

Study

MARKET INFO GREECE – PHOTOVOLTAICS

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on the basis of a decision
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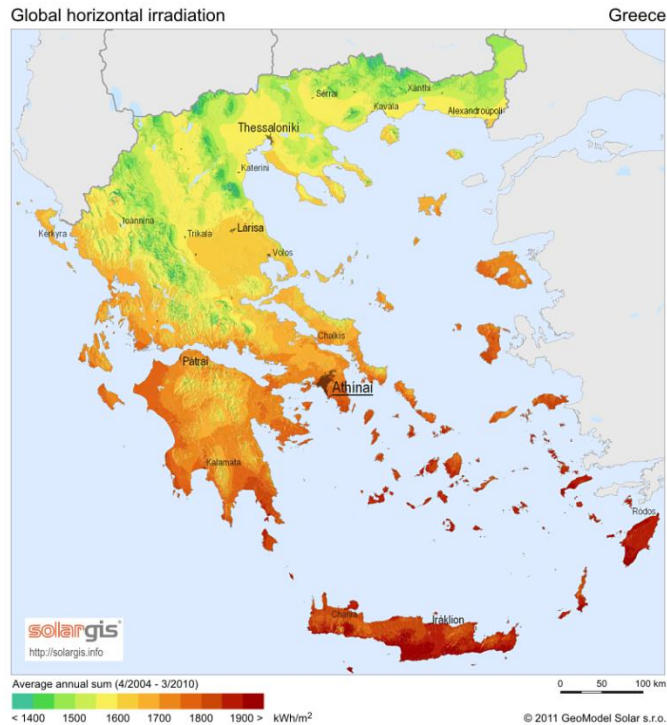


Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
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SOLAR IRRADIATION & POPULATION DENSITY

Annual global solar irradiation



Source: SolarGIS (2011)

Population density



Source: SEDAC (2012)

BASIC DATA

General basic data (2012)			
Area	131,957 km ²	GDP	193.75 bn €
Population (2013 est.)	10,772,967	GDP per capita (est.)	17,147 €
Language	Greek	GDP growth	-6.38 %
Government type	Unitary parliamentary constitutional republic	Inflation	1 %
Administrative division	13 regions and one autonomous state	Unemployment rate	26.4 %
Basic energy market data (2012)			
Final energy consumption (2011)	219,051 GWh		
Electricity consumption (total / per capita)	52,064 GWh / 4,830kWh		
Electricity import (net)	5,959 GWh		
Electricity generation	50,548 GWh		
Electricity price (industry)	0.13 € ct / kWh		
Electricity price (residential)	0.14 € ct / kWh		
Share of renewable energy (electricity consumption 2010)	14.6 %		
Increase of electricity consumption (2005 - 2012)	-0.19 %		
Annual global solar irradiation	1,300 to 1,800 kWh / m ² a		

PHOTOVOLTAIC MARKET INDICATORS

Indicators				
Market size (annual installed capacity)	2011: 425 MWp	2012: 912 MWp	2013: 1,043 MWp	2014e: 200 MWp
National PV target (NREAP)	2014: 1,500 MW (reached in 2012)		2020: 2,200 MW (reached in 2013)	
Main market drivers 2014	<ul style="list-style-type: none"> Extremely high solar irradiation levels throughout all regions of the country. Feed-in tariff, see “Recent changes in PV regulation”. Relevance of PV to power Greek islands that are not connected to the electricity grid of the mainland. Regulation Authority (RAE) is accepting application permits for PV installations > 10 kWp again. 			
FIT 2014	<ul style="list-style-type: none"> Feed-in tariff varies depending on the type of plant (PV rooftop or ground-mounted systems) and installed capacity (two capacity categories: up to 100 kWp and > 100 kWp). There is also a FIT for PV systems on Greek islands (except Crete). Details on the different new rates in 2014 are shown on the following slide. The 2014 new feed-in tariff scheme (FIT) has an annual market cap of 200 MW until 2020. New ground-mounted installations can be awarded via public tendering. 			
Recent changes in PV regulation	<ul style="list-style-type: none"> 2014: To fix the deficit in the funding of the renewable electricity market operator (LAGIE), the Ministry of Environment introduced a sales tax on all renewable energy systems in 2012. This was raised in May 2013. The “New Deal” law, adopted on 30th March 2014 lifts the ban on new PV systems larger than 10 kWp that had existed since August 2012. In addition, feed-in tariffs for PV systems, which are already in operation, were reduced. The current PV tariffs(2014) have been valid from 1st June 2013, and were decreased in February 2014 (see following slide). FITs for new PV installations have been announced on 10th May 2013. The FITs for PV systems were reduced three times between January 2012 and May 2013. 			

