



EUSKO JAURLARITZA
GOBIERNO VASCO



EVE | Ente Vasco
de la Energía



Smart Grids - Workshop

Bidelek Project



Bilbao, 8th November 2011



SMART GRIDS

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1. Definition

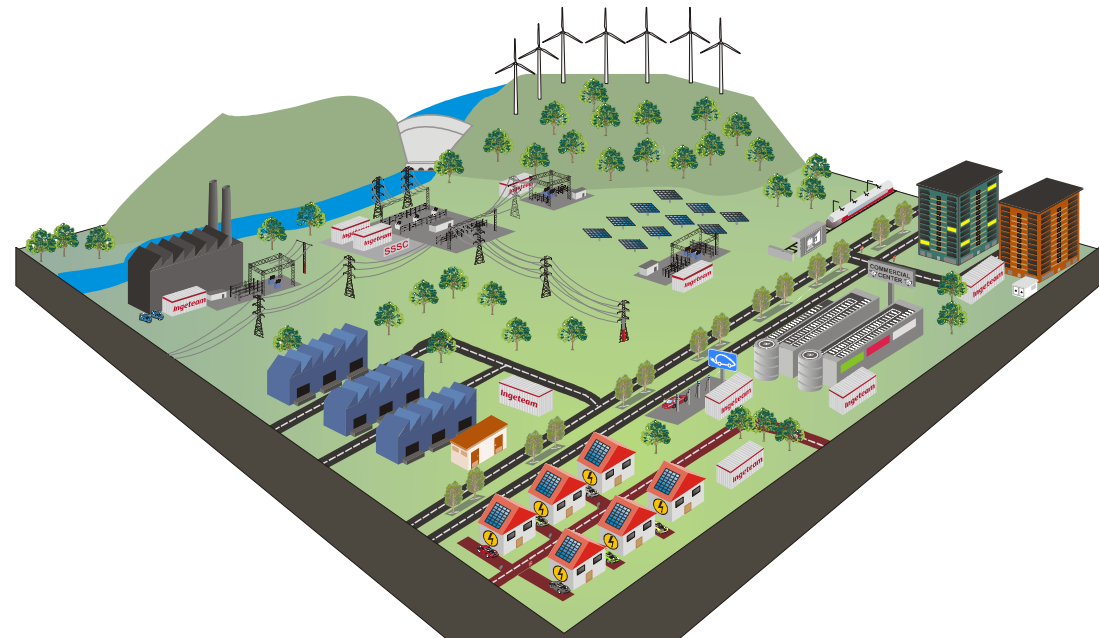


Smart grids are essentially distribution networks equipped with technology for providing electricity suppliers and users with information to optimise the use of energy





A Smart Grid is a technological enhancement of the power distribution system, combining traditional facilities with state-of-the-art monitoring, information and telecommunication technology





Directive 2009/72/EC of the European Parliament states that 80% of consumers shall be equipped with intelligent metering systems by 2020

Under **Royal Decree 1110/07**, Spanish law states that all meters will be equipped with hourly discrimination and remote management technology prior to December 31, 2018

Smart Technologies require SMART LEGISLATION

Both *Iberdrola* and the Basque Government believe that compliance with this legislation represents an opportunity to conduct a much more ambitious and far-reaching project





3. Bidelek Project: Overall objective



The Basque Government (through EVE) and *Iberdrola*, on the basis of their common interest in the matter, have taken the initiative to equip both Bilbao and the town centre of Portugalete with smart grids to ensure an efficient, safe and sustainable power supply, with a view to extending this initiative to other areas of the Basque Country in the future.



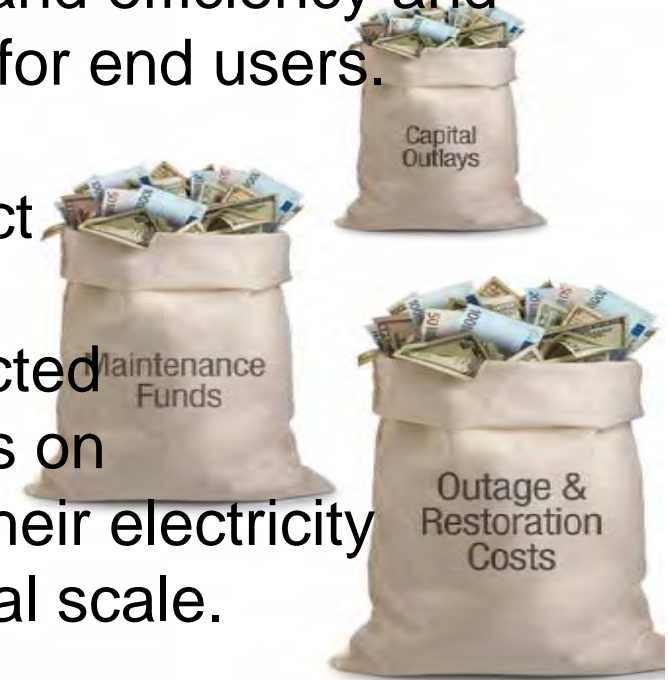


4. Partners' Contribution



In addition to financial support, **EVE** will contribute its vision and know-how on energy saving and efficiency and improvements to demand management for end users.

