



distribuição

InovGrid, Next Generation Grid

EDP DISTRIBUIÇÃO - ENERGIA, S.A.

Seminário sobre *Inovação para a Competitividade em Serviços de água*

Porto, Hotel Porto Palácio, Sala 3 Rios

9 de Fevereiro de 2012, Porto

Agenda

- **EDP Group**
- Energy Sector Challenges
- Inovgrid Development.
- Main Goals. Results.
- Partnership and Road map
- International Impact. Lessons learned...

EDP... A reference company in the Iberian market with a strong presence in Brazil and considerable investments in the USA

- Portugal's largest industrial group



- World leader in the Electric Sector in Dow Jones Sustainability Indexes

- World's third largest wind energy company

Renewables

U.S.A.
Generation capacity
3,224 MW
Energy generated
7,689 GWh

Europe
Generation capacity
3,203 MW
Energy generated
6,639 GWh

Brazil
Generation capacity
14 MW
Energy generated
31 GWh



Brazil

Generation capacity
1,735 MW

Electricity
7,263 GWh generated
23,749 GWh distributed
2,740 thousand customers



Portugal

Generation capacity
9,943 MW

Electricity
26,093 GWh generated
47,836 GWh distributed
6,105 thousand customers

Gas
6,843 GWh distributed
245 thousand customers



Spain

Generation capacity
3,872 MW

Electricity
11,567 GWh generated
9,320 GWh distributed
1,010 thousand customers

Gas
45,644 GWh distributed
824 thousand customers

EDP Distribuição in Portugal , EDP Brasil and Hidrocantábrico Distribution in Spain with about 10 million customers

- EDP expanded InovCity concept to Brasil, Bandeirante, 15.000 consumers at the city of Aparecida

2009

EBITDA (MM€)

EDP
Distribuição

564

HC
Energia

86

EDP Bandeirante
EDP Escelsa

298

CAPEX (MM€)

233

43

110

Energia Distribuída (GWh)

46,5

9,2

21,3

Clientes (MM#)

6,1

0,6

2,7

Km Linhas (M#)

218

22

82

Subestações (#)

397

52

122

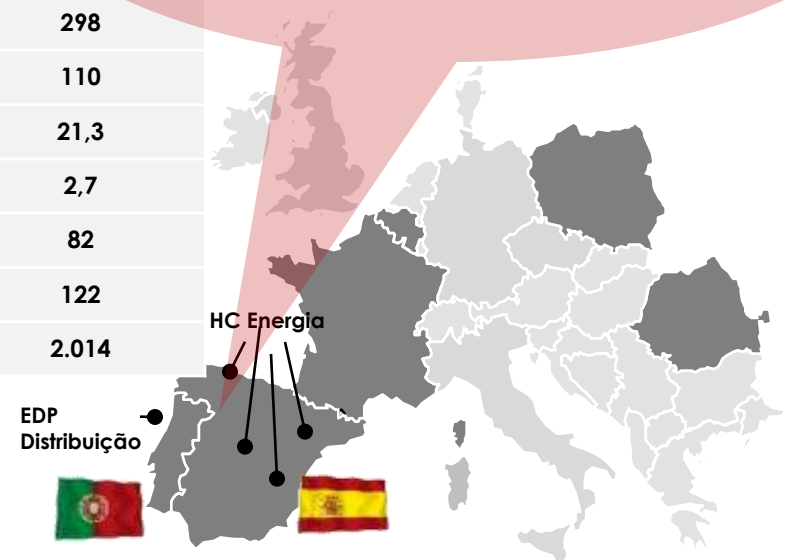
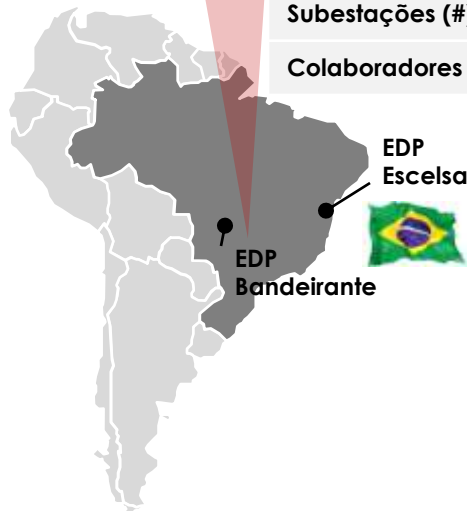
Colaboradores (#)

3.778

327

2.014

- EDP Distribuição more than 6 million costumers, network of more than 220.000 Km in Portugal and Hidrocantábrico Distribution in Spain, almost 7 million customers



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- EDP Group

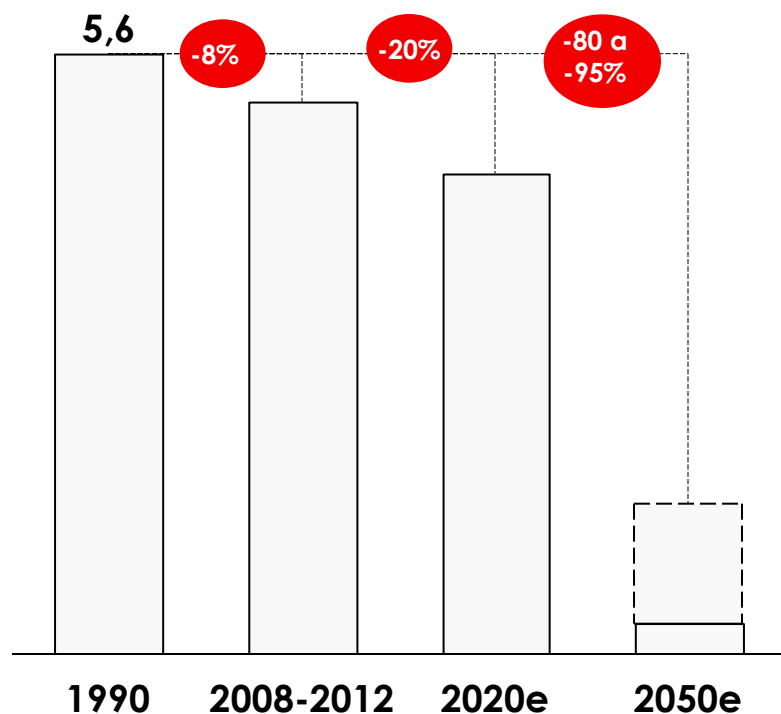
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EU has ambitious climate goals that can only be achieved by increasing electrification of demand and decarbonising the power sector

