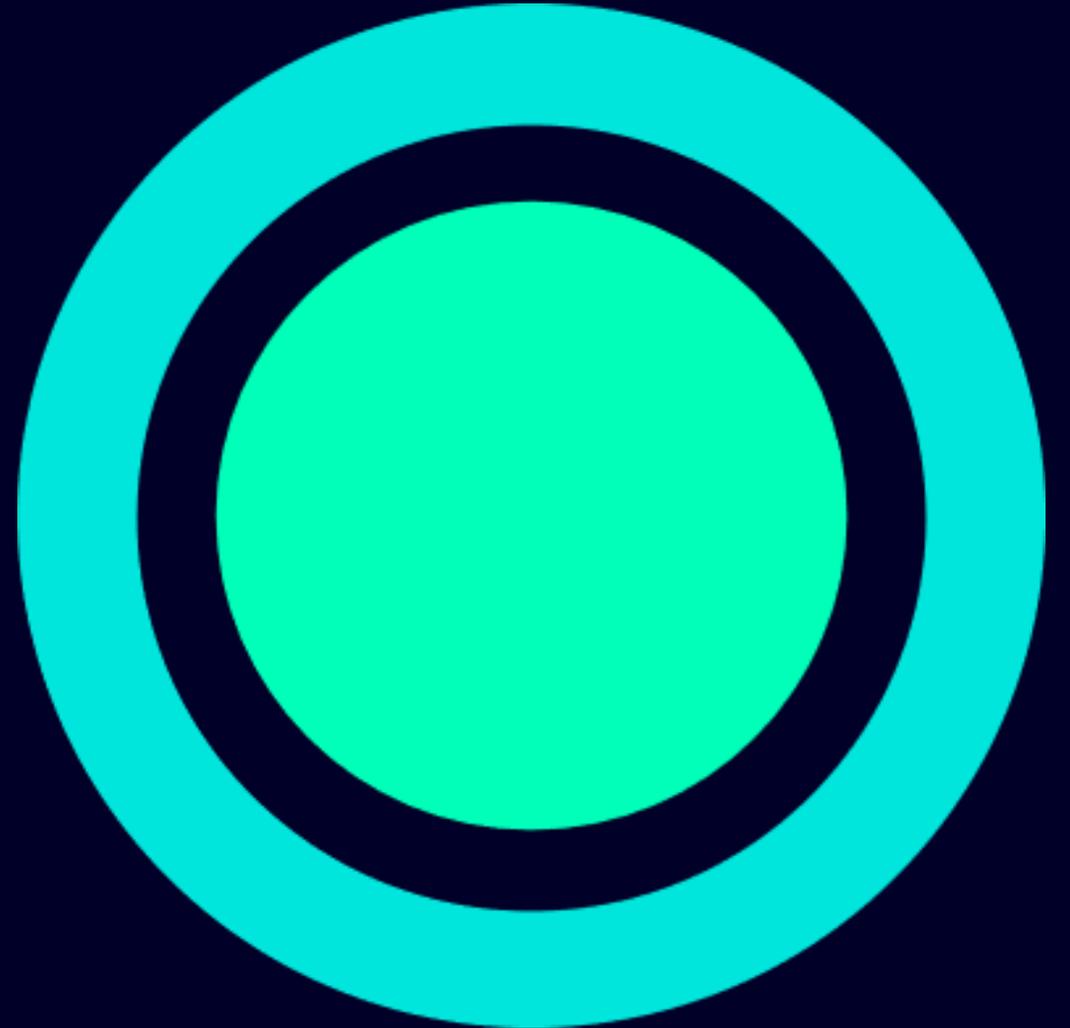


Let's
Multiply IMPACT,
Together!

Energy Transition Challenges

Luís Marçal, Siemens Portugal

Lisboa, June 28 2024



SIEMENS

Our purpose

We create **technology** to
transform the everyday,
for **everyone**



**Sustainability is
the heart,
digitalization is
the brain.**



Scaling sustainability impact

>90%
of Siemens' business
enables customers
to achieve a positive
sustainability impact*

By combining the real
and the digital worlds,
we support our customers
along key impact areas.



**Decarbonization
& energy efficiency**



**Resource efficiency
& circularity**



**People centricity
& societal impact**

* Calculation based on revenue. <10% is excluded as it relates to products that contain SF6-gas, or stems from business with sectors like oil and gas, coal mining, or coal power generation. We anticipate reducing this number over time. Applies to Siemens without SHS.

Businesses and Services of Siemens AG

Industrial Business

Digital Industries



Smart Infrastructure



Mobility



Siemens Healthineers¹



Portfolio Companies



Siemens Advanta



Services

Siemens Financial Services



Siemens Real Estate



Global Business Services



¹ Publicly listed subsidiary of Siemens; Siemens' share in Siemens Healthineers: 75%

Let's talk about **Siemens Portugal**

Siemens in Portugal

More than 3900 Employees (05/2024)





