

Study

# MARKET INFO SAUDI ARABIA – PHOTOVOLTAICS

dena-Market Information System

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# IMPRINT

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## **Official websites**

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Online shop: <http://exportinitiative.dena.de>

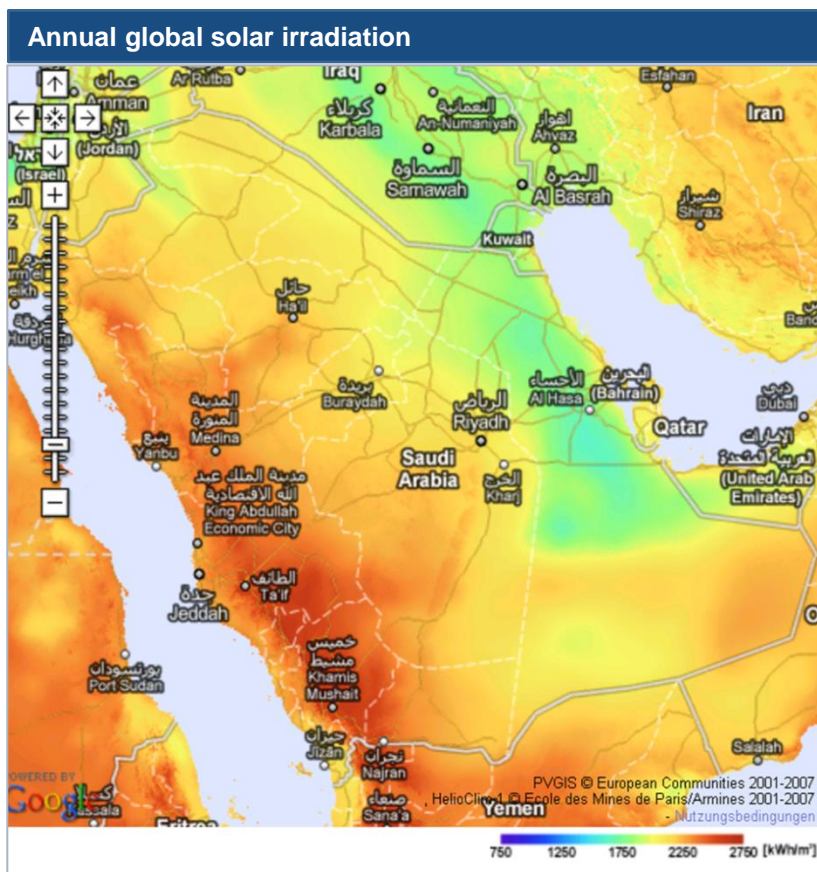
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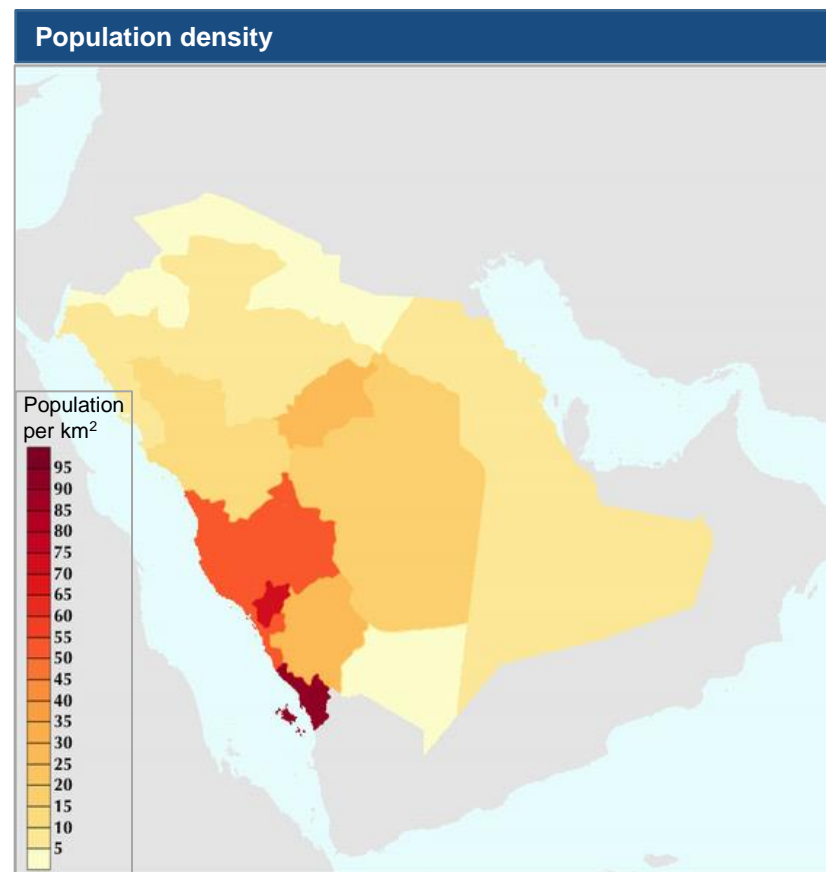
Federal Ministry  
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# SOLAR IRRADIATION & POPULATION DENSITY