Emissions targets in EU

GtCO₂e



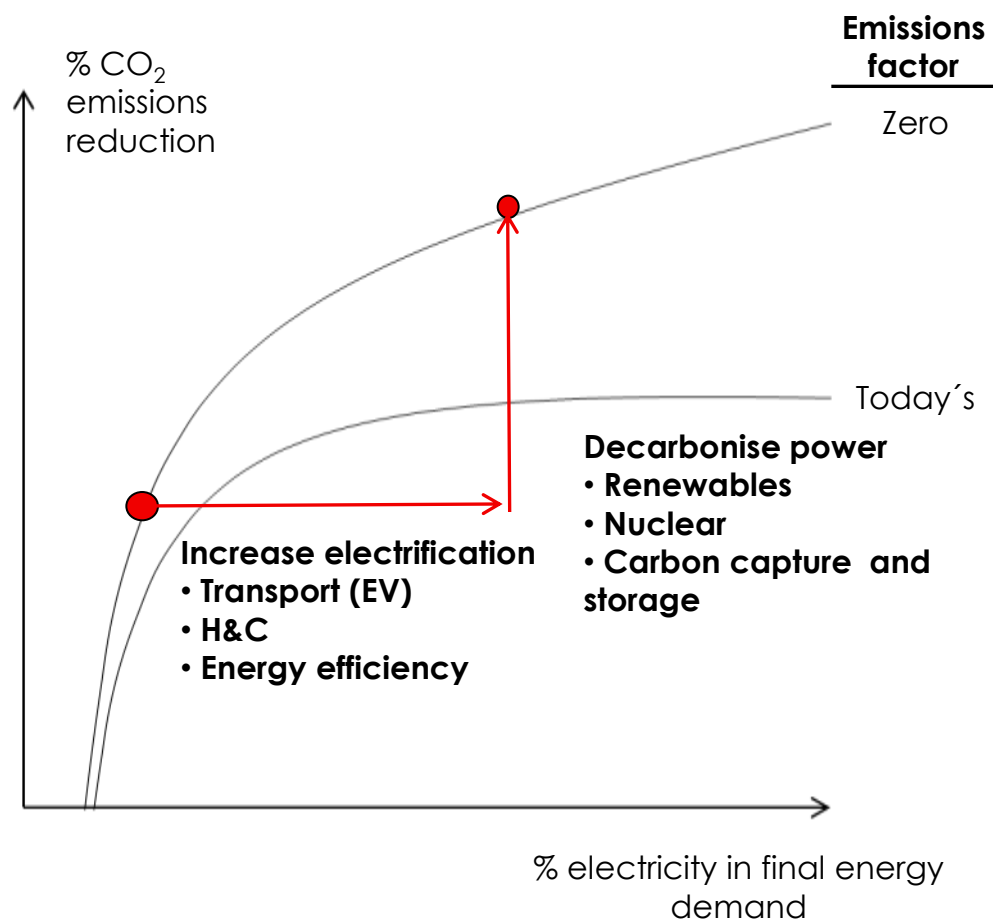
International agreement

Kyoto Protocol

Energy & Climate Package

G8 Summit in Italy

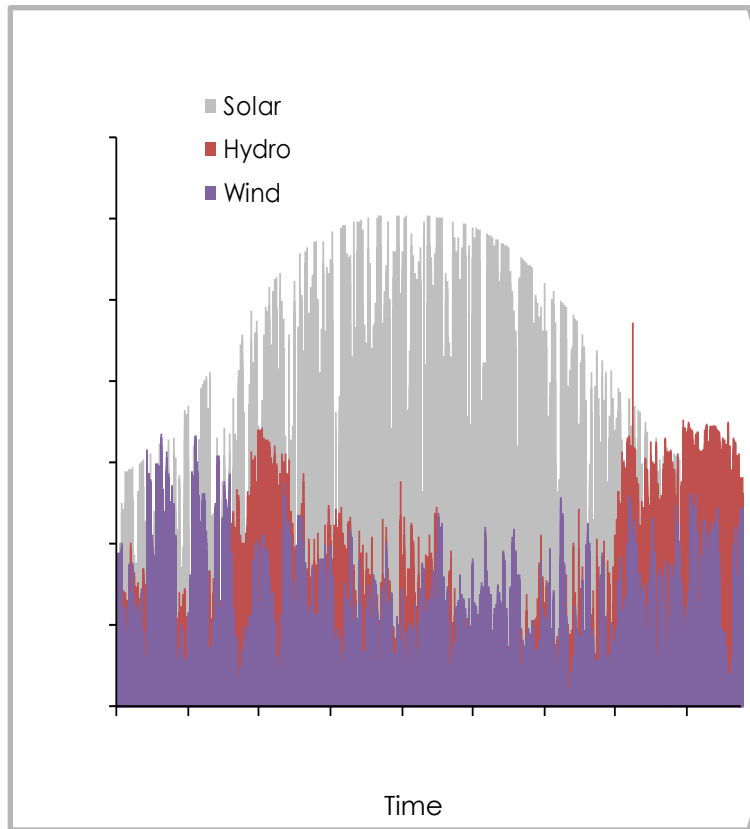
Emissions reduction as a function of the share of electricity in final energy demand



Increased penetration of intermittent renewables will call for flexibility in the layer between supply and demand: the Grid

