



# **Security of Supply**

10 March 2005

# SECURITY OF SUPPLY COMPRISES VARIOUS ELEMENTS



**Security of Supply is the ability to meet power demand under optimum conditions of security, continuity and quality...**

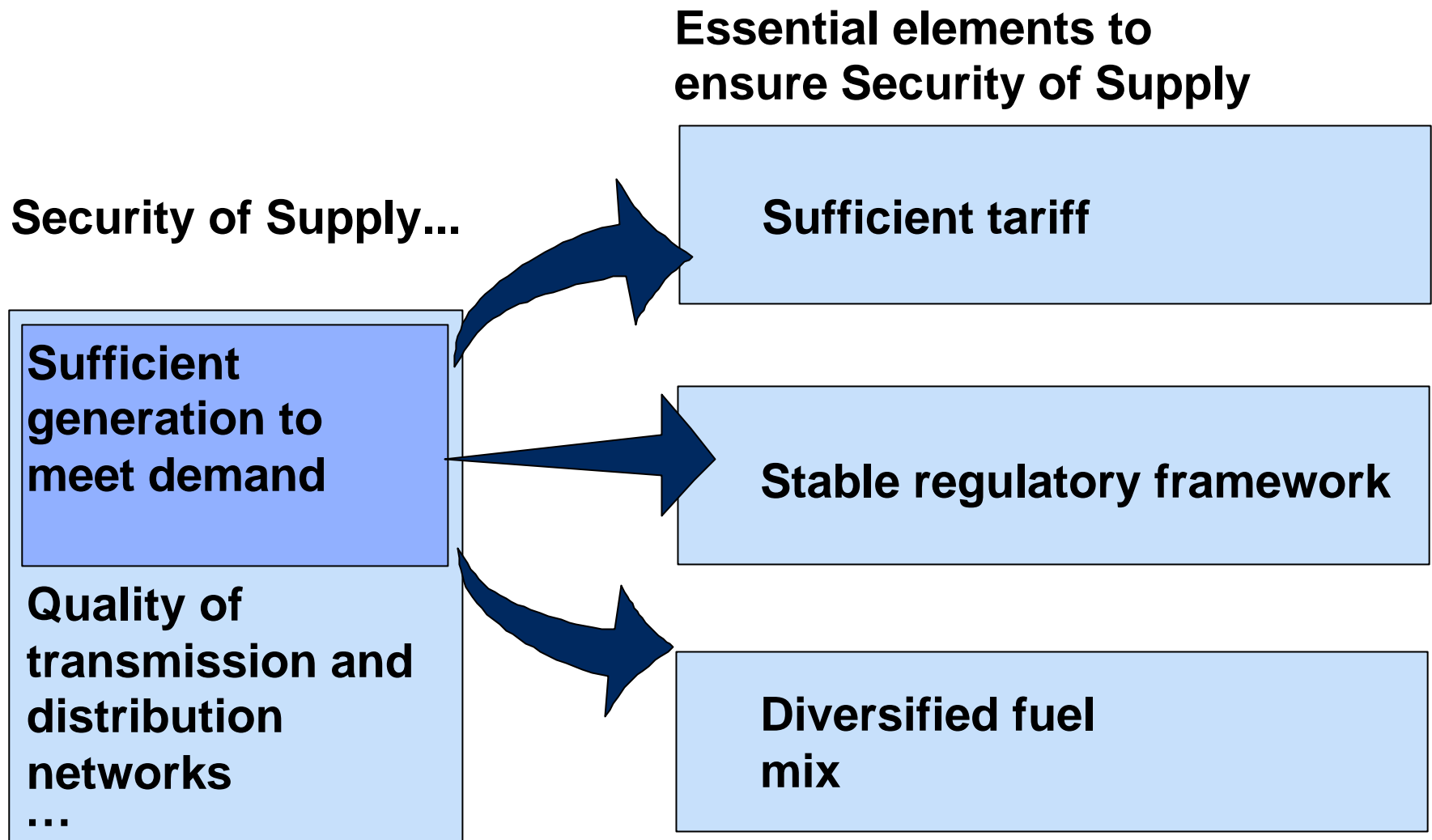
**...while bearing in mind the social responsibility of a essential service**

