

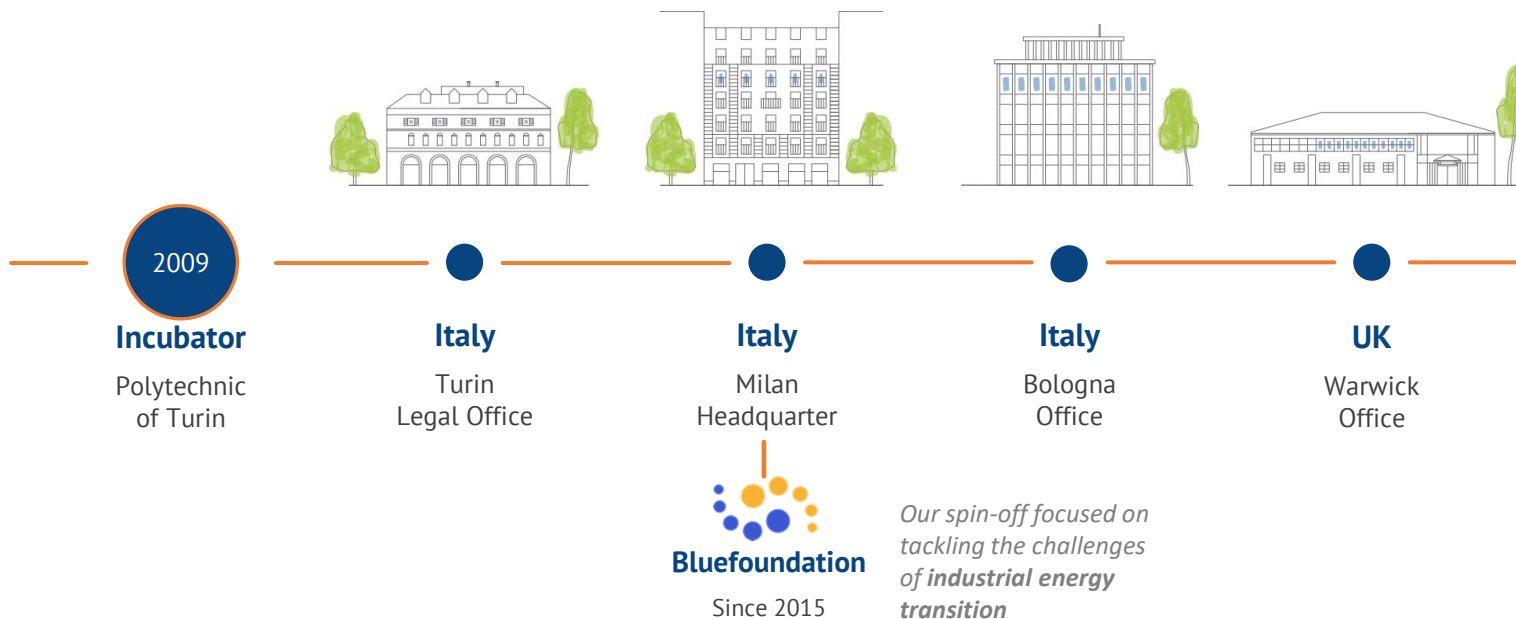


bluefoundation

Make sustainable transition happen. **Now!**

BlueThink's Walk

Bluefoundation is the spin-off of the BlueThink Group fully dedicated to sustainable transition.



Who We Are

Our people are world-class scientists and engineers from across disciplines sharing **#aBlueSkyPerspective**.



