



Innovative Investment on Distribution Networks

CEG-IST 20th Anniversary

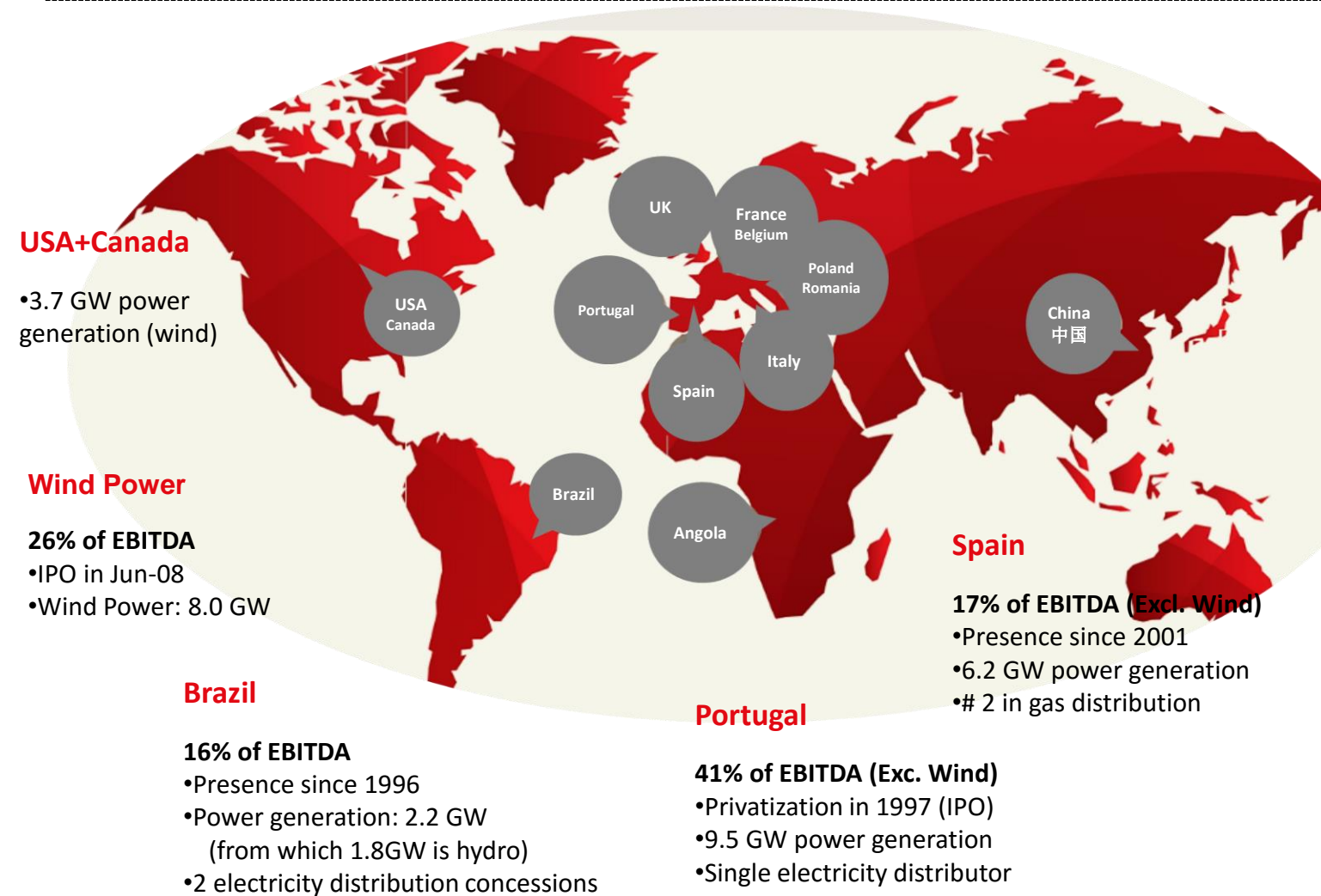
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Lisbon, October 2015

Agenda

- **EDP Group overview**
- EDP - Distribuição
- Innovative initiatives and investment plan

EDP ... From a local electricity incumbent to a global energy player with a strong presence in Europe, Brazil and considerable investments in USA



Key Figures:

