



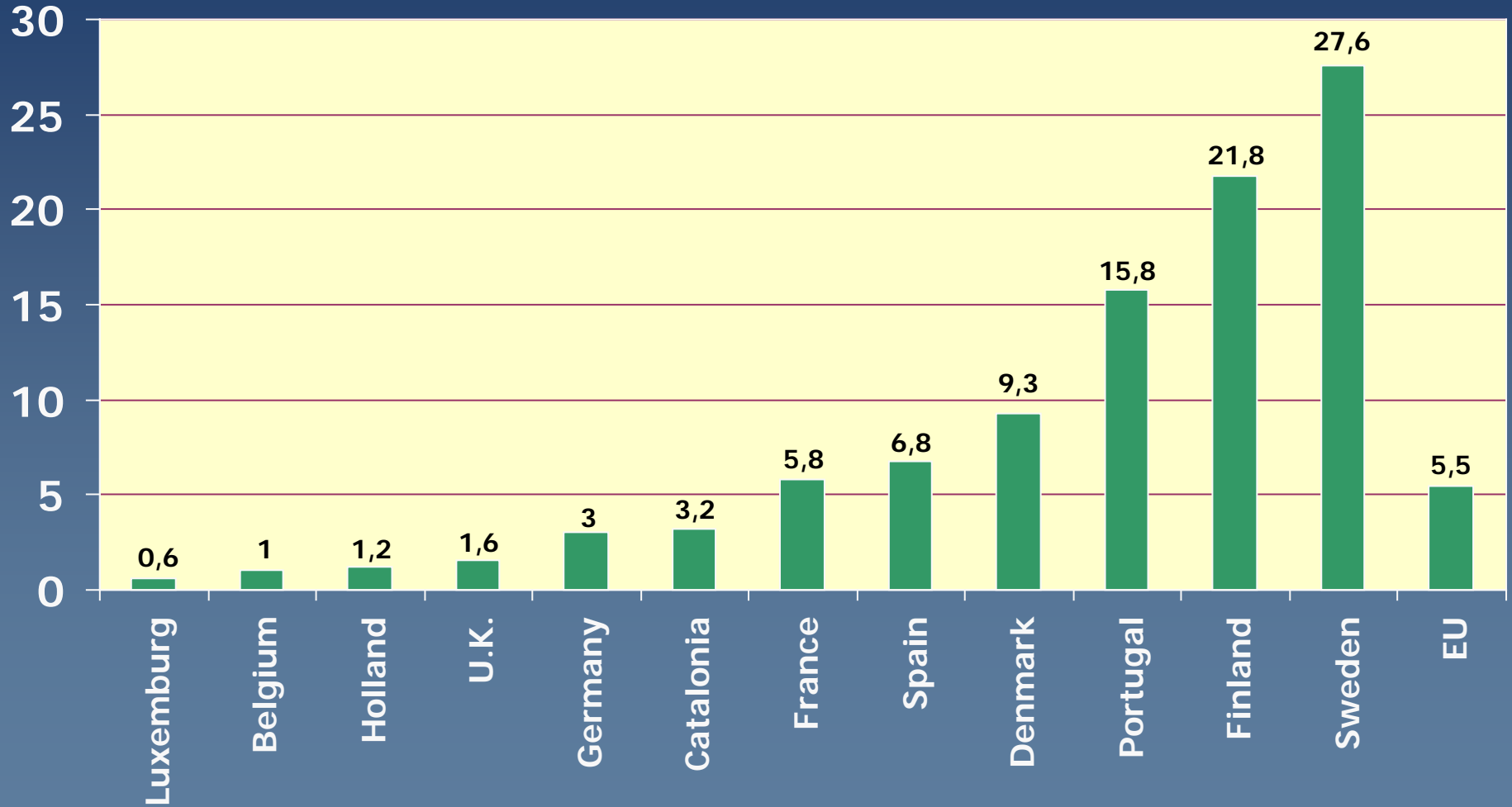
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# The Race for Renewable

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# Renewable energies in Europe



# Energy consumption in Catalunya

Source of Primary Energy	Consumption (kTEP)	Consumption (%)
Oil	12.692	48,9
Nuclear	6.644	25,6
Natural gas	5.788	22,3
Renewables	831	3,2
TOTAL	25.954	100,0

# Renewable energies

Type of Renewable Energy	Production (TEP)	Production (%)
Eolic	14.026	1,9
Solar	2.899	0,4
Hydroelectric	430.047	58,1
Biocombustibles	51.758	7,0
Woody biomass	93.905	12,7
Renewable wastes	147.712	19,9

# Energy Plan for Catalonia (2006-2015)

- ◆ Bet for efficiency and renewable energies
- ◆ Total investments: 9.956 M€
  - Renewable Energies 5.140 M€
  - Energetic Efficiency 4.320 M€
  - Burying of electric cables 300 M€
  - Rural electrification and gasification 196 M€
- ◆ Renewable Energies 2015:  
2.929 kTEP (11% energy consumption)

