

DEMOCRAT

Deliverable D7.4 - Dissemination Activities

Activity: Communication, Dissemination and Results Exploitation

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DEMOCRAT ABSTRACT

The DEMOCRAT project aims at demonstrating an integrated and innovative micro-grid concept applied to LV and MV networks, as a suitable solution for efficiently managing their distributed energy resources (DER), working simultaneously as a flexible asset of the distribution networks.

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Language Requirements (for non-native English speakers)

In order to fully understand the content of this document, it is therefore recommended that the reader possesses a language proficiency equivalent to B1 level, according to European Language Levels

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1.1	2020-01-23	Correction of website URL	Alberto Bernardo
1.2	2020-02-14	Update the DEMOCRAT Day event	Alberto Bernardo

Executive Summary

This deliverable presents the dissemination activities that were developed along the project.

The activities performed and described in this deliverable comprise:

- The participation in conferences and workshops
- The use of DEMOCRAT project leaflets and powerpoint presentations, namely in industry exhibitions
- The participation in those exhibitions
- The use of the project website
- The reception of customers at DEMOCRAT's demonstration site
- The final dissemination event - DEMOCRAT DAY

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Glossary

DC	Direct Current
DER	Distributed Energy Resources
LV	Low Voltage
MV	Medium Voltage
SCADA/DMS	Supervisory Control and Data Acquisition / Distribution Management Systems

1. Introduction

1.1 Scope and Purpose

This aim of this deliverable is to present the dissemination activities that were developed along the project.

The activities performed and described in this deliverable comprise:

- The participation in conferences and workshops
- The reception of customers at DEMOCRAT's demonstration site
- The use of DEMOCRAT project leaflets and powerpoint presentations, namely in industry exhibitions
- The participation in those exhibitions
- The use of the project website
- The final dissemination event - DEMOCRAT Day
- The participation in several public dissemination events
- Business development initiatives also addressing the DEMOCRAT project dissemination

2. Dissemination Activities

2.1 Official project website

The DEMOCRAT project website is: <http://www.democrat-project.efacec.com/>

The website comprises multiple features:

- Project briefing.
- Briefing about Efacec.
- Project partners.
- Presentation of the demonstrator, comprising the BatLab, the laboratory implemented to test the battery system.
- Dissemination of results, comprising the project architecture and main technology outcomes, as well as publication of deliverables.
- Publication of other relevant documents such as conference/workshop papers, flyer and dissemination material.
- Publication of news regarding events where Efacec has disseminated the DEMOCRAT project, namely comprising the team participation and their role, as well as the installation steps that ended up in the present demonstrator layout.
- Main team members identification.
- Brief mention to other relevant demonstration and R&D projects, namely some where Efacec has participated as promoter, under the Portugal 2020 and Horizon 2020 frameworks.

In Figure 1 it is presented the home page of the website.