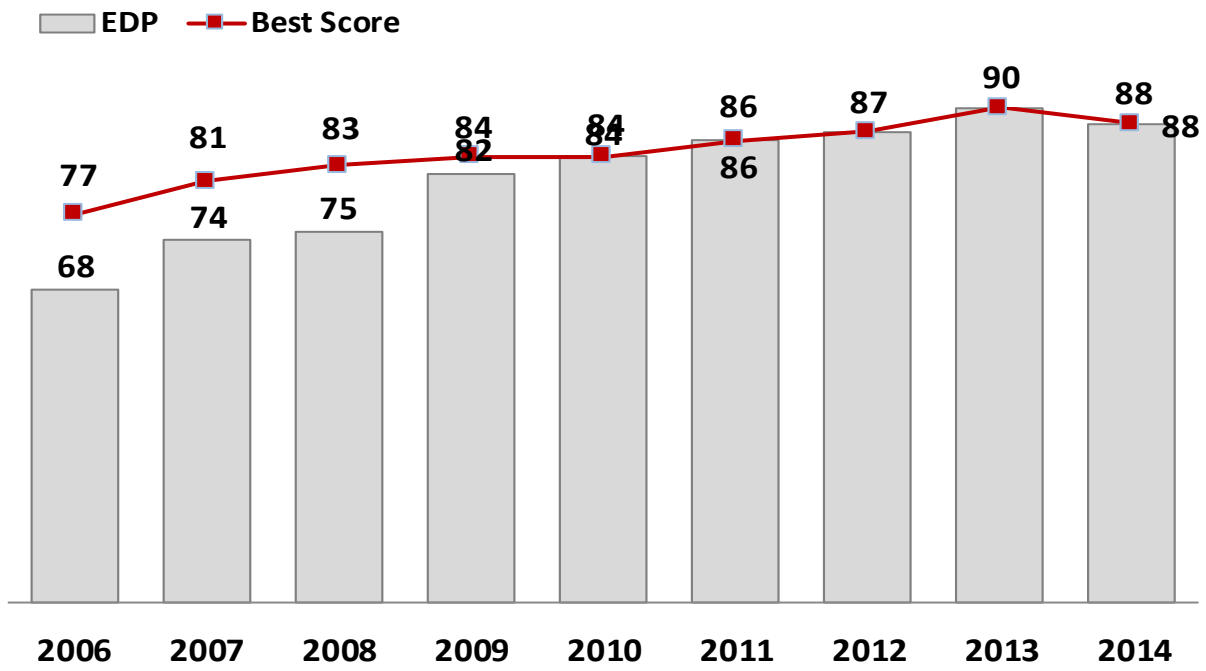
- Top World level Electric Sector in Dow Jones Sustainability Index
- #3 World wind energy company
- #1 Portuguese industrial group
- EBITDA 2013:
 - Portugal 44%
 - Other 56%

EDP is #1 concerning sustainability, on the Utilities category, which is also related with our policy concerning Renewable Energy Sources (RES)

Results of Sustainability Assessment
(Absolute points 0-100)



Maximum score (100 out of 100)
in the following categories:



- # Price Risk Management
- # Risk & Crisis Management
- # Scorecards/Management Systems
- #1 Biodiversity
- # Water Related Risks
- #1 Human Capital Development

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EDP - Distribuição

EDP – Distribuição (EDPD) has the concessions of the National Distribution Network (HV and MV) and of the LV distribution networks in Continental Portugal.