# Renewable Energies (Plan 2015)

Type of Ren. Energy	Production (TEP)	Production (%)	Inc. 2003-2015 (%)
Eolic	623.609	25,2	1.226
Solar	65.623	2,7	2.163
Hydroelectric	472.439	19,1	10
Biocombustibles	885.730	35,8	1.611
Woody biomass	228.567	9,2	143
Ren. wastes	198.781	8,0	35
<b>TOTAL</b>	<b>2.474.748</b>	<b>100,0</b>	<b>234</b>

# Environmental impacts

- ◆ Biomass power plants, solar farms, wind mills produces severe impacts on:
  - Natural values
  - Ecological processes
  - Land use changes
  - Landscape
- ◆ Natural protected areas are specially sensitive to this impacts







# Key questions

- ◆ Can protected areas withstand these impacts?
- ◆ Must protected areas assume a productive role on renewable energies?

# My opinion...

- ◆ Protected areas are not the most suitable places for renewable energy plants (or farms)
- ◆ Instead of a being a productive place, protected areas should play a demonstrative and educative role

# Conceptual, qualitative leadership...

- ◆ Low-scale demonstrative projects
- ◆ Education / Communication
- ◆ Cooperation and technology transfer to developing countries
- ◆ Communities implication
- ◆ Action plans



# Two examples from Catalunya

# Eolic Map of Catalunya



# Zonification

- ◆ Incompatible areas: protected areas and other areas highly sensitive because of natural, historic, social values (landscape).
- ◆ Compatible areas: Up to maximum 5 wind mills or 10 MW.
- ◆ 8 High priority areas: High wind and low impact.





Proposta de Zones de Desenvolupament  
Prioritari (ZDP) a Catalunya



# Rural Electrification Program in Montseny Natural Park



# Starting point

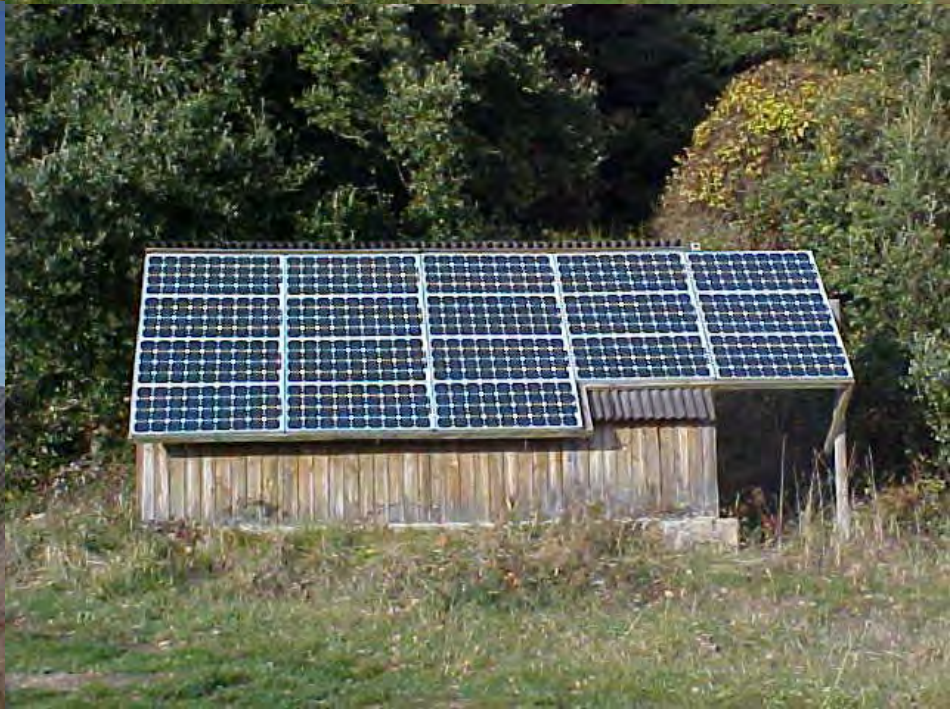
- ◆ 105 places without electric supply
  - 31 permanent homes
  - 54 second homes
  - 20 empty buildings
- ◆ 89 places were located more than 1 km far away from electric cable network



# Technical features

- ◆ Electric supply of 230 V. AC / 50 Hz.
- ◆ Maximum power: 4 KW
- ◆ Mean cost: 20.500 €:
  - 22 % Owner
  - 34 % THERMIE Program (through SEBA)
  - 44 % Montseny Natural Park
- ◆ Total investment: 655.000 €
- ◆ Electrification of 32 isolated places  
(24 permanent homes)











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