



**Solar cadastral Mapping**  
Case study from Spain  
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**COMMERCIAL PORTS**



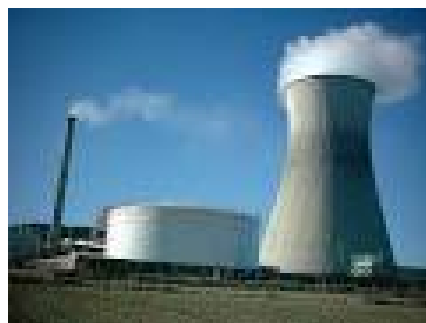
**AIRPORTS**



**GAS PRODUCTION**



# **REAL ESTATE OF ESPECIAL CHARACTERISTICS**



**POWER STATIONS**



**DAMS**



**WIND FARMS**



**NUCLEAR PLANTS**



# CONCEPT

## Real Estate of especial Characteristics

- Complex properties, composed of various elements. Generally one infrastructure or production facilities.
- They can occupy discontinuous plots of land of different type.
- Located in several municipalities, provinces or regions.
- They must be valued with different criteria, because:
  - Depreciation for antiquity, functional obsolescence
  - Its value is not usually determined by the market, it corresponds to issues of cost and utility.
- Higher taxes to compensate the municipalities for:
  - the risks assumed by nuclear or petroleum contamination, or gases, ashes or smokes; waste in soil, water, air.
  - The loss of crop soil due to reservoirs and dams
  - Finally, the environmental aspect must be considered



# OPPORTUNITY

## CREATING A NEW CLASS OF REAL ESTATE

By Law 48/2002, of December 23, of the Cadaster.

Justified by the courts of justice (STS 15-1-2007) , because:

- 1) They do not meet the characteristics of urban or rural
- 2) It allows its own valuation regime, its own tax regime:
  - apply differentiated tax rates (higher),
  - update cadastral values with the appropriate periodicity.
  - implement a special regime for reducing the tax base in the Local Tax
  - differentiated bonuses from those of urban and rustic properties.

It is really important for municipalities.



# LEGAL MARK. REGULATIONS

## Laws:

- Consolidated text of the real estate cadastre law: concept and enumeration; procurement and valuation rules for these kind of properties.
- Consolidated text of the local finance law: distribution between municipalities, not subject properties , taxable person, basic value, net asset value and rate of tax.

## R Decrees:

- 417/2006, developing the Consolidated text of the real estate cadaster law: process of approval, single Cadastral Reference, delimitation and groups.
- 1464/2007, by which the Cadastral Valuation Technical Standards are approved

**Ministerial Orders** about valuation



## LEGAL MARK. REGULATIONS

### **Circulars or general instructions DG. Cadastre**

- 07.04 / 06, on criteria for assigning and modifying the cadastral reference of real estate.
- 07.04 / 08 / P, of modification of the previous circular to include criteria for assigning and modifying the cadastral reference of wind farms and solar power plants
- 03.04 / 2008 / P, on criteria for the identification, delimitation and valuation of Real Estate of Special Characteristics.

### **internal manuals (for example)**

- On criteria for recording wind farms and solar power plants.



# CONCEPT AND DEFINITION

## **Art. 8 Consolidated Text of real estate cadastre law**

1. Real estate with special characteristics constitute a complex set of specialized use, made up of land, buildings, facilities and urbanization and improvement works that, due to their unitary nature and because they are definitively linked to their operation, are configured for cadastral purposes as a single real estate.
2. Real estate of special characteristics are included in these groups:
  - a) Those destined to the production of electricity and gas and to the refining of oil, and nuclear power plants (>10 MW)
  - b) Dams, waterfalls and reservoirs, including their bed or basin, except those intended exclusively for irrigation (>15m high, 1hm<sup>3</sup>)
  - c) Toll Highways, roads and tunnels.
  - d) Airports and commercial ports.



