy symbiosis in the European Union has the potential to:



Reduce primary energy consumption by up to 10%

This is equivalent to saving the amount of energy produced by around 20 medium-sized coal power plants operating at full capacity for a whole year, or the energy consumption of a country the size of Austria or Portugal.



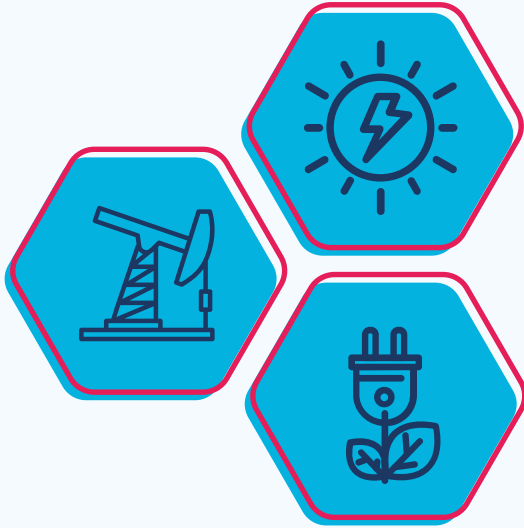
Reduce greenhouse gas emissions by up to 7%

This is equivalent to removing the annual emissions of more than 70 million cars from the road, or to shutting down 70 coal-fired power plants. It's like taking the carbon sequestered by more than 200 million acres of forest in a year.



Lead to cost savings of up to €12 billion per year.

Just to put this into everyday perspective, these savings for Europe could equate to the GDP of a small country like Malta. It's also equivalent to the annual salary of about 240,000 highly paid doctors. It could also cover the tuition fees for about 12 million university students for a year.



- Reduced industrial fossil fuels dependency
- Achievement of the decarbonisation goals of eco-industrial parks in Europe
- Helping industries transition towards a more resilient, competitive and sustainable industrial model.

Good for industry.

Good for the environment.

Good for European energy security.





Barriers to industrial symbiosis

Despite its massive potential, energy symbiosis still remains a niche market in Europe.

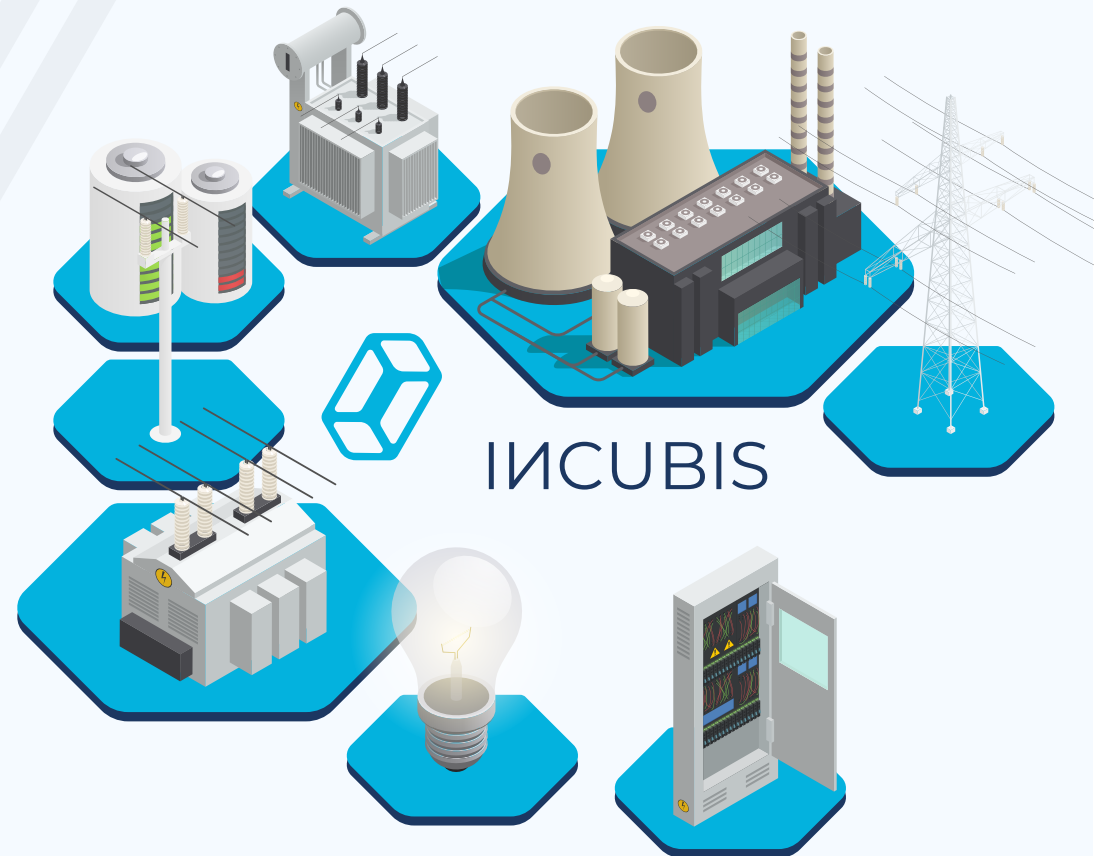
The main challenges are:

- Coordinating multiple stakeholders
- Appropriating knowledge in assessing and de-risking investments
- Dealing with high transaction costs and long development times.