**Freixeiro
(Matosinhos)**



**Head Office
Alfragide**



**Corroios Factory
(Seixal)**

We are transforming our

175 years Corporation

...next year celebrating

120 years in Portugal

We are experiencing a Major Change

Transport electrification



Energy transformation



All Electric World



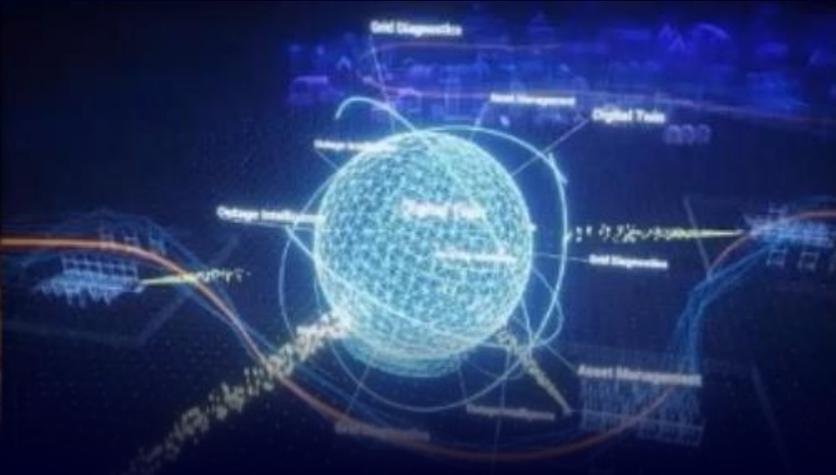
Renewable power generation



Decarbonization



Digitalization



Siemens Portugal | Highlights 2023

Smart Infrastructure

Supply, remodeling and expansion of the **Protection, command and control systems (SPCC)** of different REN power substations.

Inauguration of the **battery energy storage system on Terceira Island**, a partnership with Fluence for the Azores Electricity Company (EDA).

Installation of **220 electric vehicle chargers and an intelligent charging infrastructure management system** at the Infinity Tower in Lisbon.



REN

EDA

Torre Infinity

Digital Industries

The Cranes Engineering Hub is developing the latest international projects in the **ports of Taranto in Italy, Bahrain and Salalah in Oman.**

Contract with EPAL and AdVT for the **installation of a water, energy and CO2 emissions monitoring center**, as well as **advanced telemetry solutions.**



Cranes Engineering Hub

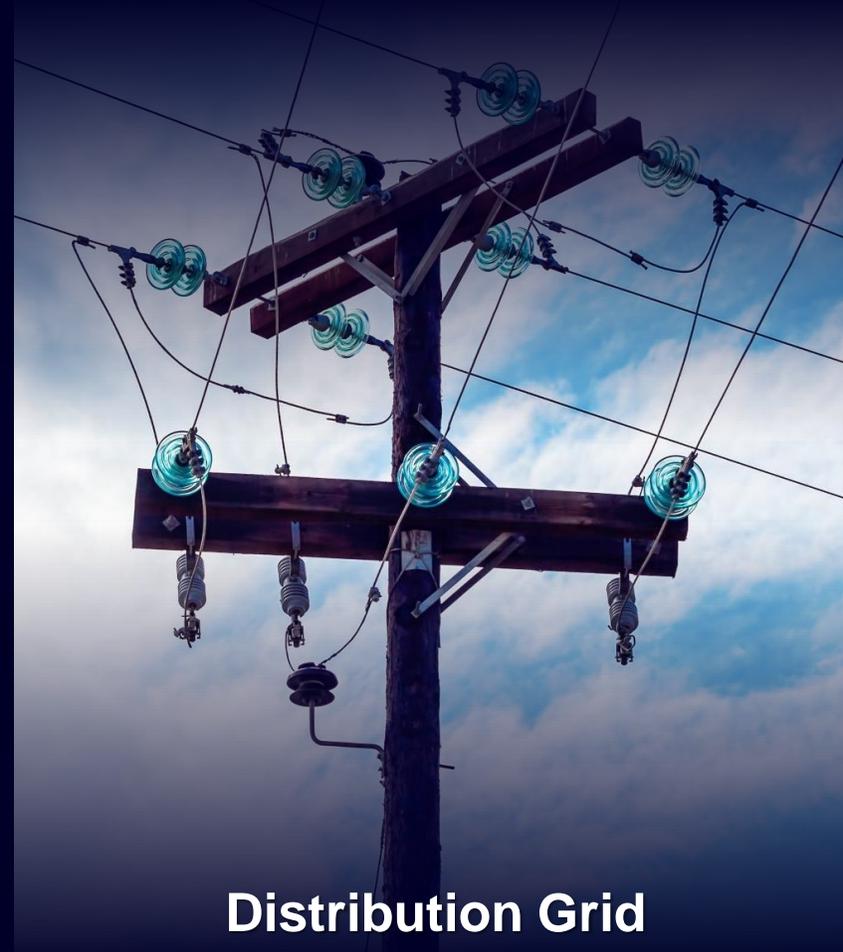
EPAL e AdVT

Innovation, Digitalization, Remote Services & IoT, Lifecycle management

Some Energy Transition Challenges...



Transmission Grid



Distribution Grid



Renewables Integration & E-Mobility Infrastructure



Transmission Grid

Challenges

- Execution of new transmission lines
- New Intensive Power Consumers
- Renewable Integration
- Increased Complexity of Transmission Grid (power flows & renewables)
- Technology Lifecycle paradigm change
- Cybersecurity

Roadblocks

- Wide range of “digital” technology
- Assurance of Data Quality
- Need of Very High Skilled Field Engineering (Ex: Protection Systems)



Distribution Grid

Challenges

- Supply more load (Power and Energy)
- More “active” Assets in the Grid
- Complex and Dynamic Power Flows (LV and MV)
- Be able to manage huge amount of data (real time)
- Roll out of migration to SF6 free
- Cybersecurity

Roadblocks

- Wide range of “digital” technology
- Need of sensors and automation
- Assurance of Grid Data Quality
- Aging of power assets
- Need of proper skilled workforce to meet scale and scope



Renewables Integration & E-Mobility Infrastructure

Challenges

- Meet the Targets Ambition
- Fast and Reliable Execution
- Technology Innovation Speed
- New Business Models
- Competition with other Energy Transition players

Roadblocks

- Standardization
- Technology Dependence and Lifecycle
- Limited Know-how (prescription and execution)
- Need of proper skilled workforce to meet scale and scope

This is not a
Technology problem...

It's above all a
Time and Resources challenge.

Obrigado!

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