

# Regulation as a key driver for renewable energy development: lessons from the Spanish case

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**The Challenge of Financing Low-Carbon Growth:  
Lessons from infrastructure finance in the  
renewable energy sector**

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# CORE MESSAGES



- **Regulation is the key element for Renewable Energy development but at the same time the main risk to consider.**

- **The best strategy for a firm to hedge regulatory risk is to propose fair, stringent y efficient regulatory frameworks.**

- **Each renewable technology faces different challenges and regulation must adapt to them.**

Power generation technologies present important differences in their risk profile.



### Risk diagram on power generation investments

	<i>Conventional technologies</i>	<i>Renewable energy technologies</i>
<b>Investment Cost</b>	Low-medium *	Depends on technology
<b>Fuel cost</b>	High	Low
<b>Market price</b>	High	Low due to support frameworks
<b>Regulation</b>	Low-medium	High

**Differences across technologies**

\* Exceptions for some technologies such as nuclear.

**Not only is regulation a key element for renewable energy development but also it is the main risk to consider.**

Stable, sufficient and predictable support frameworks are required to deploy renewable energies.



### Base to trigger a vicious “regulation-risk” circle

Unsustainable frameworks:

- 1) Support much higher than cost.
- 2) No consideration of technology evolution.

RE goals overcome

Asymmetry information between regulator and energy companies



Unjustified increase in cost to consumers

Social rejection

Framework change

Instability.  
Potential regulatory overreaction.

They should have an active role, proposing stable, fair and stringent frameworks, to mitigate their main risk.

Source of risk for RE companies



Spain has examples of sustainable and unsustainable result of regulation.



**SPANISH SUPPORT FRAMEWORK FOR RE (Main elements):**

- Objectives defined by technology.
- Premiums differentiated by technology, updated every four years (no retroactivity).

**WIND**

1. Premiums close to cost.
2. Mature technology.
3. 20.000 MW for 2010.

Really effective and efficient system for a mature renewable technology.  
Smooth development and industrial deployment.

**Stable framework.**

**SOLAR PV**



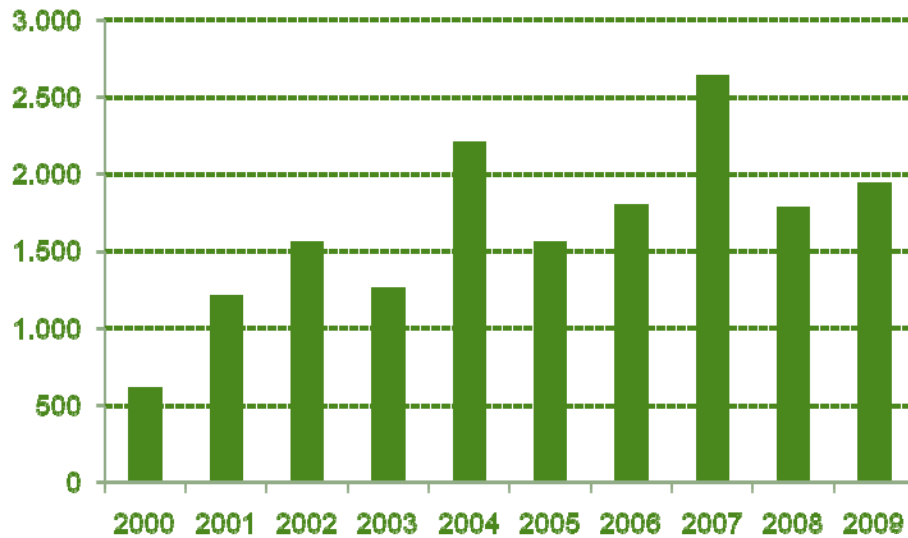
High premium (440 €/MWh) + Important foreseeable cost reduction and technological uncertainty.  
Economic impact for consumers!!! 2.5 billion € annually.

