24/10/2024

POLLUTEC INNOVATION CHALLENGE 2024

Announcing the 10 shortlisted projects

The new prize celebrating innovation at Pollutec Paris

Hall 1 of Paris Expo Porte de Versailles
75015 Paris

The flagship show in France and Europe for environmentally-friendly solutions for industry, cities and regions is launching the Pollutec Innovation Challenge, a new format to coincide with the first Paris edition of the show. Introducing the 10 shortlisted entrants.

Complementing the Pollutec Innovation Awards organised in Lyon – which since 2016 have rewarded environmental sector technological innovations with strong market potential – the Pollutec Innovation Challenge, supported by the French SATT network, aims to showcase **10 promising and innovative projects incubated or supported by labs, research centres or technology transfer bodies.**
The 10 projects will be presented in a dedicated area, next to the **Talent Hub, a space dedicated to employment and training**. Project promoters will also take to the Tribune stage **at 14:00 on Wednesday 27 November** to pitch in front of a panel of experts. The first confirmed panellists include: **Pierre-Yves Burlot, Sustainable Development Director, SÉCHÉ ENVIRONNEMENT and President of Association ORÉE**; and **Charlotte Migne, Vice-President of Sustainable Development, Suez Group**.
The winner of the Pollutec Innovation Challenge will receive a start-up stand at Pollutec 2025 in Lyon.

10 environmental innovation projects shortlisted

Process to clean metal-contaminated effluent

BEADMET
Launch: 2021 - incubated at LP21
European standards and directives for drinking water are increasingly stringent. The issues facing this sector are particularly challenging due to the difficulty of removing the full spectrum of metals from effluents, coupled with a lack of optimisation and chemical treatments involving post-treatment processes. Furthermore, the facilities do not always repay their investment; as revenue is very poor if the metals cannot be recycled.

The 'Beadmet' project involves using a specific process to develop a solution for capturing and recovering heavy metals from aqueous effluents. In more detail, it involves using bio-transformed PVA-alginate beads (activated by bacteria) to capture heavy metals (10 metals have already been tested). This project, which has been supported by the LP2iB laboratory since 2020, has led to the filing of a patent, and is currently maturing (since the beginning of January 2024), via an investment by AST (the SATT Aquitaine).

First compact gas analyser

Mirega

Launch: 2023 - incubated at LKB (Kastler Brossel Laboratory at the École Normale Supérieure higher education institute in Paris)

Climate change impacts are driving the need to rapidly reduce greenhouse gases, particularly methane due to its high global warming potential. However, current solutions for measuring emissions are bulky and unsuitable for mobile use. Tools that are more compact, sensitive and robust are as a result critical to accurately quantifying emissions, in order to better reduce them.

With this major innovation Mirega has developed the first miniaturised gas analyser, 100 times more compact than current solutions while offering both high sensitivity and the ability to measure low gas concentrations. Compact, robust and portable, this solution is ideal for quantifying low gas concentrations and detecting leaks to help reduce greenhouse gases.

Topics: Industry

New process for biomethane production without CO_2 emissions

Methancat

Launch: 2022 - incubated at the UCCS

France is aiming for renewable gas to account for 10% of its total gas consumption by 2030. However, for biomethane to be more competitive, production costs must come down by 30%.

As part of this effort to optimise the financial viability of biomethane, SATT NORD has devised a technology that eliminates the very energy-intensive process of separating the constituents of biogas. Currently, membrane separation is employed on the gases issuing from the digester to separate CO_2 from the CH_4 before methanation of the CO_2 by catalytic hydrogenation. The new Methancat catalytic process allows biomethane to be produced without any separation stage, by direct hydrogenation of the CO_2 in the raw biogas so preventing loss of CO_2 into theatmosphere and improving reaction yield.

Topics: Industry

Digital twins to decarbonise the property sector

Eneville

Launch: 2023 - incubated at the CNAM Incubator

The property sector suffers from very poor data literacy, making effective diagnostics impossible for large heritage sites across France. However, the effective use of property data is key to the optimisation of resources and investments. Eneville sought to address this problem, and optimise decarbonisation in the property sector, by using digital twins to support decision-making.

Eneville has used open data and AI to create a digital twin of the whole of France, modelling every building in the country to provide property and energy data. As a result, they can offer large-scale decarbonisation scenarios and identify the key levers to decarbonising the country's building stock.

Topics: Sustainable Cities and Regions, Construction

New process for capturing CO_2 using MOFs

FOMCAP

Launch: 2021 - incubated at LTM and ICPEES

Increasing atmospheric CO_2 concentration is a major problem. There are two methods for capturing CO_2: direct air capture (DAC) and post-combustion capture. DAC solutions are currently available but are expensive and small-scale. Post-combustion capture using liquid amines is a technique going back more than 50 years. However, its disadvantages include high energy consumption, toxicity and degradation.

The solution created by FOMCAP uses Metal-Organic Frameworks (MOFs). These materials have enormous surface area (1000 m^2/g) and extremely fine pores (millions of times smaller than a hair). This controlled porosity, coupled with stability in hot and humid conditions, makes them suitable for use in a range of areas, including that of CO_2 capture. Initial tests have shown them to be effective for post-combustion CO_2 capture, while tests are underway to determine their suitability for direct air capture (DAC).

Topics: Industry

Innovative desalination for a sustainable blue economy

i | ion Water Technologies

Launch: 2024 - incubated at the Physics Laboratory of the École Normale Supérieure higher education institute in Paris (LPENS)

While desalination could potentially supply 30% of the global population, the high cost and environmental impact of the dominant process - reverse osmosis (RO) - have limited its use. While over 22,500 desalination plants are currently in operation, their capacity only caters for 3% of the global population, so sustainable solutions are required.

i | ion is a pressureless desalination solution that uses just a few volts, instead of mechanical high pressures (60 bar), to desalinate water via commercial reverse osmosis membranes. This technology is aiming for a more environmentally-friendly, straightforward and economical desalination process to preserve water resources.