## IDENTIFICATION definitions of the sectoral regulations

### **Sentence of May 30, 2007, of the Supreme Court:**

In relation with the R Decree 417/2006 that developed the law 1/2004, declares null the following subsection” that according to the regulation of the electricity sector must be included in the ordinary regime”

In consequence:

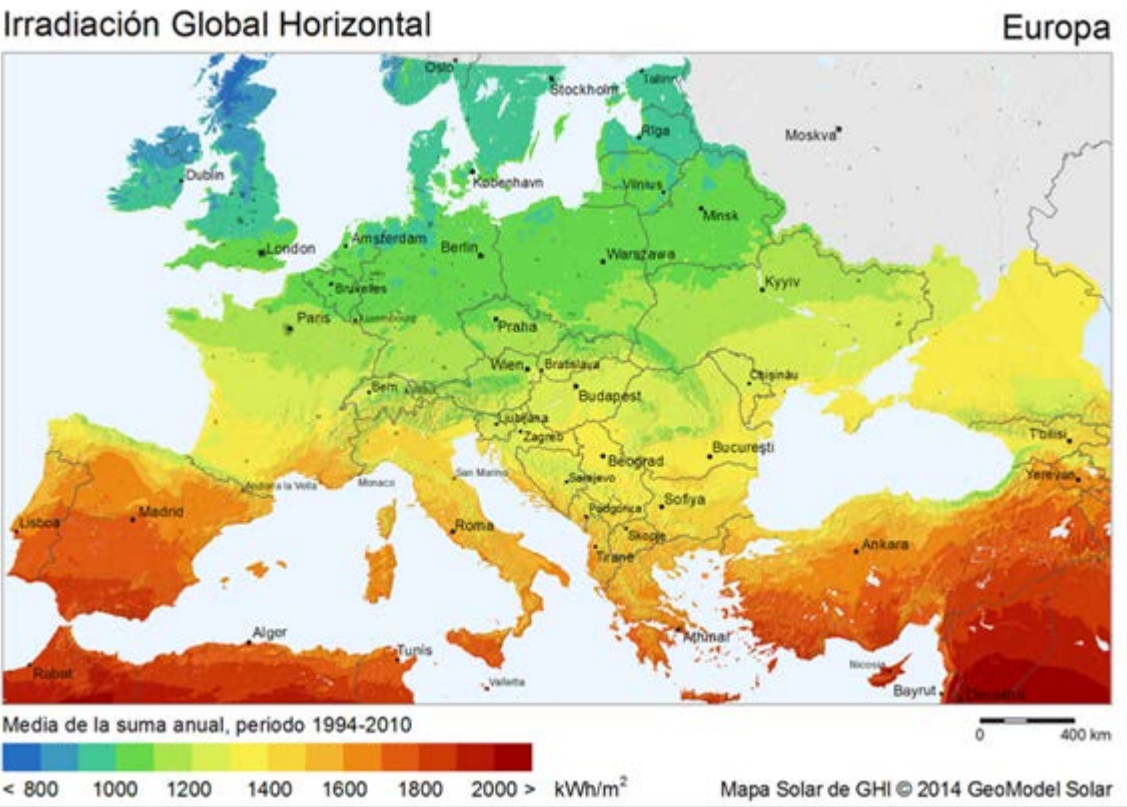
Wind farms (A5) and Solar Parks (A6) are Real Estate of Especial Characteristics







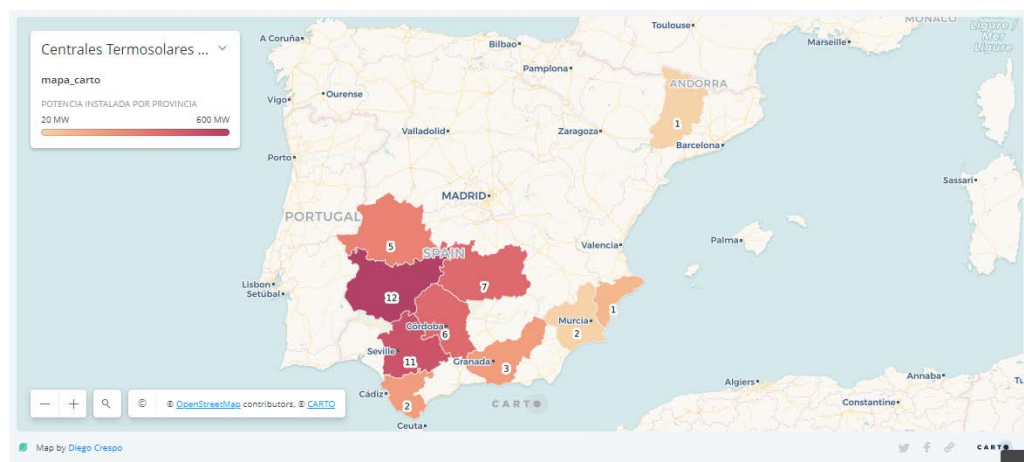
# Solar irradiation in Europe. Importance for Spain



