

Nicholas Wan™ Solar Photovoltaic Weekly Report

Nicholas Wan™ 太阳能光伏周报

This Weekly report offers a snapshot of solar photovoltaic industry trends and news
本周报提供太阳能光伏行业趋势和新闻纵览

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1. Performance of listed solar PV companies in Q2, 2010-Updates

二季度各大光伏上市公司业绩表现 -续

Source: Tony's PV Blog 来源: Tony的光伏博客

分析完了台湾光伏大佬们，笔者突然发现还有几个欧美和日本的大佬——至少曾经是大佬，还没有拿出来喝喝茶评点一番，如果大家还没看累，笔者也就不嫌累再写写了。

说明一下，前面涉及新台币的时候我全部改成了等值的美金来体现各大公司的收入和利润等，本篇中除了REC用的是挪威克朗做为本币，Sharp用的是日元外导致笔者不得不改成美金以方便对比之外，其余几个大佬都是欧元本币，所以笔者还是坚持其欧元单位，不作更改。

这篇写完，暂时财报部分就不再续写了，等向日葵，日升什么的有点像样的财报出来，咱也评点下国内的光伏企业吧，不过国内上市企业的财报水分多过营养倒是真的。

SHARP 夏普

夏普在太阳能电池行业的品牌价值是极高的，虽然在日本的财团中夏普的表现不算非常出色，但在光伏行业，日系其他几大财团对夏普的贡献只能说望尘莫及！

夏普在09年出货595MW电池，全球第三，仅次于FirstSolar和我们的尚德电力，预计今年其全年出货可能搞到1.05GW，销售额接近20亿美金。今年仅一季度出货已达258MW，较去年全年的一半！

笔者从头到尾看了它的财报，去年全年毛利约在2%左右，今年一季度毛利降到1.74%，笔者很奇怪这种超级公司怎么搞出这么低的毛利？是其全球产业布局带来的成本高居不下？还是日企追求效率和表现带来的制造成本高企？其财报并没有解释毛利如此之低的原因，还需要假以时日仔细观察，

笔者插一句，Sharp的财报不知道哪个部门做的，内部一个项目在不同的地方居然对不上数字，简直崩溃，这是成心的不让人分析啊！！而且solar部分是归在电子部件分布，并没有非常详细的关于出货、销售情况和预测等数字，笔者看资料头昏眼花，这一点比其欧洲几家公司的财报明细程度来说，那简直差的不是一点点了。

Kyocera 京瓷

京瓷09年出货电池400MW，排名全球第七。原先的电池制造基地在老厂在滋贺县的四日市，笔者曾有幸在四日市因公转了一圈，是个很安静的小县城，也非常的美丽。不过本月京瓷宣布，其在滋贺县野洲市建设的新电池厂将全面开始量产效率达16.9%的高效多晶电池。按产能释放的速度，京瓷预计到2013年第一季度全部产能将突破1GW。

而就今年二轮，京瓷可能会输出600MW的电池，比去年400MW的出货增长50%。

但笔者从其财报看到，京瓷并没有单独将电池部分财务状况公示，只谈到了部门整体数据，因而不具有可比性。

一头雾水的看完日商财报，我们转过头看看欧美几个大佬的业绩表现，会更加轻松些：

大佬之一：REC

（REC财报的本币是其本国的挪威克朗，笔者将之转为等值的美金）

REC是欧洲光伏业中的巨头，其一共分为四大结构：

REC Silicon

主要生产多晶硅所用的硅烷气体，和多晶硅料，在美国和加拿大有两个工厂。其硅烷今年预计产能达2200吨，西门子多晶硅和流床法制成的颗粒多晶硅合计产能达13000吨，如扩产顺利，在2012年多晶硅料产能可达17000吨，同时硅烷今年的产能也将达到2200吨。

REC Silicon二级营收185.74M\$, 比一季增加20%，比去年同期增加24.%，主要是二季度其硅料和硅烷的ASP比以前上升了10%左右，二季度中合计出货多晶硅料2640吨，不过一季度反而是2883吨，笔者估计可能REC增加了自产多晶自用为wafer的比例，直接销售比例降低。二季度内REC产出的太阳能级多晶硅占出货比重的81%，一季度仅为58%，也是由于二季度太阳能行业火热诱惑大家都增加了太阳能级多晶硅的生产。

