

The photovoltaic market in Spain: Future forecast

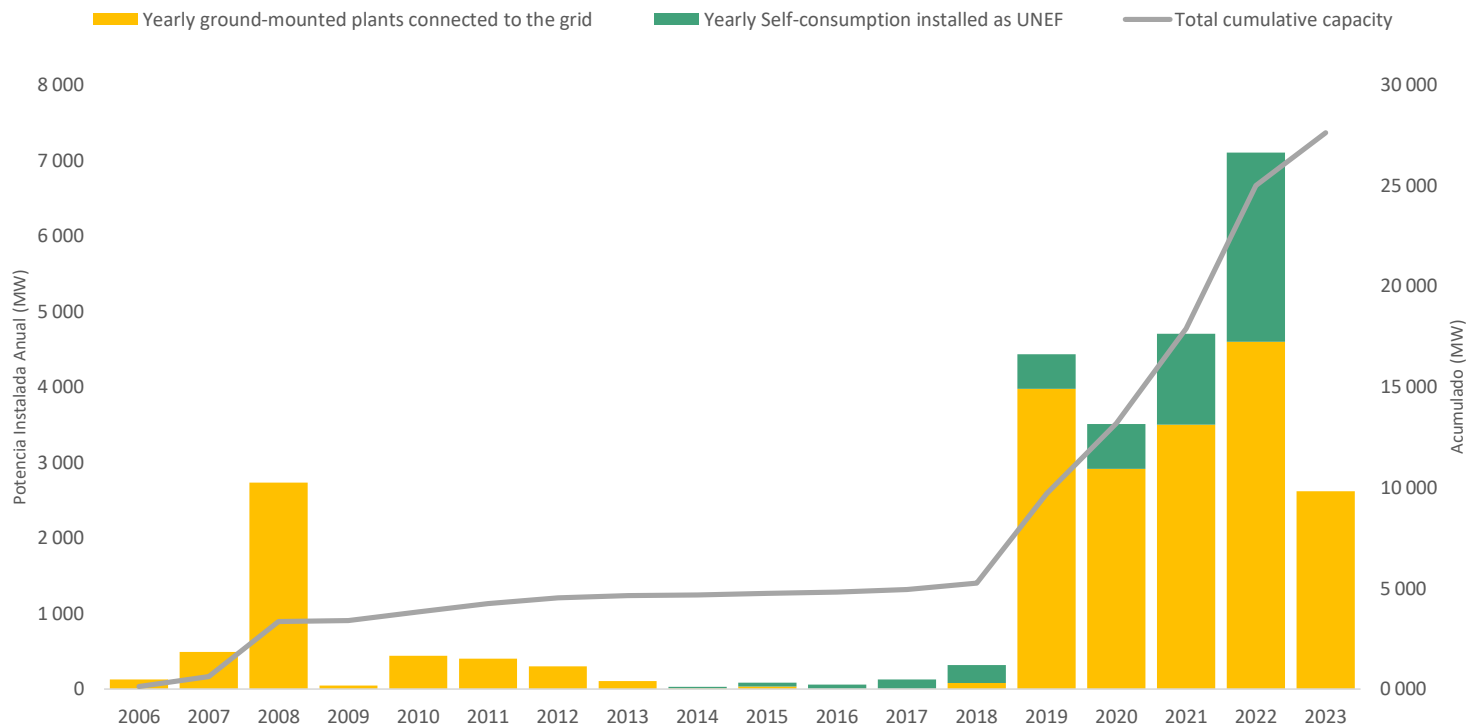
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IEA PVPS – TASK 1
Adelaida – October, 2023



2022 **best year** registered

PV installed capacity (**October 2023**)



