



Dear IANOS community member,

We are proud to send you the first newsletter to inform you about the developments of IANOS since the start of the project. You will be receiving this newsletter on a quarterly basis from now on.

About IANOS (Integrated Solutions for Decarbonisation and Smartification of Islands)

IANOS project targets island energy transition strategy focused on energy efficiency, decarbonisation through electrification and support from carbon-neutral fuels, and the empowerment of local energy communities starting from pilot islands, Terceira (Azores) and Ameland (Netherlands), and with fellow islands of Lampedusa (Italy), Bora Bora (French Polynesia) and Nisyros (Greece). The project favours renewable energy sources penetration (solar, wind, tidal, geothermal, hydro, green gas, and waste) within the islands energy systems by exploiting multiple storage mediums (electricity, hydrogen, thermal) to respond to different types of end-users (transport, industry, residential, and services). IANOS will test novel Demand-Side-Management (DSM) and Peer-to-Peer (P2P) transactive energy schemes within the Virtual Power Plant (iVPP) framework.

What you can find in the newsletter

- IANOS technical advancements
- IANOS European Initiatives and events

IANOS TECHNICAL ADVANCEMENTS

Site Surveys Terceira

On one of our two pilot islands, Terceira (Portugal), participating households will receive technologies to decarbonise their emissions. In the beginning of September, we visited the neighbourhood of Terra Chã to collect information on the participating residential users like the loads and monthly energy consumption. Based on this information we have chosen which of the technologies is going to which house. In Terra Chã, 16 households will receive an electrochemical battery with a gateway, and 24 households will receive a heat battery with the gateways. There are also 5 households which will have an electric water heater installed.

Technology testing and deployment

Parallel to the inventory of the technologies to decarbonise the emissions of the participating households, we also performed tests on these technologies to ensure their integration with each other. Specifically, the integration between the Heat Batteries from Sunamp and the gateways from CERTH and Cleanwatts. The tests were successful and these technologies are ready to be deployed.

Furthermore, the installation of the technologies in the residential neighbourhood of Terra Chã has already started. A local installer is now proceeding with the installation of the electrochemical batteries and the other technologies should follow soon.

In this neighbourhood, IANOS will be installing 40 PV panels with imbedded microinverter from BeON, 24 heat batteries from SunAmp, 16 electrochemical batteries, 20 HEMS by Cleanwatts and 20 FEID-Plus by CERTH, as well as 5 electric water heaters by UniNova.



Photos of the installation of the electrochemical batteries in Terra Chã

TidalKite demonstration

SeaCurrent started testing its TidalKite system. The TidalKite demonstration unit is built with support from the Waddenfonds and the Province of Friesland. It will also be used for the IANOS project, to demonstrate the grid integration of electricity produced by the TidalKite, as one of the solutions offered by the project to decarbonise islands.

The first tests are currently executed in sweet water on the pilot island Ameland (Netherlands). The focus of these tests is on tuning the balance of the kite as well as the buoyancy, mechanical functionality, and the control system. After successful completion of these tests, the kite will be stored for winter and efforts will be focused on the TidalKite power take-off system, that converts the kite's traction force into electricity. Testing and demonstrating the TidalKite at Ameland will commence in 2023 and last almost all of next year.

Tidal currents are driven by the moon and hence are very predictable and available every day. This makes tidal energy a unique energy source contributing substantially to a cost-efficient and reliable islands' energy system. Harnessing tidal energy from medium and lower velocity tidal flows can best be done by underwater kites, as recognised in the Strategic Research and Innovation agenda for Ocean Energy. The TidalKite is unique in its ability to be deployed in shallow waters with lower velocities as available near Ameland, and on most locations worldwide.

Hydrogen Fuel Cell

Also, on the pilot island of Ameland, a hydrogen fuel cell has been in operation since this month, which will monitor the electricity demand of part of the village Buren as precisely as possible. This fuel cell, installed as part of H2Watt project, provides insight into the flexibility of an energy system in which hydrogen is an important connecting link. In turn, we will use these results for the IANOS project.

Meanwhile, there are plans to build a step-by-step installation including electrolyzers, fuel cells, battery packs and a digester near the new solar park (realisation 2023). This 'Energierotonde Ballumerbocht' should eventually become a sustainable and fossil-free energy system that allows the island to meet an increasing part of its own energy and heat demand. The intelligent control of this system is being developed in this project.



