

# **PATRES**

## **Public Administration Training and Coaching on Renewable Energy Systems**



# **REALITY AND MYTHS ABOUT THE RENEWABLE ENERGY SOURCES**

Trieste October 2011



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# Introduction

## WHAT PEOPLE IN THE STREET TEND TO THINK ABOUT THE RENEWABLE ENERGY SOURCES?

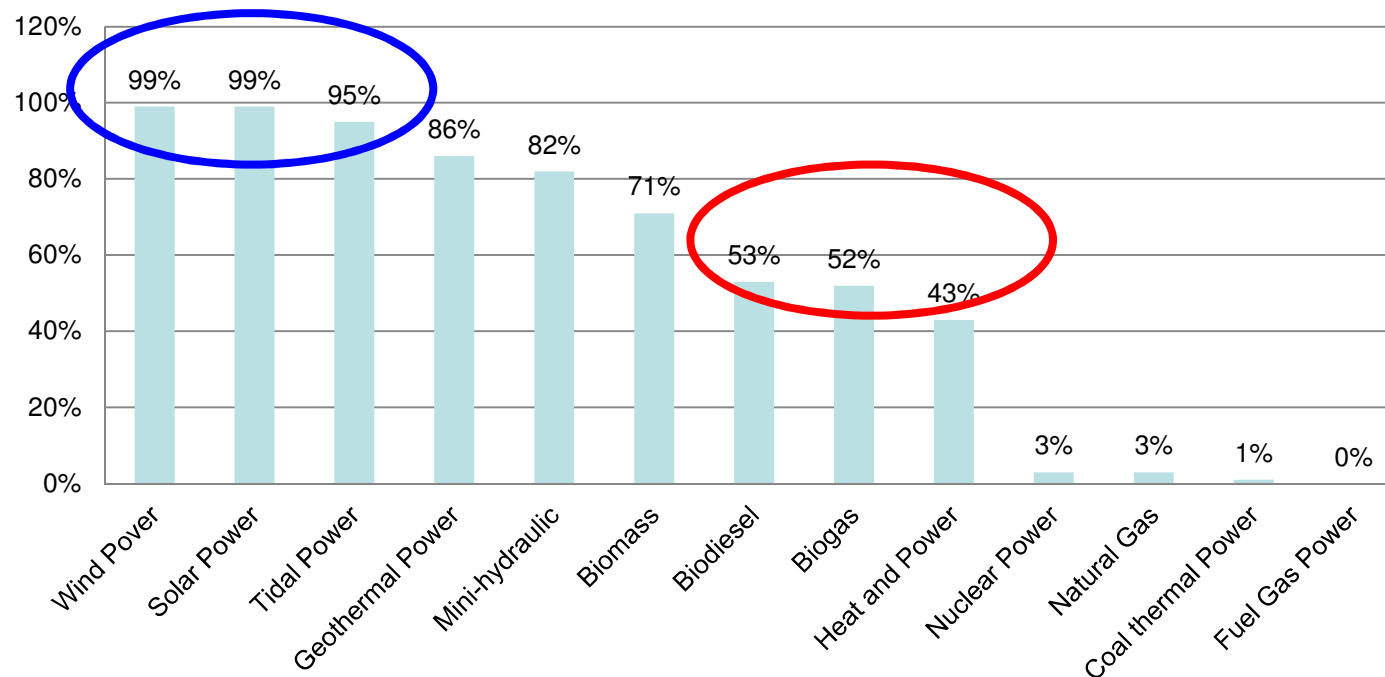
- A Survey was conducted by WWF/Adena in collaboration with CIRCE over a population of 872 citizens from March to April 2011 in Spain to find out their knowledge about Renewable Energy.
- The purpose was to test the knowledge and opinion of common people about the RES. 4 questions were presented:
  - Which energy sources can be considered renewable?
  - What are the benefits of the RES?
  - In today's energy context, what problem do you consider most worrying?
  - To which extent do you support the different RES technologies?.



