



## University of Algarve - UAlg - (PORTUGAL)

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# CASE STUDY 1

*Wind Generated Electricity in Portugal as part of the E4 plan and beyond*

## OBJECT:

*A national strategic plan for endogenous energies here analysed for the Wind Energy component*

## RELEVANCE FOR ENEPLAN:

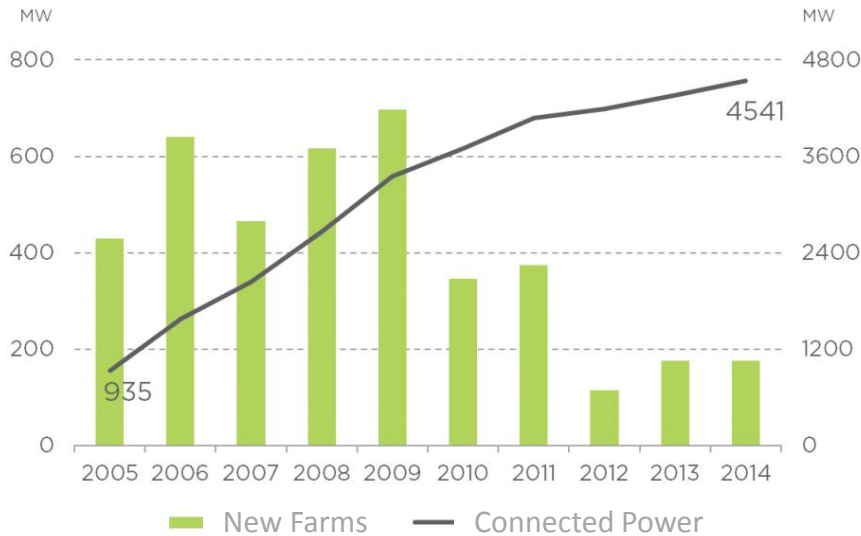
- It is a major framework plan to promote the use of Renewable Energies and the increase of Energy efficiency, reducing emissions, namely CO<sub>2</sub>, and fighting against climate change;*
- Wind Energy is analyzed since it is a major contributor to the plan and is a case of success in Portugal;*
- electricity produced from wind turbines increased from nearly zero in 2003 to 11 TWh in 2015, representing 22% of all electricity consumed in the country*

# CASE STUDY 1

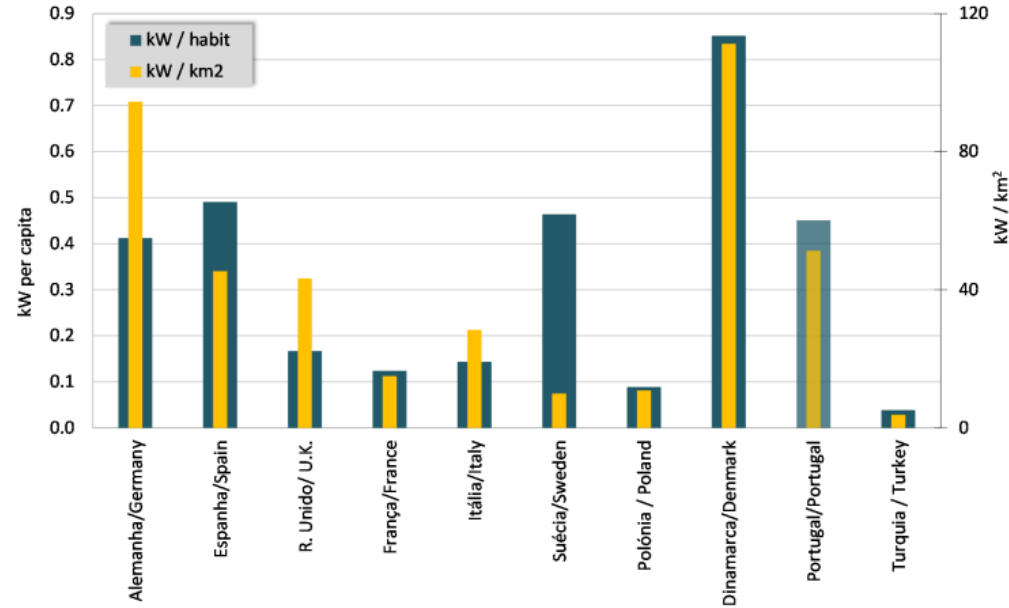
## RELEVANCE FOR ENEPLAN (cont.):