> 90

Employees

> 400

Projects

> 120

Clients

> 60

Papers & Talks

> 300

Solvers

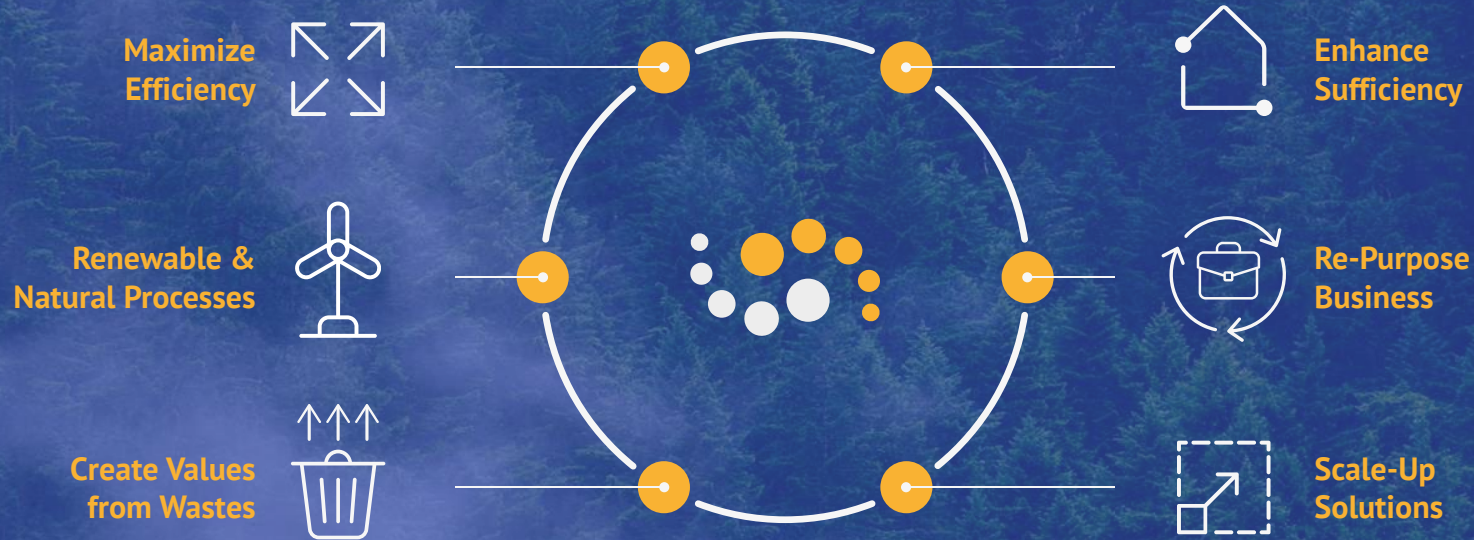
Our Mission

We work to actively support the **sustainable transition** of companies with our engineering skills, creative thinking and scientific methodology



Sustainable Transition Principles

The transition to a sustainable economy is already an **achievable target** thanks to a wide set of **solutions** that can be effectively **combined together**



Bluefoundation Pillars

We are engineers of sustainable transition, searching for synergy between technologies using creativity and scientific methodology



Engineering Approach

Deep knowledge of technologies and processes:

- **Energy** Systems
- **Industrial** Processes
- **Transportation**
- **Innovation** Technologies



Data Science

Our expertise in analysing current and future systems:

- System **modelling**
- **Scenarios** simulation
- Numerical **optimization**
- **Predictive** Analysis



Business Intelligence

Developing strategies that can create a value in the transition process:

- **Market** Analysis
- **Business** Models
- Go-to-Market **Strategy**



Solvers Network

Our extensive network of partners bringing cutting-edge technologies or specific knowledge:

- Companies
- Start-ups
- Research Centres



Clients

We work in a global framework to grant a clear competitive edge to each one of our clients



