

The Greek PV Market

Opportunities for investments in Greece

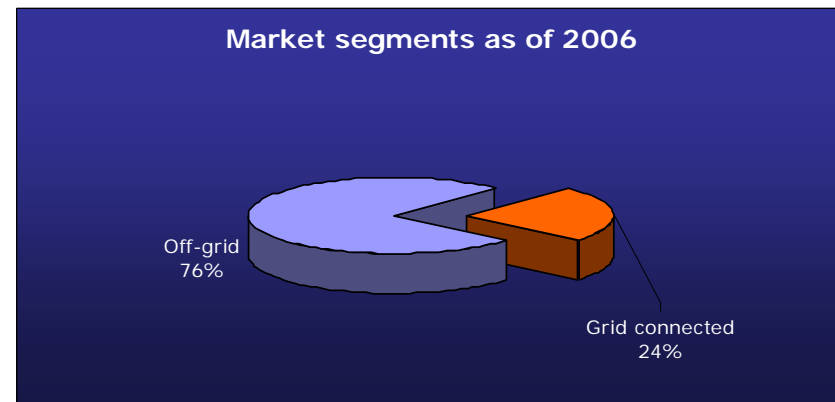
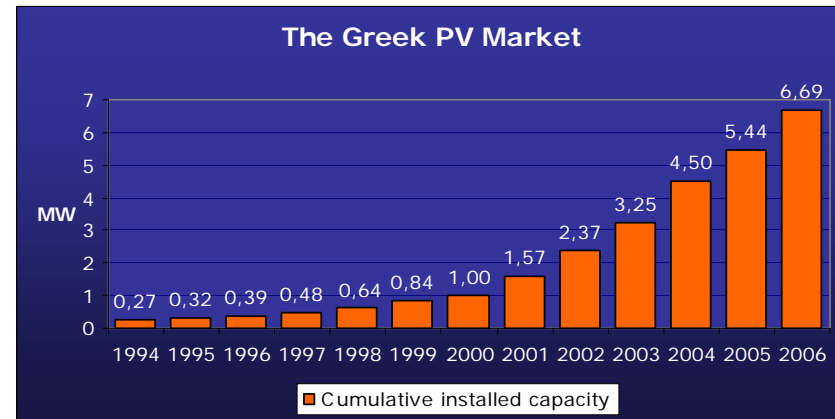
Hellenic Association of Photovoltaic Companies
(HELAPCO)



September 2007

An emerging market

- Despite its excellent solar resources, Greece has had little progress until recently with regard to PV.
- PV market until 2006 was marginal and mainly based on off-grid systems.
- However, a new Feed-in-Tariff scheme that was introduced in mid-2006 completely changed the picture and is meant to make Greece one of the most dynamic and promising PV markets worldwide.



Key driver: the new feed-in-tariff

- As of June 2006 Greece has a new RES law which offers a respectable tariff for PV and sets the basic procedures for the permitting of such systems.

PV system size	Mainland grid	Autonomous island grids
≤ 100 kWp	0.45 €/kWh	0.50 €/kWh
>100 kWp	0.40 €/kWh	0.45 €/kWh

- The new tariffs are adjusted annually for increases in retail electricity prices and/or the inflation rate (80% of its nominal value, but this rule will be effective in the future when electricity market is fully liberalized). Recent decisions (July 2007) have disappointed investors who were expecting higher increases (0.5-0.7% increases were decided for PV instead of the anticipated 3.3%).
- The FIT is guaranteed for 20 years (10 years initial contract which may be extended for 10 more years, unilaterally, upon a written declaration of the producer).

Other incentives and policies

- PV systems for commercial applications are eligible to grants ranging from 20% to 40%. The government was initially planning to offer up to 60% but finally decided to reduce the maximum grants in July 2007 after the huge interest expressed by investors. In simple words, there is not enough money available for all these projects.
- Other national and EU funded programs also offer grants for small commercial applications from time to time.
- Domestic applications are not eligible for grants as yet. However, a small tax deduction (capped at 700 per system) is valid.