MAIN PV SUPPORT SCHEME

Renewable Energy Law (3851 / 2010)

Type of support scheme	FIT		Degression	Every year
Duration of payment	Rooftop systems < 10kWp: 25 years	Other system sizes: 20 years	Enacted since:	2006
FIT rates 2014	9 – 12 € ct / kWh		Next update:	February 2015

Feed-in Tariffs (released on 10.05.2013)

Year	Month	On-grid systems on mainland (and Crete) (in €ct / kWh)			On-grid systems on Greek islands (in €ct / kWh)
		> 100 kWp	≤ 100 kWp	Roof-top systems < 10 kWp (or 5 kWp)*	Regardless of system size
2013	May	9,5	12	12,5	10
	June	9,5	12	12,5	10
2014	February	9	11,5	12	9,5
	August	9	11,5	12	9,5
2015	February	1,1 X μmSP**	1,2 X μmSP**	11,5	1,1 X μmSP**
	August	1,1 X μmSP**	1,2 X μmSP**	11,5	1,1 X μmSP**

* 10 kWp for PV systems on the Greek islands, which are connected to the power grid on mainland (or on the island of Crete); 5 kWp for PV systems on other islands

** μmSP: marginal system price in the previous year



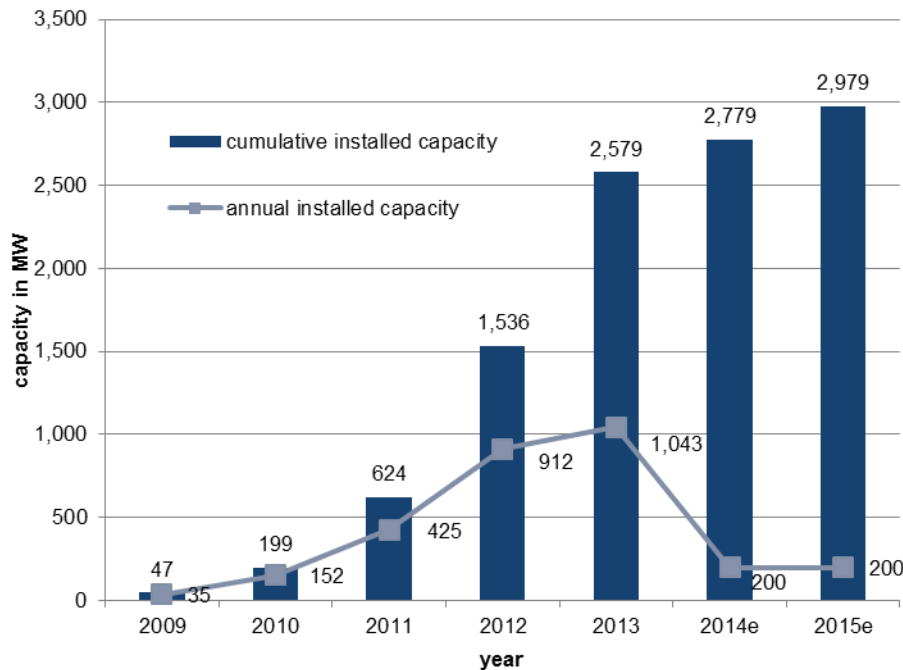
NEW: Regulation Authority (RAE) is accepting application permits for PV installations > 10 kWp again. The 2014 new feed-in tariff scheme (FIT) has an annual market cap of 200 MW until 2020. Ground-mounted installations can be awarded via public tendering.

