



Universidad
Carlos III de Madrid

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CAMPUS OF INTERNATIONAL
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**UNIVERSIDAD CARLOS III DE MADRID
ELECTRONIC TECHNOLOGY DEPARTMENT
POWER ELECTRONICS GROUP (GSEP)**

PV MARKET IN SPAIN

Thursday, 1st December 2011



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**21st International
Photovoltaic Science and Engineering Conference**
IEA INTERNATIONAL ENERGY AGENCY
PHOTOVOLTAIC POWER SYSTEMS PROGRAMME
**New Energy and
Industrial Technology Development Organization**

Before starting:



- Something to know about PV in Spain (to take into consideration):
 - Current Feed-in tariff system: RD 1578/2008
 - Tariff
 - Types of the PV installations: cup



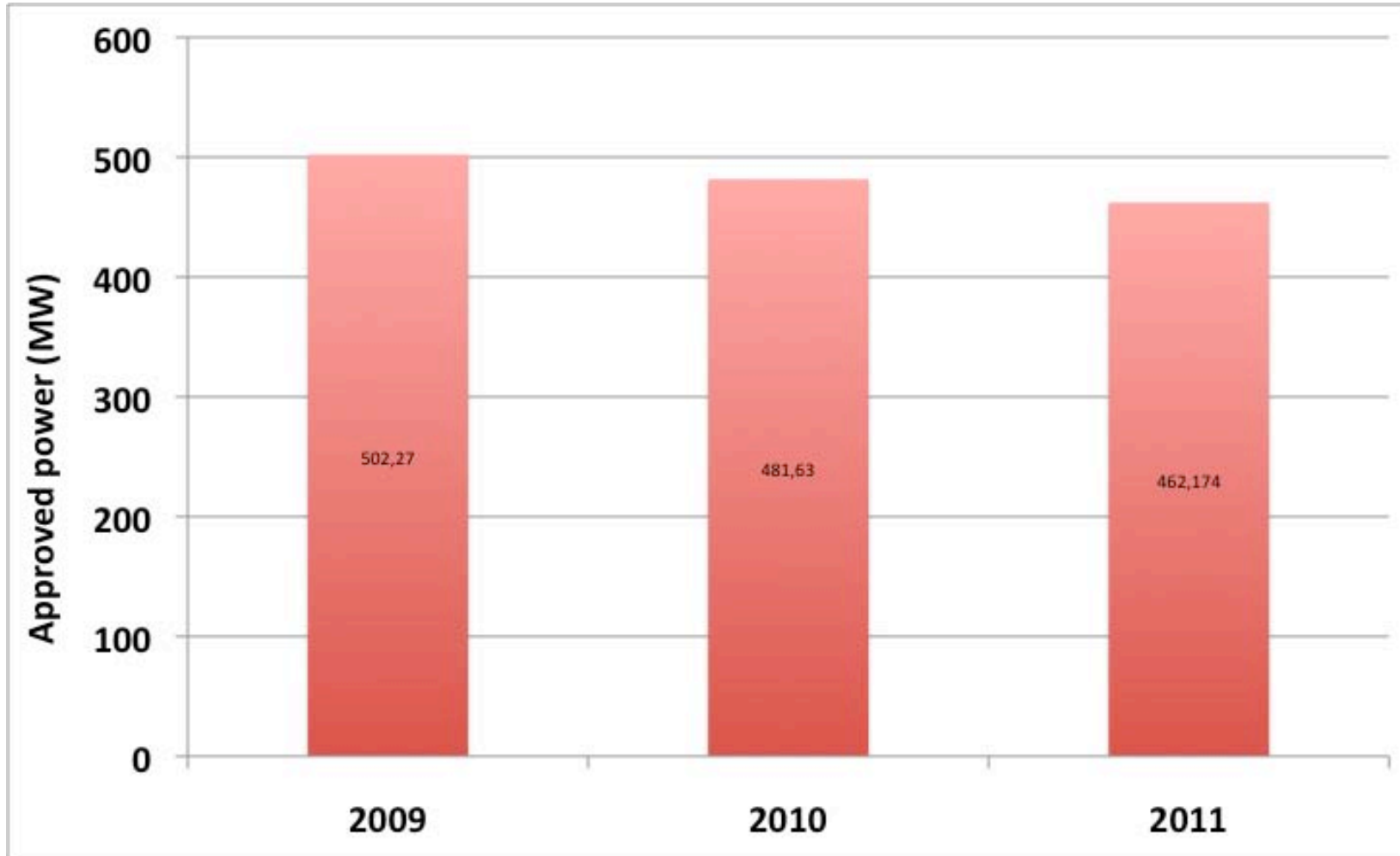
Current Feed-in tariff system: RD 1578/2008