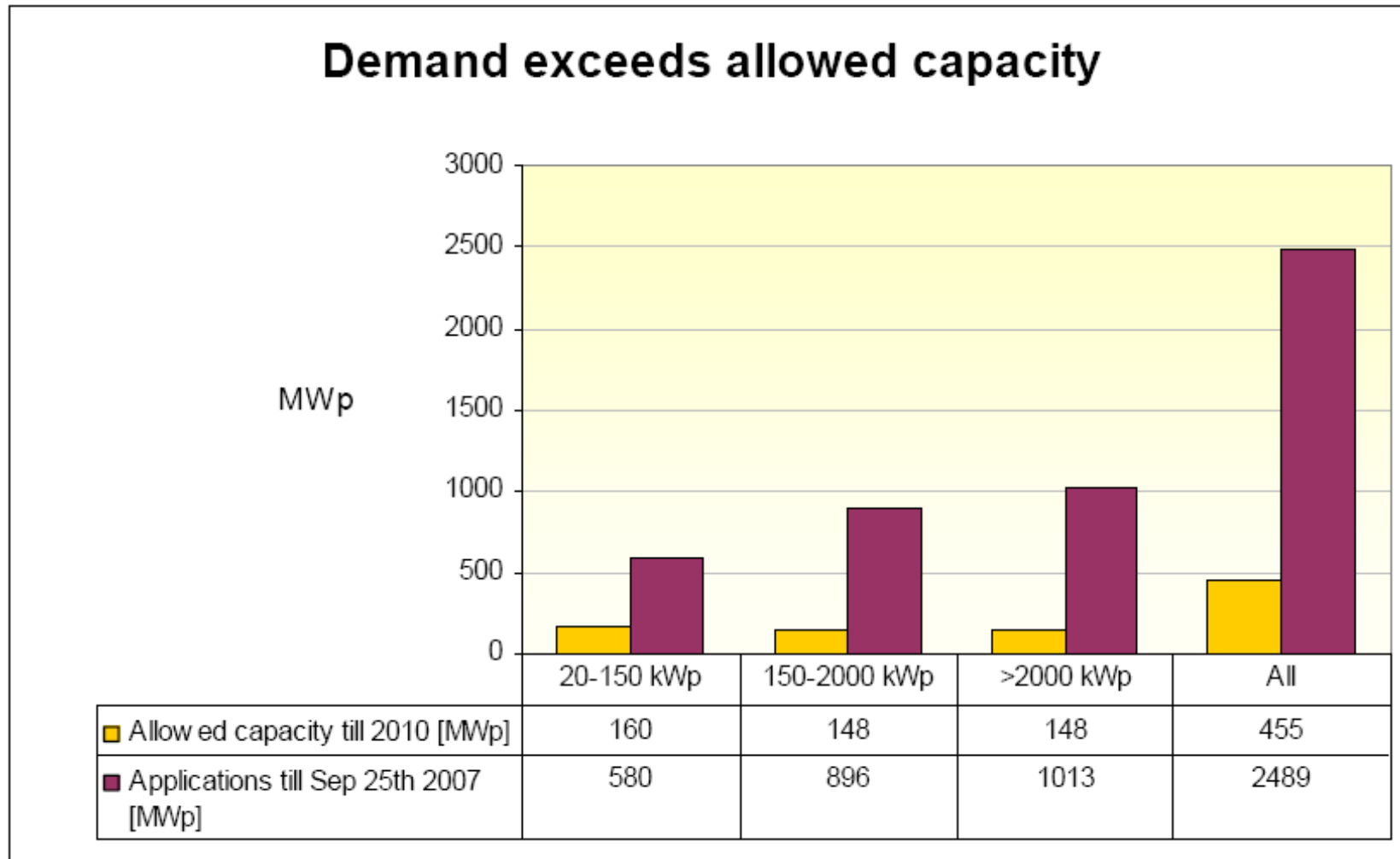
National targets for PV

- A target of at least 700 MWp until 2020 was initially set for PV. Due to the huge interest, the government decided to change this target by increasing it to **840 MWp**. Licensing for this capacity is meant to take place until 2010, and a detailed Program for the Development of PV was presented in April 2007 (and amended in June 2007).
- This program sets detailed targets for PV deployment in various regions according to system size for the period 2007-2010.
- The program has received lots of criticism for being too tight and bureaucratic and for being released too late and after many investors had already applied for permits. The authorities have been accused for changing the rules of the game after the game started.