FURTHER PV SUPPORT SCHEMES

Support Scheme	Details
Program for small rooftop PV systems – Feed-in tariffs combined with tax exemption	<ul style="list-style-type: none"> ▪ The support under the program for small rooftop solar PV applies for systems up to 10 kW: See slide number 6 for feed-in tariffs. ▪ Additionally small rooftop solar PV systems benefit from tax exemptions: <ul style="list-style-type: none"> ▪ Individuals that generate electricity from small rooftop solar PV systems, do not have to establish a company and therefore are exempt from all taxes (except from the 23 % VAT that must be paid when the system is purchased). ▪ Costs for the installation of the system are not allowed to be taxed (to be registered as expenses in income tax declaration).
Planned net metering program for PV	<ul style="list-style-type: none"> ▪ The laws (4203/2013) and (4254/2014) constitute the introduction of a net metering program. <ul style="list-style-type: none"> ▪ PV system categories or capacities have not yet been defined. Net-metering is not only possible for roof-top systems but also for electricity generators using PV systems in general. It is possible to add PV systems in congested networks (congested grids), however, the network operator can make restrictions for safety reasons. Any excess electricity can be fed into the power grid, but with no entitlement for compensation. Change may still be made by an announced Ministerial Decree of the Greek Ministry of the Environment. ▪ This ministerial decree will possibly specify the following points by 30th June 2014: <ul style="list-style-type: none"> ▪ Requirements and implementation of the net metering ▪ Fees that are included in the net metering calculations or will have to be paid by the producer ▪ Period in which net metering is factored in (possibly per quarter) ▪ Form and content of an agreement to be concluded ▪ Compensation for excess electricity

MARKET DEVELOPMENT AND BARRIERS

Development of installed PV capacity (on-grid)



Source: Helapco (2013), forecast by dena (2014)



Main barriers in the Greek PV market

Difficult political and market environment:

- Current financial situation of the Greek government indicates signs of further cuts and liabilities.
- The industry is suffering from the credit crunch, as is the entire Greek economy. As a result of the developments both domestic and foreign banks have been reluctant to participate in projects in Greece.
- Not only the number of members of the trade association HELAPCO (2013: 60 members) is constantly decreasing, the number of companies doing business in the Greek PV market (manufacturing, trading and installation) recently halved.
- To fix the deficit in the funding for renewable electricity managed by the market operator (LAGIE), the Ministry of Environment, Energy and Climate Change introduced a sales tax on an all renewable energy systems in 2012. This was raised in May 2013.
- Retroactive cuts in FITs have diminished investment security in the market

MARKET NEWS (1/2)