Supply patterns

%

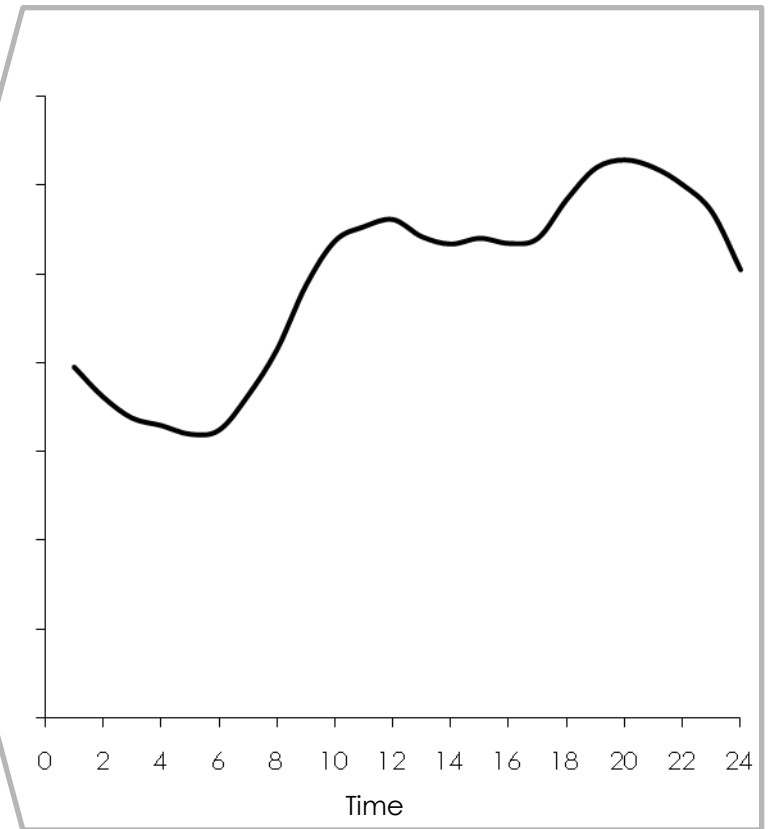


Need for:

- Control
- Storage
- DSM / DR
- Back-up

Demand patterns

GW

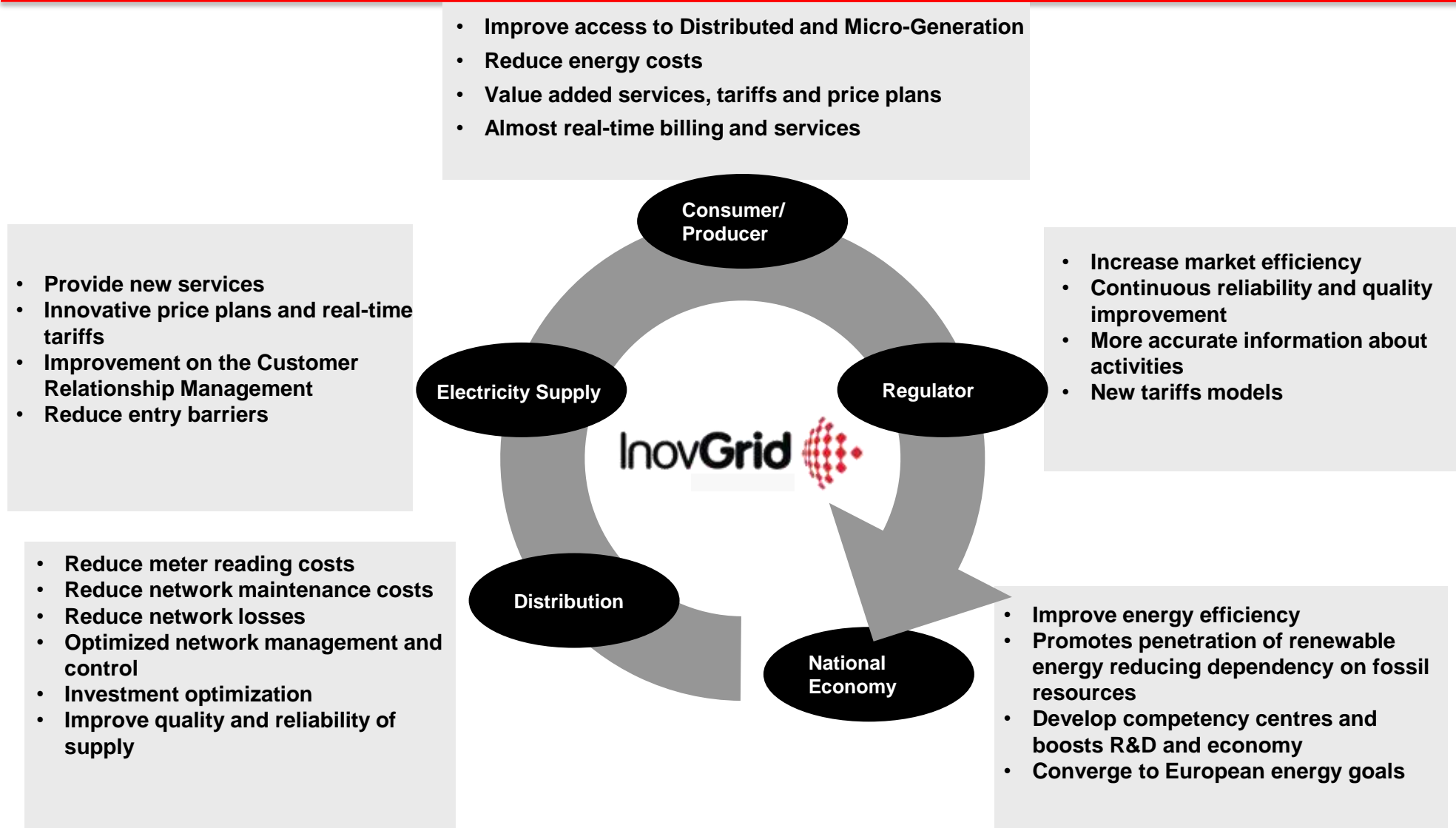


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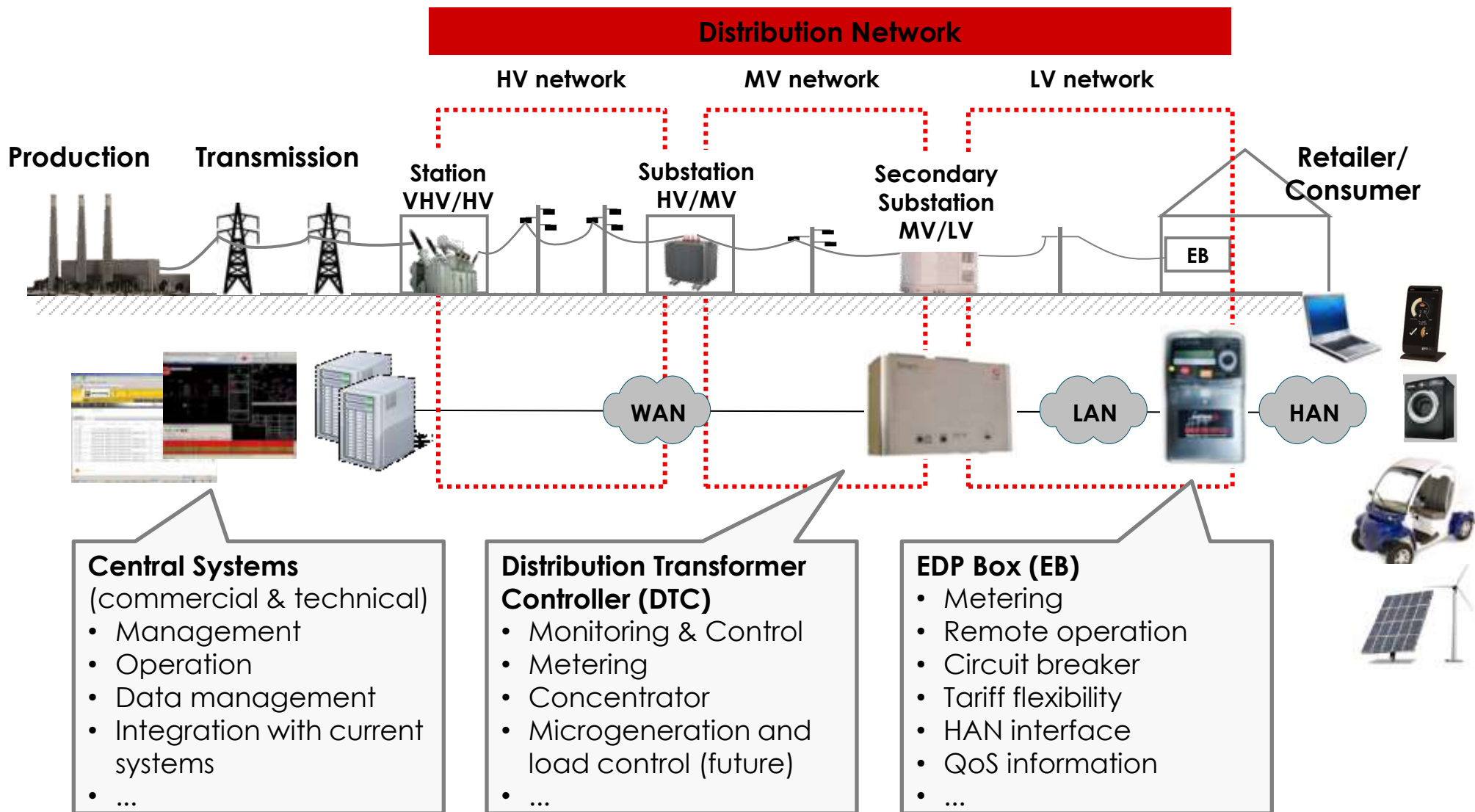
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INOVGRID SOLUTION. MAIN BENEFITS

InovGrid Project is expected to bring relevant benefits to all Stakeholders in the value chain of the electrical sector

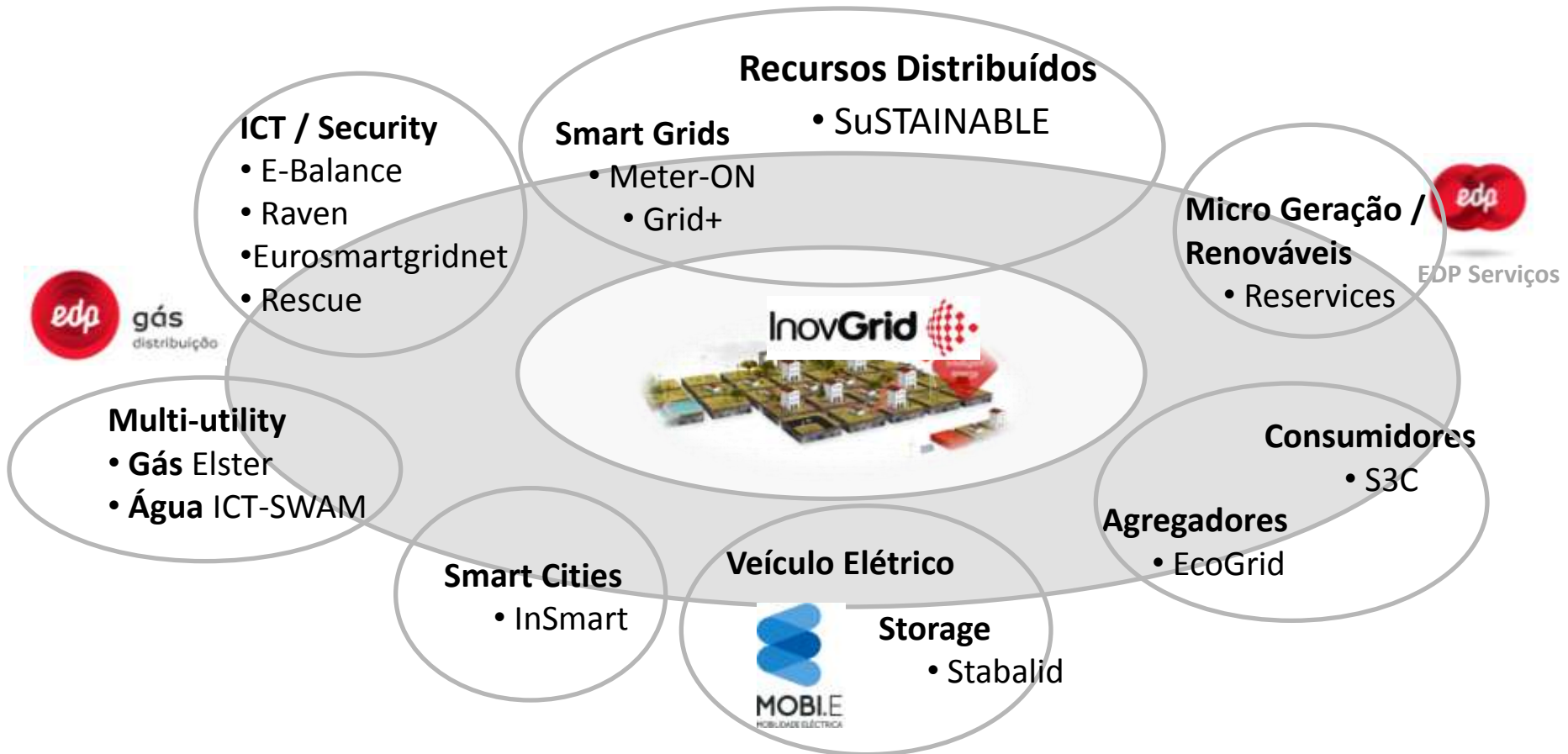


EDP developed InovGrid architecture focused on costumers participation and in an network integrated infrastructure...