- Security in the supply of raw materials with an adequate level of self-supply and diversified energy sources
- Adequate reserve margin with reliable technologies that do not depend on external variables
- Transmission and distribution networks with the scope and reach to ensure maximum quality to all customers
- Power supply at minimal cost to consumers
- Respect for the environment
- Corporate social responsibility

# VARIOUS ELEMENTS ENABLE THE ENSURING OF SECURITY OF SUPPLY



Target of debate

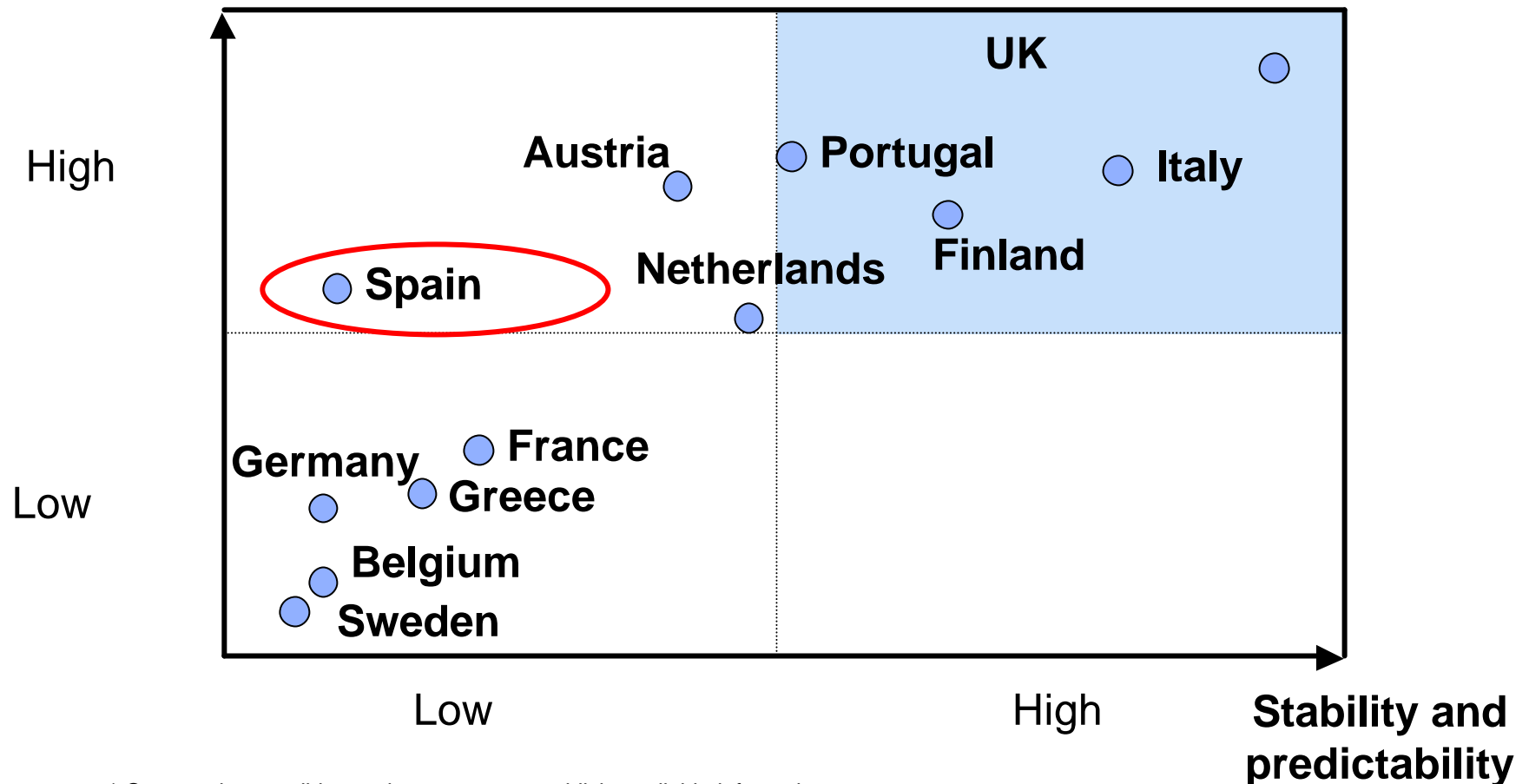


# REGULATORY STABILITY, KEY TO AVOIDING PROBLEMS OF SECURITY OF SUPPLY, IS LOW IN SPAIN BY EUROPEAN STANDARDS



Assessment of regulatory stability according to a poll made among international analysts

