



International Feed-In Cooperation - Mitigation through renewables

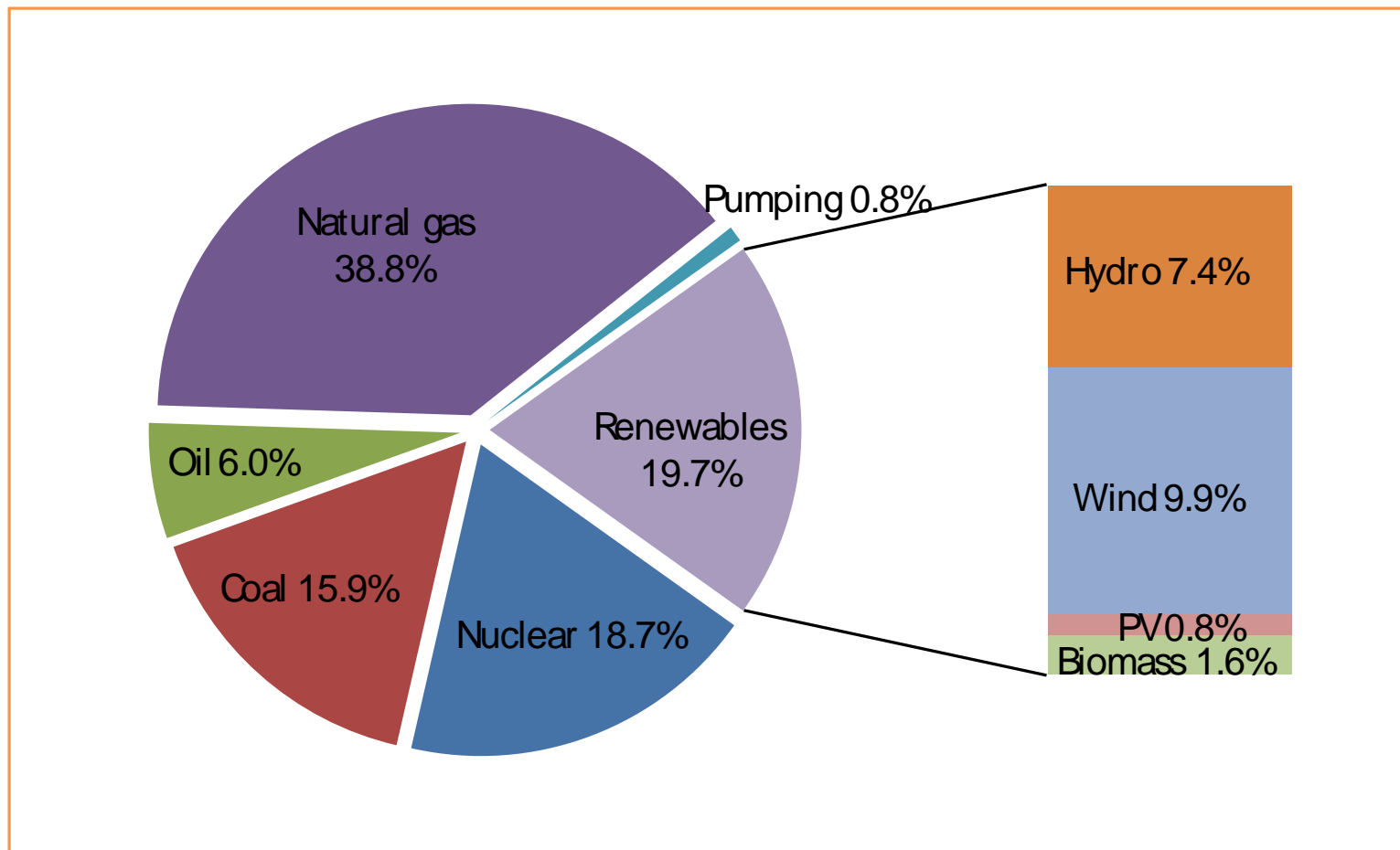
Side Event at the 15th Conference of the Parties to the UNFCCC
Copenhagen, December 8th 2009