Source: PV GIS (2012)



Source: SEDAC (2012)

# BASIC DATA

General basic data (2012)			
Area	2,149,690 km <sup>3</sup>	GDP (est.)	2,727 bn S.RI. (~568bn€*)
Population	26,939,583	GDP per capita (est.)	94,359 S.RI. (~19,658 €*)
Language	Arabic	GDP growth (est.)	6.8 %
Government type	Monarchy	Inflation (est.)	2.58 %
Administrative division	13 Provinces	Unemployment rate (est.)	10.7 %
Basic energy market data (2012)			
Electricity consumption (total/per capita) (2011)	219,662 GWh / 8,150 kWh		
Total electricity import (2011)	56,100 GWh		
Electricity price (industrial)	0.12 – 0.15 S.RI. / kWh (~ 0.025 – 0.031 € / kWh*)		
Electricity price (residential)	0.05 – 0.25 S.RI. / kWh (~ 0.01 – 0.052 € / kWh*)		
Share of renewable energy (electricity consumption)	n. a.		
Increase of electricity consumption (since 2002)	70.8 %		
Annual average global solar irradiation	2,200 kWh/m <sup>2</sup> a		

\* Annual average exchange rate 2012 IMF: 1 € = 4.8 S.RI.

# PHOTOVOLTAIC MARKET INDICATORS

Indicators			
Market size (annual installed capacity)	2009 - 2011: 3 MW	2012e: 2 MW	2013e: 11 MW
National PV target	2020: 6.5 GW	2032: 16 GW	
Main market drivers 2014	<ul style="list-style-type: none"> <li>Financial power of the country is based on revenues of the exporting oil industry to invest and to develop large -scale pilot projects in the field of renewable energy technologies.</li> <li>„Greentech-prestige“: Strong political interest in implementing visionary high tech projects to play an increasingly important role in the international renewable energy market.</li> <li>Increasing interest in solar based water pumping systems for soil irrigation and solar based desalination plants based on increasing water shortages in Saudi Arabia</li> </ul>		
PV support in 2014	<ul style="list-style-type: none"> <li>No specific support exists for PV electricity or market development.</li> <li>Citing government officials, Deutsche Bank said in 2012 that solar capacity would be added through competitive biddings starting with 1,100 megawatts of PV in the first quarter of 2013. ( Proposed guidelines for the tender process were outlined). A second round of bidding was planned for the second half of 2014.</li> <li>In November 2013 PV projects with a capacity of 125 MW were in the project pipeline.</li> <li>According to the Middle East Solar Industry Association (MESIA) solar energy projects with a capacity of 700 up to 1,000 MW in total are going to be tendered within an introduction round no later than the end of 2014.</li> </ul>		
PV (research) projects	Project executing organisations		Capacity
	Showa Shell (Solar Frontier)		500 kW, CIS-module technology
	Saudi Aramco North Park (Solar Frontier)		10 MW, CIS-module technology
	Saudi Aramco (King Abdullah Petroleum Studies and Research Center)		3.5 MW
	Saudi Aramco (King Abdullah University of Science and Technology)		2 MW