**Accessibility\***



\* Open and accessible regulatory process; publicly available information

Source: Eurelectric

# HAVING A DIVERSIFIED TECHNOLOGY MIX IS KEY TO GUARANTEEING SUPPLY



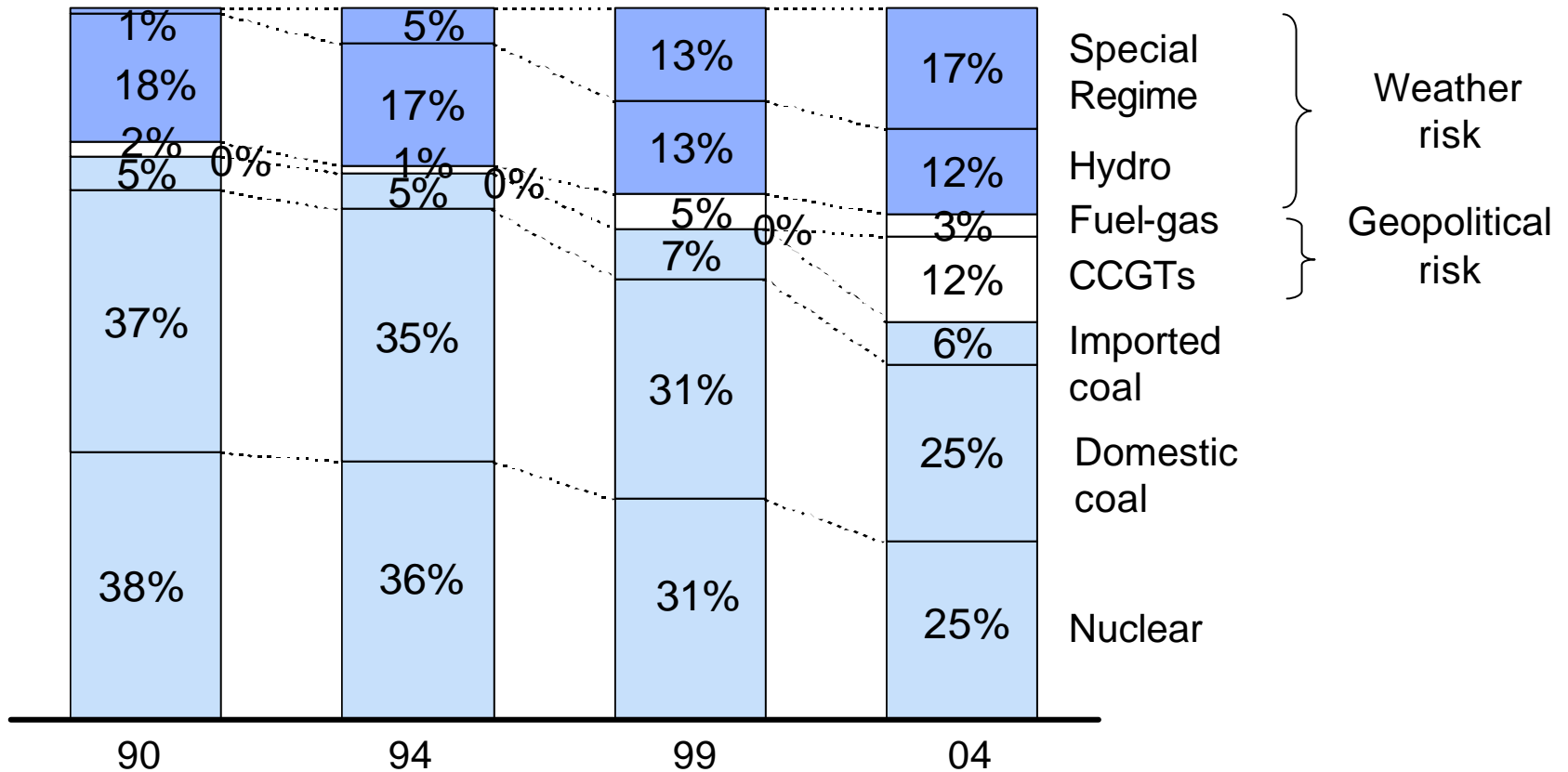
	Security of supply...	Competitive prices	Stable prices	Impact of emissions
Wind				
Hydro				
Fuel-gas				
CCGT				
Coal				
Nuclear				