Date	Topic	Source
31/03/2014	<p>New deal in the greek RES market</p> <p>The highly debated “new deal” on RES was voted by the Greek Parliament on the 30th of March 2014. The ultimate target of the new deal is the complete elimination of RES Special Account (LAGIE) fund deficit. For all types of already operating RES projects certain reductions of FiTs have been introduced. Specifically, as regards the solar PV installations, the reference prices have a reduction around 30 % on average, in relation to the initial tariffs.</p>	Karageorgio & Associates
10/03/2014	<p>New Bill reboots the Greek PV Market</p> <p>Athens, March 10th, 2014: The Greek Ministry of Environment, Energy and Climate Change, presented a new bill which reboots the Greek PV market. The new bill (to be approved by the Parliament by the end of March) lifts an existing ban on new PV systems which was decided in August 2012, and introduces permanent retroactive cuts of feed-in-tariffs (FiTs) for operating PV systems.</p>	Helapco
11/03/2014	<p>Greece brings new retroactive measures; cuts FIT by 30%</p> <p>A new set of retroactive measures, a so-called "new deal" that applies to all renewable energy systems (RES), was announced by the Greek Ministry of Environment, Energy and Climate Change (YPEKA). Of all RES plants, solar PV installations face the biggest plunge. The new measures ask solar photovoltaic energy producers to contribute 35 % of their 2013 income to the Greek electricity market operator LAGIE. The intention is to plug a 700 mil € gap in LAGIE's fund used, which is used to pay renewable energy producers in Greece. The second measure introduced by YPEKA regards the drastic reduction of FITs for operational RES plants. Again, solar PV installations face the sharpest reductions, which on average reach 30 % of the initial tariffs. Retroactive FIT cuts also apply to rooftop installations.</p>	PV-Magazine

MARKET NEWS (2/2)

Date	Topic	Source
15/11/2013	<p>Greek PV market shrivels to just 6 MW per month Austerity-driven FIT cutbacks have seen PV installations in Greece plummet from the 801 MW installed in the first quarter. Figures show only 6 MW were installed in each of August and September.</p>	PV-Magazine
16/05/2013	<p>Greece Approves Solar Power Subsidy Cuts to Limit New Capacity Greece will cut the premium rates it pays for solar power, the highest such tariffs in the European Union, by as much as 48 percent to curb growth following record installations in the first quarter. The government approved a proposal to lower feed-in tariffs for photovoltaic projects installed after June 1, according to its official journal.</p>	San Diego Source The Daily Transcript
23/04/2013	<p>Greece adds 793 MW of PV in Q1 Greece added 793 MW of photovoltaics in the first quarter of 2013, according to national electricity market operator (LAGIE). In March alone, 259 MW of new capacity was installed. Meanwhile, a new renewable energy systems (RES) bill has been introduced.</p>	PV-Magazine
31/01/2013	<p>Greece Sees Impressive Solar PV Growth Despite Banking Crisis Despite on the ongoing financial tragedy that has gripped Greece for the past three years, the country has risen Phoenix-like from the ashes to become one of the world's largest markets for solar PV. Both in relative and absolute terms Greece has become a world leader in solar energy development. The country now ranks third in solar PV per capita worldwide, behind only Germany and Italy. Nearly one-fourth of all solar PV capacity in Greece has been installed in small rooftop systems. "Any citizen," says the association Hellenic Association of Photovoltaic Companies (HELAPCO), "who wants to install a solar system with a capacity of up to 10 kilowatts on their roof, can do so easily, simply by visiting the local electricity company office."</p>	Renewable Energy World

CONTACT INFORMATION

Category	Name	Website
Ministry of Environment, Energy and Climate Change	Ministry of Environment, Energy and Climate Change (YPEKA)	www.ypeka.gr
Ministry of Economy and Finance	Ministry of Economy and Finance	www.mnec.gr www.minfin.gr
German-Greek Chamber of Commerce	Deutsch-Griechische Industrie- und Handelskammer (AHK)	www.griechenland.ahk.de
Solar Industry Association	Hellenic Association of Photovoltaic Companies (HELAPCO)	www.helapco.gr
National Renewable Energy Authority	Center for Renewable Sources (CRES)	www.cres.gr
Renewable Energy Association	Hellenic Association of Electricity Producers from Renewable Energy Sources	www.hellasres.gr
National Energy Regulator	Regulatory Authority for Energy of Greece (RAE)	www.rae.gr
Electricity market operator	Operator of Electricity Market S.A. (LAGIE)	www.lagie.gr/en
National Transmission and Grid Operator	Diaxeiristis Ellinikou Systimatos Metaforas Ilektrikis Energeias (DESMIE)	www.desmie.gr

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