FERRERO



Barilla



FINCANTIERI



enel x

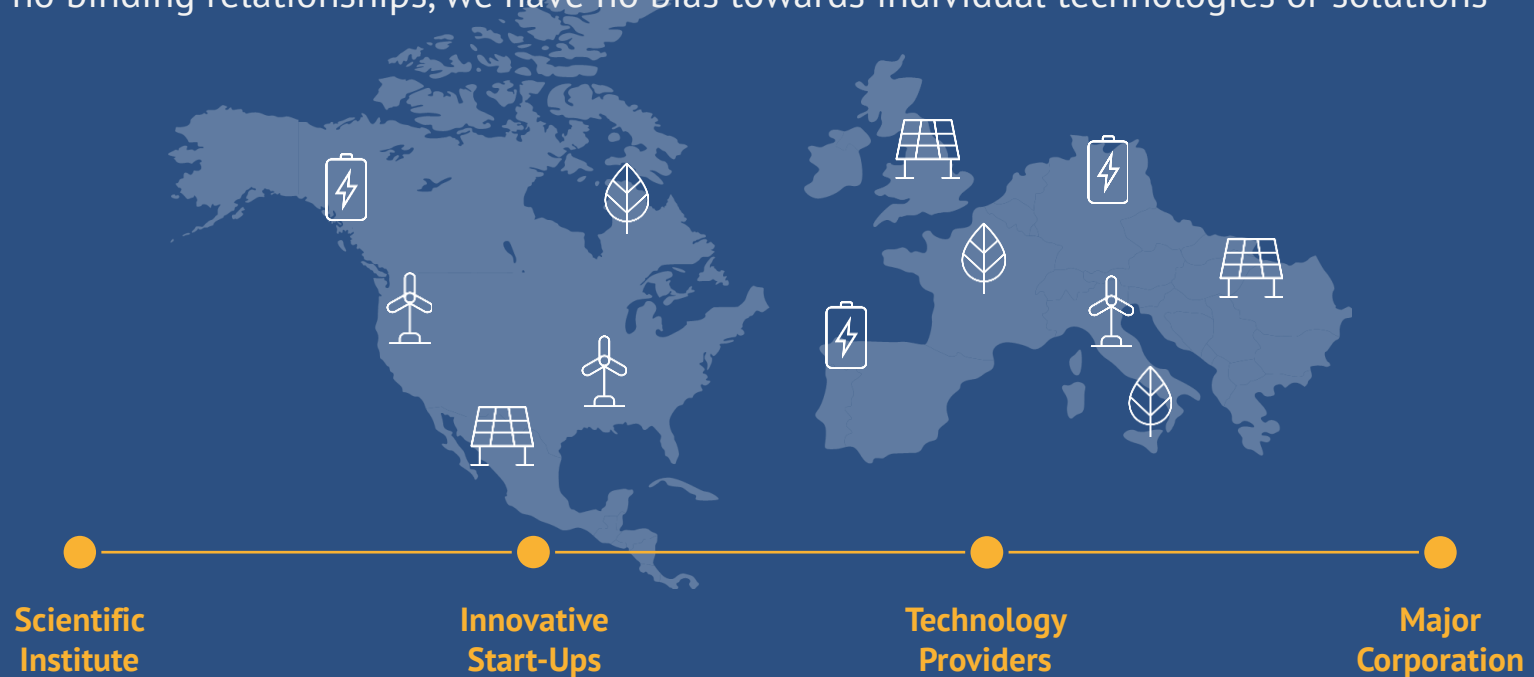


enel
Green Power



Bluefoundation Network

We formed a network with the main technology providers to deliver the best knowledge, but, having no binding relationships, we have no bias towards individual technologies or solutions



Our Solutions

We are engineers of sustainable transition, searching for synergy between technologies using creativity and scientific methodology



Digital Twin Optimization

CO₂ emissions of micro-grids can be dramatically reduced simply by optimizing the way energy is produced, stored and consumed.



Decarbonization Toolkit

We work with a tailor-made approach using our tools and expertise to develop a project that can meet your targets and requirements.



Green Business Intelligence

We work on the development of innovative business strategies and activities that can play an active role in the energy transition and create added value for our customers.



Sustainable Technology Scouting

Systematic mapping of all technological solutions able to solve a specific environmental issue and boost client competitiveness.



A Selection of Case Studies



Case Studies



Planning the decarbonization of a Food Industry Leader plant-by-plant

One of the major food companies chose Bluefondation for the definition of a **decarbonization strategy** able to reach the ambitious goal of **zero emissions** within the first half of the century in more than **20 plants worldwide**.

The **technological solutions** have been defined and **sized** from site to site according to process requirements and **country-specific conditions**.

The identified decarbonization pathways will be progressively implemented leading to an overall reduction of more **than 380'000 tCO₂/y**.

- 380'000 tCO₂/y

Path to zero emission

> 20 plants worldwide

> 80 CO₂ Reduction Measures

Case Studies



Design of a Net Zero Emissions Factory

Heat pumps, biofuels, renewables and process optimization.

These are the ingredients that have been carefully combined and dimensioned to obtain the **conversion of an existing industrial site in a Zero Emissions Factory**.

The transformation will avoid the emission of **2'500 tCO₂/y** while **reducing operative costs**. An excellent case of win-win solution.

- 2'500 tCO₂/y

4 MW_{th} of Heat Pumps

300 kW_{Th} Solar Thermal

Reducing operative costs

Case Studies



Corporate Carbon Footprint

An organisational **carbon footprint** quantify the Greenhouse Gas (GHG) emissions arising from core activities and is the **first building block towards any sustainability strategy**.

The analysis cover CO₂ emissions of three scopes:

- **Scope 1** – direct emissions occurring from sources owned or controlled by an organisation.
- **Scope 2** – indirect emissions associated with the purchase of electricity, steam, heat, or cooling
- **Scope 3** – indirect emissions associated with activities occurring across a company's value chain – outside of its direct influence.

According to ISO 14064

GHG Protocol

Scope 1, 2, 3 Emissions

CDP Compliant

Case Studies



Energy Audits (EN 16247 – ISO 50001)

An energy audit aims at providing a complete and detailed inventory of the energy performance of processes and building and the current status of energy usage to identify efficiency improvement measures.

Based on the analysis of the current energy status and taking into account the operating parameters, Bluefoundation's experts develop specific ideas for the improvement of energy efficiency within your technical processes and systems.

The Energy Audits are performed according to the international standard ISO 50001 and the European Standard EN 16247.