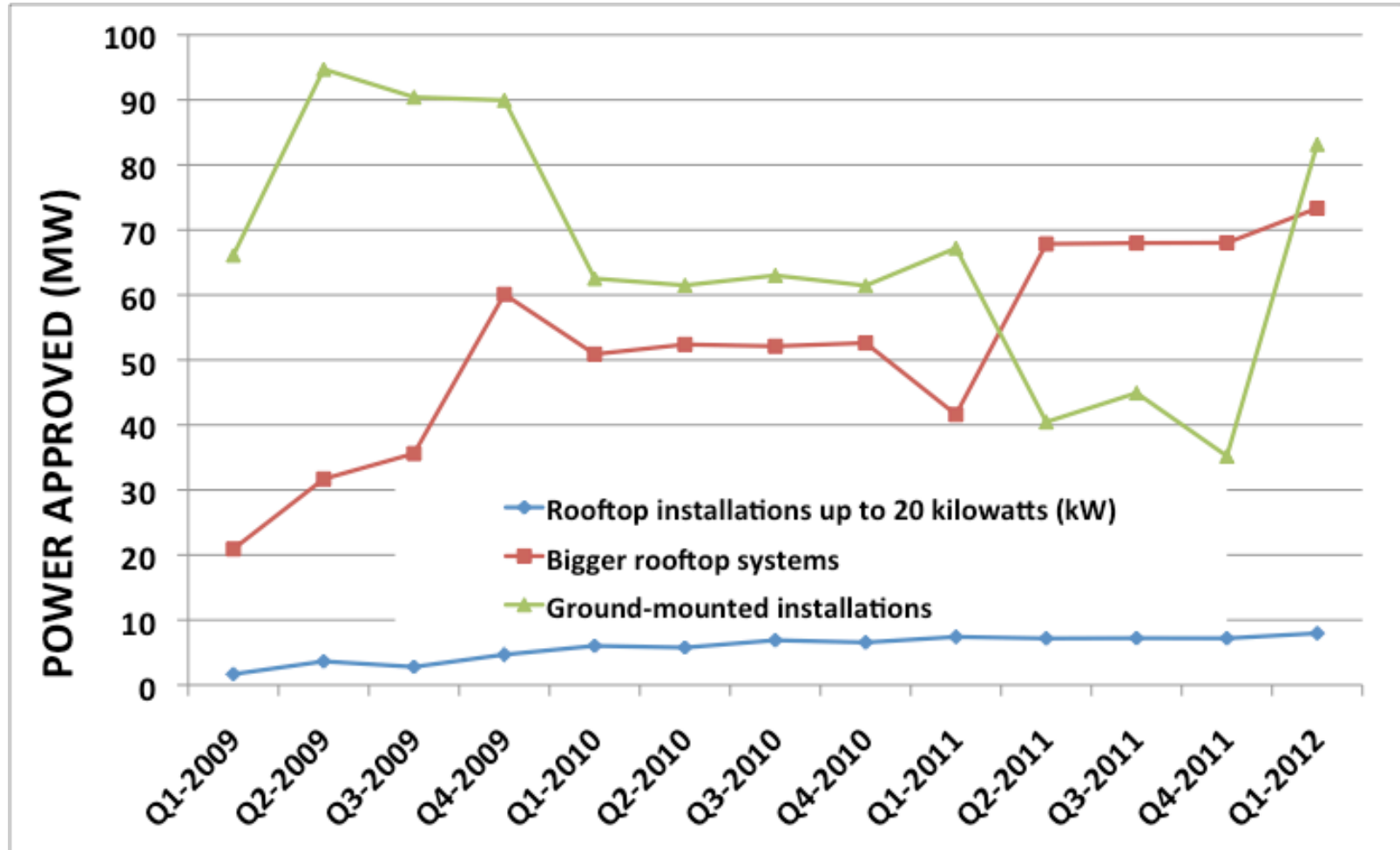
Type	Subtype	Description
I		Photovoltaic roof plants or plants developed for similar surfaces
I	I.1	Power plants with a capacity equal to or less than 20 kW
I	I.2	Power plants with a capacity greater than 20 kW
II		Any other type of plant (essentially, ground photovoltaic plants)



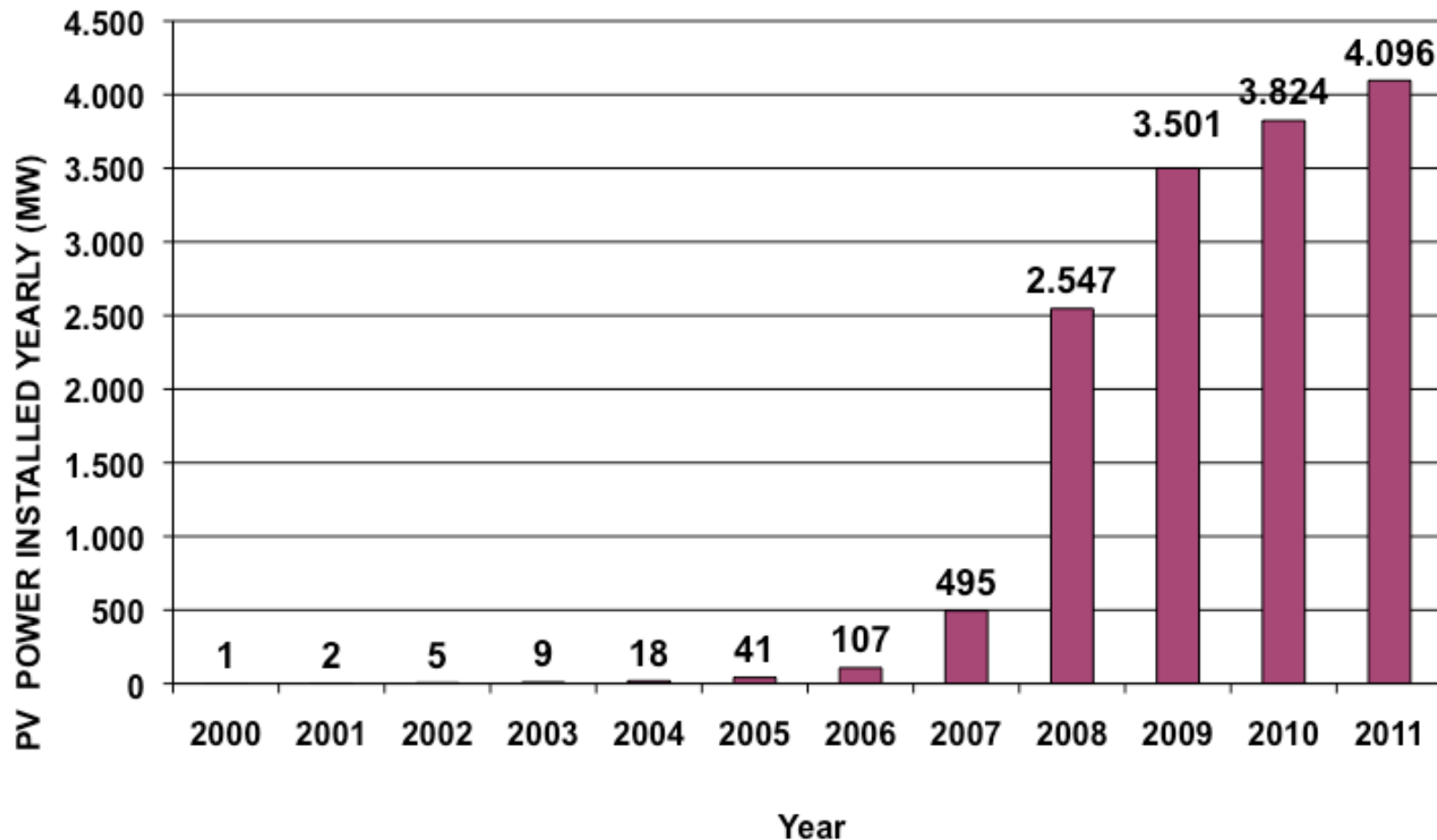
Power approved (MW)