Hugo Lucas Porta
Renewable Energy Directorate, IDAE

CONTENTS

- Present situation
- Last legislative actions
- Future perspectives

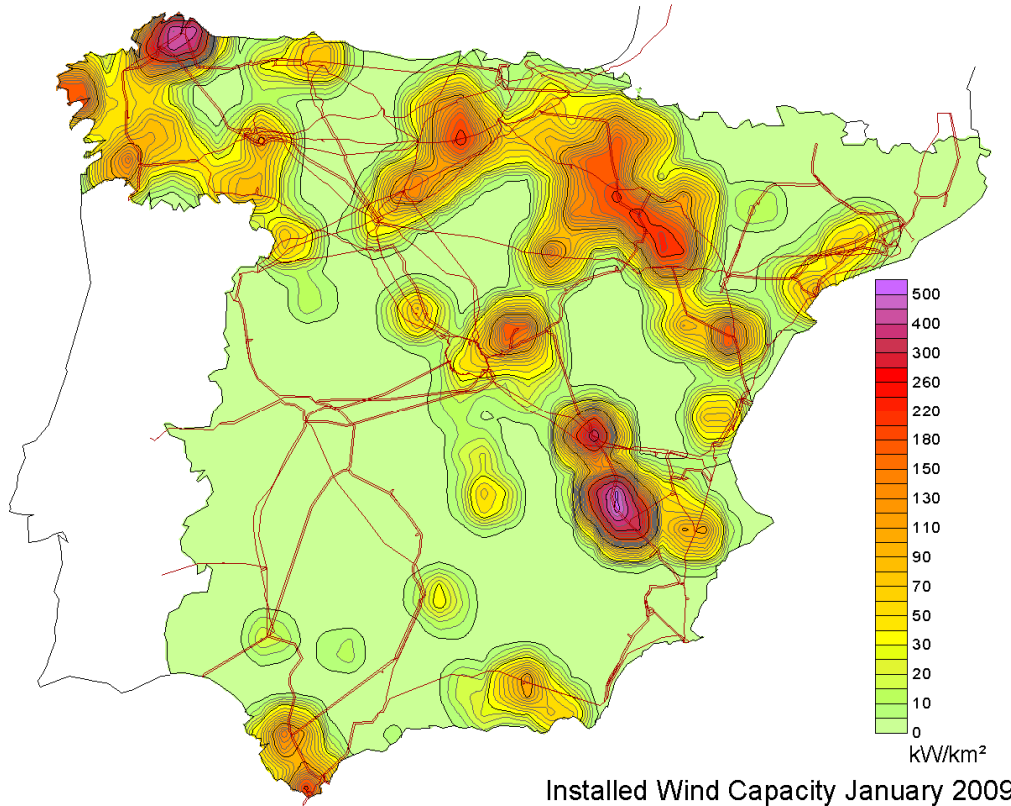
CONTRIBUTION OF RES TO ELECTRICITY GENERATION, 2008