Energy symbiosis is an opportunity that does not materialize on its own. Energy synergies need to be

- Identified:** In a geographically viable proximity
- Evaluated:** So the best matches can be made
- Enabled:** Collaboration and investment is needed to make these synergies happen.

The massive wave of digitalisation that Europe is experiencing, can be an enabler for helping to break down these barriers.





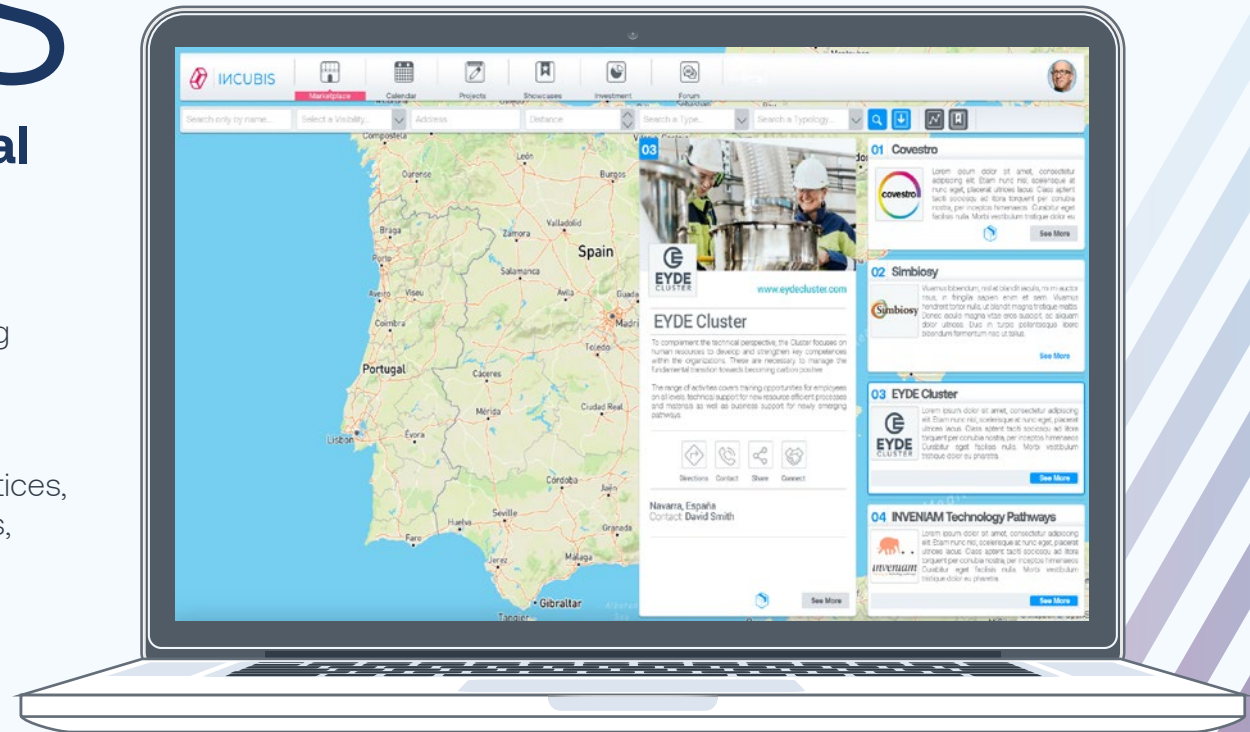
INCUBIS

A virtual incubator for industrial symbiosis projects.

A toolbox for the delivery of energy symbiosis enabling services

INCUBIS is a platform that integrates matchmaking functionalities, ranking tools, feasibility tools, best practices, guidelines, training materials and funding opportunities, functioning as a toolbox for the delivery of Incubator services.

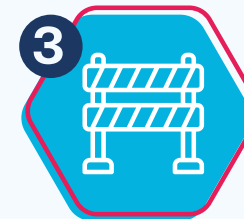
The platform allows users to:



1
IDENTIFY
energy
symbiosis
opportunities



2
EVALUATE
them for
optimized
synergy
matching



3
REMOVE
ACTIVATE
barriers to
energy
symbiosis



Who is the platform targeted to?

- Energy symbiosis facilitators
- Industrial Park managers
- Industrial factories that manage thermal waste
- Public agents that promote industrial symbiosis programs
- Investors

The perfect match.

- 1 Management of Industrial Symbiosis projects
- 2 Synergy matching
- 3 Learning
- 4 Creating community
- 5 Financing
- 6 Best Practice showcases





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