Iberdrola will lead the Smart Grid Project from the technological perspective, with a view to ensuring that certain selected areas are recognised as reference areas on account of the quality and efficiency of their electricity grids, both on a national and international scale.



Joint investment will be in the order of 60,000,000 euros over the next 3 years.



I. Objectives for **USERS**

- To improve the quality of power supply
- To improve customer service with respect to incident management and modifications to contracts
- To provide information and enable customers to manage consumption and invoicing in a more efficient manner
- Invoicing based on real meter measurements





II. Objectives for **Society** at large and in a social and economic context

- Greater safety level in facilities and operations
- Greater integration of renewable energies, small power plants and of electric vehicles
- The development of an innovative project in new technologies, validating and extending the use of these technologies to other activity areas and making this a reference project worldwide
- To generate investment and financial activity in the field of energy-related infrastructure
- To reduce CO₂ emission levels by improving energy efficiency



III. Objectives for the **power distribution system**

- To progress towards compliance with the regulation on the replacement of electricity meters
- To improve service quality and reduce network losses
- Active and optimal operational management of grid resources and improved planning





The project will be developed in the following geographical areas:

Urban environment

- In Bilbao – 30 & 13 kV distribution over a wide area
- In Portugalete - 13 kV distribution over a concentrated area.

Rural environment

- New rural sub-station in Lea-Artibai
- Upgrading of the Lekeitio rural sub-station
- Upgrading of the Markina rural sub-station

Extendable to other Basque Country municipalities

7. Deployment of Smart Grids: ACTIONS

- I. Installation of smart meters
- II. Transformer stations (remote management, monitoring and automation)
- III. New concept of substation

To:

- Integration of distributed generation
- Integration of the electric vehicle
- Development and start-up of applications



I. Installation of smart meters:

Existing meters will be replaced by new smart meters, covering practically the whole population:

- **200,000** meters for **360,000** people (Bilbao)
- **27,000** meters for **50,000** people (Portugalete)

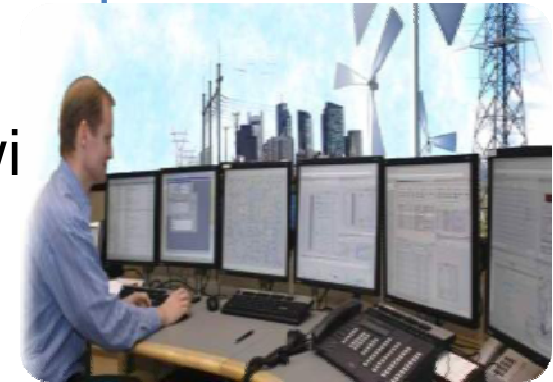




II. Smart Transformer Stations:

1,100 transformer stations will be set up with different smart levels:

- 235 with remote management
- 700 with remote management and monitoring
- 165 with remote management, monitoring and automation.





III. Rural electricity sub-stations

- Compact modular rural sub-station demonstration project in Lea-Artibai
- Existing substations in Lekeitio and Markina will be upgraded and equipped with smart technology





IV. Distributed Generation

- Integration of 7 medium voltage CHP plants
- Integration of 50 low voltage power plants



V. Integration of the Electric Vehicle

Setting up of 100 charging stations located in/on:

- private garages
- public car-parks
- shopping centres
- the public highway





8. Investment and employment



Projects on a national level

Investment : 5,500 million euros

Creation of around 25,000 jobs for highly qualified personnel

Bidelek Project

Investment: 60 million euros

Creation of around 300 jobs for highly qualified personnel





As well as confirming the position of *Iberdrola* as a leader and driver of electronic power, this project also offers the following opportunities:

- Development, production and supply by many Basque companies of the necessary technology
- Strengthening the position of Basque companies as leaders in the field of technology, making the Basque Country the “Electronic Power Valley” of Smart Grids (automobile, renewable energy, ICT’s, home appliances, etc.) can also benefit from this project

The BIDELEK PROJECT is designed to be a reference project worldwide.



1. Smart grids combine traditional facilities with state-of-the-art monitoring, information and telecommunication technology
2. Compliance with prevailing legislation represents an opportunity
3. Project investment of €60,000,000
4. The objective is to equip the municipalities of Bilbao and Portugalete with smart grids
5. Low voltage (200,000+27,000) smart meters
6. Medium/ high voltage: 1,100 transformer stations and 3 rural substations
7. Integration of Distributed Generation and of the Electric Vehicle
8. Benefits for users, the system, society at large and in the social and economic context
9. Improved energy and environmental efficiency
10. Demand management
11. Driver project for Basque companies
12. Reference project worldwide



SMART GRIDS

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PROJECT

Many thanks

Bilbao, 8th November 2011