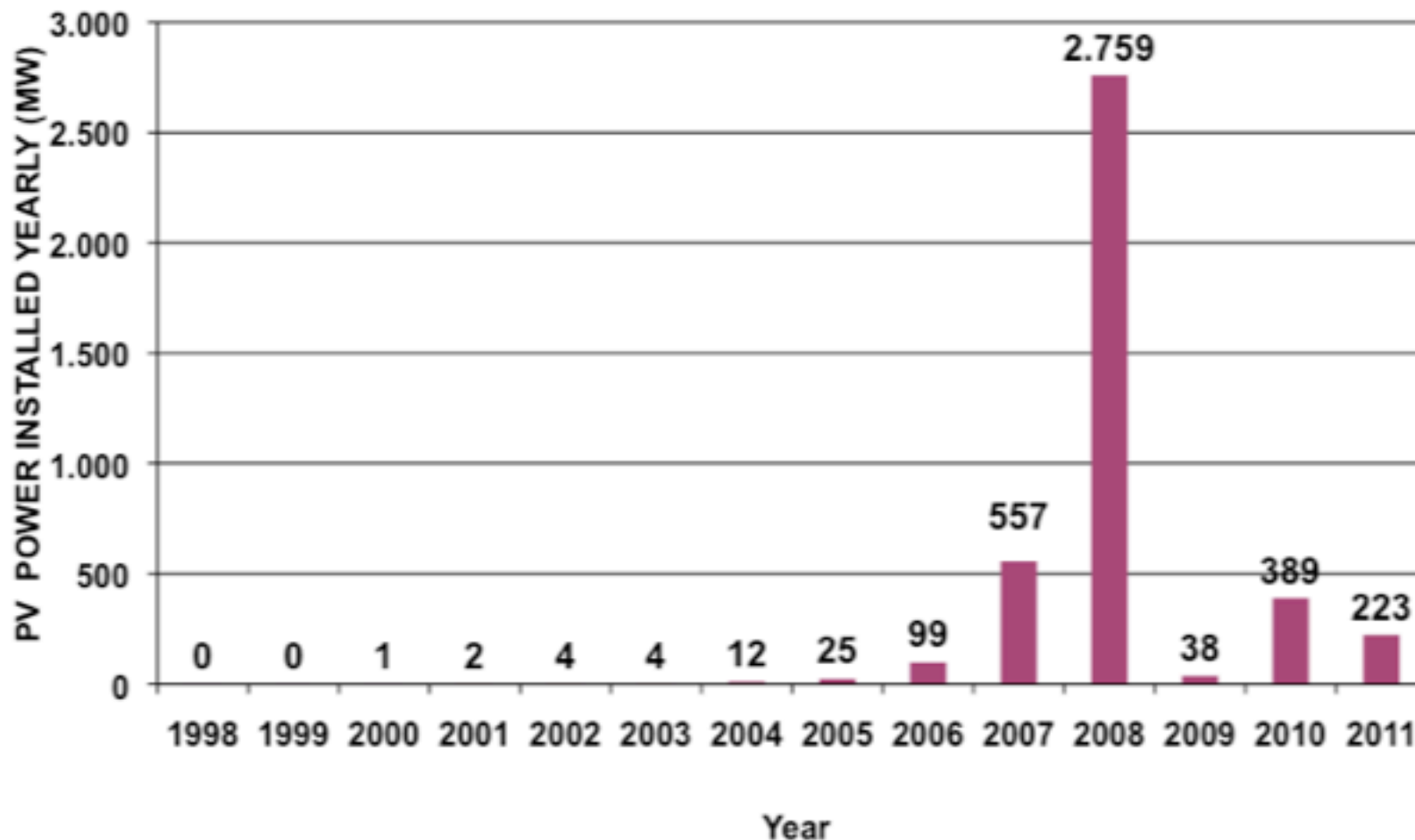
Approved power (MW)



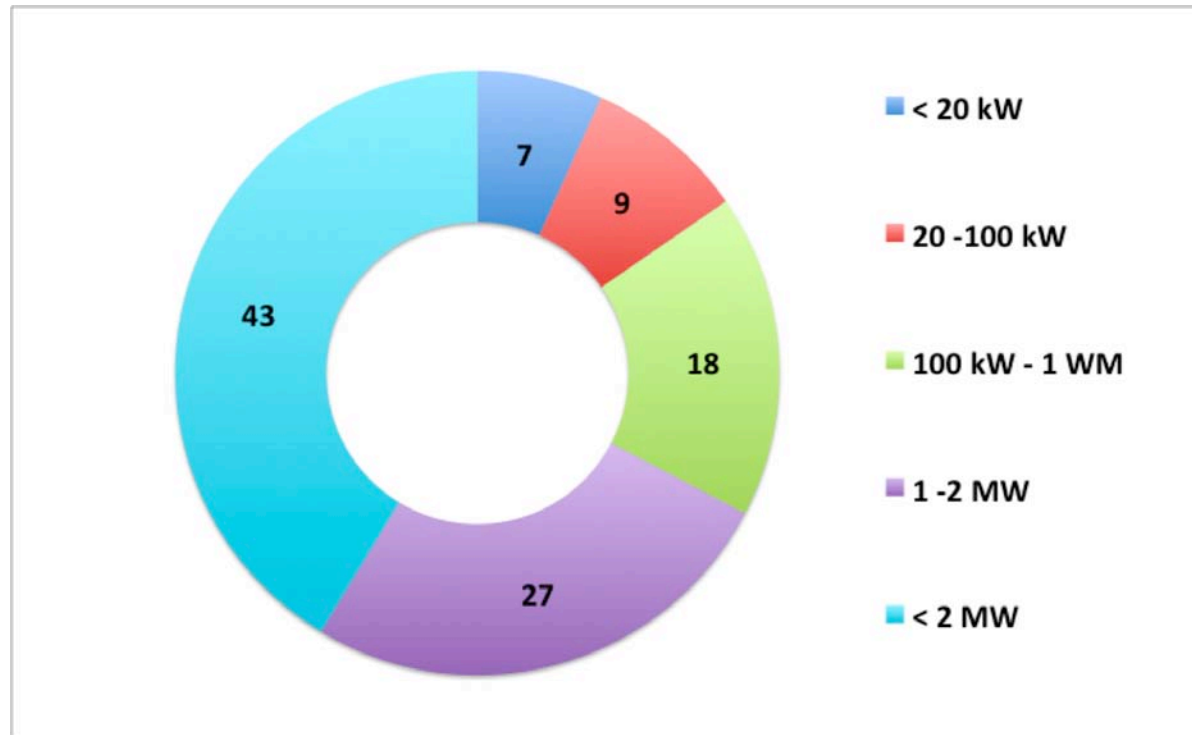
PV power installed (cumulative)



