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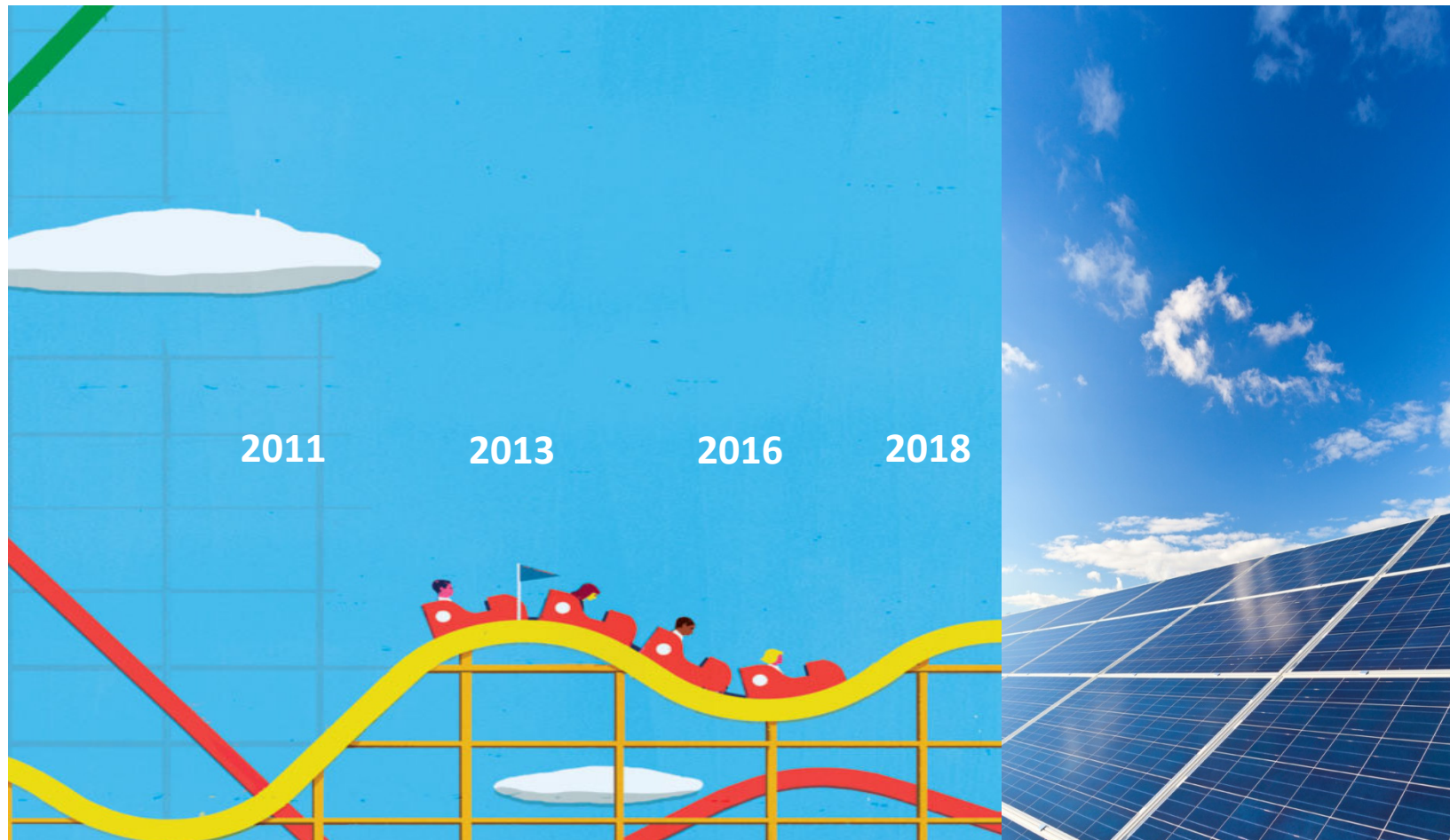
Status and outlook of the Greek PV Market