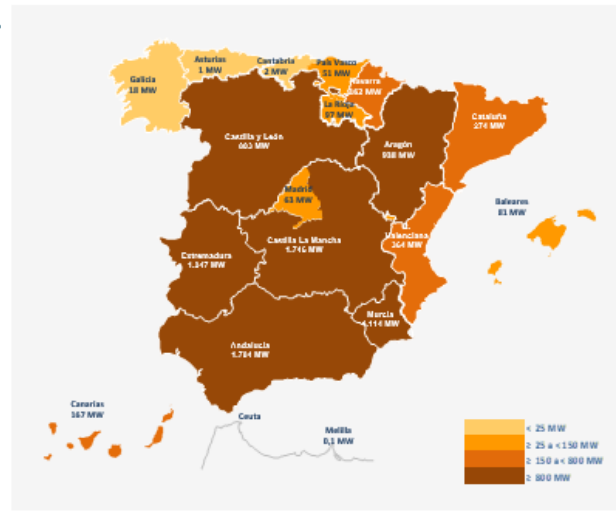
Solar energy in Spain is a renewable power source that is in an advanced phase of development, installation and use  
Spain is one of the first countries in the world in research, development and use of solar energy.



# SOME FACTS AND FIGURES: SOLAR THERMAL AND PHOTOVOLTAIC



**Planta solar  
 fotovoltaica instalada  
 a 91.92.2019.  
 Sistema eléctrico  
 [MW]**



2300 MWe installed, 5327 GWh produced (2019)

8.913 MW installed, 9170 GWh produced (2019)



## CATASTRAL VALUE AND TOTAL LOCAL TAX QUOTA ACCORDING TO 2018 STATISTICS

Cadastré: Real Estates of Especial Characteristics			
	Number	Units	Cadastral Value
A1 Electric energy Production	133	172	6.117.122
A2 Gas Production	5	13	821.486
A3 Oil refining	12	47	2.416.432
A4 Nuclear power plants	12	16	3.388.803
A5 Wind farms	1.404	1.763	4.317.410
A6 Solar Parks	4.237	21.854	1.160.600
B Dams, Reservoirs, Hydroelectric power plants	1.296	1.755	6.429.818
C Toll Highways, roads, and tunnels	507	710	5.032.446
D1 Airports	71	2.445	12.287.622
D2 Commercial Ports	74	10.650	6.838.982
<b>Total</b>	<b>7.751</b>	<b>39.425</b>	<b>48.880.720</b>
<b>Total Cadastral Value</b>	<b>48.800.721.000 €</b>		
<b>Total Tax Rate</b>	<b>880.437.351 € 6% of Total</b>		



## VALUATION PROCEDURE of Real Estate of especial Characteristics (general overview)

- Cadastre law sets the criteria and limits of valuation
- The R Decree approves the technical norms, in this case the RD1464/2007 for the valuation of real estate with special characteristics
- There is a formal document "Ponencia de valores" that approves the assignment of values to each property. It constitutes an administrative act and is legally actionable ( for Solar plants BOE 30-09-2008).

### **Land value, construction value, cadastral value:**

The land (soil) is valued by unit value (€/m<sup>2</sup>)

We use replacement value for constructions (conventional and singular)

We apply depreciation coefficients by age

Some constructions are valued by modules of construction cost , others by modules of power or production capacity.

Cadastral value, obtained by adding the value of the land and the value of the buildings and applying the reference coefficient to the market (RM = 0.50).



## VALUATION PROCEDURE of Real Estate of especial Characteristics solar plants

The unit value of land for solar power plants is € 0.567 €/m<sup>2</sup>, and 1.8 ha per MW is considered necessary

Assessment of all constructions (singular and conventional): Unit Cost per Power Module 400,015 € / MW

Construction Value = UCPM x Installed Power (MW)

The cadastral value is the sum of the value of the land and the value of the buildings, multiplied by 0.5

To assess a solar park, it is enough to know the occupied area and the installed power. It's a simple assessment