**Framework changed + Overreaction that may affect other technologies.**

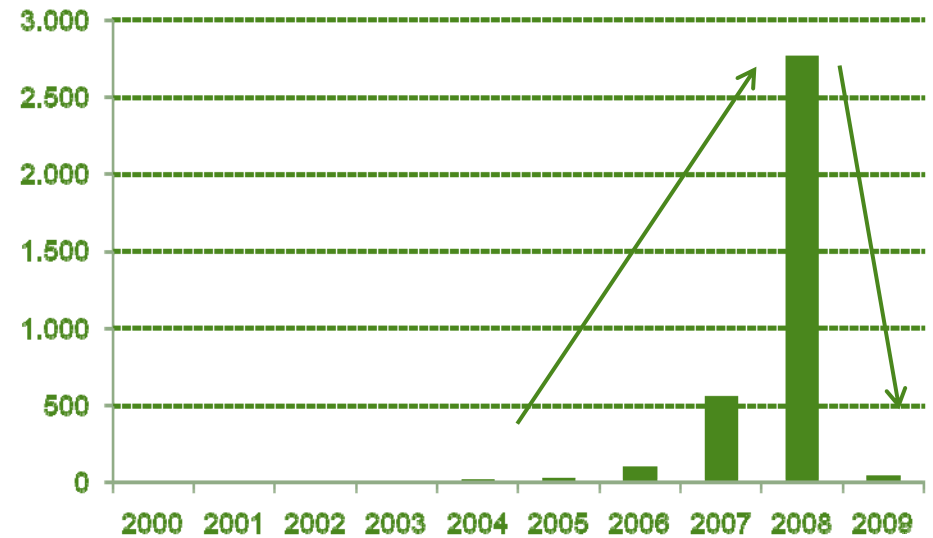
# Sustainable development vs. speculation.