*“Each fuel and technology has different costs and social/environmental impacts. Having a balanced mix provides a large degree of flexibility” – International Energy Agency*

# SPANISH MIX EVOLUTION HAS BEEN POSITIVE WITH A REASONABLE BALANCE THAT GUARANTEES SUPPLY



Electricity production mix –Mainland generation



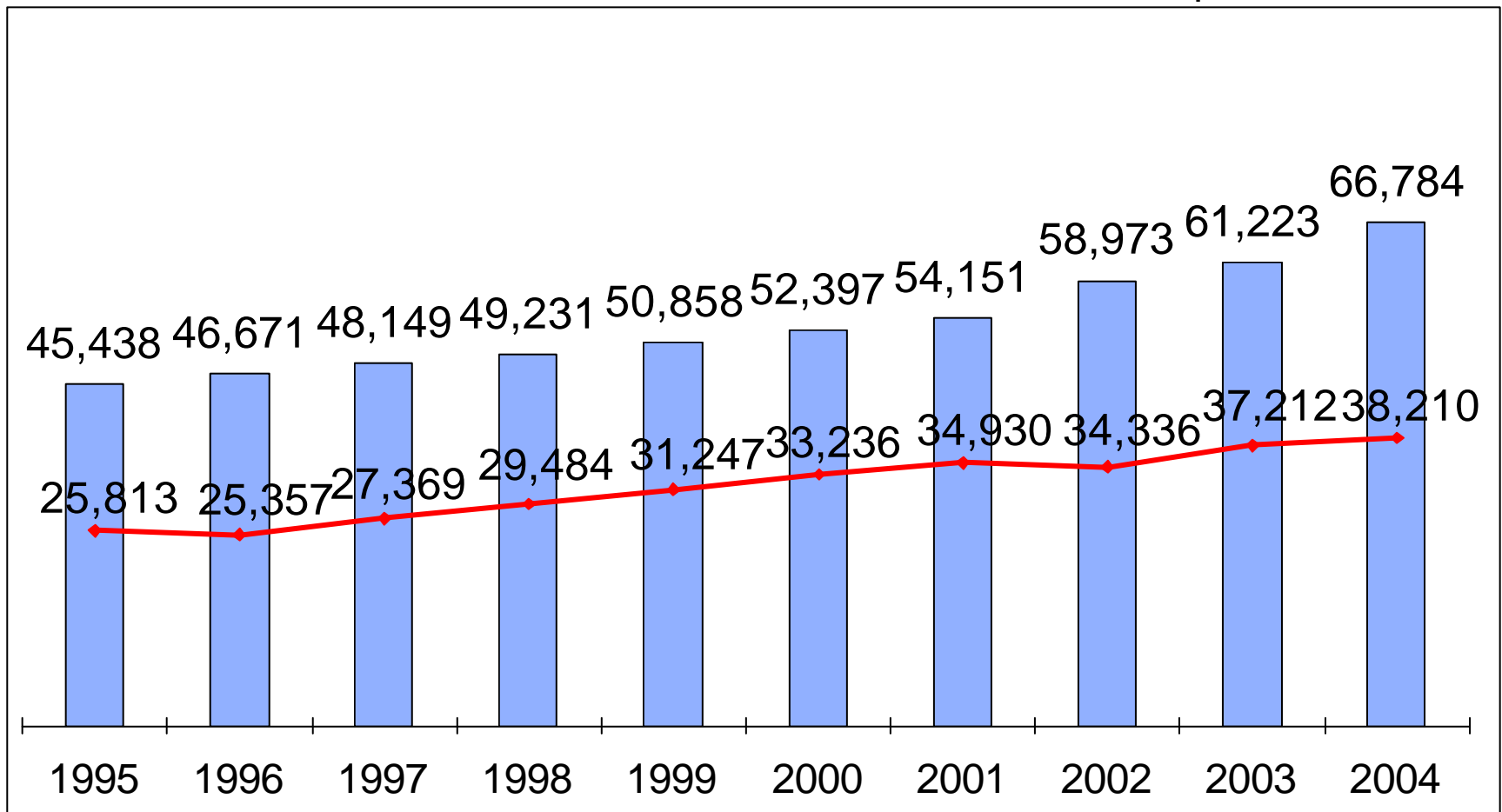
**Spain's generation mix is appropriately diversified at present, with low-risk sources (nuclear, coal) accounting for a large percentage and none representing more than 25% of the total**