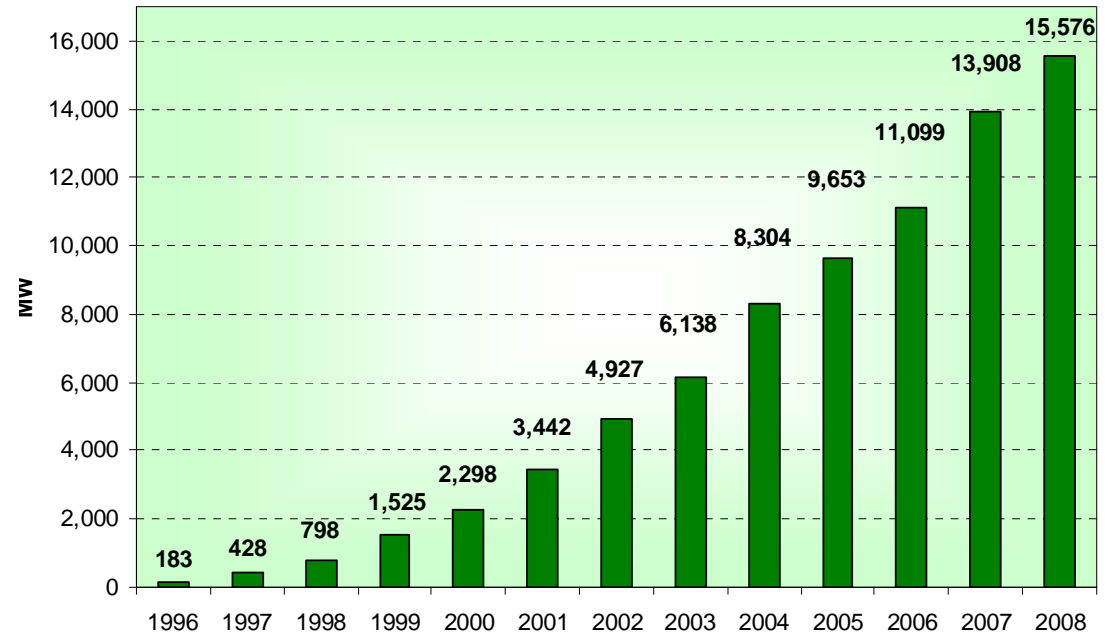
Total Generation : 315 TWh

RREE Generation: 62,2 TWh

PRESENT WIND POWER CAPACITY AND EVOLUTION



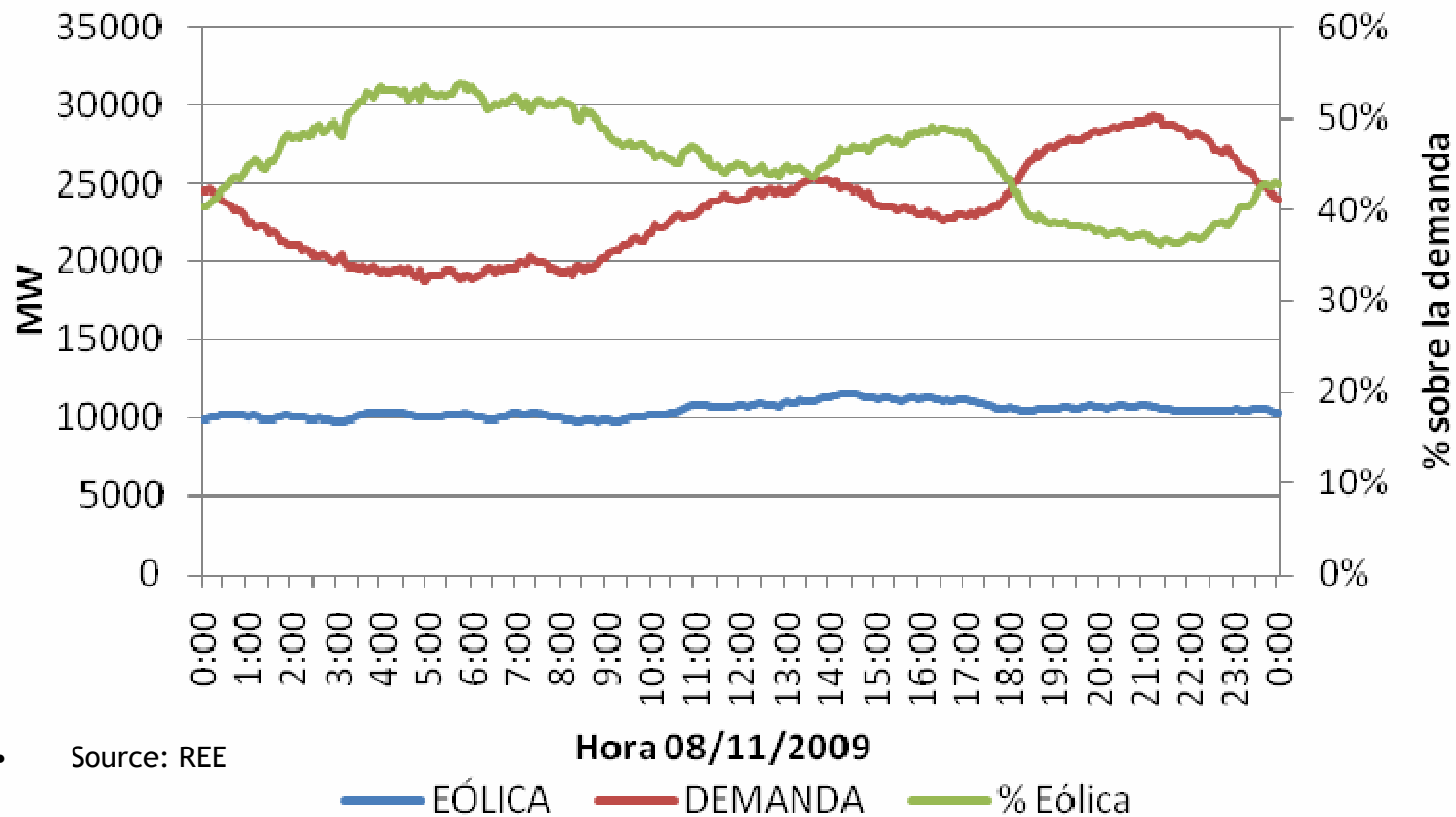
Installed Wind power generation evolution 1996-2008



