BIDELEK 4.0 project
Digital grid

Luis Layo
Changing scenario

Policy: low carbon
- Renewables
- Electric mobility

BUSINESS
Clean energy

Load / Gen
TECHNOLOGY
Electronics

↓ Costs
DER

Distribution Network

RULES
Regulators
Connection rules

PLAYERS
Prosumers
Customer engagement

Digitalization
- + information
- + intelligence
- + services

Change

High penetration of renewables and electric mobility in distribution

Network energy services: smart access ("connect and manage")

Need to improve grid digitalization
Digitalization: electronic monitoring and sensing

- **Primary substation**:
  - Standardization
  - Smart control
  - Cybersecurity

- **Secondary substation**:
  - Sensing + Telecoms
  - Monitoring and control

**Networks**:
- HV Network
- MV Network
- LV Network

**Smart Meters**
- (x 10^7)

**Substations**
- Primary Substations
  - (x 10^3)
- Secondary Substations
  - (x 10^2)

**Networks Overview**
- HV Network
- MV Network
- LV Network

**Smart Meters**
- (x 10^7)
Services oriented to provide active information and value to the consumer

Services and value
• Customer experience: on web / app channels

Bigdata
• Integrate process in business: data analytics
• Digital model of physical assets: failure modes …

Cloud platforms
• Empower the new users: flexibility
• Platform for coordination: network services
Prepare the future: IoT?

Innovation according to “NO REGRET ACTIONS”
Simplification, stability, scalability to prepare future technologies

In our roadmap → Digitalization and bigdata
- New digital assets and network data
- Analytics to provide Information
- Back-office intelligence

In pilot projects → Operation/intelligence
- Centralized + distributed control
- Platforms: information + ¿?

Services
- Flexibility: Σ DER capacity
- Players: who is there? users / things