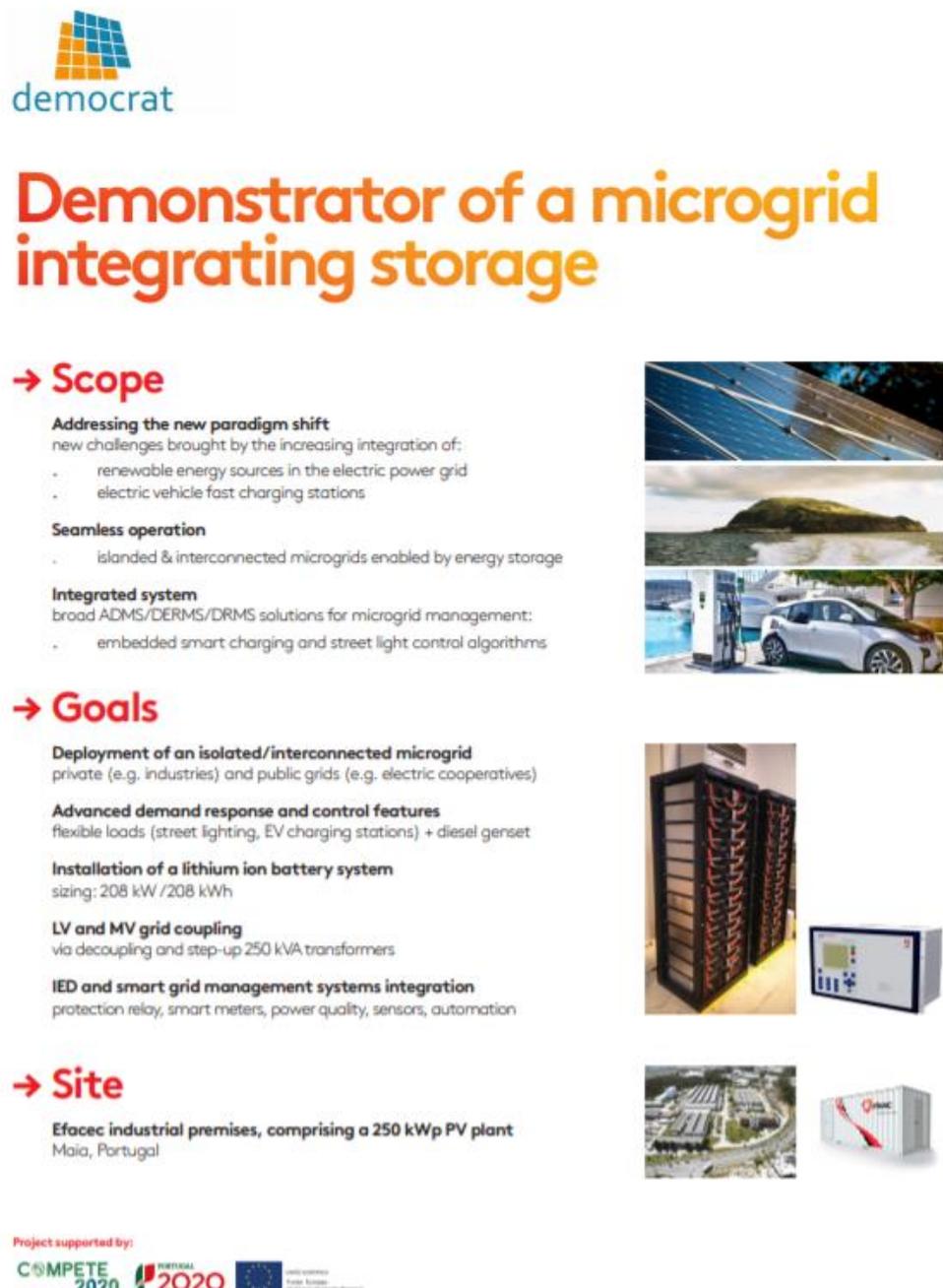
The screenshot shows the home page of the DEMOCRAT project website. At the top left is the 'democrat' logo. The main heading is 'Demonstrator of a micro-grid integrating storage'. To the right are logos for 'COMPETE 2020', 'PORTUGAL 2020', and the 'UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional'. A navigation bar contains links: Home | About Efacec | Partners | Demonstrator | Results | Publications | News | Team | Related Projects. The 'Home' section is active, showing a 'Project Overview' with text about renewable energy integration and a bulleted list of partners: Automation and Smart Energy (Efacec Energia), Switchgear (Efacec Energia), Transformers (Efacec Energia), Efacec Electric Mobility, and Efacec Equipos (Spain). It also mentions funding from COMPETE and Portugal 2020. A footer contains copyright information and the last update date: 13-Jan-2020.

Figure 1 - home page of the official website of DEMOCRAT project.

2.2 Flyer and promotional presentation of DEMOCRAT

A flyer and a powerpoint presentation describing the project were also developed and updated during the project. This documentation has been used in all relevant events Efacec has been participating in, towards also promoting and disseminating the DEMOCRAT project.

In Figure 2 it is presented the cover page of the DEMOCRAT flyer. It presents briefly the project, describing its main outcome and the technologies developed during the project as well as other technologies by Efacec.



democrat

Demonstrator of a microgrid integrating storage

→ Scope

Addressing the new paradigm shift
new challenges brought by the increasing integration of:

- renewable energy sources in the electric power grid
- electric vehicle fast charging stations

Seamless operation

- islanded & interconnected microgrids enabled by energy storage

Integrated system
broad ADMS/DERMS/DRMS solutions for microgrid management:

- embedded smart charging and street light control algorithms

→ Goals

Deployment of an isolated/interconnected microgrid
private (e.g. industries) and public grids (e.g. electric cooperatives)

Advanced demand response and control features
flexible loads (street lighting, EV charging stations) + diesel genset

Installation of a lithium ion battery system
sizing: 208 kW / 208 kWh

LV and MV grid coupling
via decoupling and step-up 250 kVA transformers

IED and smart grid management systems integration
protection relay, smart meters, power quality, sensors, automation

→ Site

Efacec industrial premises, comprising a 250 kWp PV plant
Maia, Portugal

Project supported by:

COMPETE 2020 | PORTUGAL 2020 | EUROPEAN UNION

Figure 2 - cover page of the official flyer of DEMOCRAT project.