According to EN 16247

According to ISO 50001

Energy Efficiency

Cost Reduction

Case Studies



Ceramic Furnace: A Fossil-Free Conversion

The **Ceramic industry** fully relies on **fuel combustion** technologies for the majority of its **processes**, with direct heating and drying as main high temperature heat users.

The main energy source is **natural gas**, due to historically lower prices and high TRL solutions. However, this causes **emissions** and introduces **risks** related to price volatility.

How to make ceramic production **future-proof** and environmentally sustainable at the same time?

Bluefoundation has been working on that in direct **collaboration** with main energy operators and **technology suppliers**.

H₂-fired Furnace

Gas-to-Electric Retrofit

Multi-MW Applications

Case Studies



Heat Pump-based Pasteurization for the Energy Transition

Integration of heat pumps in industrial processes is considered as one of the most effective ways in reducing carbon emissions and improving efficiency of heating consumptions.

Highly efficient technologies, like **heat pumps**, will open up new **opportunities** for all the players involved in the energy transition. How to re-think the pasteurization process to be carbon neutral by design?

This is how Bluefoundation supported the development of new full-electric and high efficiency food process lines

3x Energy Efficiency Increase

12 Tech. Providers Involved

5 alternative configurations

Case Studies



Carbon Capture On-board Ship: Most Suitable Configuration

Capturing **CO₂** is a potential solution to reduce the **emissions** generated by the **engines** of ships.

The installation of newly matured technologies as Carbon Capture on-board poses **additional challenges** such as volume constraints.

Technical-economical **simulations** on **alternative configurations** were able to highlight pros and cons of the potential layouts, also identifying the technical **bottlenecks** to be solved for a successful design

3 Main Capture Processes

>10 Storage & Use Methods

Optimal Capture Technique

Implementation Guidelines

Case Studies



Minimize Energy Consumption with Artificial Intelligence

Millions of Telecommunication Towers are installed around the world and their number is continuously growing. Telecom Towers, often located in remote areas, are usually equipped with diesel generators and supplemental power systems whose sizing and operation is far from optimal. Even small efficiency improvements multiplied by millions of times can have a huge impact.

This is why Bluefoundation developed, with one of its UK partners, a **cloud-based software** able to **optimize** the **power assets** of **telecom towers** adopting **AI** techniques; it is able to **detect faults** and **anomalies** and send **alerts** to the operators leading to effective **cost** and **emissions savings**.

> 200 Telecom towers

-15% Energy costs

AI techniques

Cloud based software

Case Studies



Circular Economy Solutions For Organic Biomass Wastes

We **explored all possible alternative valorisation routes** to exploit **nutshells** and enhance the economic and environmental sustainability of the production process.

Dry shells can be used to produce bio-materials, pharma and bodycare products, bio fuels and biochar.

The mix of identified solutions will be able to **reduce the carbon footprint** of the company of almost 12'700 tCO₂ while generating **1.5 M€ of additional revenues**.

Food Processing

25'000 t/y Waste Recovered

1.5 M€ Additional Revenue

CO₂ emissions: - 12'700 tCO₂/y

Why Choose Bluefoundation



Climate change is one of the biggest challenges of our times, but one where industry can make the most difference. We have the knowledge and tools to drive your low-carbon transition forward.



Making industry sustainable is our mission

Based on our success in this specialist area over the last few years, we have created a team to focus exclusively on industrial decarbonization and circular economy.

We are completely dedicated to this challenge, developing the specific skills and tools needed, and forming a network with the main technology producers and research centers around the world to provide the best knowledge. Our aim is the reduction of global CO₂ emissions and wastes through collaboration.



Tailor made approach

Our experience has enabled us to develop a **structured and effective methodology**, that is applied in a flexible way to meet the client's specific needs.

Every project is approached independently, considering the client's exact requirements in terms of activities, timelines and staff involvement. Taking time to understand the topics to be investigated, opportunities to be explored, the technologies and solutions to include or exclude. This **tailored approach** ensures that any size project can be managed in a scalable and reactive way.



Independent Thinkers

Having **no binding relationships** with any **supplier** or partner, we have no bias towards individual technologies, companies or solutions. This independence enables us to **identify the best solution available on the market** for each particular situation, regardless of the technology involved. Our broad knowledge allows us to support both global and site-local organizations, while our cross-sector network leverages more opportunities to deliver better results.



We don't work for you, we work with you

The way we work centers around **constant collaboration** between Bluefoundation and the different stakeholders within the client company. We work closely with headquarters, advising and helping them to bring the many different functions on board at the right moment. **Everyone involved** must feel that they are an **integral part of the plan**, whether operations or management, global or local. This approach creates a shared vision, ensuring that the plan formulated is fully supported, successful and effective.



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