# Survey results

1. Among the following energy sources which do you think are renewable?

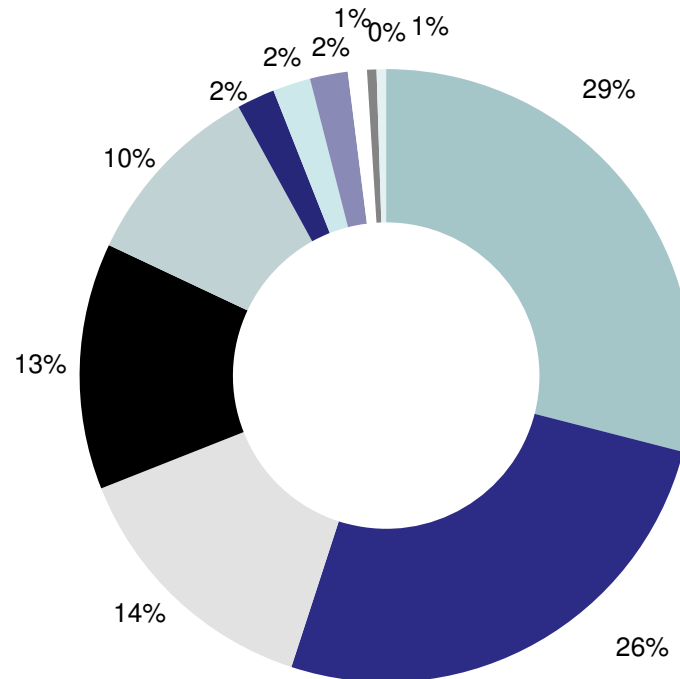
## Which are renewables, which are not?



# Survey results

1. What is in your opinion the main advantage of the Renewable energies?

## What are the benefits of RES?

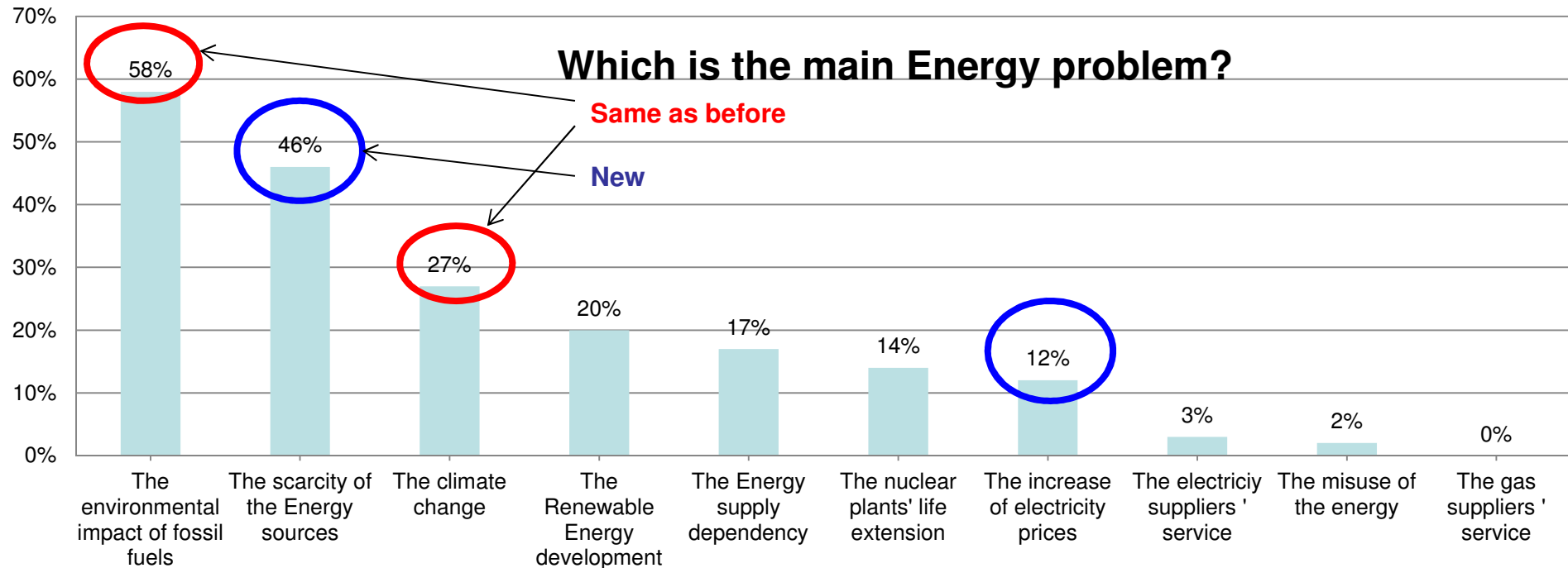


- Lower CO2 emissions
- Climate Change mitigation
- Energy efficiency and savings **Wrong**
- Resource and Raw material savings
- Lower external sources consumption
- Higher country competitiveness
- Higher green and qualified jobs
- Higher innovation level
- Increase of Renewable Energy exports
- Electricity savings
- Lower electricity price