Projects Portfolium

InovGrid impacts 10 different business areas



InovGrid EDP Box connected to selected customers with In-Home Displays (IHD) and efficiency software in PC/PDA...



HAN

EDP Box



ZigBee

WiFi

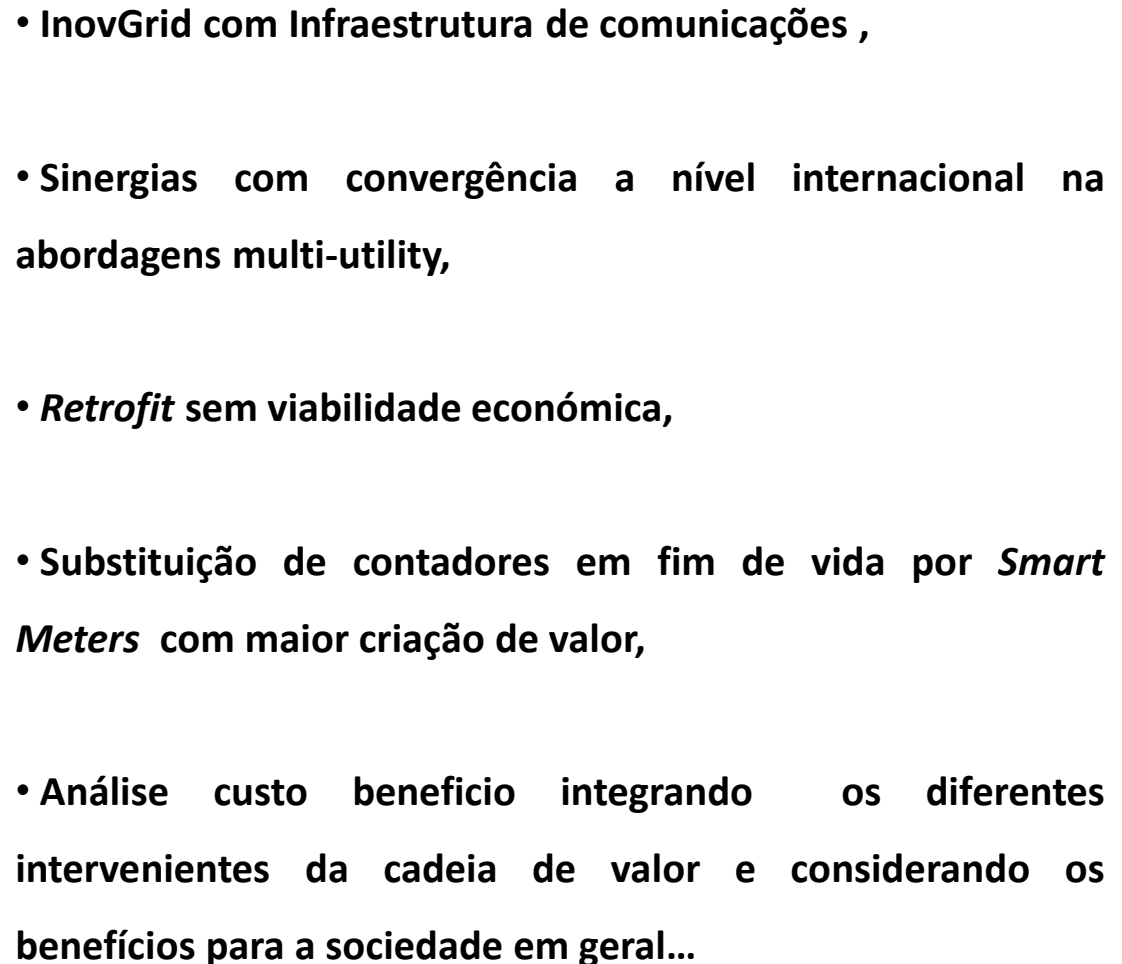
Display



PC / PDA



Projeto Multi-utility:



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Évora –InovCity in short...

The city of Évora is a Unesco World Heritage Site



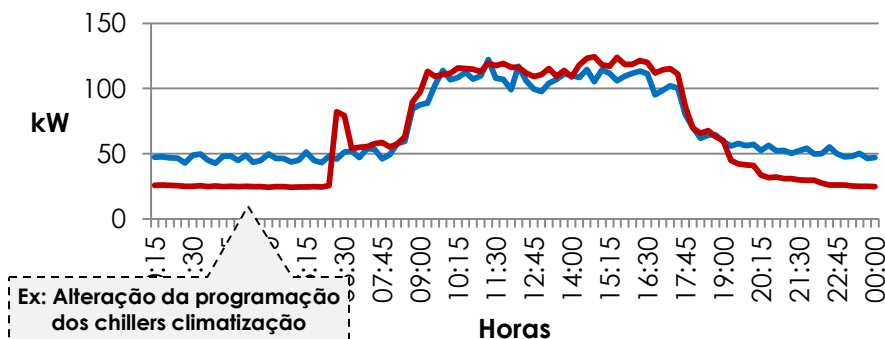
Évora InovCity has the dimension, the network diversity, the customers and the context to support a thorough evaluation of the solution

1. Évora municipality:
 - 54.000 inhabitants
 - 1.307 km² of area (urban and rural)
2. The project includes:
 - 30k Energy Boxes and 341 DTCs
 - Integration of IT systems
 - Communications infrastructures
 - New services and products
3. Involvement of the major players of the municipality
4. Coordination with the national electric vehicle charging network

Significant gains on consumption efficiency...