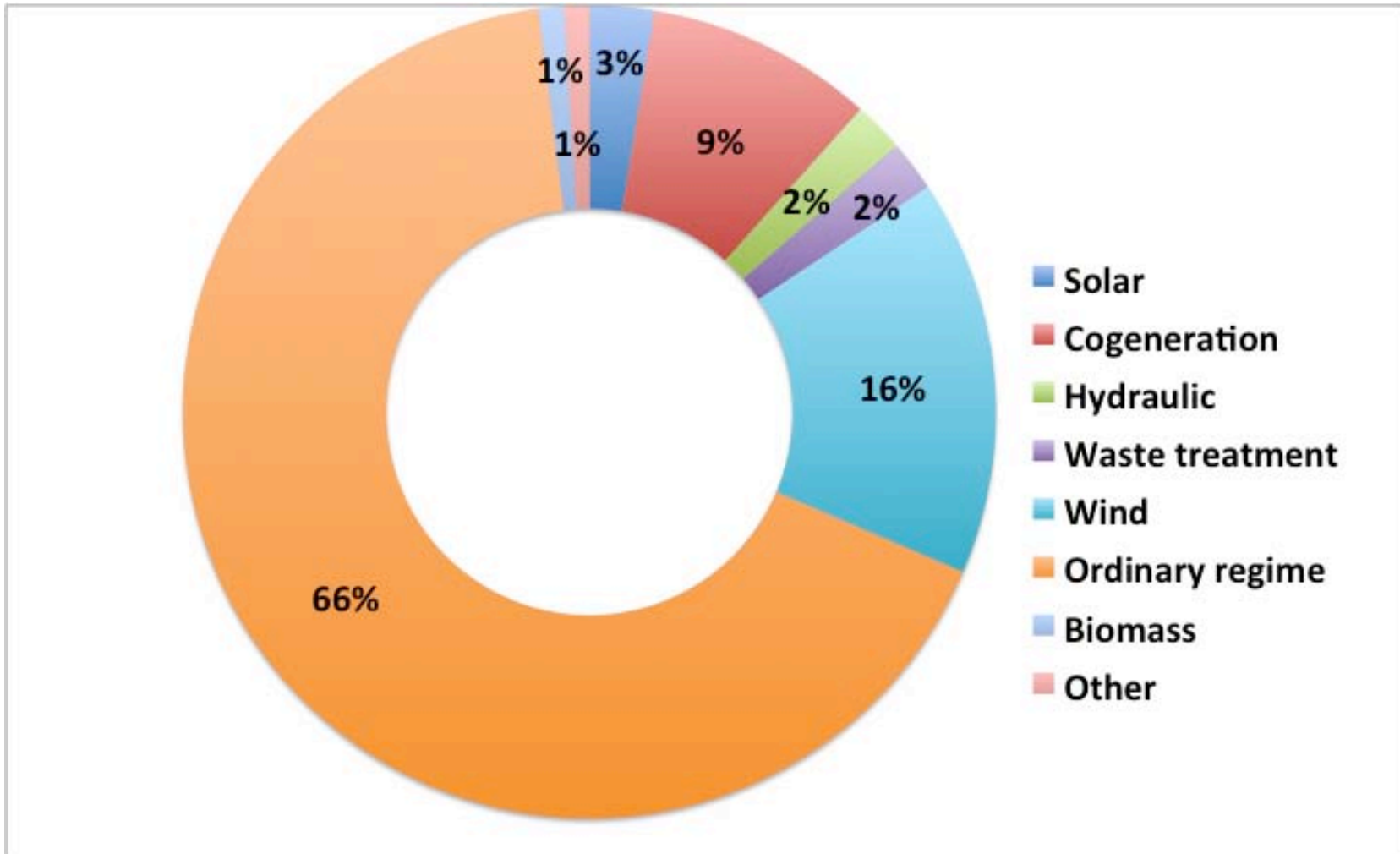
Source: CNE



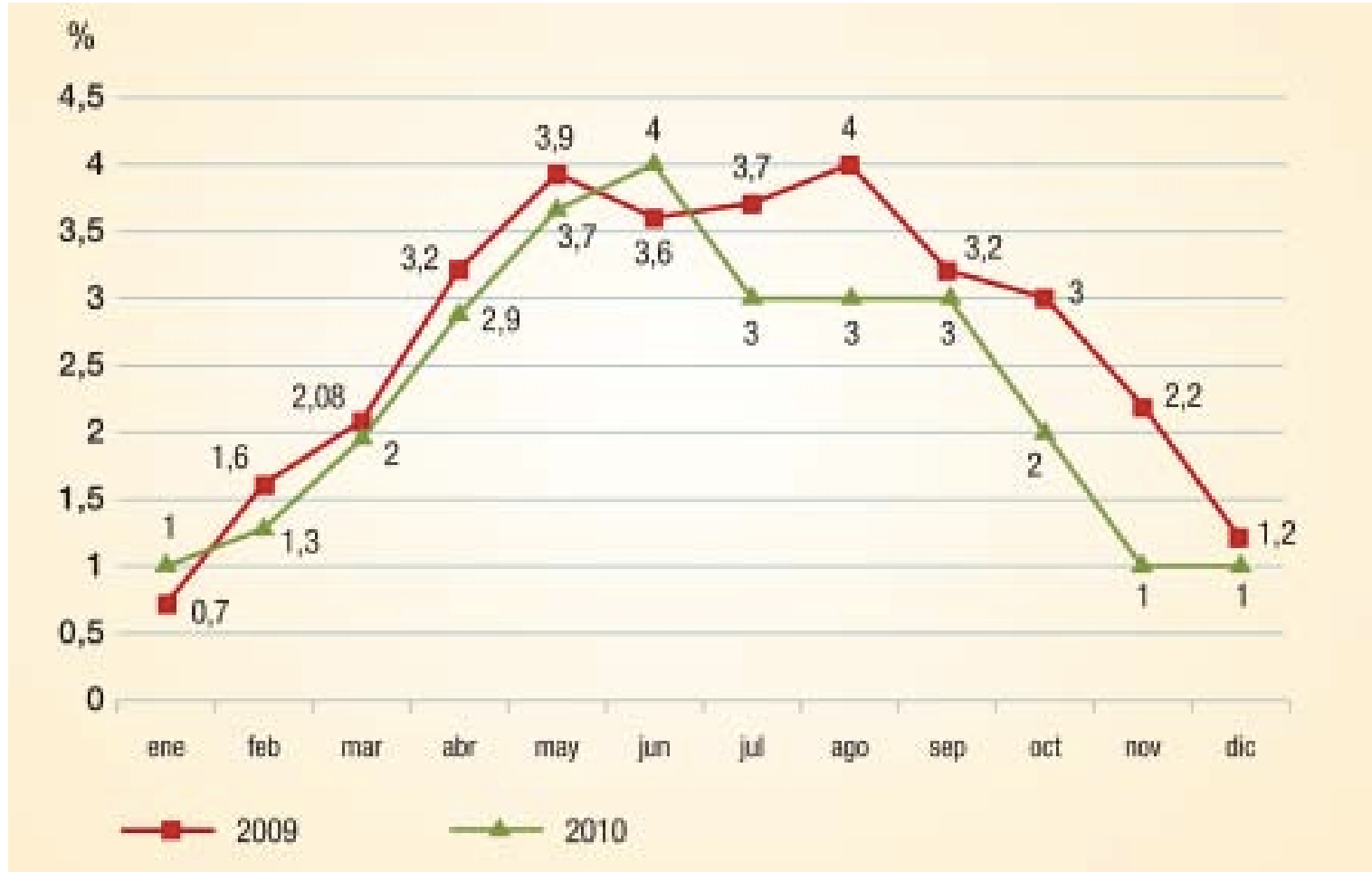
PV installations: distribution (%)