Photos of the Demonstration of the Hydrogen Fuel Cell

IANOS AT PAST EUROPEAN INITIATIVES AND EVENTS

A recap of European initiatives and events where IANOS was presented. Follow us on [LinkedIn](#) and/or [Twitter](#) for regular event updates .



CE4EUI Forum - Represented by CERTH

17-18 MAY 2022 | Rhodes, Greece.

During the Clean Energy for EU Islands Forum 2022 we showed the commitment of the EU and of IANOS Consortium and EU sister projects, towards the improvement and optimisation of the use of energy sources within islands

[More about this event](#)



Sustainable Places - Represented by RINA

6-9 SEPTEMBER 2022 | Nice, France.

The 10th annual edition of Sustainable Places (SP2022) was a hybrid event with the in-person sessions hosted in Nice, France. Each year the event has different workshops on many themes, included the one on European Actions Towards Geographical Islands Decarbonisation. This year the workshop on islands' decarbonisation and clean energy transition.

[More about this event](#)



IANOS Partner's Meeting

6-9 SEPTEMBER 2022 | Terceira, Portugal.

A group of IANOS partners went to perform technical surveys on the houses of Terra Chã, where some of the project's Use Cases (solutions for decarbonisation) will be deployed. Members of EDP NEW, EDA, RGA and Cleanwatts visited the residential houses participating in the project, spoke to the residents and collected information crucial for the commissioning and installation of the innovative technologies.



European Sustainable Energy Week

26-30 SEPTEMBER 2022 | Brussels, Belgium.

EUSEW brought together thousands of sustainable energy stakeholders in Brussels and online, to discuss Europe's energy independence ambitions and climate goals through the REPowerEU Plan's measures of energy savings, digitalisation, diversification of energy supplies and an accelerated roll-out of renewables.

EUSEW is the biggest annual event dedicated to renewables and efficient energy use in Europe and comprises a series of activities aimed at building a secure energy future for Europe. It brings together public authorities, private companies, NGOs, EU project partners, researchers and consumers, to promote initiatives to go green and digital for Europe's energy transition. This year's theme: "*Going green and digital for Europe's energy transition*".



IANOS General Assembly

18-19 October 2022 | Terceira, Portugal.

On the 18th October, IANOS partners finally met physically in Terceira, for the first time since the project's start. The meeting was in Terceira, since this is one of the pilot islands involved in the project. During the meeting, the partners had the opportunity to discuss the development of the project, receive updates on the status of technologies testing and also to coordinate the two main demonstrations to happen in Terceira and Ameland. Moreover, all partners had the opportunity to visit the houses in which their technologies will be installed. During the assembly, the consortium has visited the Pico Alto Geothermal plant too, a 4 MW plant using an ORC unit built by Exergy on Terceira.



Digital Transformation Summit

29 November - 1 December 2022 | Funchal, Portugal.

European Commission sets out the vision for Europe's Digital Decade by 2030 proposing the Digital Compass, that revolves around four cardinal points: Government, Infrastructures, Skills and Businesses.

The Madeira's Digital Transformation Summit responds to this challenge in a forum where the EU's Digital strategy is debated to achieve the visionary objectives at European and regional levels. Bringing together recognised individualities from the European Commission, Government, Academia and Industry, The Summit sets the scene for a human-centric vision in a digital society. Needs, expectations, developments and innovative solutions will be discussed aiming at digitally empowering citizens and businesses to improve, grow, innovate and compete on fair terms, while achieving climate neutrality.

IANOS was among the projects supporting the event.

Enlit Europe

29 - 1 December 2022 | Frankfurt, Germany

Enlit Europe is a joint platform comprised of European Utility Week and POWERGEN Europe events which are the exhibitions focusing on a future-proof energy production throughout the entire supply chain from the power plant to the end user.



This edition of Enlit Europe inspired over 18,000 visitors with three days of transformative networking. IANOS participated to involve stakeholders at this early stage of the IANOS demonstration and convey our message, spreading the project as far as possible.

The trade fair Enlit in Europe was planned as a series of events, exhibition and an end-to-end forum designed for collective action toward tackling Europe's energy transition. The exhibit featured an assortment of products disrupting the current unsustainable energy flows. AI software, long-duration batteries, renewable power production, decentralised energy generation and services of engagement and raising awareness about the global avenues for energy transition will be on display at Enlit Europe 2022.

The floor plan was divided into thematic hubs each with their own programme schedule, making it a perfect place for creating partnerships between exhibitors and visitors. Some topics featured at the Enlit Europe 2022 hubs are data hub, new energy landscape hub, lifecycle management and Empowered consumer hub.



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