• Source: REE

- Renewable Energy Plan for Spain: ~20,000 MW by 2010.
- Official Network Planning for 2016 contemplates ~29,000 MW.
- Further increase expected for compliance with 2020 objectives ~40,000 MW.

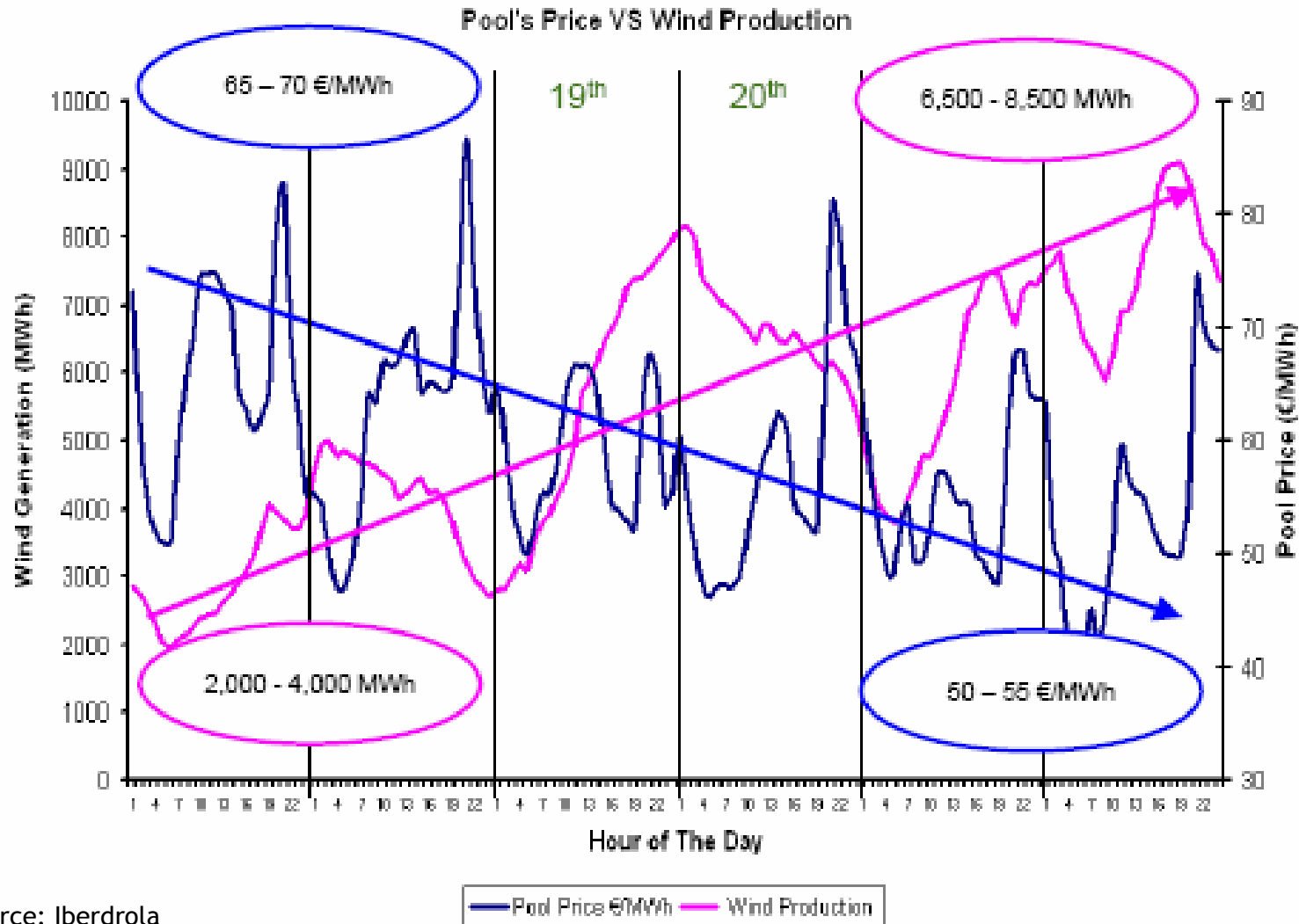
WIND PRODUCTION RECORDS



- **Maximum production: 11.620 MW (08/11/2009 at 14:21 h)**
- **Demand coverage in November: 37%**

- **Instantaneous demand coverage: 53% 08/11/2009 at 3:59 h**
 - Wind Production: 10.322 MW