The Greek PV Program

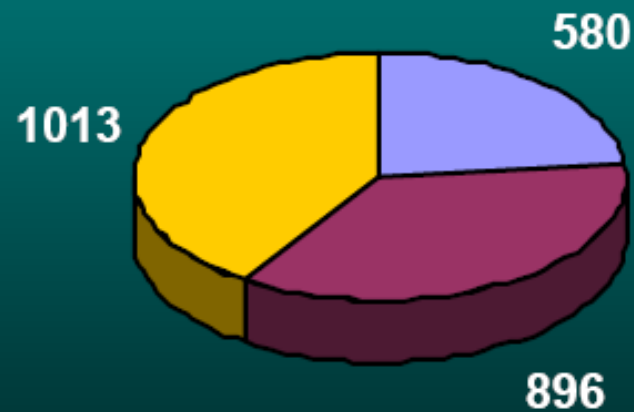
- The amended PV Program foresees 640 MWp for the mainland grid and 200 MWp for autonomous island grids.
- Systems are divided in 4 categories according to capacity.
 - <20 kWp
 - 20-150 kWp
 - 150 kWp-2 MWp
 - >2 MWp
- Taking into account the regional categorization as well, PV investments have been divided into more than 200 categories (!) thus creating an unsolvable problem for both investors as well as the authorities themselves. An annual cap has been set for every region, according to the size of the PV system. As a result there is a trimming of projects with dire consequences especially for big projects.
- The authorities didn't expect such a huge interest and thought they could control and dictate the market trends. They were taken by surprise by the huge number of potential projects and consequently their planning collapsed. They are now trying to find out ways to make things work.

A huge demand



A huge demand

Applications by size
(in MWp - Sep. 25th, 2007)



■ 20-150 kWp ■ 150-2000 kWp ■ >2000 kWp

An increasing demand

- While the mainland is already overbooked for 2007, applications are still accepted for some islands.
- There are already more than 2.5 GWp of proposed projects.
- In the meantime, the domestic market is showing some signs of waking up, however this process will take at least a couple of years before we have a sizeable domestic market.
- Investors who want to enter the Greek market can do so as of next year, as there is a separate annual target for each year in the period 2007-2010.

The supply side

- Many companies are looking at the Greek PV market these days. These include both international companies that would like to have a presence in Greece, as well as dozens of small Greek companies which act as retailers of existing companies and/or as system integrators.
- There is a huge interest in all sectors of the market: manufacturers, wholesalers, retailers, integrators, project developers, consultants, as well as the financial sector (banks and insurers).
- A 4 billion € PV market is expected to develop in the coming years in Greece.



PV manufacturing plants

- Wafer & Cells plant being built in Patras (30+30 MW/a). Expected to start operation in 2007 (member of HELAPCO).
- PV assembly unit (pilot production) in Ioannina (1.5 MW/a).
- a-Si plant will probably start production by 2008 in Kilkis (5 MW/a) (member of HELAPCO).
- PV assembly unit (10 MW/a) already operating in Bulgaria by a Greek company (member of HELAPCO).

PV market prospects

3 distinct market segments

(due to different tariff and/or permitting procedures):

1. Large solar farms (>150 kWp to multi-megawatt)
2. Systems with a capacity of 20-150 kWp
(indicative size ~100 kWp)
3. Small domestic systems

Main risk

Bureaucracy can hinder development.