## DATA COLLECTION SOLAR PLANTS

- Owners are required by law to file a complete declaration
  - Normally the owners of the solar thermal plants are large companies or specialized companies
  - But photovoltaic plants are usually made up of different units with different owners. For example, small investors or owners of the rural parcels where they are located
  - There is also a lot of self-consumption in homes, shops or small businesses in urban areas.
- The declaration must provide all the necessary data: owner, location, maps, occupied area, installed power in MW, etc.
- Additionally, Cadaster obtains data from the competent Ministry (ecological transition and demographic challenge), and from producer associations. And we can perform inspection as a tax body



# DATA TREATMENT SOLAR PLANTS

- The data of the owner, installed power and other characteristics are recorded in a database. Also the cartography that serves to distribute the value between owners and municipalities, in addition to locating them

Consulta de BICE

**CONSULTA NACIONAL DE BIENES INMUEBLES DE CARACTERÍSTICAS ESPECIALES**

BICE:     
 Delegación:  Municipio:

Tipo:

Denominación:

V.catastral:  Vcat.anterior:

Base liquidable:

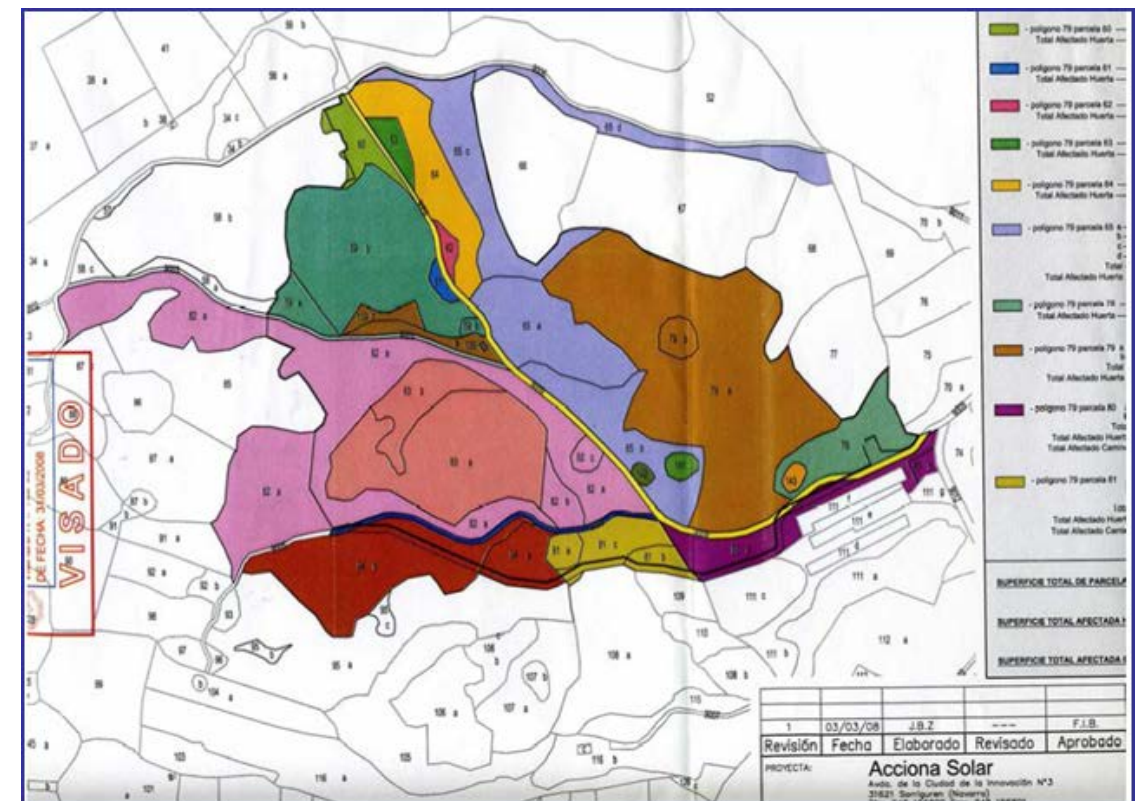
**SITUACIÓN:**

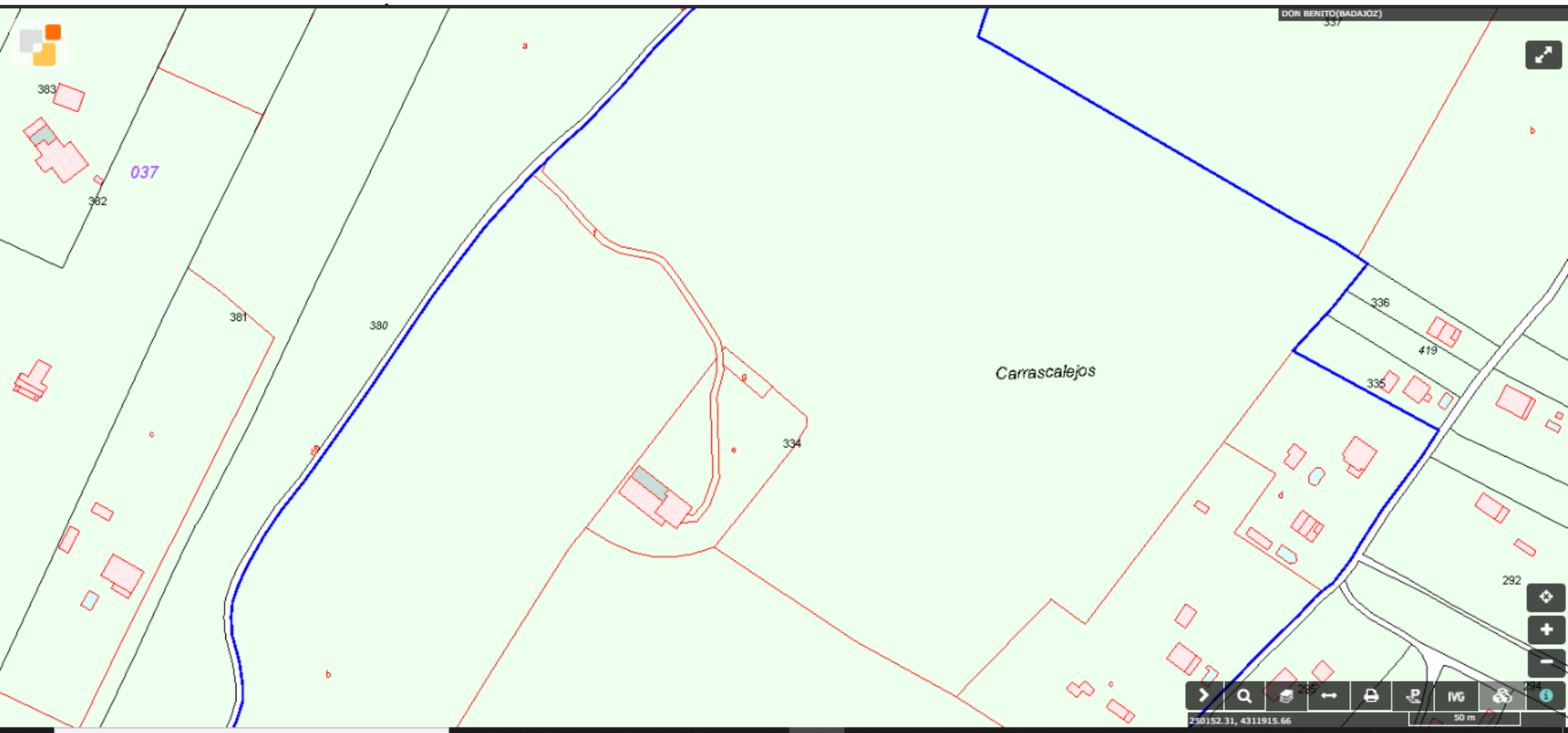
% Superf.	Deleg/Municipio	Base liquidable municipio: 2021
100,00	6 44 DON BENITO	227.877,76

**FINCAS:**

	44	1S06044	M01HS01

[Cifras marcadas con \* serán datos estimados]









# SPECIFIC CATASTRAL REFERENCE FOR Real Estate of Especial Characteristics

Article 6.3 of the Cadastral Law and 20 of RD 417/2006, RESCs composed of several discontinuous enclosures will be assigned a unique CR (RC BICE), and each of the enclosures (RC parcel or unit) will be identified.

- Circular 07.04 / 06 on criteria for assigning the cadastral reference of real estate.
- Circular 07.04 / 08 , modifying the previous one: adds wind farms and solar power plants.