 - Demand: 19.332 MW

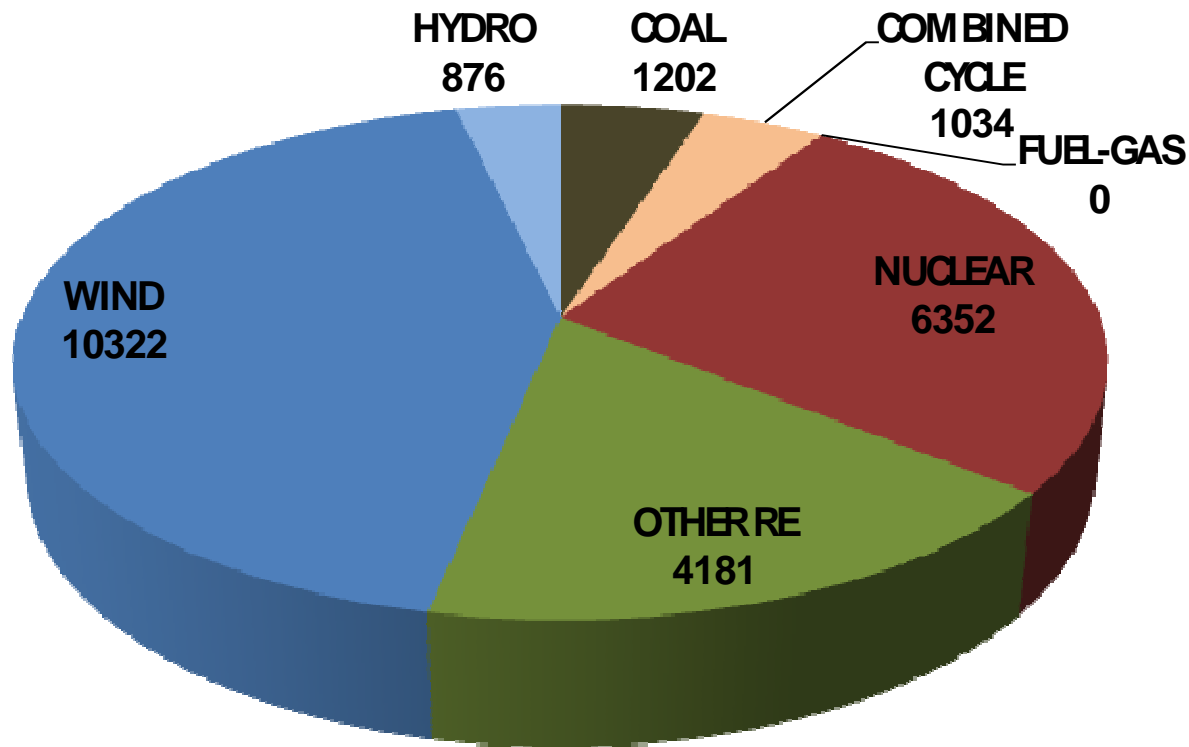
MARKET OPTION



Source: Iberdrola

WIND PRODUCTION RECORDS & MARKET OPTIONS & INTEGRATION

- **Maximum demand coverage 08/11/2009 at 3:59 h. Total generation: 24.008 MW:**
 - **Demand:** 19.322 MW
 - **Pumping units:** 2.593 MW
 - **Export interchange:** 2.093 MW



Connected thermal groups:
6 nuclear (1 in annual maint.)
4 combined cycles
5 coal units
Thermal generation: 8589 MW.