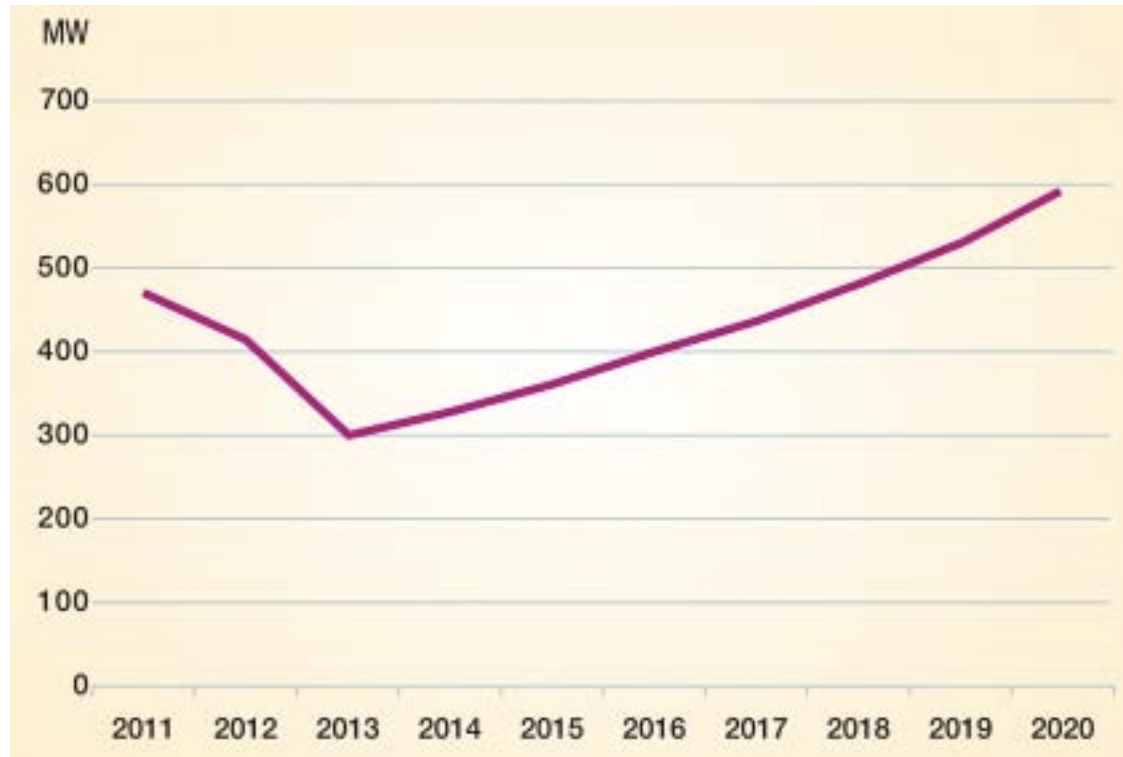
Energy production



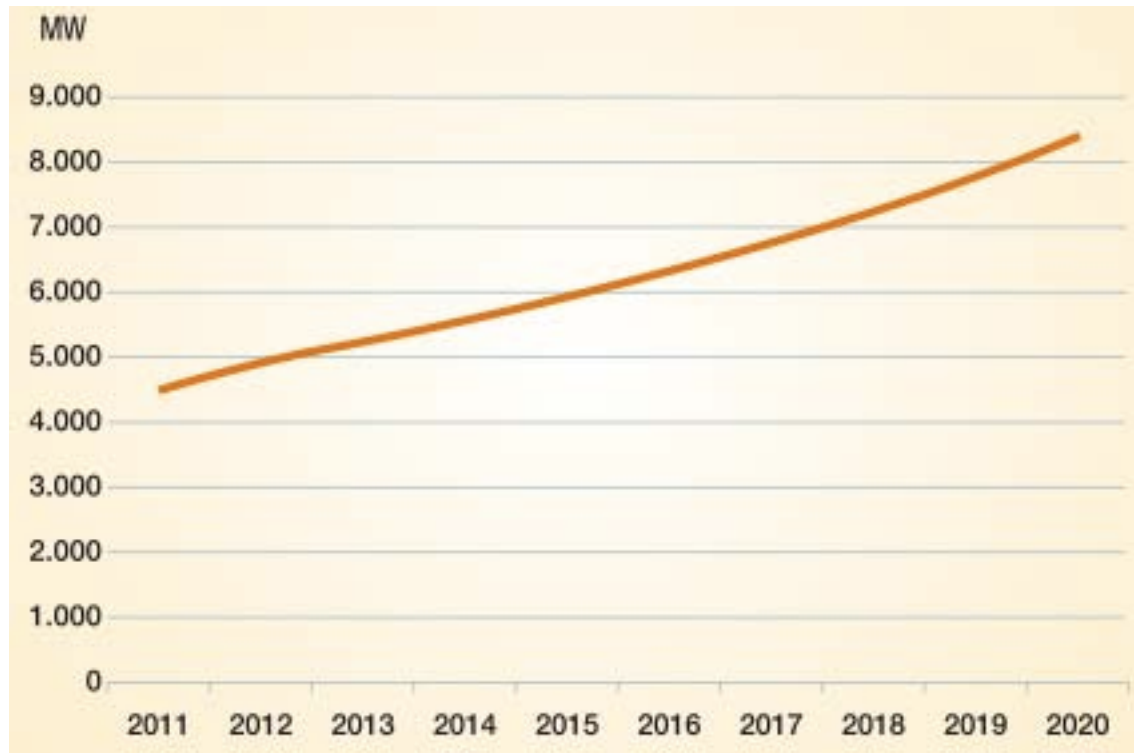
PV electrical provide (%)