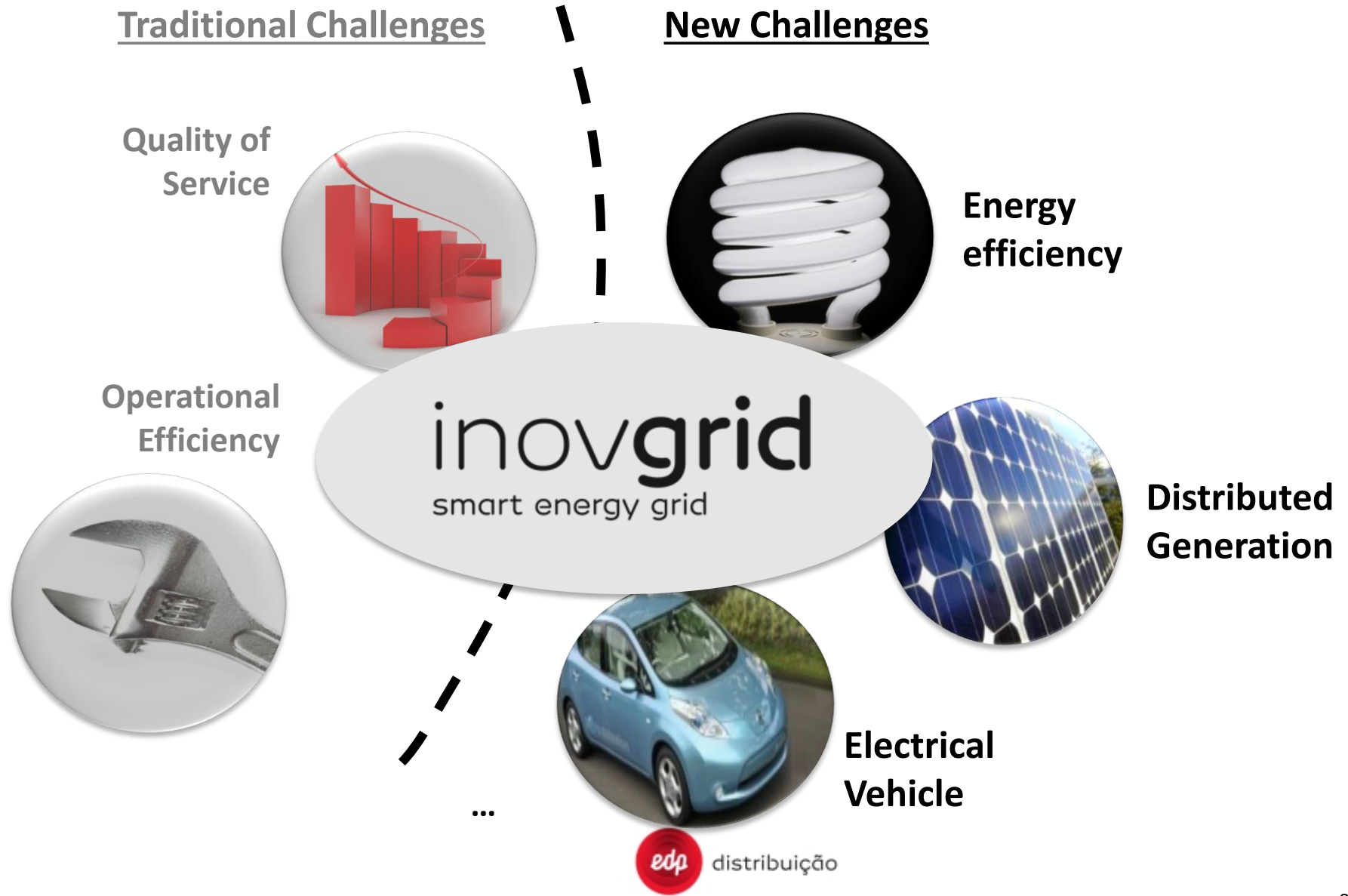
- It serves a **10 million people population**, living on a territory with 89.000 km²;
- It has around **6.1 million costumers** connected;
- It delivers **43.8 TWh of energy** (annually);
- Accumulated investment on the last **10 years on distribution networks of around 3.000 M€**;
- National Distribution Network includes:
 - 416 Substations;
 - 81.696 km of HV and MV networks.