# Survey results

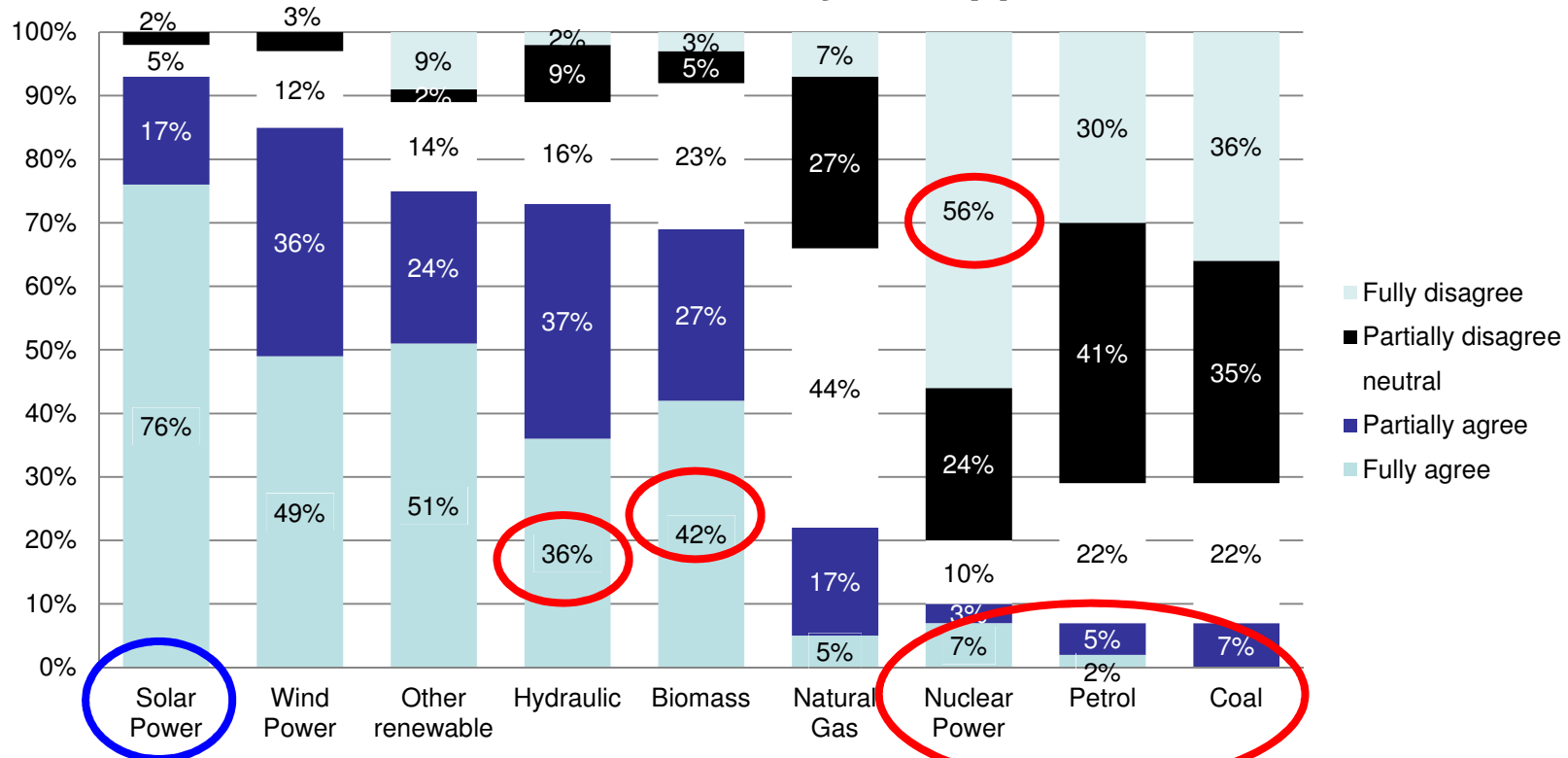
## 1. What is in your opinion the most important energy problem nowadays?