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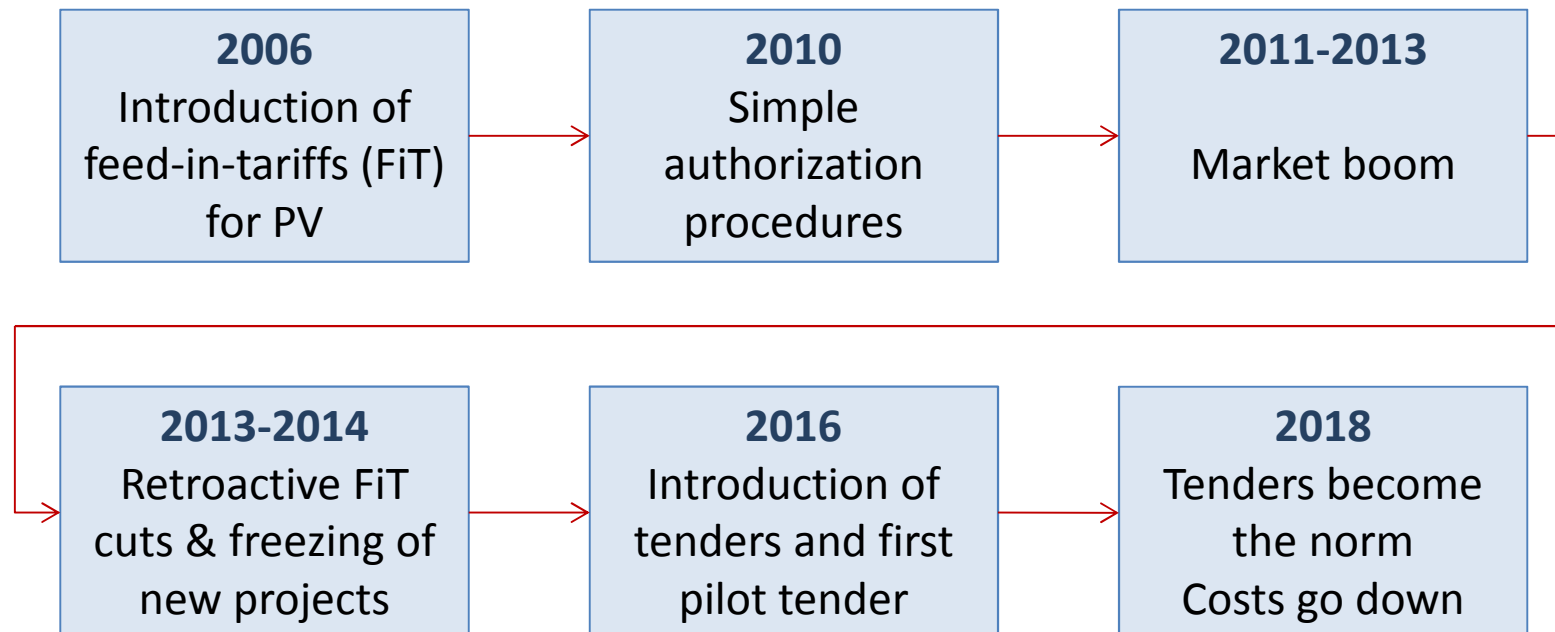


HELLENIC ASSOCIATION OF PHOTOVOLTAIC COMPANIES

Ups and downs of the Greek PV market



Milestones of the Greek PV Market



Looking back before leapfrogging to the future

The old RES support scheme based on feed-in-tariffs has worked!

Greece has installed 2.6 GWp of PV with feed-in-tariffs, investing 5 billion € amidst an unprecedented economic crisis.