2.3 Main public dissemination events

The project team has participated in several industry events, from workshops to conferences, also comprising industry exhibitions, in Portugal and abroad.

Among them, it is worth mentioning the following:

1. Participation at the European Utility Week in 2018, where DEMOCRAT project was disseminated within the booth activities programmed for the event, through flyers, powerpoint presentations and another media support.
2. Presentation of the poster entitled "Adaptive Energy Resource Management System - scaling out microgrid based solutions in electrical power systems", at CIRED 2019 - the 25th international conference and exhibition on electricity distribution. In this event, Efacec has also participated at the exhibition with a booth, showcasing its new technology and products portfolio, namely those developed during the DEMOCRAT project, as well as the project itself, through the dissemination of DEMOCRAT's flyer and the presentation of other contents.
3. Participation at Innovative Smart Grid Technologies Europe 2019, where a scientific work was presented in the area of fault detection and location in micro-grid environments. This work was performed over the electrical grid of the DEMOCRAT project.

2.3.1 European Utility Week 2018 edition

Efacec has participated at the European Utility Week in 2018, which was held in Vienna, Austria, between the 6th and the 8th November 2018. Efacec has presented its solutions portfolio, addressing several technology aspects of power transformers, MV switchgear, substation automation, distribution automation, SCADA/DMS solutions, electric vehicles fast charging stations, smart grid solutions, as well as energy storage solutions.



Figure 3 - Efacec booth at the European Utility Week edition 2018, held in Vienna, Austria.

This event has received a record participation of 12,000 visitors from 100 countries, comprising more than 2,000 conference delegates representing the main Energy public service companies and the main manufacturers of the electrical sector. Moreover, the event has also received a record number of 600 exhibitors.

Besides the technical demonstrations, Efacec has also presented the main R&D and demonstration projects which have received funding, namely within the Portugal 2020 and the Horizon 2020 frameworks. The DEMOCRAT project was disseminated in three different ways:

- Project briefing, presented in a wide screen
- Presentation of a powerpoint describing the project, in the same wide screen
- Dissemination through the project flyer



Figure 4 - View of the Efacec booth, presenting several funded projects by the Portugal 2020 framework, among them the DEMOCRAT.



Figure 5 - View of the Efacec booth, presenting technical flyers, as well as flyers of R&D projects, among them the DEMOCRAT.



Figure 6 - Detail of the presentation of the DEMOCRAT flyer.

2.3.2 CIRED 2019 edition

Efacec has also participated at CIRED 2019 - the 25th International Conference and Exhibition on Electricity Distribution, held in Madrid, Spain, between the 3rd and 6th of June 2019.

The project resource Luís Marques has presented a poster entitled “*Adaptive Energy Resource Management System - scaling out microgrid based solutions in electrical power systems*”. The poster presented the architecture of the solution developed during the DEMOCRAT project. Moreover, some preliminary results obtained in laboratory were also disclosed, with focus on the achievements this kind of solutions can bring towards the electric grid operation improvement. The poster drew the attention of a wide number of delegates from academia and industry, namely from potential customers.

Figure 8 and Figure 7 respectively present Luís Marques during his presentation at CIRED 2019 and the DEMOCRAT poster (F12).