- Source: REE

Photovoltaic:

- 2008: 3 200 MW supplying 1% of the total electricity demand.
- Behavior in summer in accordance to demand requirements.
- In winter, peak demand is in the evening. No contribution.

Solar thermal electricity:

- Present installed capacity 280 MW.
- At the end of 2009: around 500 MW.
- Two technologies: central tower and cylinder parabolic.
- Positive correlation with demand in summer.
- In winter molten salt storage and hybridation with natural gas allow production during the daily load peaks.

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RD 1578/2008 MAIN ASPECTS

- Two groups: in buildings & in land.
- Unique tariff for in land, no capacity steps for the in land installations.
- Higher support to architectural integration:
 - Higher quota & higher tariff.
- Pre-assignment of remuneration is established.
- Decreasing tariffs, for new facilities.
- Increasing quotas, as tariffs decrease.
- 500 MW every year, with increases of 10 % per year.
- More than 4.000 MW accumulated is foreseen in 2010.

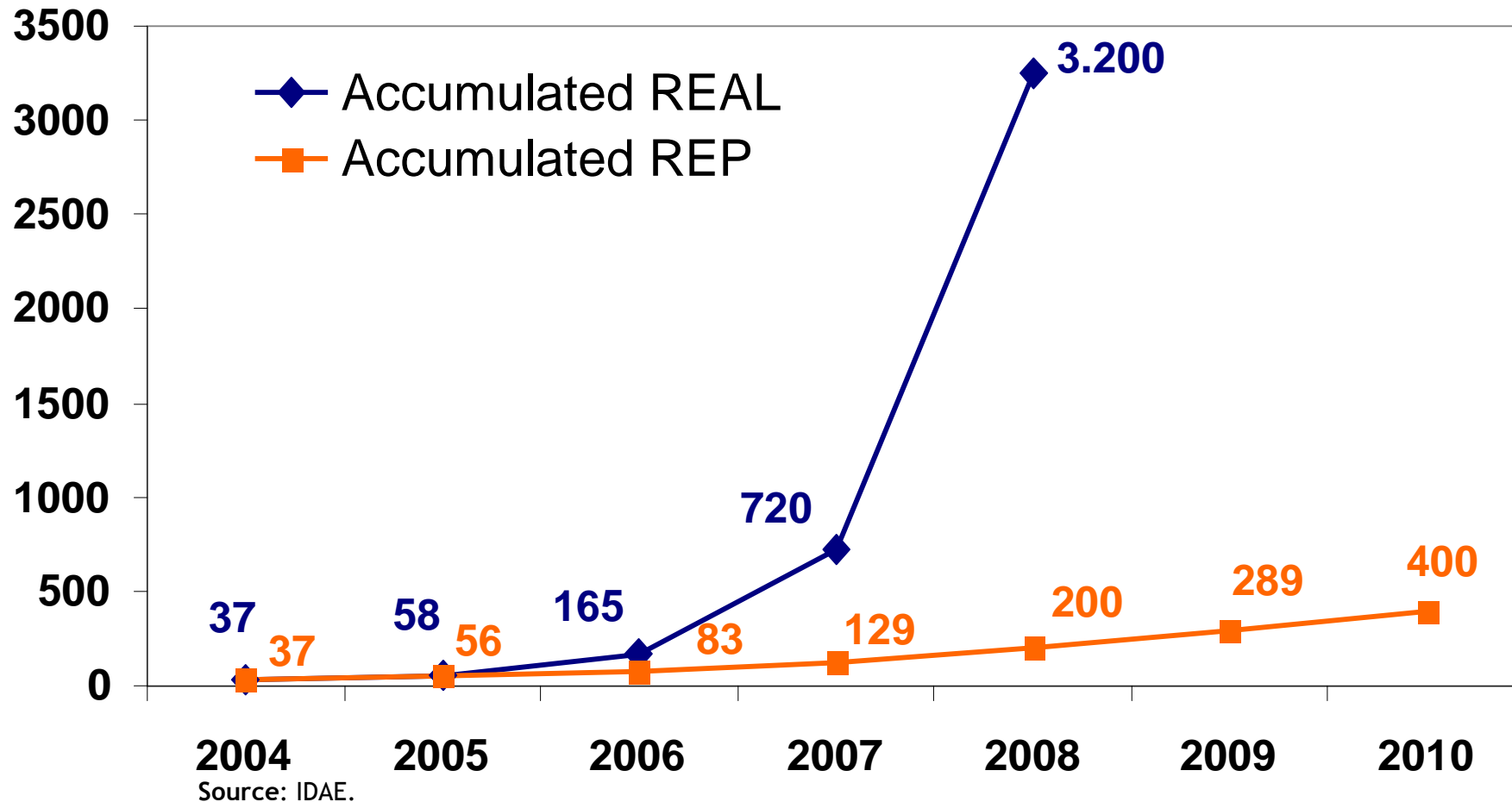
RD 1578/2008 RESULTS

TYPE I.1 roof < 20kW	1 ^a call	2 ^a call	3 ^a call	4 ^a call
Cap (MW)	6,7	6,7	6,7	6,7
Authorized (MW)	1,7	3,6	2,8	6,6
Tariff (c€/kWh)	34,0	34,0	34,00	34,00

TYPE I.2 roof > 20kW	1C	2C	3C	4C
Cap (MW)	60,1	60,1	60,1	60,1
Authorized (MW)	20,9	31,7	35,6	61,6
Tariff (c€/kWh)	32,0	32,0	32,00	32,00

TYPE II ground	1C	2C	3C	4C
Cap (MW)	58,3	94,6	89,5	85,6
Authorized (MW)	66,1	94,7	90,4	86,3
Tariff (c€/kWh)	32,0	30,7	29,91	29,09

PV: PLANIFICACION VS REAL



The goal for the PV sector defined in the REP 2005-2010 has been reached in 2007 with 3 years of anticipation.

WIND & SOLAR THERMAL POWER CAP

- The 13th of November the Council of Ministries approved annual caps for wind and solar thermoelectric plants.
- Variable electricity needs flexibility in the system. The quotas allow the better coordination of infrastructure planning and renewables development.
- Increase predictability of the financial support.