REC Wafer

主要生产多晶和单晶硅片，其中主要是多晶硅片，厂址有三个，分别是位于Glomfjord的单晶硅片厂，位于Herøya的多晶硅片厂，以及还在扩建的新加坡硅片基地，其单晶硅片产能很小，且并没有为REC Wafer贡献收益，基本可忽略，欧洲硅片厂的主要精力在研发制造高质量的多晶硅片，而单晶方面则比亚洲和美国弱势很多。REC Wafer目前在新加坡的硅片项目进展顺利，预计在今年二季结束后量产开始，这样其全部硅片产能在3季度可达月输出120MW，全年1.4GW，不择不扣稳坐欧洲硅片业老大地位。

REC Wafer二季度收入274.68M\$, 比一季微增9.1%，主要为多晶硅片，出货302MW（以15%效率硅片计），单晶硅片出货21MW（以20%效率硅片计），REC的单晶硅片能做到20%效率么，这一点还无法去核实！这一级REC wafer应该比较头痛，除了和印度MoserBaer的官司还在仲裁，和中电的官司也没有最终定论，这都是收了人家预付款的！笔者猜测打官司还是出在价格出货都比较苛刻导致的吧。

REC Solar

主要生产太阳能电池及组件产品，也设计整体系统的研发设计和制造，目前其电池制造位于挪威的Narvik，组件则在瑞典的Glava，当然其新加坡基地也包括电池和组件的制造，目前还在持续建设，预计在今年下半年组件产能达到月输出45MW，全年540MW，是去年的四倍！当然这意味着其全部电池产能也将与之匹配。

REC Solar 二季营收162.8M\$, 比一季大增79%，二季组件总共生产了111MW，是一季度的一倍多，但出货只有80MW，接近一季的一倍。但EBITDA Margin还是负的，只不过比一季度和去年好一些，为-2%。

REC ASA+REC SITE SERVICES (SINGAPORE)

REC ASA主要业务涉及集团的一些管理、研发和结构治理等工作，可能也会操作一些集团融资项目等，另外位于新加坡的REC SITE SERVICES是服务性公司，主要设计一些项目建设、项目管理和一些建筑等方面的业务，对集团贡献很小，本篇不加以分析。

REC整个集团公司的二季度毛利率为31.40%，一季度为30.83，而去年同期为-30.22%，足以预见今年整个集团的财务表现将非常不错。

2. France's solar feed-in tariff to be cut by up to 12%

法国太阳能补贴将削减高达 12%

Source: Photovoltaics International 来源: 光伏国际

Local press reports in France have pointed towards feed-in tariff cuts for solar power installations. The French government is expected to follow the trend in solar slashing to keep its policy in line with the massive price drops apparent across the industry.

法国当地媒体报道太阳能安装补贴将被削减。法国政府将跟随削减太阳能补贴的潮流，以保持政策和本行业巨大的价格下降相一致。

The government has supposedly alerted the Commission de Régulation de l'Énergie (CRE) of its intention to lower the solar FiT with effect from 1 September 2010. The report issued outlines that France remains ahead of its objectives set out in its environmental manifesto, La Grenelle Environnement and thus, the cuts should not affect the country's renewable energy goals.

政府部门可能已经对能源调控部（CRE）发出预警，要求从2010年9月1日开始降低太阳能上网补贴。发布的报告大致概括了法国将仍然向自己的能源宣言目标前进。法国环境协商会议指出，该削减不应该对国家可再生能源目标造成任何影响。

The proposed cuts are to be around 12% and will be aimed at large-scale ground and roof mounted systems above 30m2. Individual residential installations of less than 30m2 will not be affected by the changes.

被提议的削减主要目标是对大型的地面系统和超过30平方米的屋顶系统进行12%的削减。小于30平方的个人家庭安装将不会受此影响。

The report says: "The cost of the PV sector has become very attractive, with lower module costs thanks to the development of production capacity in Asia, and a collapse in prices linked to the Spanish crisis."