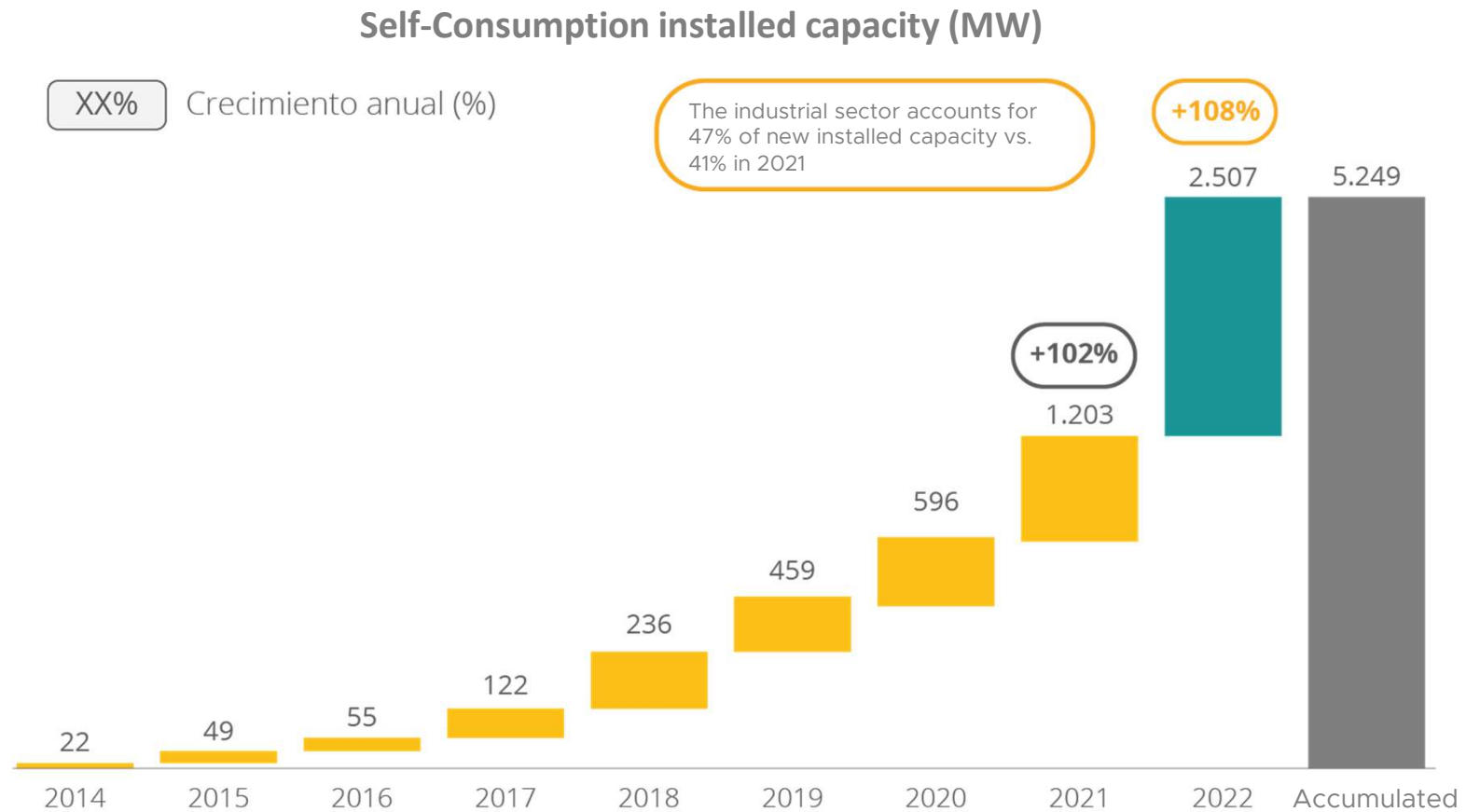
Source: REE y UNEF

***TOTAL installed capacity
28,141MW (33,769MWp)
by October 2023.***

***Total installed capacity on
ground-mounted plants
23,892MW***

***3,130MW (3,756MWp) of
ground-mounted plants
were installed so far in
2023.***

Historical record for self-consumption



PNIEC Proposal

OBJECTIVES 2030	MITECO PNIEC 2021 - 2030 (GW)	Other documents: Roadmaps /Strategies (GW)	UNEF Proposal 2023 (GW)	PNIEC draft 2023-2030 (GW)	Increase between 2021 PNIEC and the draft 2023 PNIEC (GW)	Additional capacity required
Fotovoltaica	39		70 - 80	76	37	58
En Suelo			55 - 65	57		44,2
Autoconsumo		9 -14*	15	19		13,8
Almacenamiento	17,6	20** (incluye VE)	24,5	22	4.4	
Bombeo (puro+mixto)	9,5		15,1	18,5		
Electroquímico	2,5		8			
Detrás de Contador		0,4	1,4			
Termoeléctrico	5,6			3,5		
Hidrogeno		4***	5,8-15	11	7	