- Code according to BICE:**
- Thermal power plants: 1E
  - Regasification plants: 1G
  - Oil refineries: 1R
  - Nuclear power plants: 1N
  - Hydropower production: 1H
  - Wind farms: 1P
  - Solar power plants: 1S
  - Group B dams: 2P
  - Toll highways: 3A
  - Toll roads: 3C
  - Toll tunnels: 3T
  - Airports: 4A
  - Commercial ports: 4P

## Solar Plant in Sanlucar La mayor



**PROVINCE code**  
larger surface

**MUNICIPAL CODE**  
largest area

**AMBIT:**  
E: State,  
A: Autonomous  
P: Provincial,  
M: Municipal

**NUMBER of municipalities in which it is located**

**BICE Name**



# Some examples: Thermo solar plants in Sanlucar La Mayor (Sevilla) 11MW, 20 MW...



Consulta de BICE

**CONSULTA NACIONAL DE BIENES INMUEBLES DE CARACTERÍSTICAS ESPECIALES**

BICE:     
 Delegación:  Municipio:

Tipo:

Denominación:

V.catastral:  Vcat.anterior:  Base liquidable:

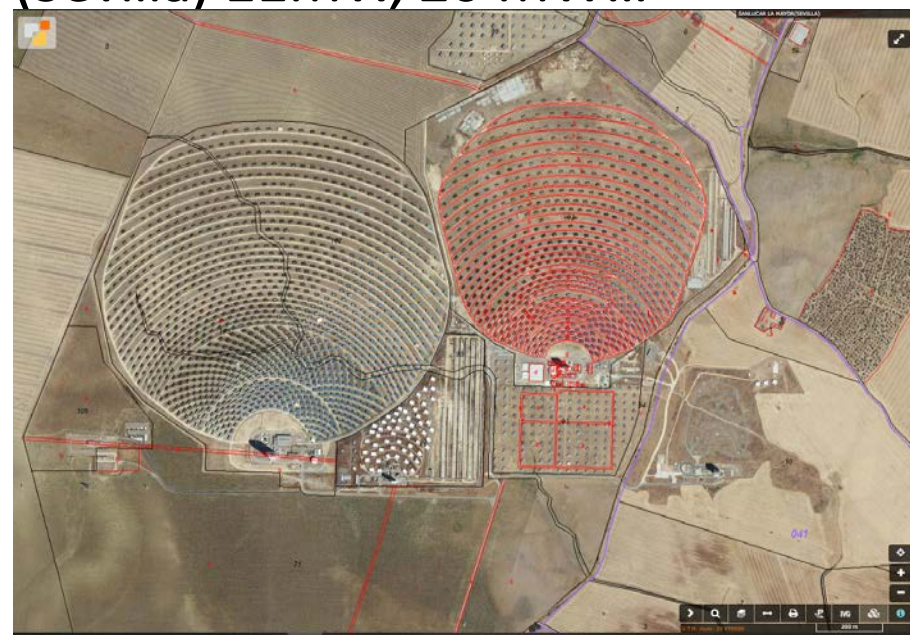
**SITUACIÓN:**

% Superf.	Deleg/Municipio	Base liquidable municipio: 2021
100,00	41 87 SANLUCAR LA MAYOR	10.358.080,25

[Cifras marcadas con \* serán datos estimados]

**FINCAS:**

	87	1S41087	M01SOL1



Sede Electrónica del Catastro


Real Estate Query and Certification

Single unit corresponding to the BICE **1S41087/01SOL1 PLANTA SOLAR TERMICA SOLNOVA1**

**DESCRIPTIVE DATA PROPERTY**

Referencia catastral: **1S41087/01SOL1/0001FU**  
 Location: **DS CASA QUEMADA CASAQUEMADA, 41800 SANLUCAR LA MAYOR (SEVILLA)**  
 Class: **Características especiales**  
 Primary use: **RDL 1/04 B.2.a**

**PLOT CATASTRAL**


 Parcela con varios inmuebles (división horizontal)  
 Localización: **DS CASA QUEMADA CASAQUEMADA, SANLUCAR LA MAYOR (SEVILLA)**  
 Land area: **900.000 m<sup>2</sup>**  
 Property Participation: **100,000000 %**

**CONSTRUCTION**

Primary use	Stairs	Floor	Door	Built m <sup>2</sup>	Type Reform	Date Reform
TERMOSSOLAR				50		



# Some examples: Photovoltaic solar plant in Mula Murcia) 494 MW



SIGECA - JWS (GERENCIA REGIONAL DE MURCIA)