Topics: Water

Sustainability and optimisation of Li-ion batteries with supercapacitors

OptHySource

Launch: 2022 - incubated at the ICube Laboratory / INSA

The current issue with Li-ion batteries in electric mobility is that load profiles are punctuated by surges. These power surges increase the temperature of a battery and cause it to age. Furthermore, the batteries are not simultaneously power and energy efficient, leading to suboptimal dimensions that also reduce battery life.

OptHySource has devised a solution to mitigate this problem, using Li-ion batteries alongside supercapacitors (SC) to limit the strain on the battery. The battery will then have steady power throughout its operation as it shares peak loads with the SCs. Optimal sharing between the battery and the SCs then requires a power converter and an energy management algorithm. This architecture improves the dimensions, performance and lifespan of the battery and, ultimately, enhances the Total Cost of Ownership (TCO).

Topics: Transport & Mobility

Innovative and reusable process for decontaminating soils containing hydrocarbons

Terdepol

Launch: 2025 - incubated at ICube, University of Strasbourg–CNRS, and ITES, CNRS–University of Strasbourg–ENGEES

Many industrial sites – often on the outskirts of cities, land or brownfield sites – are polluted with hydrocarbons. Current legislation requires these areas to be decontaminated so they can be recovered for alternative use. However, existing solutions struggle to

decontaminate these sites quickly, at reasonable cost, and in an environmentally-friendly way, and without transporting the pollution elsewhere.
The Terdepol project focuses on developing and dimensioning an innovative industrial process comprising the leaching of hydrocarbon-polluted soils directly on site, following their excavation. Leaching uses a solution containing an original, reusable surfactant that does not contaminate the surrounding environment, offering unparalleled performance in terms of hydrocarbons separation from the soil, without chemical reaction. Requiring few or no operators, following application to a polluted area this new automatic process returns the cleaned soil directly to its source while the hydrocarbons are recovered.
Topics: Sustainable Cities and Regions, Construction, Industry

First multi-agent simulator to assess the systemic impact of decisions

TerraNeon
Launch: 2021 - incubated at LIP6
How can we effectively tackle global warming and preserve biodiversity? No tools currently exist that provide systematic evaluation of potential solutions, and take into account all the essential dimensions. TerraNeon aims to find solutions that are environmentally viable, economically sustainable and socially acceptable,
and is the only tool to simulate the systemic impact of a decision. TerraNeon is a multi-agent simulator that allows various solutions to be tested, comparing their impact on the environment, their cost, and their social acceptability, based on scientific indicators. Currently, a macroscopic tool is offered that enables all economic activities in France to be modelled to scale, along with their impacts on the climate and biodiversity. An initial demonstrator has been produced to assess the energy production mix in France, with a view to finding the optimum balance between nuclear and renewable energies.
Topics: Agriculture, Sustainable Cities and Regions, Biodiversity, Construction, Food, Industry, Transport & Mobility

Ultra-compact energy storage devices

Voltify
Launch: 2023 - incubated at IEMN
Electronic devices are becoming increasingly compact. However, the energy density of existing micro-batteries and micro-capacitors on the market is too limited to allow them to operate at maximum capacity. At submillimetre scale, even the smallest battery often accounts for over 50% of a device's volume and compromises both its miniaturisation and autonomy.
VOLTIFY has developed a technology enabling these components to achieve unprecedented geometric density. This technology is fully patented by the French National Centre for Scientific Research (CNRS) and has an exclusive licence. The approach is based on assembling materials selected to address safety and environmental issues (rechargeable, solid-state technology) on an innovative and original 3D silicon structure inspired by living things. With this, unrivalled energy densities of between 15–250 times their commercial equivalents can be obtained, with manufacturing processes enabling large-scale manufacturing.
Topics: Industry, Health, Transport & Mobility

TIMETABLE FOR THE POLLUTEC INNOVATION AWARDS

Wednesday 27 November
Pitches by the 10 shortlisted project promoters
14:00 to 15:15 at the Tribune

Awards ceremony
16:30 at the Tribune

If you'd like to request an interview or press credentials, please don't hesitate to get in touch at: pollutec-presse@looksharp.fr

About Pollutec Paris

France's and Europe's leading trade show for environmental solutions for industry, cities and regions, historically organized in Lyon by RX France, is now offering a new biennial event for the major environmental and climate sectors in Paris, Porte de Versailles.

Complementary to its big brother in Lyon, with a more compact two-day format, it reflects all the environmental sectors and, in many cases, anticipates some of their developments.

To find out more about the program and keep up to date with the show, visit the Pollutec Paris website: https: //www.pollutecparis.com/fr-fr/programme/programmation-officielle.html and @pollutec.

About RX

RX is a world leader in events and trade shows. RX leverages its industry expertise, data and technology for the development of businesses, communities and individuals. Present in 25 countries and 42 sectors, RX organizes nearly 350 events a year. RX is committed to creating an inclusive working environment for all its employees. RX enables companies to grow through data and digital solutions. RX is part of RELX, a global provider of data, analytics and decision-making tools for professionals and enterprises. For more information, visit www.rxglobal.com.

*Organized by SAFI, a subsidiary of RX France and Ateliers d'Art de France.

For press inquiries: pollutec-presse@looksharp.fr

Press Contacts
Look Sharp
Agathe Alexandre and Lorella Contardo
pollutec-presse@looksharp.fr
+ 33(0)1 86 66 17 10 or +33(0)1 86 66 17 04