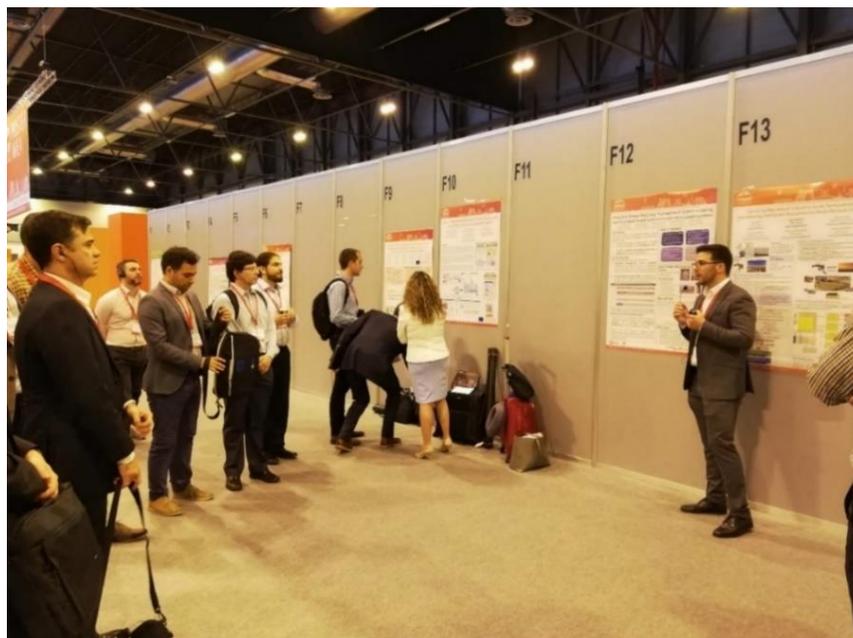


Figure 7 - Presentation of the poster by Luís Marques, at CIRED 2019.

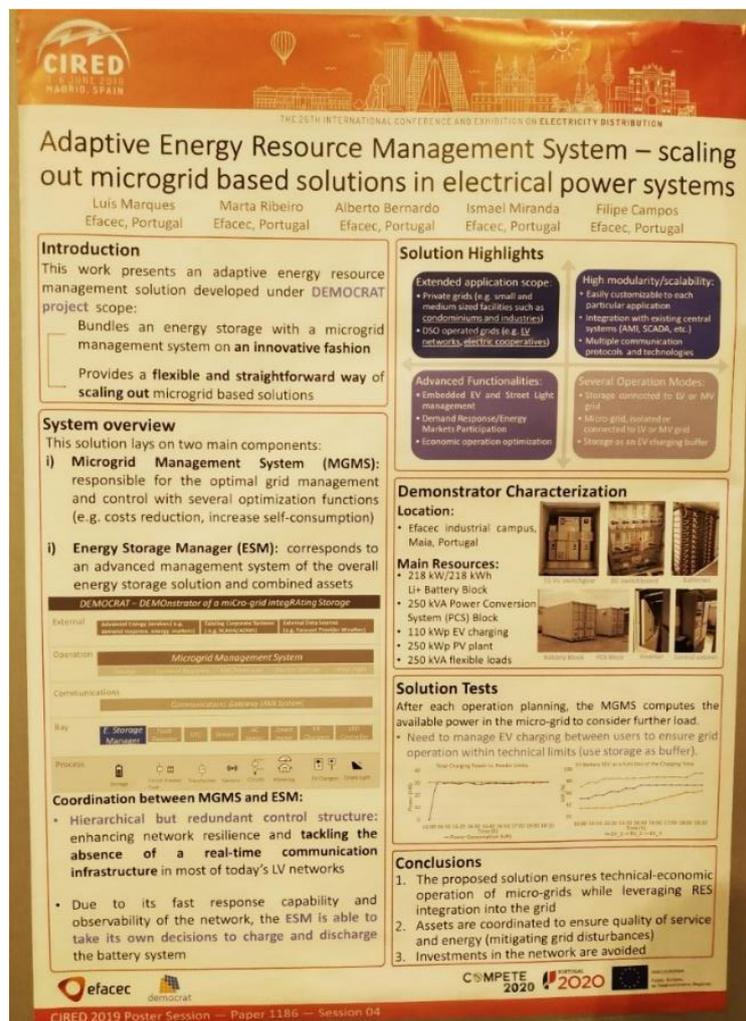


Figure 8 - The poster presented at CIRED 2019.

Still during CIRED 2019, Luís Marques has participated at the Efacec booth where he performed business presentations, comprising the dissemination and promotion of the DEMOCRAT project, targeted for potential customers and other business stakeholders. Several dissemination materials were used, namely the DEMOCRAT project flyer.

Figure 9 presents a view of the Efacec booth during CIRED 2019.



Figure 9 - View of Efacec booth at CIRED 2019.

Figure 10 presents a view of the dissemination materials of the DEMOCRAT project presented at CIRED 2019.



Figure 10 - Dissemination materials of the DEMOCRAT project presented at CIRED 2019.