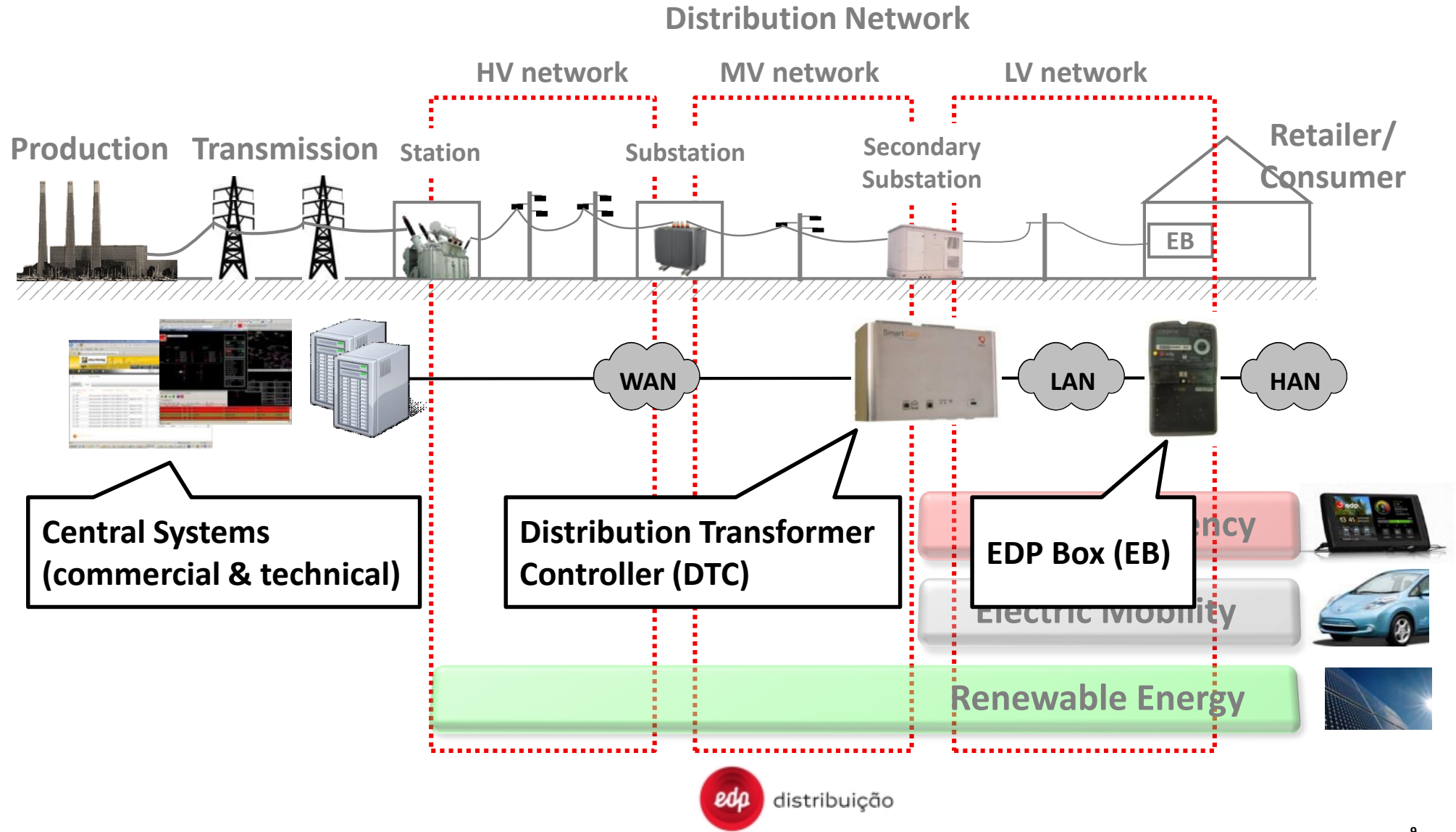
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Focus on energy efficiency and renewable energy integration leads to smart grids as a response to sustainability challenges



The main elements in the InovGrid architecture cover the LV network and provide access to commercial & technical data



Évora has been selected as the living lab for the Inovgrid project: the InovCity

30k EDP Boxes and 340 DTCs were installed on the municipality, serving 50k inhabitants