* Self-consumption Roadmap (2021)

** Storage Strategy (2020)

***Hydrogen Roadmap (2020)

Necessary investments (Greenfield)
Increase (+37 GW): €25,900,000,000 approx.
Totals 2023-2030 (76 GW): €35,070,000,000 approx.

PV main challenges

CHALLENGES

Social acceptance

Permitting

Grid integration

Price cannibalization

Increase of the money cost

Political risk

RESPONSE TO THE CHALLENGES

Excellence in biodiversity and economic integration

Rationalization, digitalization and strengthening human resources in the Administration

Increase investments in infrastructure, storage, hydrogen, electrification and flexibility mechanisms

Reform of the market system

Auctions:

Stable periodicity

Volumes according to objectives

Source: UNEF

The future of **ground-based photovoltaic plants**

Projects with DIA (including hybridizations) **45GW**

- Ministry **24.7 GW**
- CCAA **20.3 GW**

2 years to build

New connection points by contest

The last auction has been left empty

Energy storage deployment starting
(c.2 GW of batteries under development)

Self-consumption

2022: PEAK year

Drivers:

- High energy prices
- Subsidies

2023: Slowdown in residential self-consumption

- Disappearance of the perception of high energy prices.
 - Delays in the management of subsidies
 - Rising interest rates
 - Inflation
 - Continuity in the industrial sector
- } Fall in household income had an impact over domestic economies

New systems for the **granting of connection points** in relation to the environmental and socioeconomic impact

- Call for access points to the network (TSO) – first tender
- 17 acces points, one for each Autonomous Community
- Total capacity for 5,844GW is called
- Provisional definition:

CRITERIA	Points	Percentaje (%)
TEMPORARY	13	16,50%
Energy Injection Commitment	12	15,20%
Projects in distribution with A&C procedure suspended for connecting to the underlying network of the consumption node	1	1,30%
ASOCIATED TO TECHNOLOGY	25	31,60%
Self-consumption	5	6,30%
Storage	5	6,30%
Hybridization	4	5,10%
Repowering	2	2,50%
Other technical criteria		
- Synchronous machine synetic energy		
- Short-circuit power of synchronous machines		
- Damping of oscillations		
- Automatic power reduction systems		
	9	11,40%

Sociodemographic criteria and demographic challenge	19	24,10%
Expropriation %	4	5,10%
Direct employment in the area (construction and operation)	6	7,60%
Impact on the value chain	2	2,50%
Participation on local investments	1	1,30%
Income reinvestment mechanisms	2	2,50%
Revision of income in municipalities that belong to areas of demographic challenge	2	2,50%
Carbon footprint	2	2,50%

Environmental criteria	22	27,80%
Plant affection	10	12,70%
Line affection	10	12,70%
Use of existing sites	2	2,50%

New systems for the **granting of connection points** in relation to the environmental and socioeconomic impact

PROS

- ✓ Improvement of social acceptance of the territory
- ✓ Avoid speculation

CONS

- Difficult to establish an objective evaluation system
- Without corrective measures, it drives out small companies

Proposals for the achievement of **self-consumption objectives**

Simplified permitting process:

- Maintaining environmental standards

Promotion of collective self-consumption and energy communities:

- Definition problems
- Proximity criteria

Substitution of direct subsidies for tax deductions:

- More than one Ministry involved
- Harder to apply
- Slow application

Conclusions and prospects

- **The Spanish market will continue to be one of the largest in Europe throughout this decade**
- **The market generated by public decisions is complemented by an important private market. But in any regulated market there is always regulatory risks.**
- **Uncertainty in financing in an inflation environment and increases in interest rates**
- **An adequate reform of the market model is essential to guarantee the future of the energy transition process**
- **If we want to continue having public/political support, it is necessary to carry out the projects from excellence**