PRESS RELEASE

Horizon Europe SHIFT2DC project secures over 11 million Euros for the Advancement of Greener and Smarter Energy Solutions

The project is led by the Portuguese Research Institution INESC ID with 32 European Institutions

[Lisbon, December 2023] – With a substantial funding of over 11 million euros, the SHIFT to Direct Current (SHIFT2DC) project has the goal of creating smarter, more efficient, and environmentally friendly energy infrastructures through direct current (DC) solutions. The Horizon Europe Programme initiative is led by the Portuguese Research & Innovation Institute **INESC-ID** in collaboration with other 32 partner Institutions from 13 Institutions across Europe. The Kickoff Meeting was held in Lisbon in December 2023.

The SHIFT to Direct Current (SHIFT2DC) project aims to transform the way direct current (DC) solutions are used in our power systems. To do so, the consortia will establish comprehensive guidelines and a roadmap for the widespread application of DC in diverse energy scenarios.

Hugo Morais from INESC-ID, the Project Coordinator, emphasizes that DC can offer significant advantages when compared to AC solutions in specific situations: “Throughout the project, we will evaluate DC solutions in four applications /demonstrators: Datacenters, Ports, Industry, and Buildings. In these contexts, specific DC technologies and tools will be implemented. A comprehensive cost-benefit analysis will be conducted for each application, enabling the assessment of the proposed solutions' advantages. The activities within the SHIFT2DC project will also contribute to standardization, harmonization, and the proposal of guidelines for adopting DC solutions.”

SHIFT2DC project will implement a top-down, application-agnostic approach to design, simulate, test, validate, and apply DC solutions at both medium (MV) and low voltage (LV) levels. To guarantee the promotion of greener energy alternatives, the consortium will conduct thorough analyses, including feasibility, cost-benefit, life cycle, and environmental impact assessments. This will ensure that the proposed DC solutions are not only practical and cost-effective, but also sustainable.

Over the course of the project, three field-test demonstration sites will be implemented: two DC living Labs and one digital twin demonstrator centered on testing solutions for Data Centres, Buildings, Industry and Ports. “This real-world testing and validation are in fact, one the most exciting aspects of SHIFT2DC. The project will have four demonstrators, two across Germany (Datacenter and Industry), one in France (Building), and one in Portugal (Port) to test medium voltage DC (MVDC) and Low Voltage DC (LVDC) solutions. This will allow us to assess the best methodologies and tools to find the most promising solutions for both MVDC and LVDC systems. In each demo, the project will showcase the advantages of DC solutions when compared to traditional AC ones'', explains Hugo Morais.

The SHIFT2DC will also focus on developing user-friendly tools to simplify the adoption of DC solutions, including Sustainable and smart DC Cables developed for DC installations, Micro Solar DC Systems, LVDC measurement device, Pre-Charging Units for DC circuit breakers, and high-density power sources, among others.

According to Hugo Morais "These tools will showcase the adequacy of DC solutions, enhance confidence in their use and in the planning of systems based on DC. Our main goal is to create a greener and smarter energy landscape for the benefit of communities, industries, and to be used worldwide using effective DC solutions."

Funded through the Horizon Europe Programme, SHIFT2DC is planned for 42 months, bringing together a group of 33 partners from 13 European Countries including 21 beneficiary partners, 6 affiliated entities, and 6 associated partners. The group includes a certification laboratory (Laboratoire National de Métrologie et D´Essais; LNE, France), a system operator (Empresa de Electricidade da Madeira, SA; EEM, Portugal) that will collaborate in the port demonstrator, an engineering office (SETEC BATIMENT, France) that will test the DC design tools, and the two most important DC promoters namely, Stichting Current OS (Netherlands) and ODCA (represented in the project by ZVEI e.V., Germany).

The SHIFT2DC consortium:

The project brings together a consortium of experts, researchers, and organizations to design and test advanced DC solutions, along with user-friendly tools for widespread adoption.

List of 33 partners (by Country):

- **Austria (1):** Eaton Industries
- **Belgium (1):** European Heat Pump Association (EHPA)
- **Czech Republic (1):** Eaton Elektrotechnika SRO
- **Estonia (1):** Tallinn University of Technology (Taltech)
- **France (6):** Setec Batiment; Laboratoire National De Métrologie Et D'essais (LNE) ; Electricité De France (EDF); Schneider Electric Industries (SCHN), Nexans France (Nexans), Watt & Well.
- **Germany (8):** Zvei E. V.; Rheinisch-Westfaelische Technische Hochschule Aachen (RWTH Aachen); Fraunhofer Gesellschaft zur Foerderung der Angewandten Wissenschaften e.V. (Fraunhofer); Bachmann GmbH; Eaton Industries (Eaton); Phoenix Contact Electronics (Phoenix Contact); Phoenix Contact Power Supplies; Phoenix Contact GmbH & Co KG.
- **Hungary (1):** PCB Design
- **Italy (1):** Fincantieri SI
- **Netherlands (3):** Stichting Current OS; Hiro Microdata; DC Systems B.V.;
- **Portugal (5):** Instituto de Engenharia de Sistemas e Computadores: Investigação e Desenvolvimento (INESC ID); Empresa de Electricidade da Madeira (EEM); Centre for New Energy Technologies SA (EDP CNET); Administração dos Portos da Região Autónoma da Madeira (APRAM); Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (IST ID);
- **Spain (3):** Fundacion Tecnalia Research & Innovation (Tecnalia); Fundacion Circe Centro de Investigación de Recursos y Consumos Energéticos (Circe); Hitachi Energy Spain (Hitachi);
- **Sweden (1):** NEXANS Sweden

PRESS RELEASE

- **Switzerland (1):** JJ Cooling Innovation

More about INESC-ID

INESC-ID is a private not for-profit institution, registered in 1999, officially declared of public interest, owned by Instituto Superior Técnico and INESC – Instituto de Engenharia de Sistemas e Computadores. INESC-ID is one of the main research institutes in Portugal in the domains of information systems, data science, electronics and telecommunications. INESC-ID was recently evaluated by the Portuguese Foundation for Science and Technology as an Excellent Unit and awarded by the Portuguese government with the status of Laboratório Associado. In close cooperation with its university partners, INESC-ID has emerged as an institution of reference, intensely involved in several high-visibility projects that have defined the national and international state of the art in these domains.

Contacts:

Mariana Carmo
Shitf2DC Communications and Events Officer I Shitf2DC Linkedin
Email: mariana.carmo@inesc-id.pt