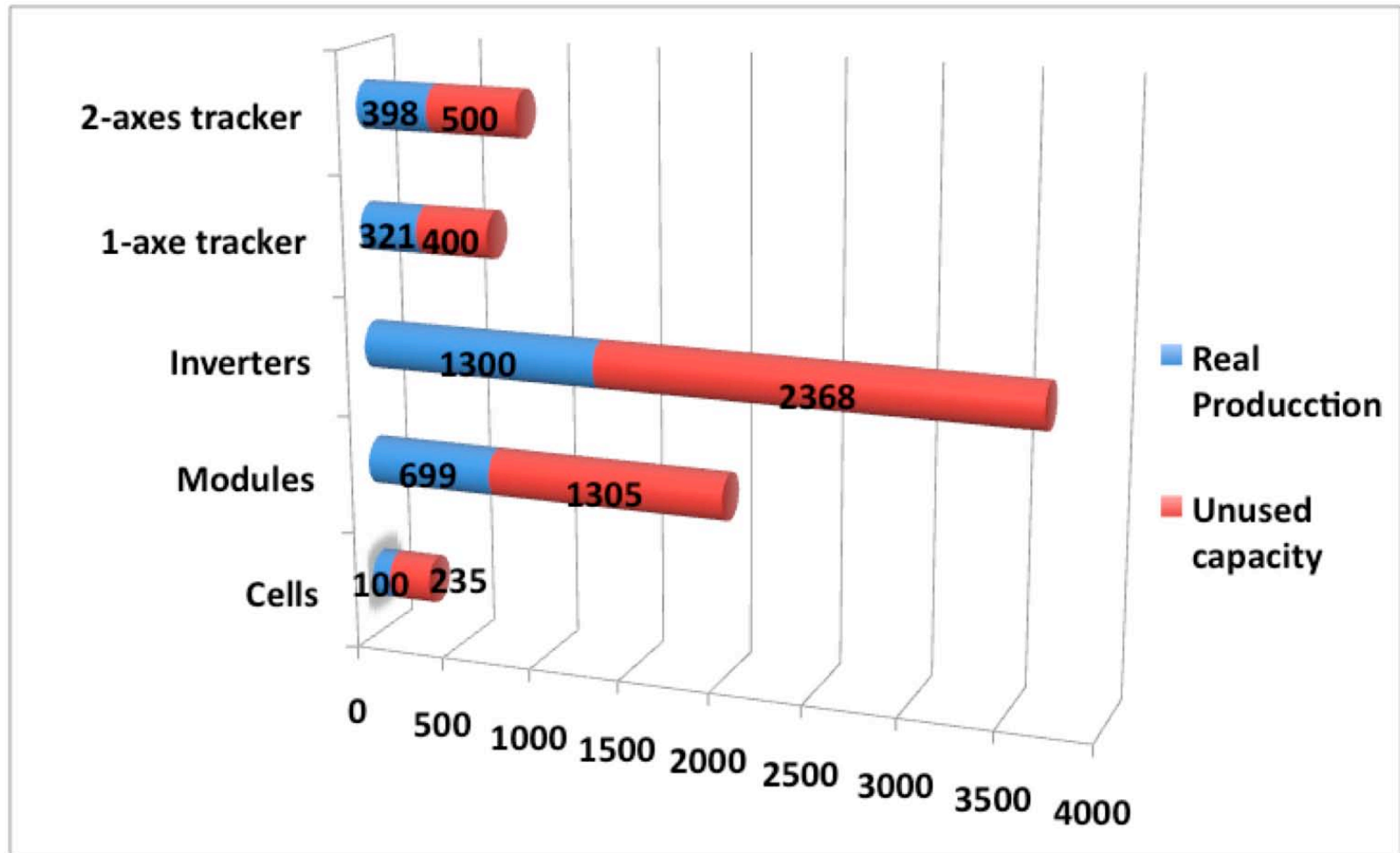
PV installed yearly



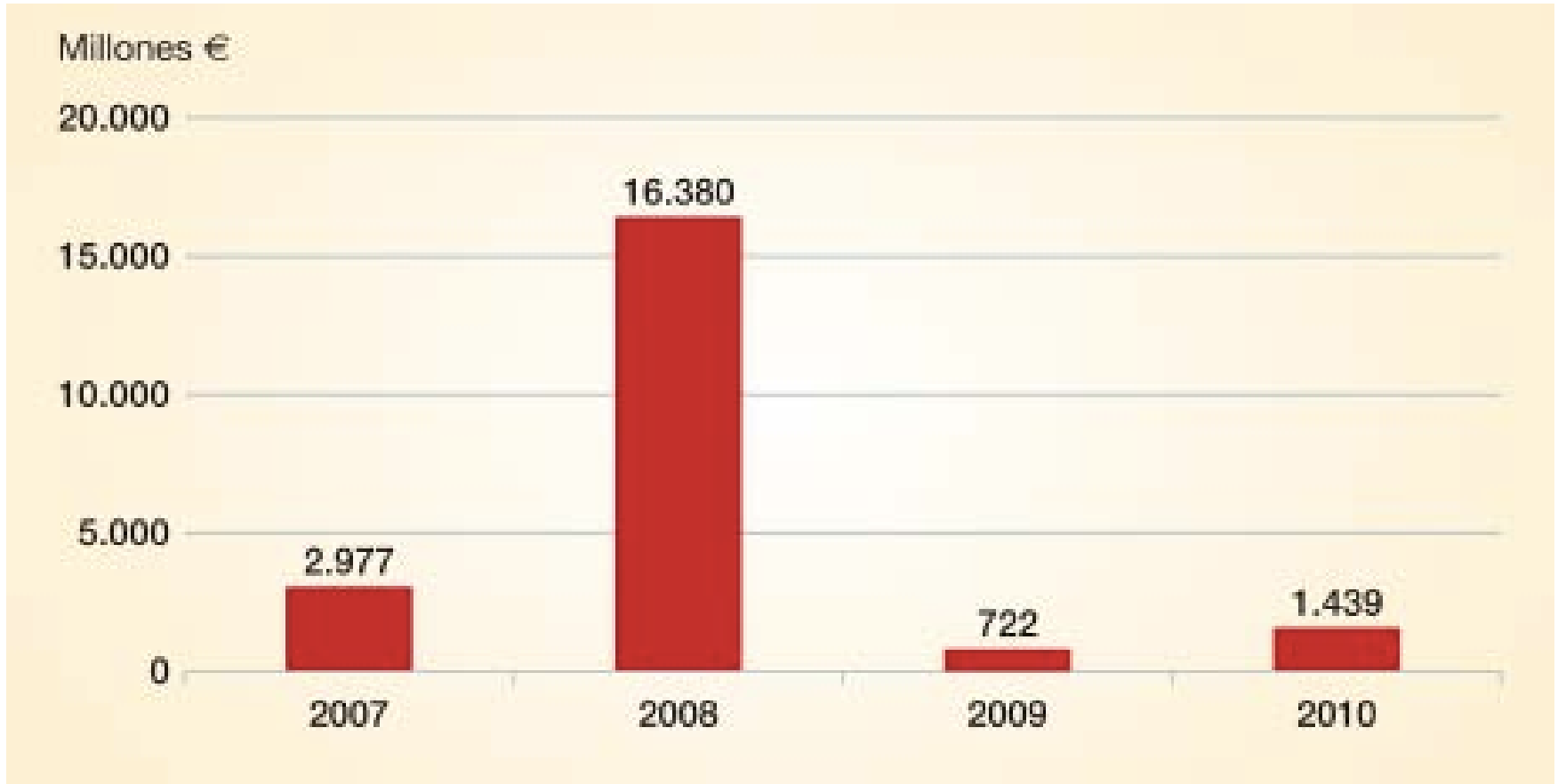
PV installed cumulative



Production



PV bussiness

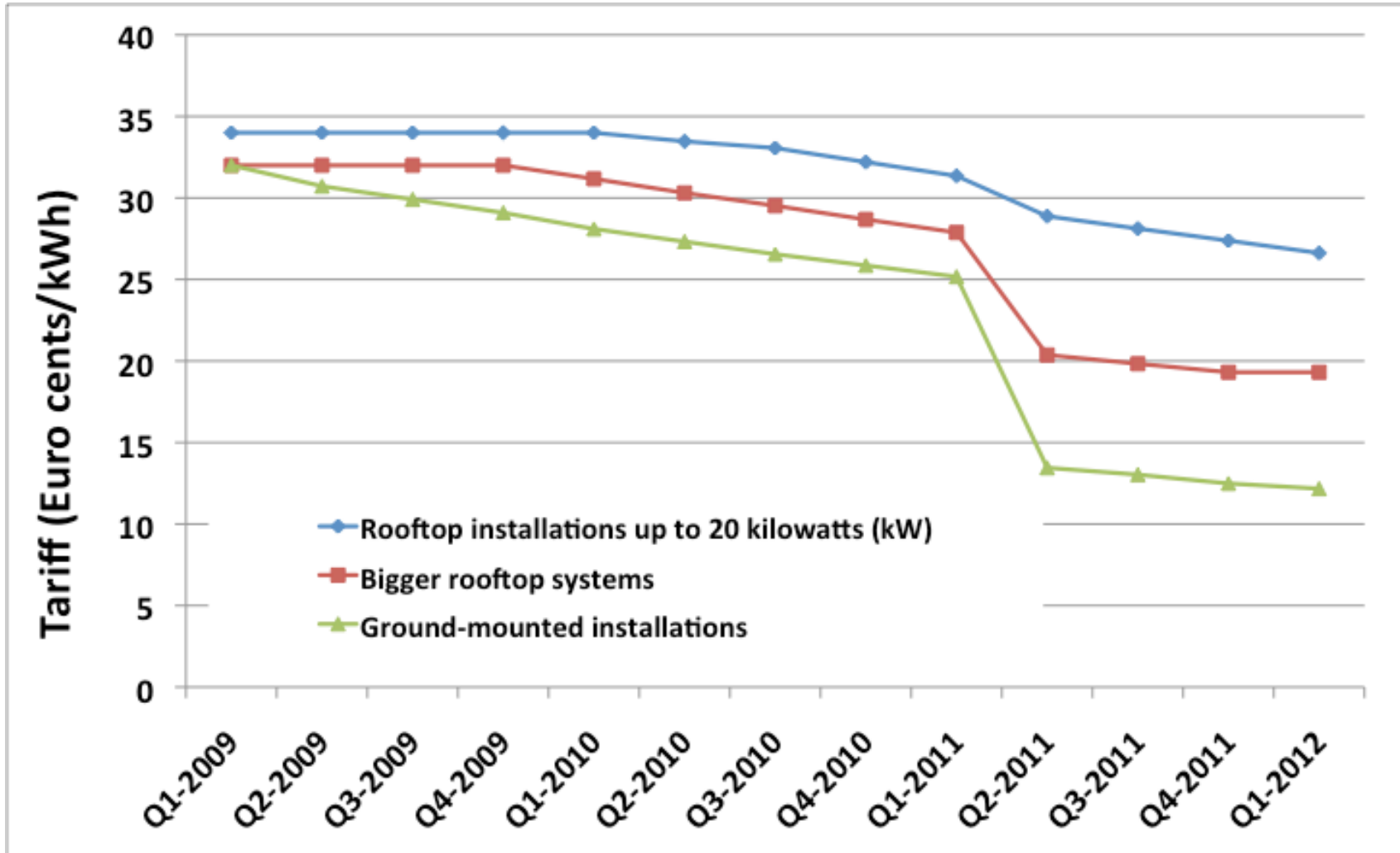




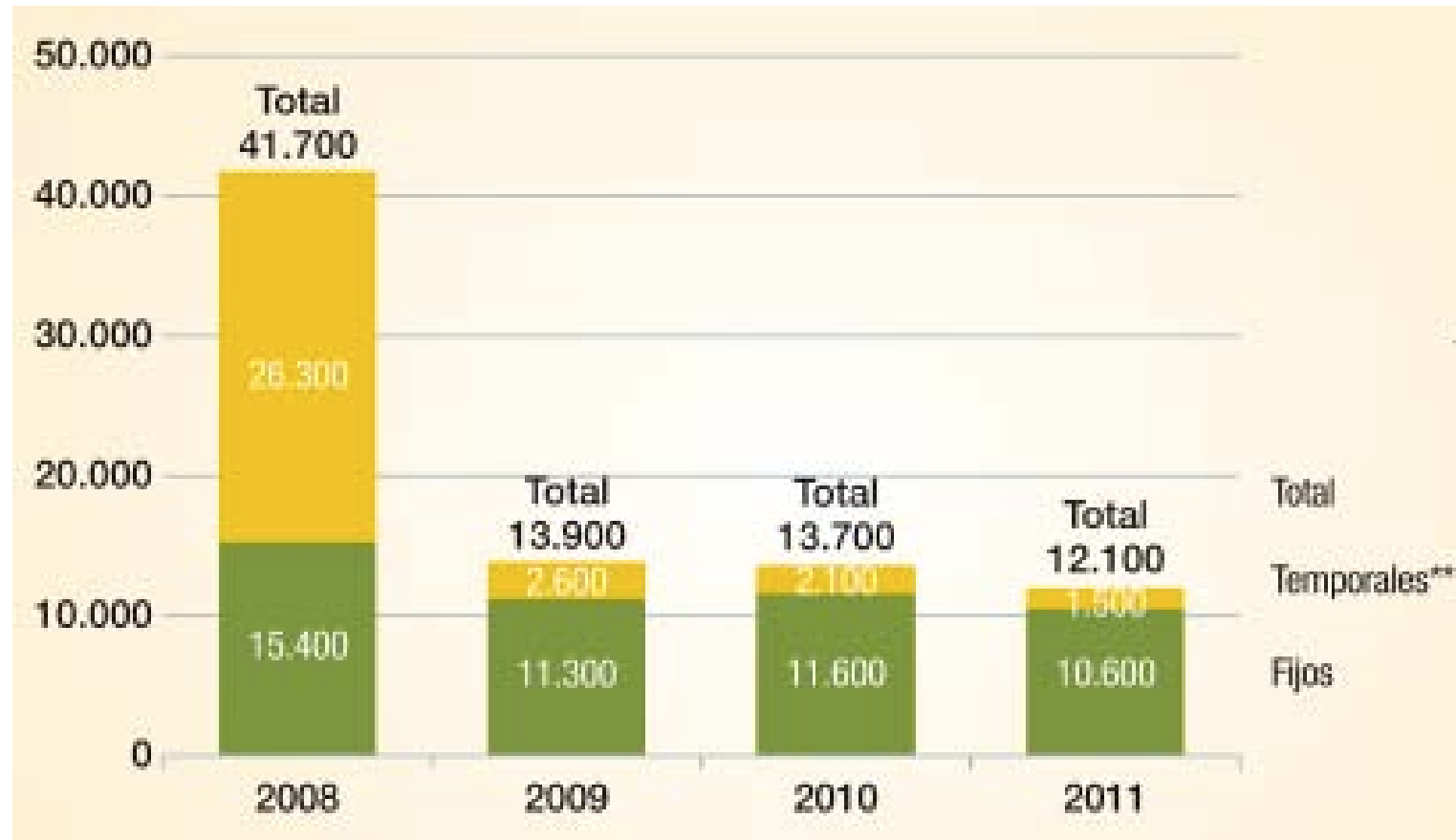
FEED-IN TARIFF SYSTEM



Tariff evolution



Employment





NEW RULES



- **Two important actions:**
 - **RD 1565/2010:** amending the regulatory regime for photovoltaic energy as well as certain aspects regarding the renewable energy regime
 - **RD/Law 1510/2010:** measures to decrease the tariff deficit, including a new fee to all power generators and additional cuts to feed-in tariffs of photovoltaic installations



Cuts on the feed-in tariff (I)



- Until December 31, 2013,