# GROWTH IN INSTALLED CAPACITY HAS ALLOWED TO MEET THE INCREASE IN DEMAND IN RECENT YEARS



## Installed capacity and annual peak demand (MW)

■ Installed capacity  
— Annual peak demand

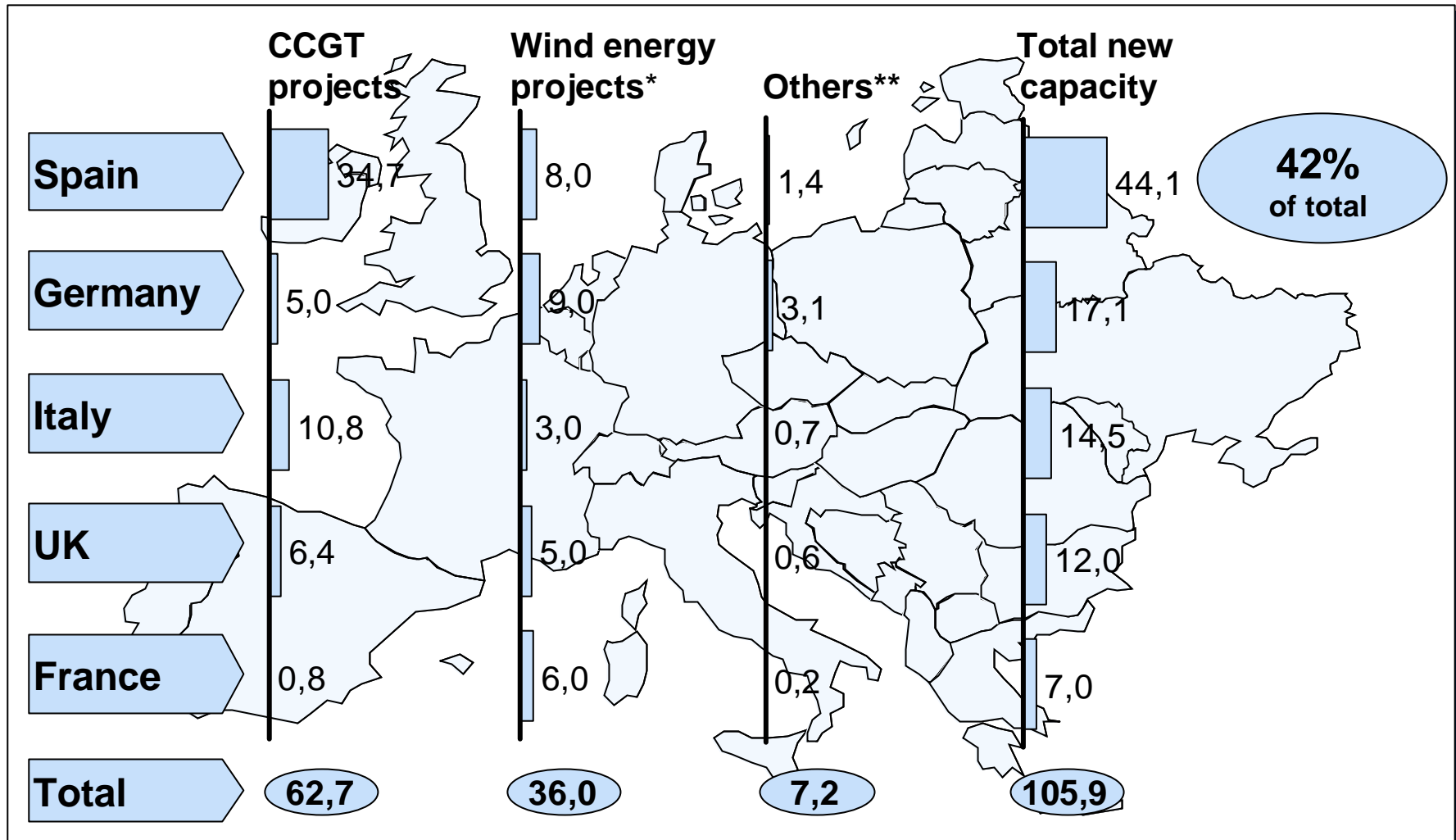


Source: REE

# FUTURE ELECTRICITY SUPPLY IN SPAIN APPEARS TO BE GUARANTEED



Forecast capacity additions in Europe 2004 - 2008 (GW)



Note: For Italy, Spain and the UK, Prospex only includes projects already approved by the competent authorities, while for the remaining countries it includes several projects which are still in the process of being approved

\* Until 2010

\*\* Includes other solar, biomass, hydro, coal and fuel-gas projects in Europe

Source: Prospex (European Power Trading 2004) for CCGT and wind power projects; Platts for other projects

## Purpose of Capacity Payments

- Attract **new investment** in capacity, reducing the risk involved
- Provide incentives to maintain and make available **the capacity already installed**
- Reduce **market price volatility**

## What are Capacity Payments?

- Payment **for services rendered** (contributes to Security of Supply)
- This **payment allows plants to recover their fixed costs** “as they are incurred”, therefore avoiding fixed prices for “power not supplied”

## What capacity payments are not

- They should not be a **subsidy** for specific technologies
- They should not provide **remuneration** – for no reason – for the plants

# THE CALCULATION OF THE CAPACITY PAYMENTS ESTIMATES, BEFORE HAND, THE TOTAL AMOUNT TO BE DISTRIBUTED AMONG THE DIFFERENT TECHNOLOGIES



## Breakdown of total payment

**Unit remuneration per capacity payment** (the amount required by marginal technologies to recover their fixed costs)

x

**Peak demand**

x

**Target reserve margin**

**The equivalent of Euro 1,000 million per year**

## Breakdown of total payment by technology

**Unit availability ratio** (usually 1 or slightly less, reflects the level of unavailability that a plant declares to the system operator)