### Annual wind installed capacity in Spain (MW)



### Annual solar PV installed capacity in Spain (MW)

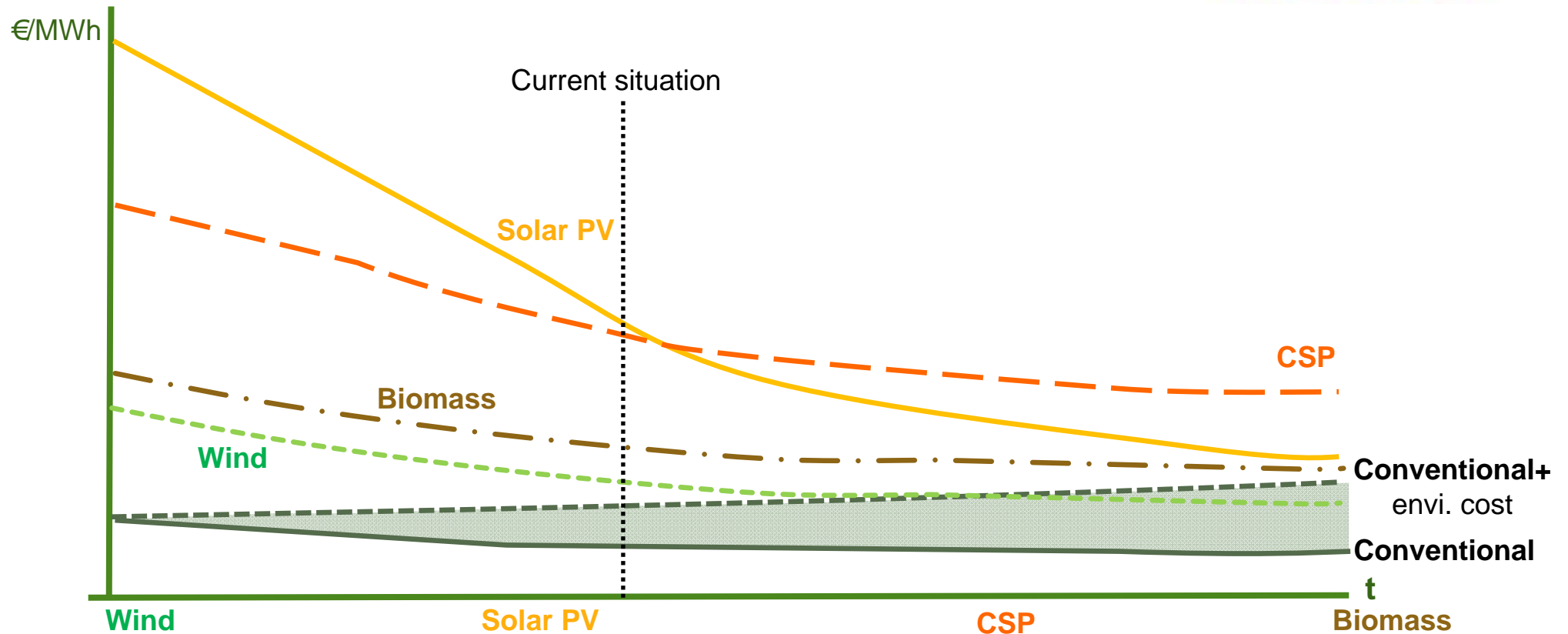


Source: CNE y REE

**Sustainable development.  
Stable path.  
Industrial growth.**

**Bubble leads to speculation.  
Low impact on national economy growth.**

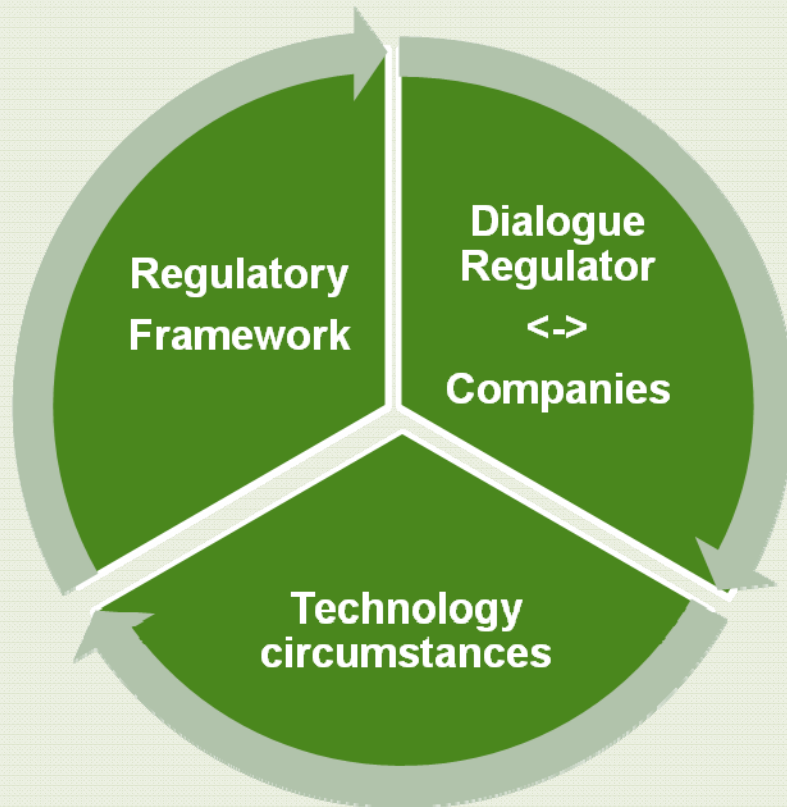
Each technology faces different challenges and regulation must adapt to them.



Wind	Solar PV	CSP	Biomass
Near competitiveness. Mature technology.	Far from competitiveness but constant reduction of cost. High level of installed capacity.	Slow tech. development in the past. No recent developments. Technology uncertainty. Important competitive gap from conventional tech	Mature technology. Without economic and technical barriers. Logistic barriers.
Market price + premium.	R & D & i. Market innovation + Institutional development to benefit from economies of scale and knowledge	Demo projects R&D to reduce cost.	Market price + premium. Sectoral policies..

## Just some final remarks...

### Main elements involved in renewable energy deployment



- Regulation is a key issue for RE development but it is also the main source of risk.

- RE companies should lobby for sustainable and stringent frameworks to mitigate their risk.

- Policies to promote renewable energies need to be adapted to the situation of each technology in terms of technology development, potential, cost and other issues.

- Not properly defined frameworks have negative impact: what works for one technology may not work for other.

- The increase in renewable energy share should take into account electricity sector sustainability in terms of competitiveness and security of supply.