# Survey results

## 1. To which extent do you support each renewable source?

### To which extent do you support each RES?



# Survey results

## Outcomes summary

- Existence of contradictory messages from the media.
- Technical and complex information misleads citizenship.
- Too many regulatory changes cause instability and investment flight.
- Not enough clear information about the advantages and benefits of the RES.

## Conclusions

- Almost 100% are in favour of the RES.
- There are many preconceptions and myths about this topic among average citizens.
- These myths are often barriers to the unconditional popular support for the development of renewable energy sources.
- These myths have to be identified, pulled down and responded from a highly reputed institution to enable a further development of these green technologies.



# MYTHS AND REALITY

## MYTH 1.

The environmental impacts of energy from renewable sources are as big as those coming from fossil fuels or nuclear energy.





# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 1.

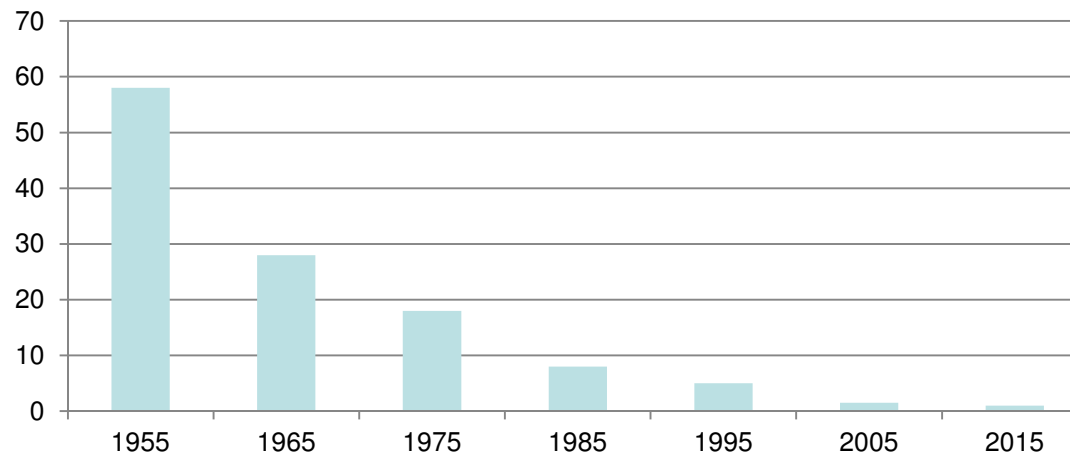
- RES are not totally CO<sub>2</sub> free. However, as an average, RES produce 55 times lower impacts than conventional and nuclear sources.
- RES save CO<sub>2</sub> emissions. The only CO<sub>2</sub> emissions are related to the manufacturing and building of the production facilities.
- Facilities are easy to dismantle at the end of its lifetime.
- Very limited impact in case of accident (compared to nuclear leaks, refineries, oil and gas tanker wrecks,...).
- Technologies are fast progressing to improve the manufacturing processes and use less polluting components.



# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 1.

**Evolution of energy payback for PV modules in years**



# MYTHS AND REALITY

## MYTH 2.

Renewable energy is expensive and unaffordable in downturn times.



# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 2.

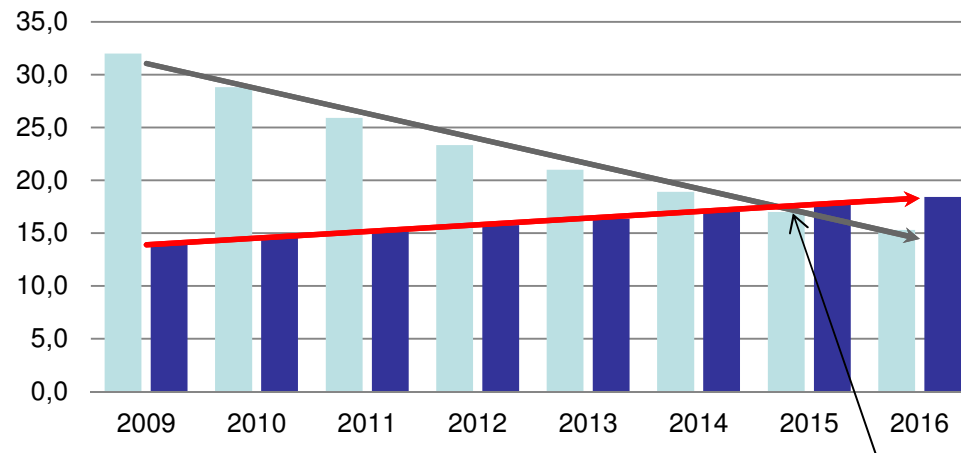
- RES contribute to the GDP growth.
- RES reduce the imports of external energy sources thus increasing the independence of external suppliers.
- RES development contribute to the sustainability of a high tech, competitive national industry that exports worldwide.
- This national industry supports a good amount of qualified local jobs.
- The economic, social and environmental costs of the climate change exceed by far those of the RES implementation
- The CO2 savings can also be converted into economic terms by means of the newly created international CO2 markets.