EV charging points



Energy efficiency case studies

Évora Inovcity main characteristics



InovCity showroom



DTC installed in all secondary substations



Enhanced microgeneration integration



New products and services

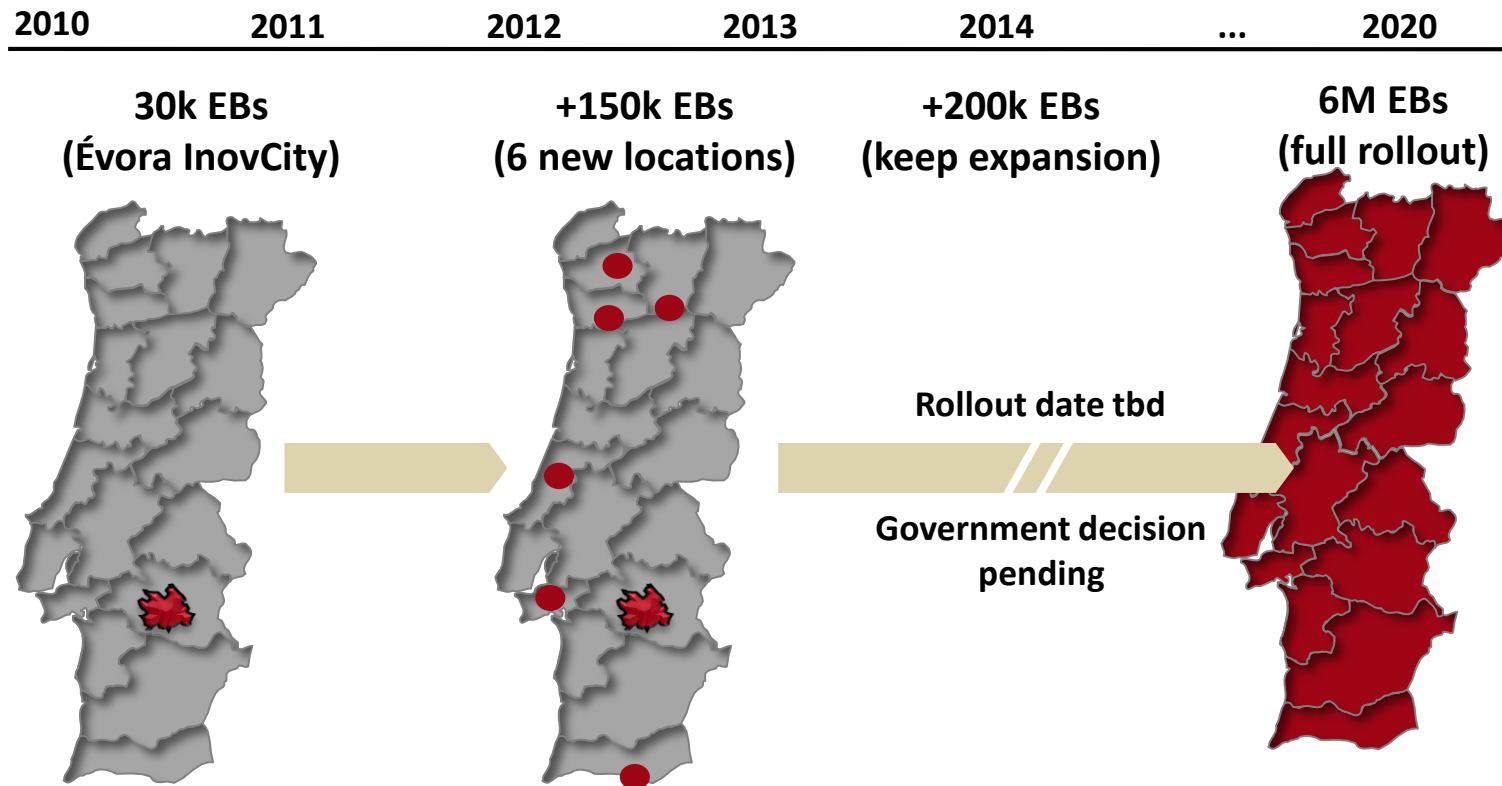


New public lighting solutions

Évora InovCity has the scale, the network diversity, the costumers and the context that enable a deep evaluation of the Inovgrid solution.

EDP Distribuição, is deploying the concept in other locations, to consolidate knowledge and test different technologies

InovGrid deployment schedule



Key drivers:

- New technologies (PLC PRIME, RF Mesh);
- Different social and environmental characteristics;
- Different grid conditions;
- New smart grids applications;
- Increasing business process integration...

EDP participates on main European projects and initiatives associated with smart grids and smart cities, contributing for a more sustainable future



Investment Plan

- **Every two years, EDPD produces PDIRD, the investment plan on the National Distribution Network.**
- This document is presented until April 30th of even years, and defines the investment strategy, investment programs and main investment projects for a 5 year period.
- **PDIRD contemplates around 10 M€/year for Innovative Investment on the National Distribution Network. Contemplates:**
 - Advanced components (includes storage);
 - Network monitoring;
 - Smart network management
- This investment contemplates the installation of DTCs on secondary substations



Investment Plan

- **PDIRD is supported by studies that support the decisions made regarding investment strategies and project decision.**
- **This studies are conducted within EDP – Distribuição and, when they require an innovative approach and relevant scientific knowledge for the definition of new criteria, they can be developed under a partnership with scientific/academic institutions.**
- EDP – Distribution has a tradition of developing scientific studies with scientific/academic institutions. PDIRD 2015 – 2019 included the studies:
 - Obligatory investment prediction model (with **INESCTEC**)
 - Losses evaluation on the Distribution Network (with **IST**)
 - Analysis of the weather events on the electrical infrastructure in Continental Portugal (with **Lisbon University** and **IPMA**)
 - Risk analysis methodology associated with investment decisions on the distribution network (with **IST**).
- Over the last 3 years, EDPD was involved in 12 projects involving partnerships with academic institutions.

Thank you!

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distribuição