	2010- 2012 (MW)			
	2010	2011	2012	2013
Wind	1.855	1.700	1.700	
Solar Thermoelectric	500	500	500	540

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SPANISH RENAP 2020

- The objectives in **2020** for Spain are the **10%** of renewables in transport and **20% of the gross final energy consumption from RES.**
- The objectives in each energy use (electricity, heating & cooling, transport) but also the indicative objectives for each technology will be crucial to design policy.
- In Spain the preliminary forecast studies suggest that to commit with the **20%** goal will be necessary, besides the **10% of renewables in transport** **40% of renewable electricity.**

RENEWABLE ENERGY ACT

As mandated in the Sustainable Economy Act.

REA will deal at least with the following aspects:

- Horizontal approach: renewables in all the sectors
- **Stable, sustainable & predictable support frameworks.**
- Planning coordination (energy, infrastructure & renewables).
- Integration of renewables in the networks (electricity and hydrocarbons).
- Environmental aspects.
- Coordination with regional administration (Autonomous Community).
- Role of : Central Administration, citizens, companies and other actors.
- Capacity building & R+D+i.
- International issues.

CONCLUSIONS

- **Feed-in tariff** have demonstrate to be the **most efficient and effective support scheme to deploy electricity from RES** when the scheme is well designed.
- **Feed-in premium** gives **corrects signals to the market and system operator.**
- **The International Feed-In Tariff Cooperation** has proven to be a very successful instrument for exchanging lessons learned and improving FIT systems and has to play an **important role** in near future since:
 - FIT will be an important instrument to commit with the very ambitious **targets of renewables in 2020.**
 - FIT is a **tailor made** support scheme. Since the conditions change by regions and in time a learning by doing process is needed.

Thank you for your attention

www.idae.es

hlucas@idae.es