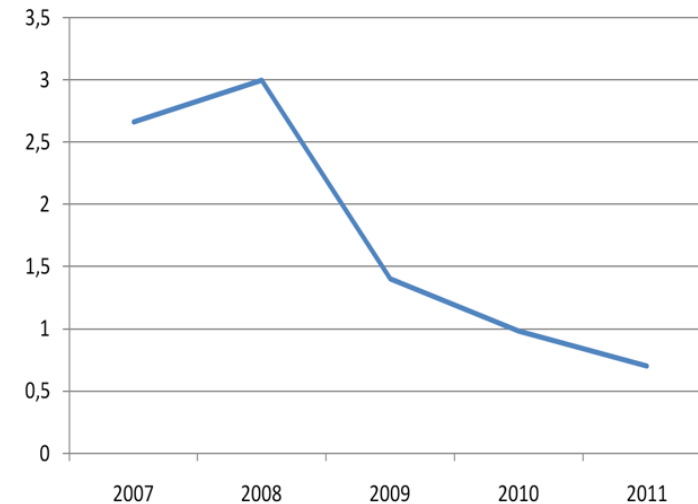
# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 2.

**PV costs vs electricity price (c€/kWh)**



**Evolution of PV W cost in €.**



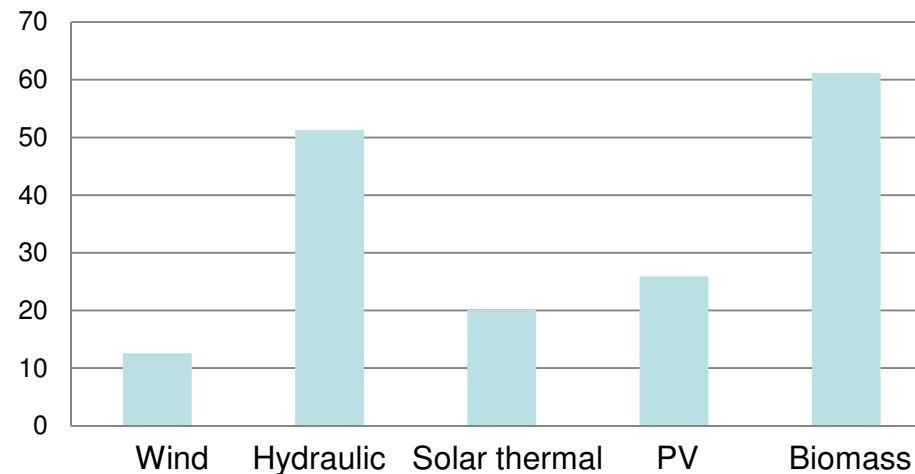
**Grid parity expected by 2015**



# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 2.

**Jobs per installed MW / year**



# MYTHS AND REALITY

## REALITY WITH RESPECT TO MYTH 2.

**CO2 spot market price evolution**



## MYTH 3.

Renewable energy is to blame for the increase of the electricity bill.