x

**Unit capacity**

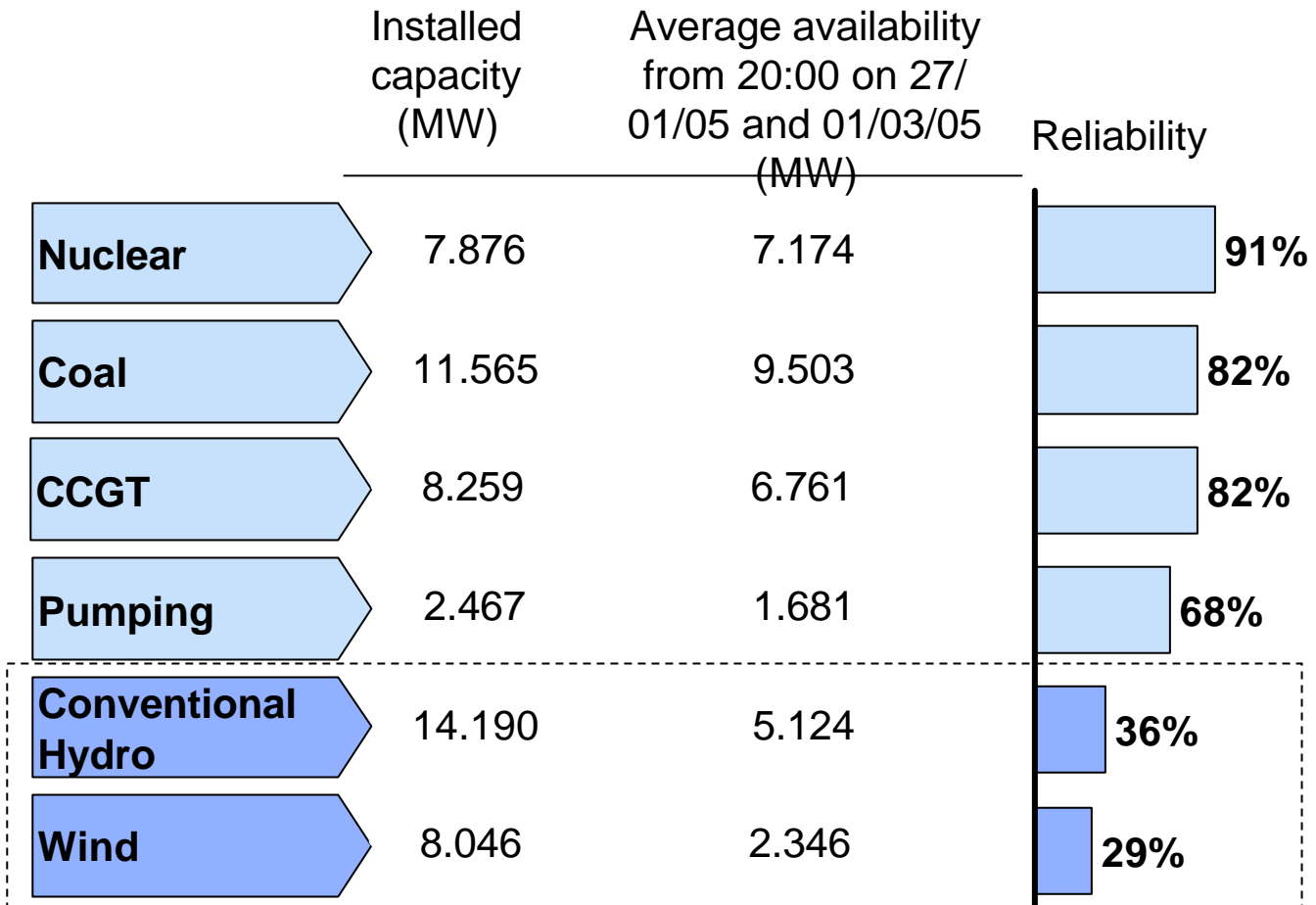
- For fuel powered plants, net installed capacity
- For hydro plants, the average between the net installed capacity and average producible energy over the past five years