2.3.3 IEEE PES Innovative Smart Grid Technologies Europe 2019 edition

Efacec has also participated at IEEE PES Innovative Smart Grid Technologies (ISGT) Europe 2019, held in Bucharest, Romania, between the 29th September and 2nd October 2019.

The project resource Carlos Fernandes has presented a poster entitled “Fault Analysis in a Microgrid Context: DEMOCRAT Project”. The presentation drew the attention of all audience, which has raised several questions during the debate.

Figure 11 presents Carlos Fernandes during his presentation at ISGT 2019 conference.



Figure 11 - Presentation by Carlos Fernandes, during the ISGT 2019 conference.

The outcome of the scientific work is relevant for the operation of micro-grids, as it addresses additional subjects matching the DEMOCRAT main goals, namely those associated to the operation safety assurance, under grid disturbance phenomena, such as grid faults.

His innovative work allowed the dissemination of mitigating strategies to face the impact of faults occurring at micro-grids. Moreover, Carlos was also able to disseminate the DEMOCRAT project, as the study performed was carried out over the DEMOCRAT demonstrator micro-grid, with a generation mix comprising energy storage.

2.3.4 Public dissemination session - the DEMOCRAT Day

A public session meant for wide dissemination was organised and it was disclosed as “DEMOCRAT Day”, which took place on January 31st. The venue was the Efacec premises in Maia, Portugal.

The project team invited over 30 distinct organizations, comprising customers, academia, entrepreneurs, the Portuguese regulatory agency, among others. It was estimated the presence of around 60 participants, which actually was accurate.

The agenda of the event was designed in order to present the project scope and to demonstrate some of its developed features. Additionally, aiming at enriching the session, an invitation was made to EDA - *Electricidade dos Açores* -, the Azorean electric grid system operator, to participate with an invited speaker to lecture about micro grids, which was accepted. Table 1 shows the programme of the event and Figure 12 presents a view of the audience.



Figure 12 - View of the audience.

Table 1 - Agenda of the public dissemination session - the DEMOCRAT Day.

Agenda	Programme
14:30 - 14:45	Opening
14:45 - 15:05	Invited speaker: João Aleixo from EDA - Eletricidade dos Açores <ul style="list-style-type: none"> • Subject: Micro-grids
15:05 - 15:30	Project scope and main outcomes
15:30 - 16:10	Demonstration of micro-grid operation
16:10 - 16:25	Coffee-break
16:25 - 16:35	Project impacts
16:35 - 16:50	Questions & answers
16:50 - 17:30	Visit to the demonstrator site

The event started with a welcome message by Paulo Vaz, the head of the Automation and Smart Energy (ASE) business unit of Efacec. Then, after a message regarding security by Paulo Amaro, a briefing about the R&D role of Efacec and of the ASE business unit was presented by José Manuel Fonseca.

In order to better highlight the role of microgrids towards energy efficiency and carbon footprint mitigation, the event was honoured with the participation of an invited speaker from EDA. In this regard, João Aleixo has made a remarkable presentation of EDA’s perspective and experience with microgrids, namely those with high renewable generation penetration, enabled by energy storage.

During the session, an overview of the project was presented by Alberto Jorge Bernardo, covering several aspects such as technical scope and goals, achievements and constraints, the main technical and dissemination outcomes, as well as the business perspective. Moreover, during the session, a comprehensive demonstration of the main features was performed in real time, by Luís Acácio Marques. In the end of the session, all participants visited the DEMOCRAT demonstrator site.

During the event, the project team had the pleasure to welcome a vast list of invited people, from Efacec main stakeholders, namely industry and academia. Among them, it is worth to highlight the following participations from:

- *Agência Nacional de Inovação* (National Innovation Agency, the Portuguese entity that manages the rollout and performance of projects funded by the COMPETE 2020 framework)
- *Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa* (Academia)
- *APICCAPS - Associação Portuguesa dos Industriais de Calçado, Componentes, Artigos de Pele e seus Sucedâneos* (Shoe and leather industry association)
- *CEVE - Cooperativa Elétrica do Vale d’Este* (a distribution system operator and energy retailer serving 19 rural parishes in the north of Portugal)
- *EDA - Eletricidade dos Açores* (the regional distribution and transmission system operator, energy producer and retailer, serving all the Azores archipelago)
- *EDP Inovação* (the innovation company of EDP, *Energias de Portugal*, the Portuguese mainland electric utilities company)
- *LABELEC* (electric laboratory of EDP)
- *VESTAS* (Danish manufacturer of wind turbines)
- *VOLTALIA* (renewable energies producer and services provider)
- *REN - Redes Energéticas Nacionais* (the Portuguese mainland transmission system operator)
- Efacec colleagues from other divisions and business units, as well as from corporate departments

Figure 13, Figure 14, Figure 15, Figure 16, Figure 17, Figure 18, Figure 19 and Figure 20 present a pictorial overview of the DEMOCRAT Day event progression.