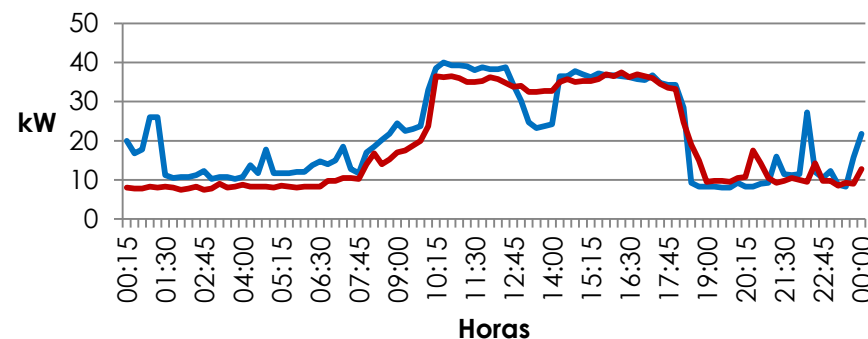
DREA

~ 20%



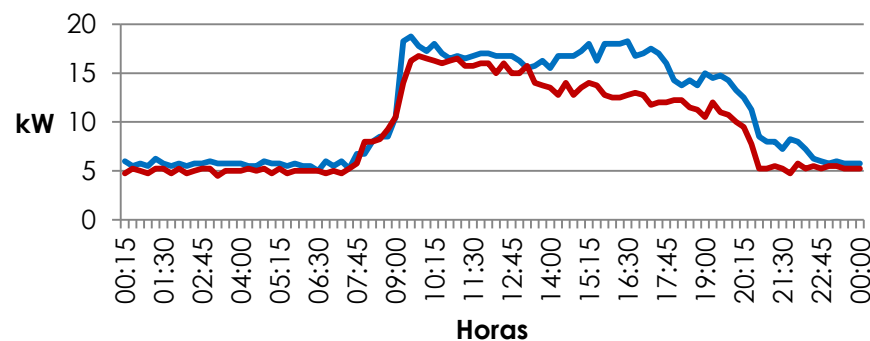
Museu

~ 16%



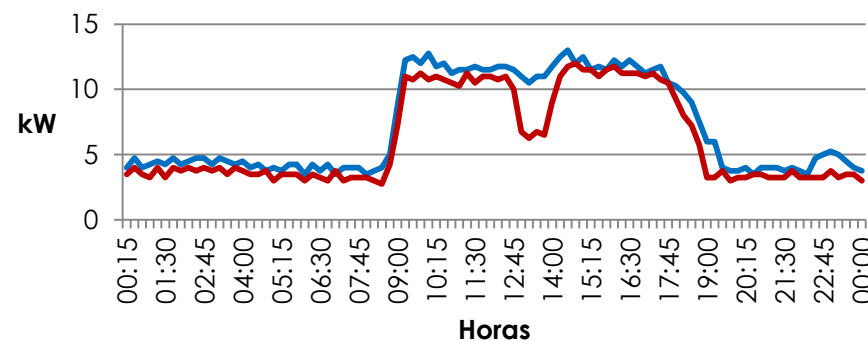
Centro de Saúde

~ 16%



DGCI

~ 12%

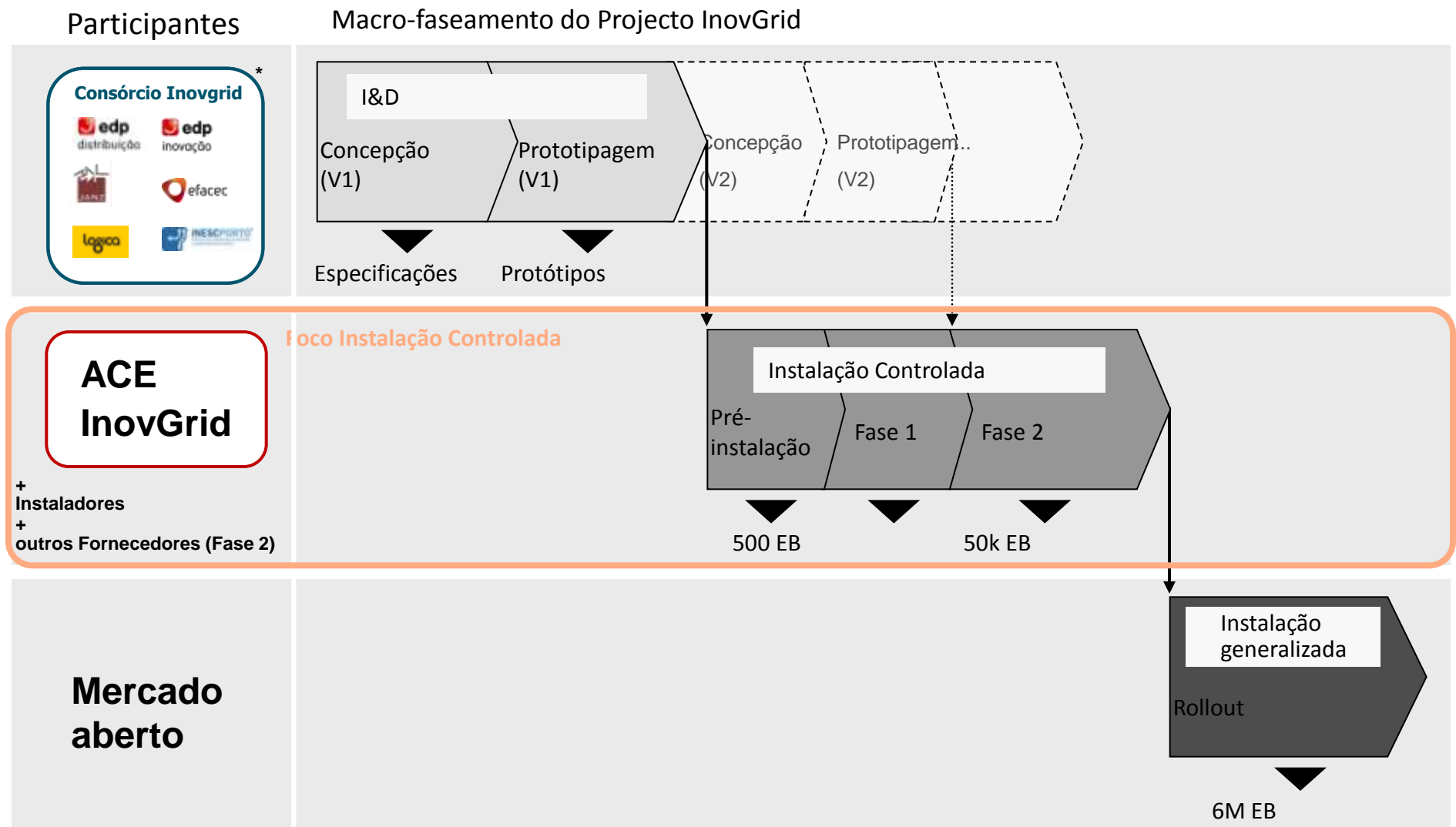


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Modelos de Negócio flexíveis na Demonstração Técnica ...