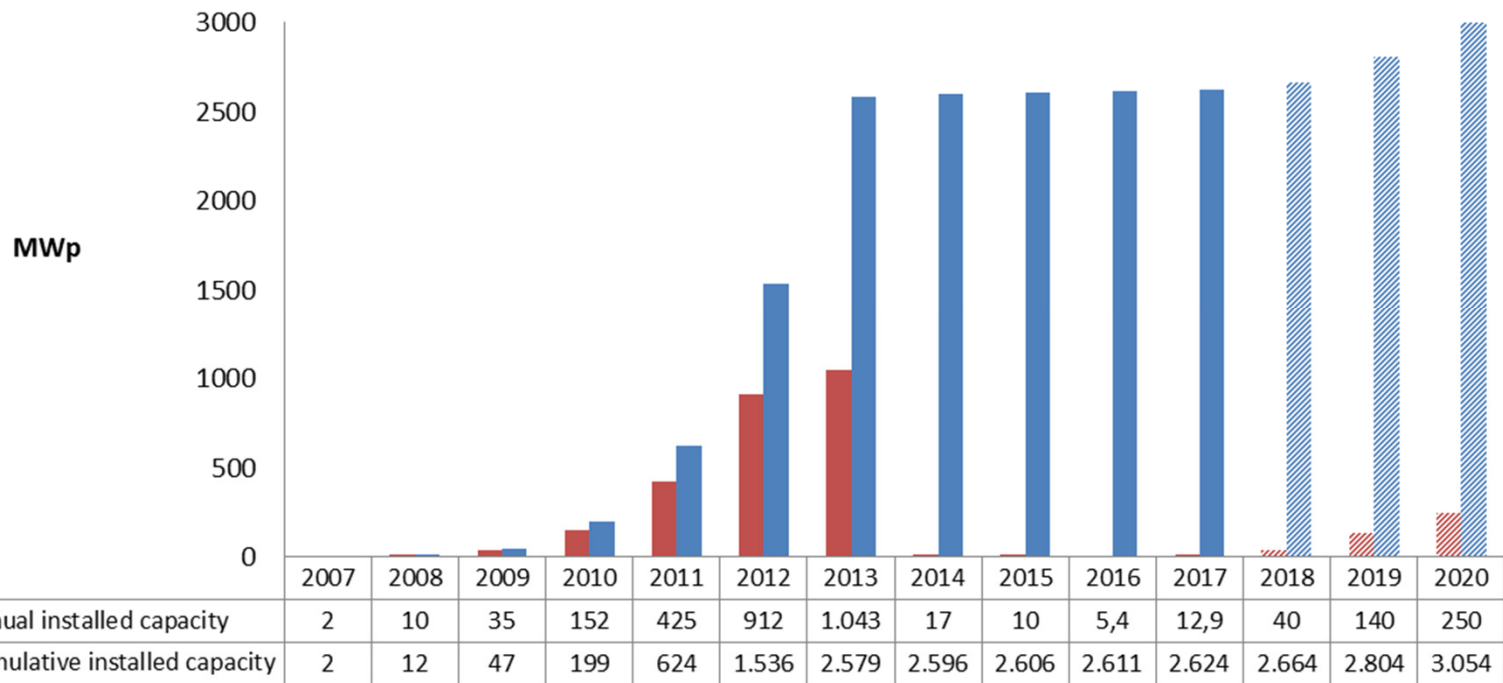
As a result, **7% of electricity demand in Greece is covered by PV**, bringing Greece to the **top-5 position worldwide** with regard to PV contribution to electricity needs.

Greece also ranks **5th worldwide** with regard to **installed PV capacity per capita**.

The old RES support scheme is not appropriate any more.

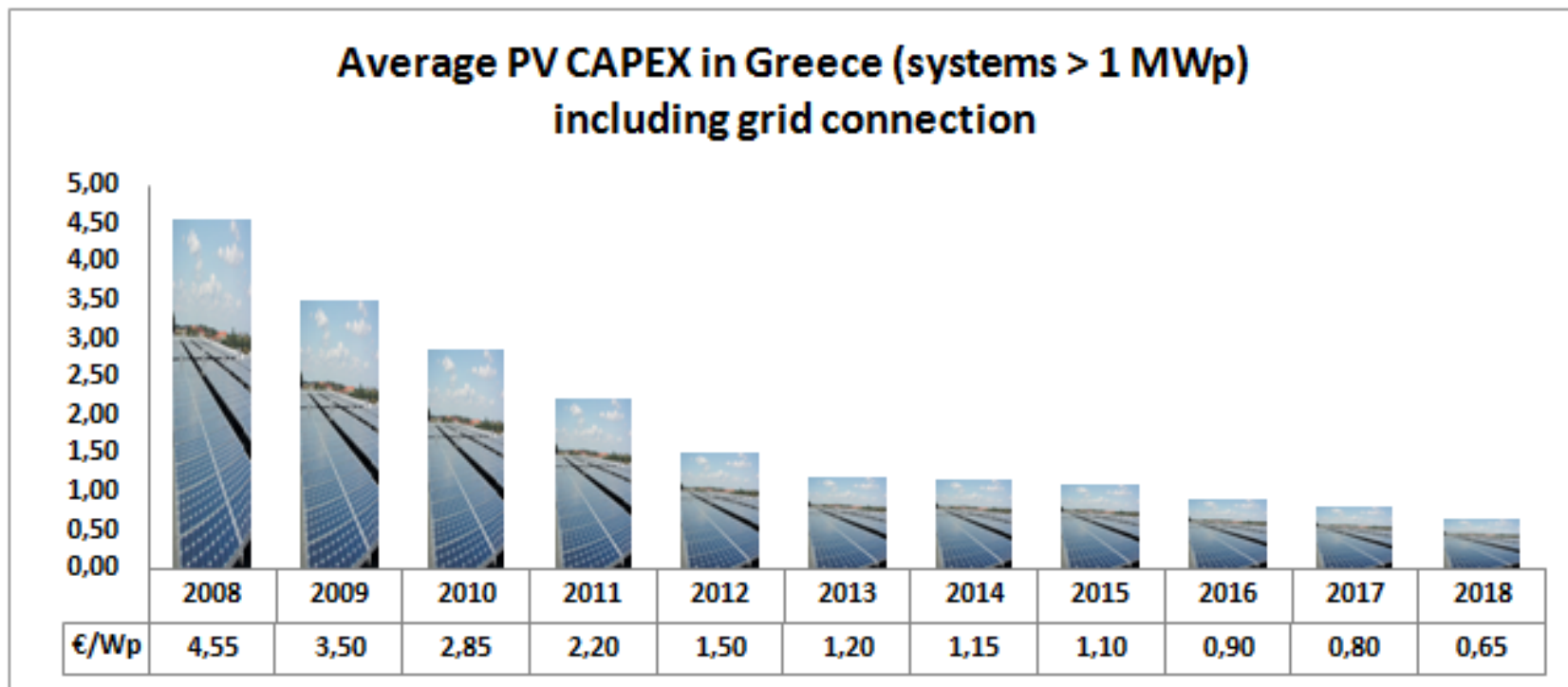
Support at original high levels was not sustainable in the long term. Drastic changes were needed.