# MAIN PV - SUPPORT SCHEME: TENDER

Category	Details
King Abdallah City for Atomic and Renewable Energy (K.A.CARE) Tendering	<p>Until 2015, KACARE is having three rounds of tendering for projects with a total capacity of 6.8 to 7.7 GW, of which 2.4 GW are meant for PV projects. The introductory round was supposed to start in 2013, the two main rounds should be in 2014 (1.1 GW PV) and 2015 (1.3 GW PV). According to the Middle East Solar Industry Association (MESIA) solar energy projects with a capacity of 700 up to 1,000 MW in total are going to be tendered within an introduction round no later than the end of 2014.</p>
	<p><b>Applicability</b></p> <ul style="list-style-type: none"> <li>There cannot be more than two years between signing the contract and commissioning of the plant.</li> <li>Applicants must be companies registered in Saudi Arabia or must have applied for registration.</li> <li>Applicants must provide a tender guarantee of the equivalent of 10,000 US\$ per MW, max. 1 m US\$. A tender guarantee of 20,000 US\$/MW must be paid two weeks after the contract is signed and another 20,000 US\$/MW are due after twelve months.</li> </ul>
	<p><b>Tariff</b></p> <ul style="list-style-type: none"> <li>With the commission of the plant 20,000 US\$/MW will be paid back and after that 5,000 US\$/MW every five years.</li> <li>The investor will receive guaranteed monthly payments for the duration of 20 years, the amount of which is depended on the amount fed-into the grid.</li> </ul>
	<p><b>Procedure</b></p> <ul style="list-style-type: none"> <li>The government organisation "Sustainable Energy Procurement Company" (SEPC) has been established in order to conduct the process of tendering and as a contracting partner for electricity distribution contracts.</li> <li>The bid will be given to the operator with the lowest "Evaluated Contract Price".</li> <li>This price results from adding the real project costs and the grid charge and deducting a discount factor. The discount factor results out of a point system for each applicant, which is based on the financial abilities, delivered services, and a quota based on local content.</li> <li>It is uncertain which categories will weigh more in the final score but it can be expected that the most important one is the local content.</li> </ul>

# MARKET DEVELOPMENT AND BARRIERS

## Development of installed PV capacity

- Saudi Arabia has got a cumulated PV capacity of a few MW. This puts the country behind Egypt, Morocco, Tunisia, Algeria and the United Arab Emirates in the MENA region. The few and small pilot projects so far have been initiated, financed and are run by the Kingdom of Saudi Arabia.
- Most installed PV systems serve as research and development projects.



## Main barriers in the Saudi Arabian PV market

### **Oil dominance in energy mix:**

- Saudi Arabia is the worldwide leader in exporting crude oil.
- The electricity sector is basically state-subsidised and affects a sustainable development of a market for renewable electricity.

### **State monopoly in electricity sector:**

- The Saudi Electricity Company (SEC) is the state-owned electricity generator and grid operator at the same time. New generation capacities are tendered and awarded by SEC.

### **Controversial support for clean technologies:**

- Despite high solar radiation, no market support for photovoltaic exists so far. Electricity prices are subsidised by the state and are therefore very low.
- The administration supports joint research in clean technologies within nuclear power at the King Abdullah City for Atomic and Renewable Energy (K.A.CARE).

### **Complex approval procedures:**

- An official royal operating licence for all PV systems is mandatory.
- High initial investment costs need to be considered in project development plans, based on time consuming administrative processes.