Acciones Consulta General Aplicaciones Información Ayuda

Consulta de BICE

**CONSULTA NACIONAL DE BIENES INMUEBLES DE CARACTERÍSTICAS ESPECIALES**

BICE: **1530029** **M01MULA** **0000** **R** **K** Delegación:  Municipio:   
 Tipo: **A6** **Huertos solares**  
 Denominación: **HUERTO SOLAR MULA**  
 V.catastral: **102.266.362,12** Vcat.anterior:   
 Base liquidable: **102.266.362,12**

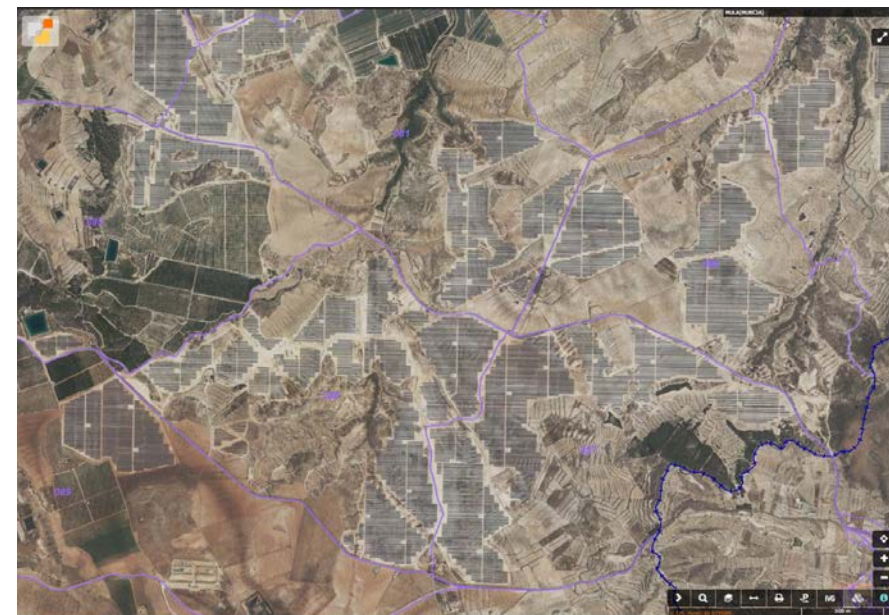
**SITUACIÓN:**

% Superf.	Deleg/Municipio	Base liquidable municipio: 2021
100,00	30 29 MULA	102.266.362,12

**FINCAS:**

	29	1530029	M01MULA

[Cifras marcadas con \* serán datos estimados]



Sede Electrónica del Catastro

Lista Servicios del Usuario Registrado

**Consulta y certificación de Bien Inmueble**

[Volver](#)

Unidad singularizada correspondiente al BICE 1530029M01MULA HUERTO SOLAR MULA

**DATOS DESCRIPTIVOS DEL INMUEBLE**

Referencia catastral	1530029M01MULA0001TL
Localización	CL RETAMOSA POL 81 AL 90 RETAMOSA BAJA, MULA (MURCIA)
Clase	Características especiales
Uso principal	RDL 1/04 8.2.a
Año construcción	2019
Valor catastral suelo	2.544.312,68 €
Valor catastral construcción	99.722.049,44 €
Valor catastral	102.266.362,12 €
Año valor	2021
Fecha de modificación en Catastro	14/11/2019
Fecha de la alteración	22/05/2019
Expediente	1134626.30/19

**PARCELA CATASTRAL**

Parcela con varios inmuebles (división horizontal)

Localización	CL RETAMOSA POL 81 AL 90 RETAMOSA BAJA, MULA (MURCIA)
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## Some links and references

- Red Eléctrica de España <https://www.ree.es/en>
- [photovoltaic map https://www.esios.ree.es/es/mapas-de-interes/mapa-instalaciones-fotovoltaicas](https://www.esios.ree.es/es/mapas-de-interes/mapa-instalaciones-fotovoltaicas)
- [Instituto para la Diversificación y Ahorro de la Energía https://www.idae.es/en](https://www.idae.es/en)
- Associations
  - <https://www.appa.es/>
  - <https://unef.es/>
  - <https://solareurope.es/inversion-huertos-solares/>



THANK YOU FOR YOUR ATTENTION!

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