Greek PV market development



PV has become the least cost power option available!

The levelized cost of new PV energy in Greece is lower than the levelized cost of new lignite power stations. This was unimaginable a few years ago.



Long-term energy planning

A long-term energy planning is currently underway in Greece.

Preliminary target for cumulative PV capacity till 2030: **6.9 GWp**

This translates to an average annual market of 350-400 MWp (2019-2030).



National PV targets (National Energy & Climate Plan, Draft Nov. 2018)	2016	2020	2025	2030	2035	2040
PV capacity (GWp)	2.6	3.3	5.5	6.9	7.5	8.1
PV energy production (TWh)	3.9	5.2	8.6	10.5	11.2	12
PV as % of national electricity production	8.1%	10.4%	16.5%	19.2%	19.6%	20.5%

Unfreezing the market



Auctions in place

A **new support scheme** for renewable energy, consistent with the Guidelines on State aid for environmental protection and energy 2014-2020 (and based on competitive tenders and feed-in-premiums) was introduced in 2016. A pilot auction for 40 MWp took place in December 2016, a second one on July 2nd 2018 and a third one on December 10th 2018.

Auctions for PV		
2018	PV	300 MW
	Common PV/Wind	400 MW
	PV/Wind (regional auction in Southern Evia)	Not defined yet
2019	PV	300 MW
	Common PV/Wind	400 MW
2020	PV	300 MW

EU Target Model, subsidy-free PV projects, bilateral PPAs and storage

The **EU Target Model** will become effective in Greece as of H2-2019. PV projects will have to participate in the energy markets that will operate as of next year, and especially the Balancing Market.

When this market becomes operational, **bilateral PPAs** will also become effective, opening new opportunities for PV investors, as the levelized cost of PV projects is already competitive to wholesale prices. Many industrial consumers are looking forward for this new business model.

The other market which will be of particular interest after 2020 is the **PV plus storage market**. There are already many applications for hybrid projects in the non-interconnected islands, but there is certainly a need for in front of the meter projects in the mainland as well. The regulatory framework for storage will be finalized in 2019.

However.... bureaucracy is here to stay



Positive changes on the way?

The long-term energy plan foresees measures for the simplification of authorization procedures.

HELAPCO's proposals:

No real need any more **for** issuing a **'Production License'** and, consequently, **'Installation'** and **'Operation'** permits. The new auction scheme procedures can guarantee any needed controls by competent authorities. Abolishing these unnecessary permits will save time and money for investors and will improve effectiveness and productivity of regulatory authorities.

Streamlined environmental permitting based on existing 'Standard Environmental Terms' valid for all PV power stations. A 'Declaration of Conformity' to these standards would suffice. This again would save time and money. **Land use issues** should also be resolved, lifting unnecessary obstacles for PV deployment.

Nothing is more powerful than an idea whose time has come