# MYTHS AND REALITY

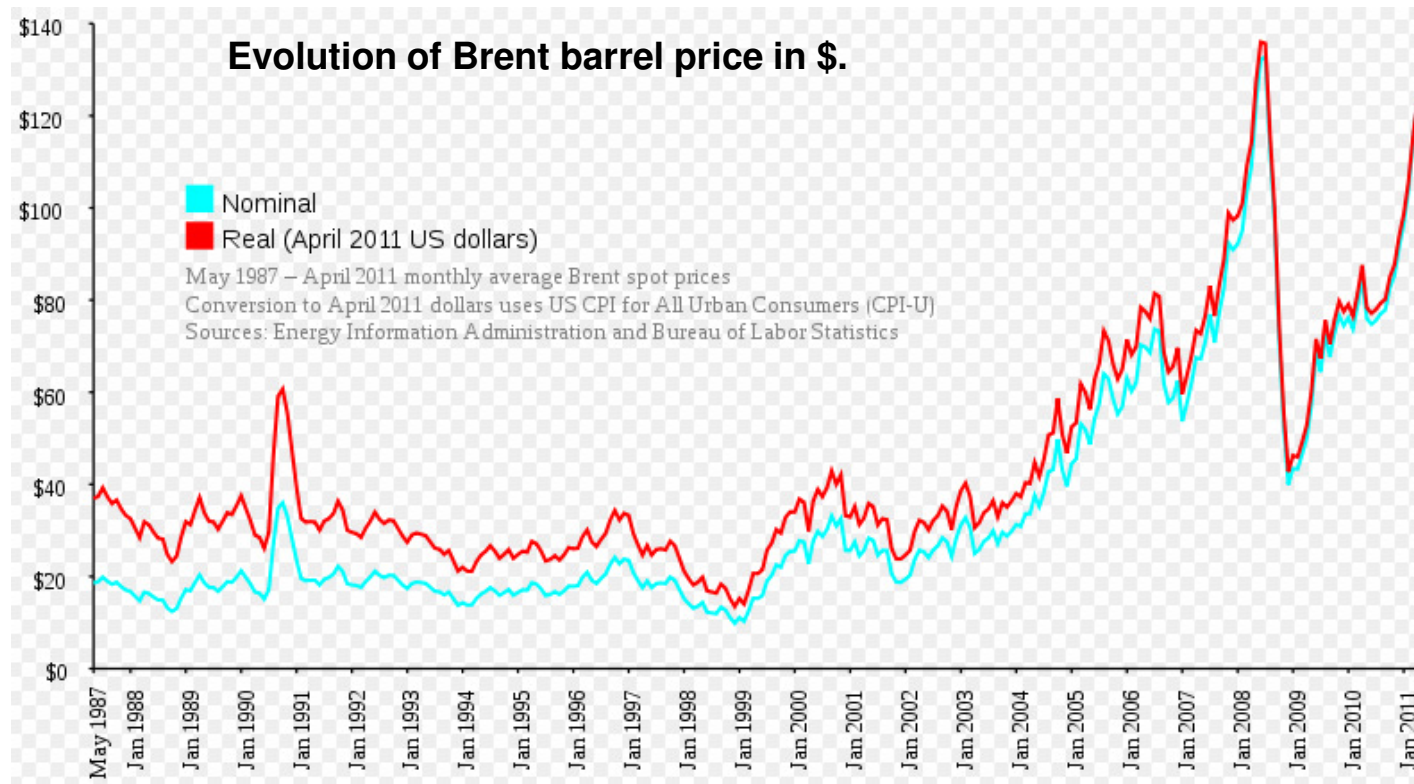
## REALITY RELATED TO MYTH 3.

- Electricity prices are increasing for mainly 2 reasons:
  - Fossil fuel price increase in the last years.
  - Prices were kept down artificially for political reasons (inflation restraint, electoral reasons,...) and now this price raises all at once.
- RES contribute to push spot market prices down since the demand of other sources negotiated in the market is lower.
- Fossil and nuclear fuels do not internalize all the costs associated with pollution, accidents, security and waste treatment.
- RES charge the higher costs of the learning curve of some technologies at early stages. These costs are going down fast.



# MYTHS AND REALITY

## REALITY RELATED TO MYTH 3.



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## MYTH 4.

Renewable energy exists because it is subsidized by governments.



## REALITY RELATED TO MYTH 4.

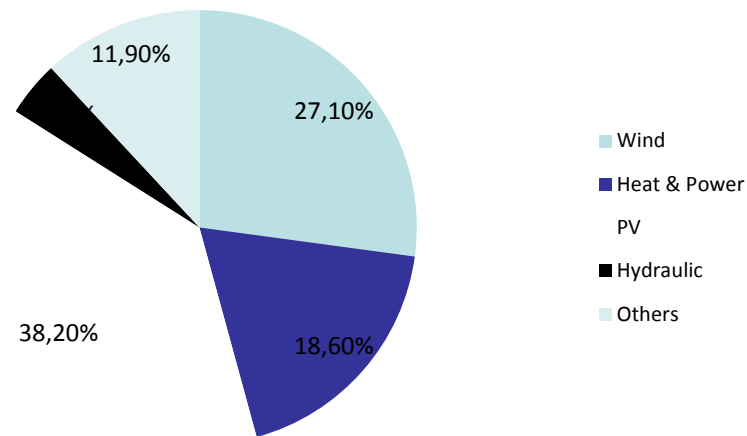
- RES are not really subsidized since consumers end up paying the whole bill, either in the price or included in electricity taxes.
- Feed-in tariff policies are put in place temporarily to boost investments in RES. These investments are making the different technologies converge in costs with the actual market price.
- Other conventional technologies do receive subsidies such as petrol (for some sectors like transport, agriculture), coal (mining aids), and nuclear plants at the beginning of its development.