Parcerias no desenvolvimento e fornecimento da solução ...



During 2012, EDPD plans to install 100k EDP Boxes in 6 locations with different grid characteristics and technologies

A large-scale pilot is fundamental to validate communication technology, escalate operations and ensure integration of multiple suppliers, systems and equipments:

Technology

- Validate Communications Technology: PLC PRIME and GPRS in larger scale, option on RF Mesh

Operations

- Consolidate lessons, processes and large-scale procedures/operations, targeting a *"plug and play"* solution

Integration

- Integrate different suppliers, communication technologies and IT systems
- Guarantee interoperability among equipments of different suppliers

illustrative

Urban and Cultural
Centre
Guimarães

High density of
Domestic and
Industrial Clients
S.J. Madeira

Rural Network
Lamego

Challenging Quality
of Service
Batalha/M. Grande

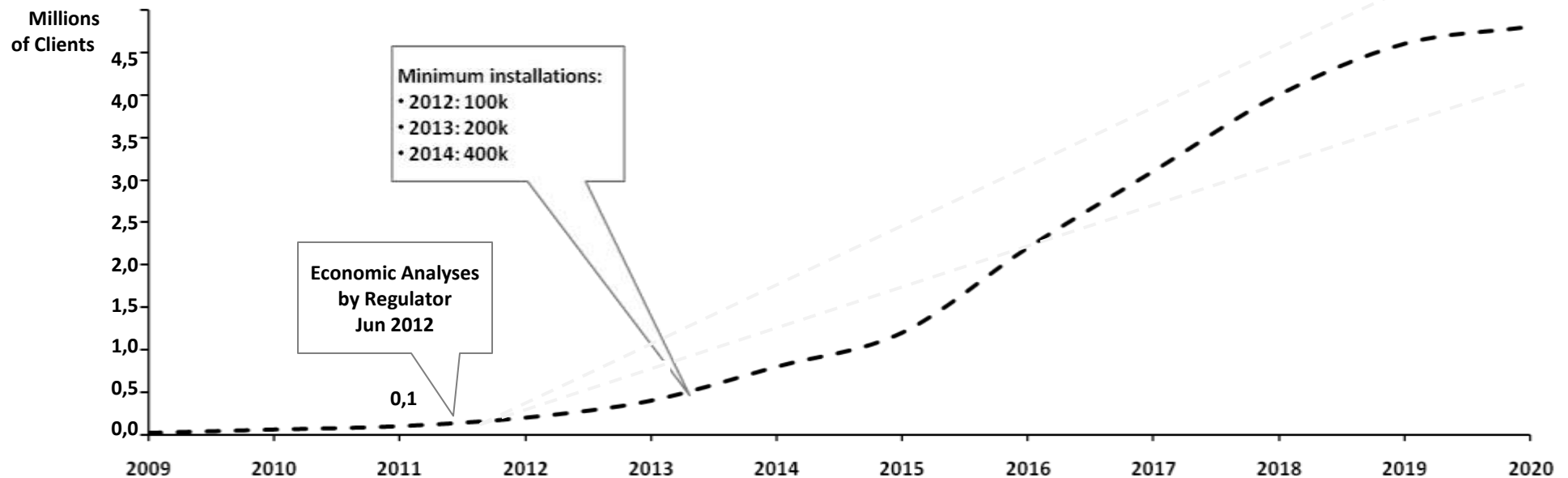
"Field laboratory"
of new
technologies
Alcochete

Islands
operation
Faro/ Olhão

Roll-out pace and scope will depend, to large extent, on the regulatory and legislative environment

illustrative

Possible roll-out scenarios (illustrative):