Figure 13 - Welcome Message by Paulo Vaz.



Figure 14 - Safety briefing by Paulo Amaro.



Figure 15 - Efacec Recent R&D Projects by José Manuel Fonseca.



Figure 16 - Microgrid Hybrid Systems presentation by João Aleixo from EDA.



Figure 17 - Project Scope and Main Outcomes presentation by Alberto Jorge Bernardo.



Figure 18 - System Demonstration by Luís Acácio Marques.



Figure 19 - System Demonstration by Luís Azevedo Costa.



Figure 20 - Project team.

2.4 Other public dissemination sessions

2.4.1 InnoDC - Autumn Meeting 2018

In October 29th, 2018, members of the DEMOCRAT team, namely Ismael Miranda and Luís Marques, have participated at the InnoDC - Autumn Meeting 2018, Industry Day event, at Efacec.

Several participants from the electric power academia sector have also participated, from several countries, totalizing 15 researchers of InnoDC project, which is a funded by the Marie-Sklodowska-Curie programme.



Figure 21 - Presentation of DEMOCRAT by Luís Marques, during the InnoDC 2018 Industry Day event, at Efacec.

2.4.2 Portuguese-Brazilian Seminar about Electric Mobility

In February 27th, 2019, Efacec has participated in the Portuguese-Brazilian Seminar about Electric Mobility, held in Coimbra, Portugal, at the Engineering Professional Association - *Ordem dos Engenheiros*.

Efacec has presented its approach towards electric mobility, namely by presenting its solutions for electric vehicles fast charging, for smart grids and for energy storage, suitable to address the segment of electric mobility infrastructures, comprising micro-grids.

Alberto Bernardo performed the presentation regarding smart grids and energy storage, comprising the DEMOCRAT project.



Figure 22 - General view of the audience, during the event.



Figure 23 - Presentation of DEMOCRAT by Alberto Bernardo, during the event.

2.4.3 TECH @ Portugal

The TECH @ Portugal event was organised by the Portuguese Innovation Agency - *Agência Nacional de Inovação* -, which was held in the *Alfândega* Congress Centre in Oporto, Portugal, on the 4th July 2019. This event welcomed more than 100 Portuguese institutions from the technology and innovation ecosystem.

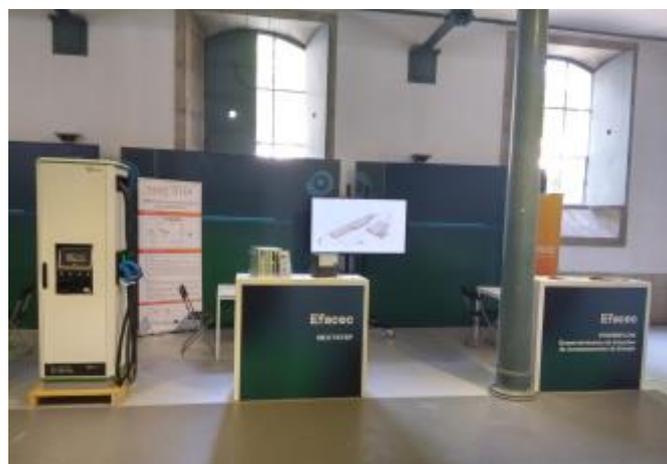


Figure 24 - View of the Efacec booth at the event.

Efacec has showcased its most recent innovative products and technology, highlighting the DEMOCRAT project, which was presented in a wide screen.

2.4.4 ISEP - *Instituto Superior de Engenharia do Porto* - Oporto's Engineering Higher Education Institute

42 students from ISEP, the *Instituto Superior de Engenharia do Porto* - Oporto's Engineering Higher Education Institute, have visited Efacec, together with 3 teachers, which occurred on December 11th, 2019.

Ismael Miranda has presented Efacec's energy storage solutions portfolio, also addressing the DEMOCRAT project.



Figure 25 - Presentation of Ismael Miranda to the ISEP students and teachers, during the event.