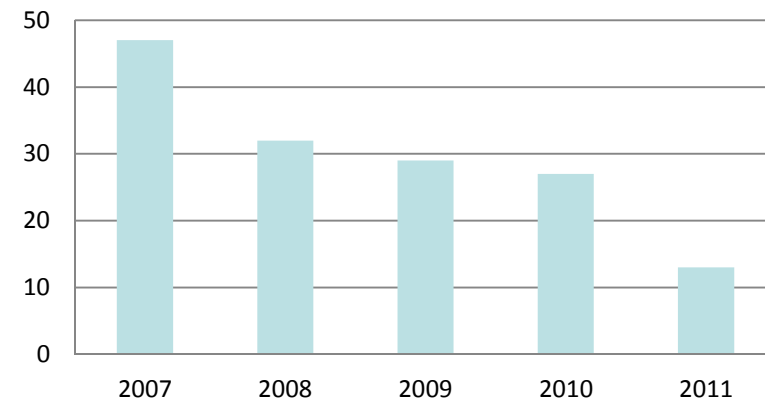
# MYTHS AND REALITY

## REALITY RELATED TO MYTH 4.

**% feed-in tariffs by technology 2010.**



**PV feed-in tariff evolution  
c€/kWh**



# MYTHS AND REALITY

## MYTH 5.

Renewable energy can not be accounted for a 100% demand coverage.



# MYTHS AND REALITY

## REALITY RELATED TO MYTH 5.

- Fossil fuels are finite. However, only a 2.5% of the renewable sources are being used and they are infinite.
- 10 years ago, RES was almost considered a laboratory technology. In a very short time it has definitely become a reality. In 2010, a 28% of the electricity mix comes from renewable sources.
- RES have proven to be able to cope with the total energy demand if dimensioned and diversified appropriately and by means of a more powerful interconnected energy grid and storage systems.

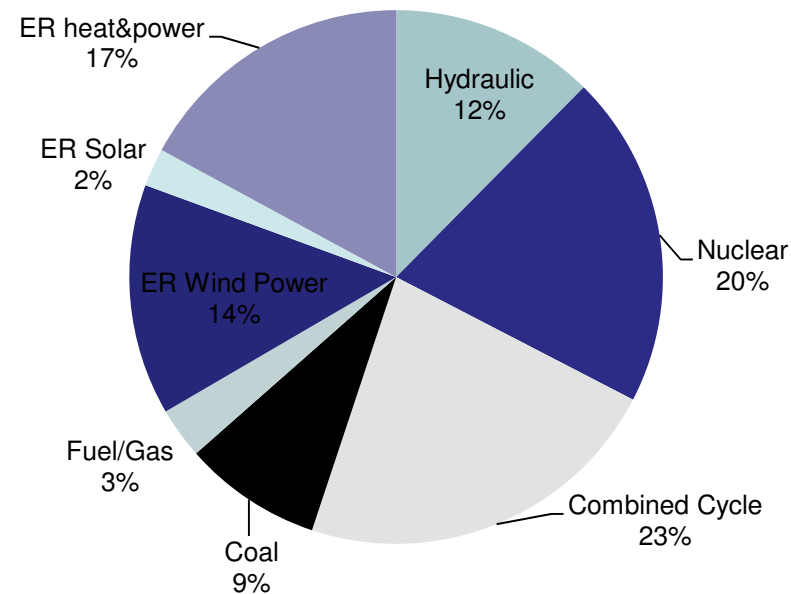




# MYTHS AND REALITY

## REALITY RELATED TO MYTH 5.

### 2010 Electricity generation mix in Spain





# MYTHS AND REALITY

## MYTH 6.

Renewable energy will never be able to ensure continuous electricity supply by itself.