- *It focus on the technological aspects associated with wind generated electricity as well as in legislative and economic options taken by the Portuguese government e.g.:*
  - *liberalization of the electric market*
  - *construction of hydroelectric, double action dams*
  - *Implementation of smart grid methodologies*
- *Wind generated electricity is highly relevant from the climate change point of view: life cycle analysis account for 29 gCO<sub>2</sub>/kWh as opposite to 400-500 gCO<sub>2</sub>/kWh for coal thermal plant.*
- *The plan has triggered an important improvement in energy spatial planning in the country (energy potential, production, distribution and consumption)*
- *The plan has promoted a higher degree of concern with environmental planning through the imposition of environmental impact studies integrating landscape protection, ecosystem preservation, interaction with bird habitats and migration paths among others*

# CASE STUDY 1



*Figure 4: Wind energy density indexes 2015 - Europe*



## CASE STUDY 2

*Implementing the Energy Performance of Buildings Directive in Portugal (EPBD) –  
Energy Performance Certificates*

*OBJECT: The EPBD aims at transforming the building sector towards ambitious energy efficiency standards and increase the use of renewable energy. The main objective is achieve a Nearly Zero-Energy Buildings in a cost-effective manner.*

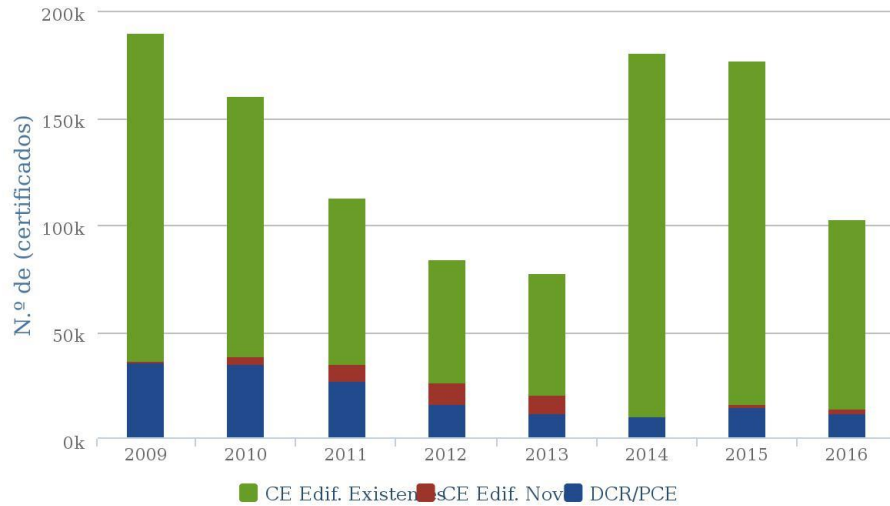
## CASE STUDY 2

### REASON WHY YOU CHOSE IT/ YOU CONSIDERED IT RELEVANT FOR THE PURPOSE OF ENEPLAN

- *Buildings account for 40% of total energy consumption in the EU.*
  - *The sector is expanding, which is bound to increase its energy consumption.*
  - *There is a tendency to increase the consumption of energy to increase thermal comfort.*
- *This case study represents a long term effort at the national level to implement energy efficiency and renewable energy legislation.*
- *At first level this plan focuses on energy efficiency and the use of renewable energy at small scale, mainly solar energy.*
- *It focusses not only on the technological aspects but also on political, legal, economic and social choices made by Portuguese citizens.*

# CASE STUDY 2

Fonte: ADENE, Sistema de Certificação Energética dos Edifícios



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