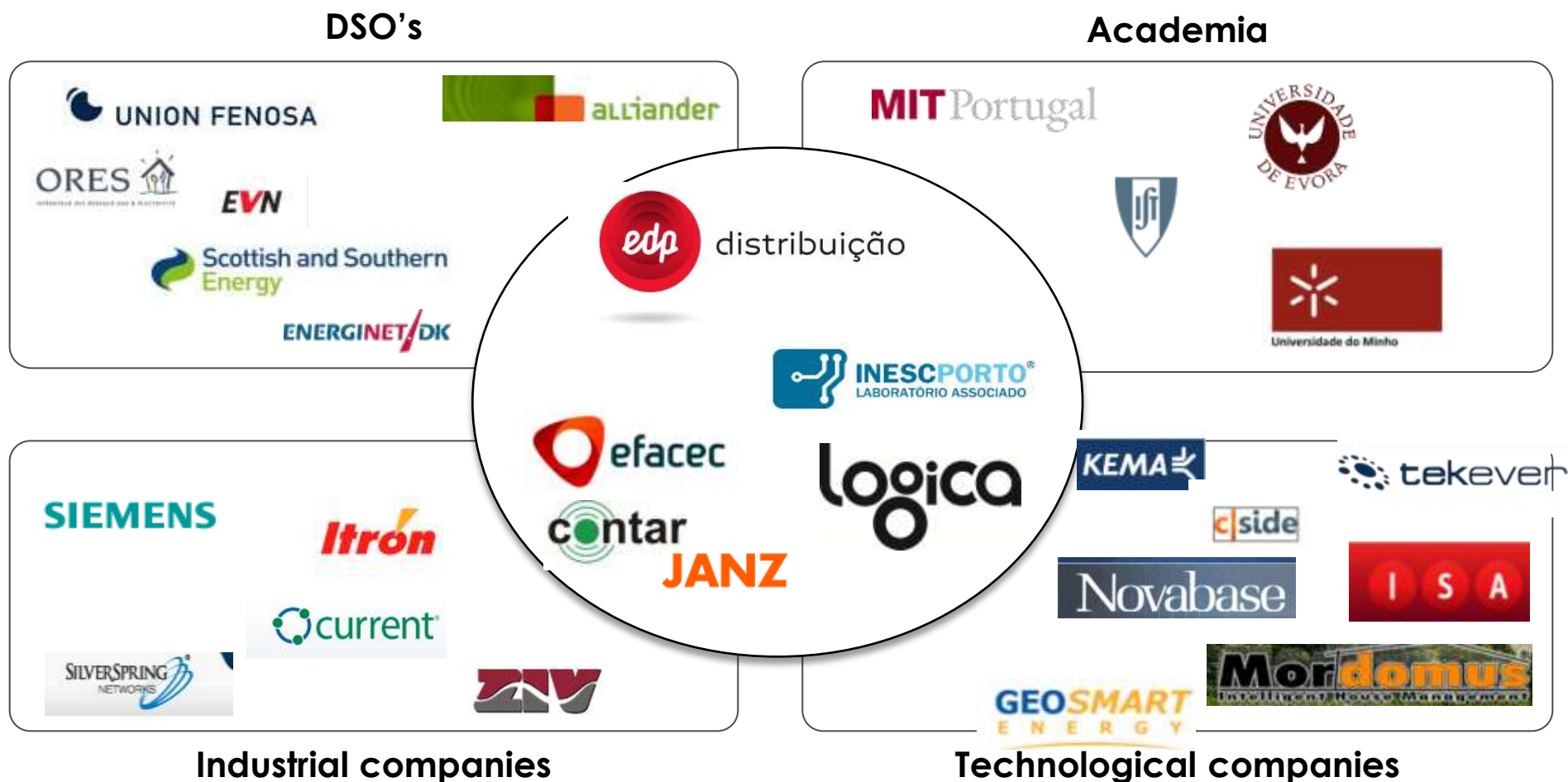


- Portuguese Regulator will present a cost-benefit evaluation until Jun 2012, and after the Portuguese Government will take a decision on smart meters roll-out until Sept 2012
- Until the end of 2012, all industrial Clients and more than 50% of distributed energy in Portugal will be read remotely

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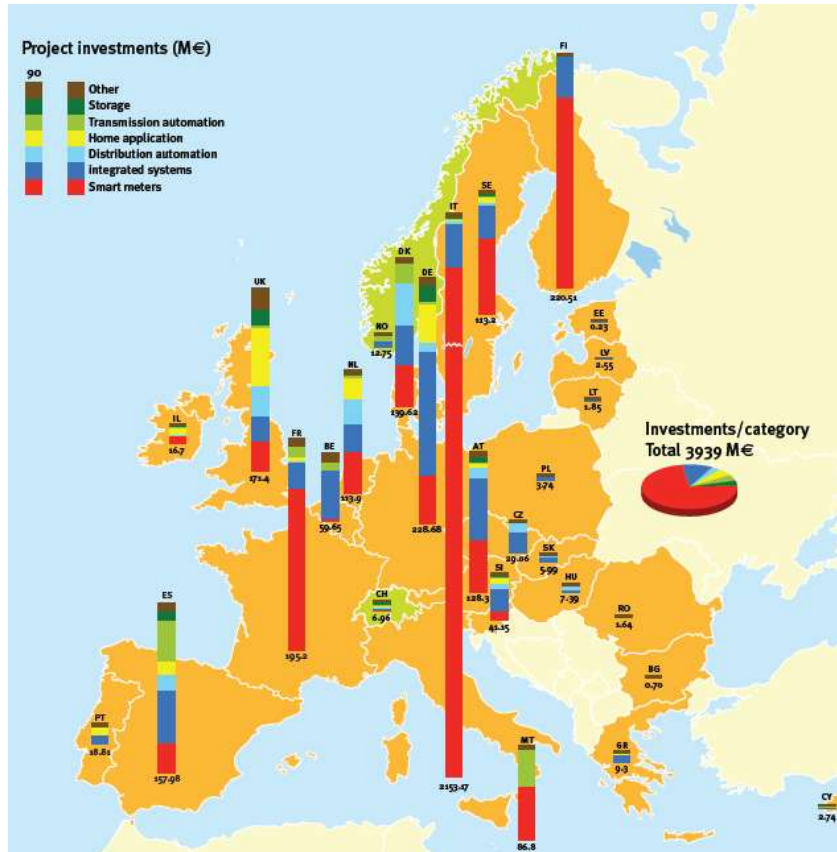
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A large number of Portuguese and international players has joined EDP in this project ...



InovGrid has been selected by EC/JRC/Eurelectric as the single case study for assessment of smart grid projects in Europe...

Smart Grids Project Catalogue (source: JRC/EC):



Over 5 billions of investments, but still at the beginning of the Smart Grid transition

InovGrid project

selected among 220 smart grids projects
by Joint Research Centre of the European
Commission (JRC) and Eurelectric
as the single case study
for testing and validation of Business Case
assessment methodology (EPRI)



EDP , Utility of the Year Award 2012....

“European Smart Metering Awards 2012”

**“Smart Metering UK & Europe Summit 2012”,
Londres**

**“Utility of the year Award 2012” , Projecto
InovGrid**

- temática das redes inteligentes,
- eficiência energética
- orientação para o Cliente.



Lessons Learned ...

- Focus on value creation for customer with InovGrid project , involving local stakeholders active participation and empowerment on energy efficiency testing of EDP Box functionalities, Clients predisposition and attitude
- Develop Évora – the 1st Iberian InovCity , as a cutting-edge EDP Distribuição smartgrid project commercially tested, selecting a future-proof solution to a national roll-out, with Scientific and technological partners in a fully functional and integrated technological solution
- Align EDP's “Smart Grid Thinking”, in InovGrid project with the world smart grids trends as a reference in the Sector, internalizing smart grids know-how, training installation teams, explaining EB benefits and managing Clients expectations
- Aim European energy goals as key to integrate in Smart Grids, as critical for DSO's, more efficiency, renewables and the electric vehicle , following international standards, at functionalities and communications technology level , with interoperable solutions from different suppliers
- Promote international partnerships with EDP Distribuição for smart grid new solutions and funds ...

InovCity Évora, Portugal

You are invited!



Visit us at:

www.inovcity.pt