**Current distribution in Spain based on installed capacity - this does NOT reflect their real contribution**

# NET INSTALLED CAPACITY DOES NOT CORRECTLY REFLECT THE REAL CONTRIBUTION MADE BY EACH TECHNOLOGY TO SECURITY OF SUPPLY



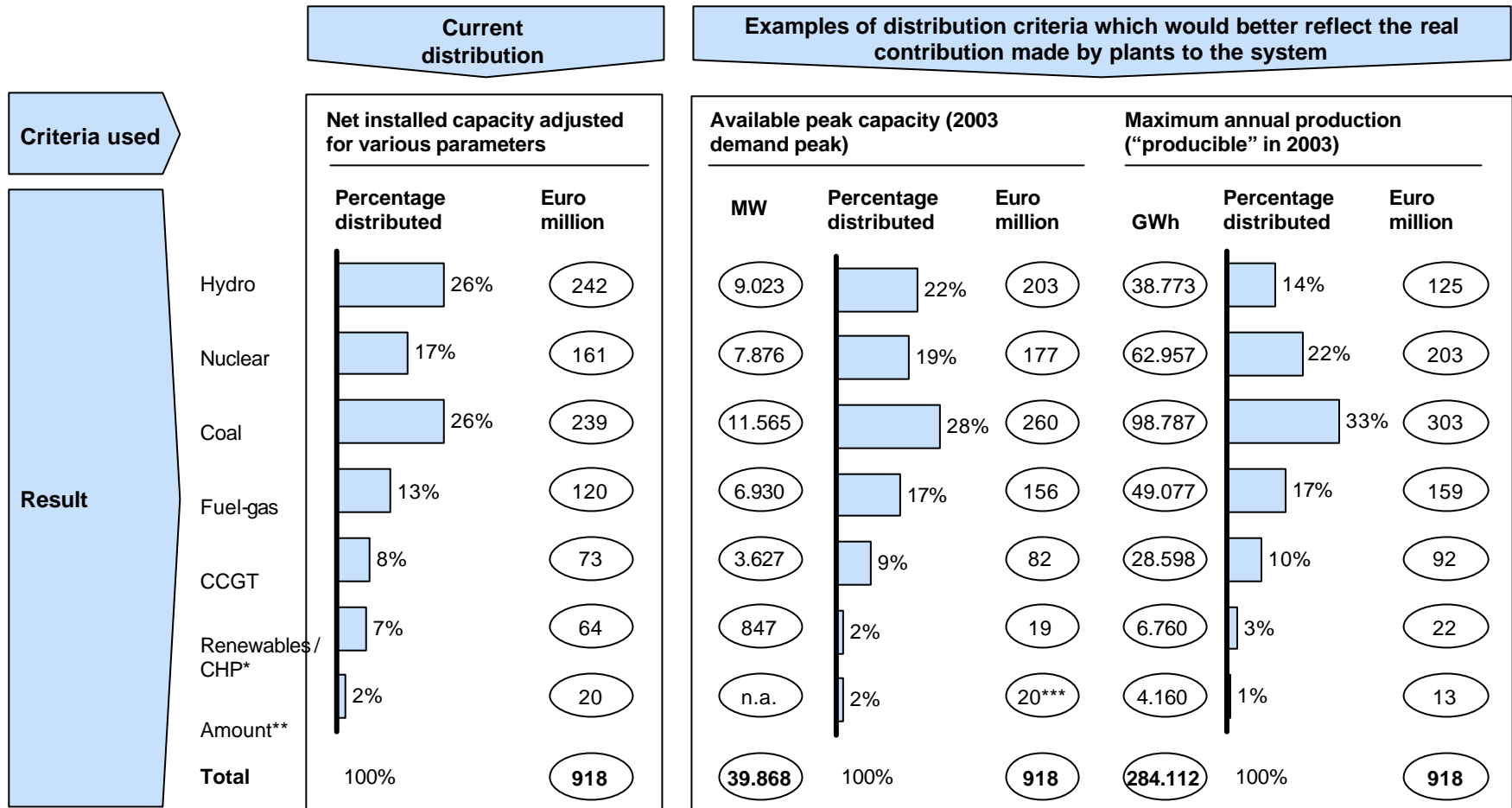
27 January (when electricity demand peaked) and 1 March 2005 (implementation of interruptability) clearly show the contribution of each technology to the reliability of the system.



Situations requiring extreme Security of Supply should serve as an indication of the reliable capacity contributed by each technology and of the management of hydro reserves

Source: REE

# THERE ARE VARIOUS ALTERNATIVES TO FAIRLY DISTRIBUTE THE CAPACITY PAYMENT AMONG TECHNOLOGIES



The current distribution is discriminatory and does not reward each plant according to the real capacity contributed to Security of Supply.

There are other criteria which do reward plants according to the real capacity they can contribute to Security of Supply – i.e., “producible” capacity or capacity available at peak times

\* Renewable/CHP capacity is only that which goes to the market  
 \*\* REE-EdF contract  
 \*\*\* We assume that for imports the current capacity payments are maintained

- From the standpoint of electricity generation, Security of Supply requires **sufficient capacity**; being essential for this: (1) sufficient tariff; (2) reasonable regulatory stability; and (3) an appropriately diversified fuel mix
- Although some of these factors are not fully developed in the Spanish system, **future supply in Spain appears to be assured**
- The **Capacity Payment, as a regulated payment to remunerate plants for their reliable contribution to the system**, is one factor that should help to ensure Security of Supply in Spain:
  - It is a regulated revenue aimed at **remunerating plants according to their contribution of reliable energy**, based on the fixed costs of the system's marginal technology
  - The **breakdown among the different technologies should be made according to the real capacity supplied** by each one
  - It should not be a subsidy or gratuitous remuneration, but payment for a service rendered (contributing to the Security of Supply)
- In Spain, **the current distribution of this payment among technologies is based largely on capacity installed** and does not correctly reflect the contribution of each plant to supply.
- There are, however, **several alternative** solutions for this problem, of which we would highlight a **distribution** (1) according to the energy supplied by each technology at peak times or (2) according to their “producible” energy.