 - depending on the technology used by the installation
 - not taking into account its geographical location

TECHNOLOGY	reference equivalent hours/year
Fixed installation	1,250
Installation with single-axis trackers	1,644
Installation with dual-axis trackers	1,707



- From January 1, 2014 onwards,
 - The maximum number of hours of energy produced that will have access to feed-in tariff each year is established:
 - not only depending on the technology used by the installation,
 - but also taking into account its geographical location.
 - PV installations will be entitled to collect the feed-in tariff for an additional period of three years, increasing the period from 25 to 28 years.



Geographical distribution



Reference equivalent hours/year



TECHNOLOGY	REFERENCE EQUIVALENT HOURS/YEAR				
	Zone I	Zone II	Zone III	Zone IV	Zone V
Fixed installation	1,232	1,362	1,492	1,632	1,753
Installation with single-axis trackers	1,602	1,770	1,940	2,122	2,279
Installation with dual-axis trackers	1,664	1,838	2,015	2,204	2,367

TECHNOLOGY	reference equivalent hours/year
Fixed installation	1,250
Installation with single-axis trackers	1,644
Installation with dual-axis trackers	1,707



- Official interpretation about the galvanic isolation in PV
- Anti-islanding Spanish standard
- Voltage dips: new procedure for all PV inverters
 - Obligatory from 1st October 2011





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**THANK YOU!!
HAVE A NICE DAY!!**

Photovoltaic Laboratory

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