# MARKET NEWS (1/2)

Date	Topic	Source
13/03/2014	<p><a href="#">Saudi Arabia to launch 1GW solar tender 'by end of the year'</a></p> <p>Saudi Arabia will put 700-1,000 MW of solar power out to tender by the end of the year, according to Vahid Fotuhi, president of the Middle East Solar Industry Association (MESIA). The country has long-term ambitions to invest more than US\$109 billion in solar energy but skepticism has been building with little tangible progress being made for outside observers to see. "They [the Saudi government] want to come out with something this year," Fotuhi told PV Tech. "If everything holds, then we will have the introductory round of projects unveiled by the end of the year."</p>	PV-Tech
06/02/2014	<p><a href="#">SunEdison, Saudi Arabia plan 3 GW solar PV factory</a></p> <p>SunEdison Inc. has signed an agreement with the government of Saudi Arabia and its investment company to jointly fund a feasibility study for a vertically integrated solar photovoltaic manufacturing facility in the nation. The proposed factory would cover all steps of crystalline silicon PV manufacturing from polysilicon through modules. The beginning of production is envisioned in 2017, and the facility would ramp to 3 GW of annual PV module output.</p>	SolarServer
13/06/2013	<p><a href="#">Soitec provides concentrator PV (CPV) for projects in Saudi-Arabia (in German)</a></p> <p>Soitec announced that the CPV system in Saudi Arabia will not just produce solar power but will also serve to determine electricity generation cost and to do performance tests. Belectric will be installing the system. In the beginning of 2013, Soitec has installed a pilot system onsite at the Medina College of Technology. It is one of six experiment sites, which Soitec has installed in MENA countries in order to show the specific requirements for CPV systems in this region.</p>	SolarServer
10/06/2013	<p><a href="#">Saudi-Arabia unveils new solar training program</a></p> <p>The Saudi Arabia Solar Industry Association (SASIA) started a training program together with the US company Solar Energy International (SEI), which provides trainings for engineers, designers, and policy makers in the solar industry in the kingdom and other parts of the Middle East. The one-day program consists of online tutorials and workshops and will take place in Riyadh on 9<sup>th</sup> September and in Dubai on 11<sup>th</sup> September.</p>	PV-Magazine



## MARKET NEWS (2/2)

Date	Topic	Source
29/04/2013	<p><a href="#">Malaysia: Saudi Arabian company to develop polysilicon plant</a>            The Project Management &amp; Development Company Co. Ltd (PMD) will take over operation of the 1.6 bn US Dollar plant when production starts in 2016. The produced polysilicon will be mostly used for the production of PV modules.</p>	PV-Magazine
11/04/2013	<p><a href="#">Saudi Arabia hopes to export solar electricity to Europe</a>            The kingdom hopes that it will be able to export 10 GW of solar power to Europe in winter. There is an excess of electricity due to the fact that there is hardly any use of ACs in winter because of lower temperatures. AC normally account for more than 50 % of the countries electricity use.</p>	Reuters
22/02/2013	<p><a href="#">Saudi Arabia unveils plans to build 41 GW of solar PV and CSP plants</a>            The King Abdullah City for Atomic and Renewable Energy (K.A.CARE, Riyadh, Saudi Arabia) has issued a white paper outlining its plans to build 41 GW of solar photovoltaic (PV) and concentrating solar power (CSP) projects by 2032. These projects will represent an estimated investment of over USD 60 billion. As a first step, K.A.CARE will hold an introductory round of solicitations for five to seven renewable energy projects with a combined capacity of 500 to 800 MW.</p>	SolarServer

## CONTACT INFORMATION

Category	Name	Website
National Ministry of Energy	Ministry of Petroleum and Mineral Resources	<a href="http://www.mopm.gov.sa">www.mopm.gov.sa</a>
National Ministry of Economics	Ministry of Economy & Planning	<a href="http://www.mep.gov.sa">www.mep.gov.sa</a>
State-owned Utility and Grid Operator	Saudi Electricity Company (SEC)	<a href="http://www.se.com.sa">www.se.com.sa</a>
Renewable Energy Research Institute	King Abdullah City for Atomic and Renewable Energy (K.A.CARE)	<a href="http://www.energy.gov.sa">www.energy.gov.sa</a>
German Delegation for Business Development	Delegation der Deutschen Wirtschaft in Saudi-Arabien (AHK)	<a href="http://www.saudi-arabien.ahk.de">www.saudi-arabien.ahk.de</a>
Solar Industry Association	Saudi Arabia Solar Industry Association (SASIA)	<a href="http://saudi-sia.com/">http://saudi-sia.com/</a>
Solar Industry Association	Middle East Solar Industry Association (MESIA)	<a href="http://www.mesia.com/">http://www.mesia.com/</a>

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