# MYTHS AND REALITY

## REALITY RELATED TO MYTH 6.

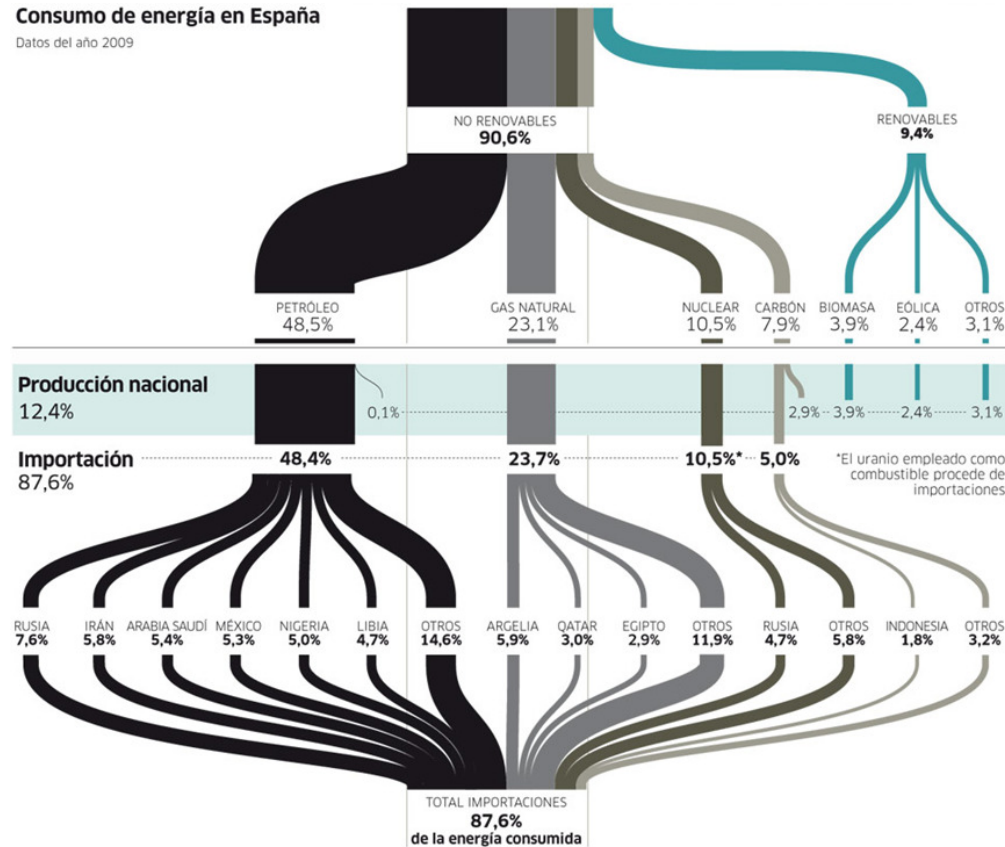
- Renewable energy sources are autochthonous, ensuring this way the assurance of supply,
- Most fossil fuels (all except coal) are located in few regions in Earth, some of them ruled by unstable regimes which increases the risk of supply.
- As fossil fuel sources deplete it will become more and more expensive.
- Some RES are not dependent on the weather conditions: biomass, hydraulic power, thermoelectric power.
- Electricity grid interconnections and energy storage will play a key role in the future to ensure a 100% RES supply.



# MYTHS AND REALITY

## REALITY RELATED TO MYTH 6.

**Consumo de energía en España**  
Datos del año 2009



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# CONCLUSIONS

1. We can not stop consumption. We can only shift to a more sustainable and efficient energy mix.
2. The autochthonous nature of renewable energy ensures power independence and supply security.
3. The growth of the renewable energy contributes to job creation, competitiveness, innovation and a better future.
4. The cost of the renewable energy is dropping, thus becoming more competitive as conventional sources are getting more and more expensive.
5. Other factors other than the increasing usage of renewable energy are to blame for the rise of the electricity price.



# CONCLUSIONS

What is needed to increase social support of RES?

- More transparency and objectivity of the information about RES broadcasted by Media.
- More clarifying information about the concepts charged in the electricity bill for average consumers.
- A realistic electricity appraisal system that has into account all costs associated with electricity generation.
- More dissemination activities about the benefits and costs of the RES compared with fossil sources focused on citizenship.
- A more stable and comprehensive legislative framework about RES.



# THANKS FOR YOUR ATTENTION

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