PV market prospects

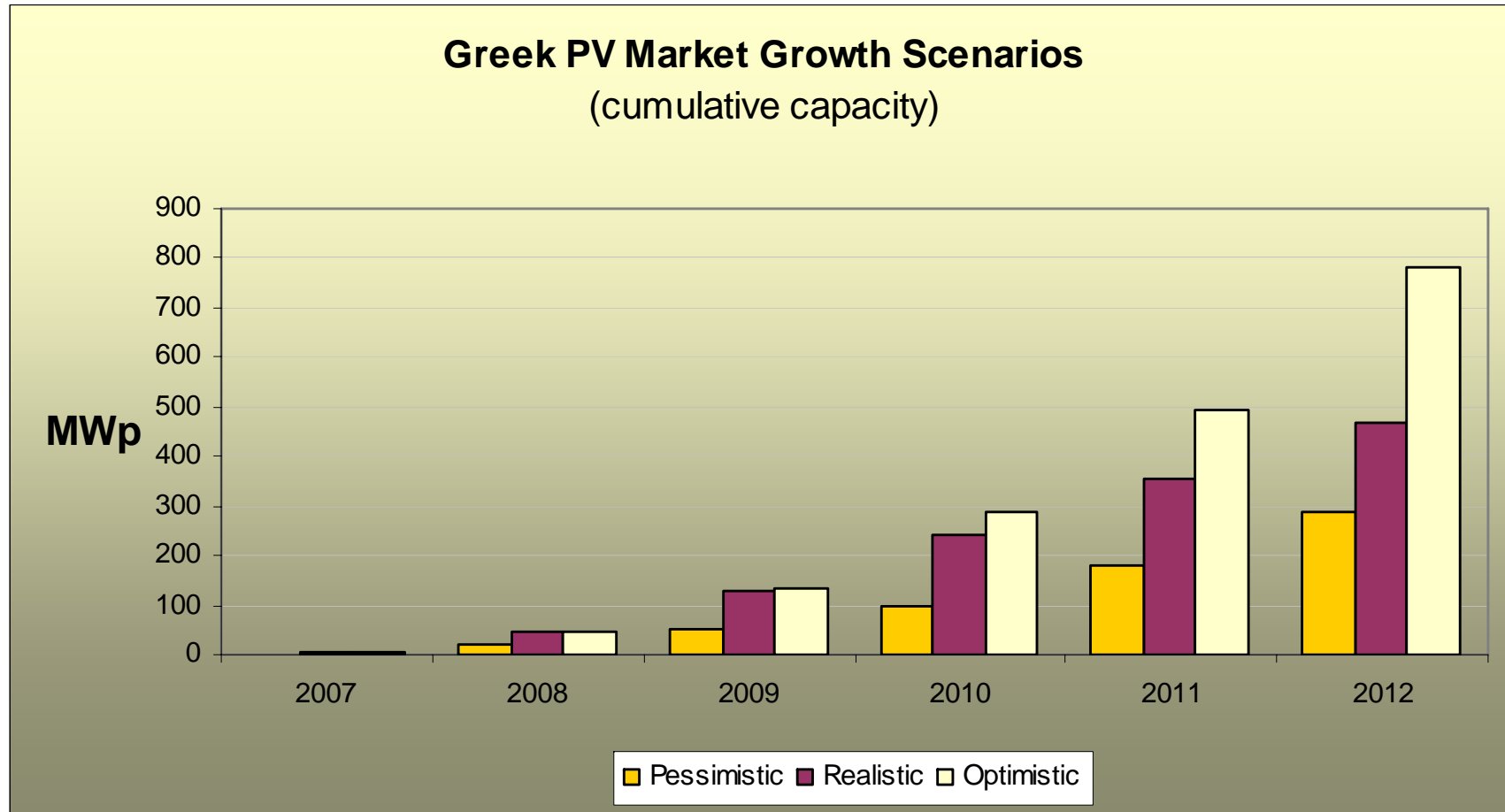
Main barriers

- Restrictions on land use (prime agricultural land is excluded but...unclear definition of 'prime agricultural land')
- Unclear regulations for building integration
- Time consuming permitting procedures

PV market prospects

2006	2007	2008	2009	2010
Preparation stage	Medium size systems (~100 kWp)			
Preparation stage	Preparation stage		Slow domestic market development	Considerable domestic market development
Preparation stage	Preparation stage		MW-size systems	

PV market prospects



For more information

Hellenic Association of Photovoltaic Companies



www.helapco.gr