报道称：“光伏领域的成本已经变得非常有吸引力，亚洲产能的发展使得组件的价格更低，西班牙的危机也导致价格的崩溃。

High electricity prices caused by the FiT are also key factors in the decision to cut, according to the report. The cost of this is initially covered by the energy provider, but is ultimately borne by consumers as it is passed down through EDF.

根据报道，由于上网补贴造成的电价的上升是此次削减的主要原因。成本起初是由电力公司承担，但最后却是通过法国电力集团转嫁给消费者。

This will not be the first time the country has made revisions to its feed-in tariff. Back in September 2009 the country's government replaced its three-year old solar FiT with a far more generous system, which spurred a torrent of project applications. The government now admits that this change was made based on "outdated cost assumptions" which have put the country in a situation of overly enthusiastic project applications.

这已经不是这个国家第一次对上网电价做出调整。2009年9月份，政府将其长达3年的上网电价修改成比较慷慨的一种体制，引发了一系列的系统安装申请。政府现在意识到这个调整是基于“过时的成本假设”，以至于整个国家出现对系统安装的过分热衷的局面。

The government claims that in the two months following the increase in FiT payments it received over 2GW of project applications. There are now over 60,000 applications awaiting approval.

政府称在上网电价上升后的两个月内全国增加了2GW的系统安装申请。现在有超过6万份申请在等待批准。

Following this, the government took a hard look at the figures and realized that if the tariff was not cut, and soon, then the average customer could be facing a 10% hike in electricity prices. This then of course prompted the change.

看到这些数字，政府意识到如果上网电价不进行削减的话，普通的消费者将面临电价上涨10%的局面，这当然就导致了此次削减。

What the country is likely to face now, is yet another flurry of project applications which aim to benefit from the higher FiT rate before the cuts take effect. This could put the energy providers in a worse position than they are now, yet this should be resolved as we go into 2011.

目前法国可能面临的情况是，另外一轮系统安装申请的风潮，以期在削减生效前享受较高的上网电价，这会让电力公司处境比现在更糟。当然这一切在2011年都将被解决。

France is the latest in a long line of European countries to cut their subsidies for solar power, following Germany, Italy and the Czech Republic, who have all made amendments to their policies using the same reasoning.

法国是欧洲一连串国家削减太阳能补贴的队列中最新的一个，同德国，意大利和捷克一样，他们均用同样的理由对现有的政策进行了一些修正。

France FiTs: New versus Old

Feed in Tariff		Pre 9/1/10	Post 9/1/10
Fully Integrated Roofing System	Residential <3kW	€0.58/kWh	€0.58/kWh
	Residential >3kW	€0.58/kWh	€0.51/kWh
	Schools and Hospitals	€0.58/kWh	€0.51/kWh
	Other	€0.50/kWh	€0.44/kWh
Simplified Rooftop Integration		€0.42/kWh	€0.37/kWh
Ground Mounted Systems	North of France	€0.3768/kWh	€0.3312/kWh
	South of France	€0.314/kWh	€0.276/kWh
	Overseas	€0.40/kWh	€0.352/kWh

Source: Ministry of Finance and Sustainable Development, EPIA, Barclays Capital Research

1. Solar industry veteran joins Sharp Corporation

太阳能资深人士加入夏普公司

Source: Global Solar Technology | 来源: 环球太阳能科技

Sharp Electronics Corporation (SEC) today announced that Eric Hafter has been named Senior Vice President of Sharp Solar Energy Solutions Group (SESG), a division of SEC and the U.S. solar arm of Sharp Corporation. In this position, Mr. Hafter is responsible for all U.S. sales and marketing of Sharp's solar energy products and solutions. Mr. Hafter reports to Mr. Kozo Takahashi, Chairman and CEO of Sharp Electronics Corporation.

夏普电子公司（SEC）今日任命Eric Hafter为夏普太阳能解决方案公司（该公司是夏普电子公司和美国太阳能联合建立的一个夏普分公司）的高级副总裁。Hafter先生主要负责所有夏普太阳能产品和解决方案在美国的销售和市场推广。Hafter先生直接向夏普电子公司的主席兼CEO高桥耕作先生负责。

Mr. Hafter is a solar industry veteran with a highly successful track record of developing large-scale renewable energy and commercial property projects. Most recently, Eric served as Chief Strategy Officer of Solar Power, Inc. (SPI), where he helped the company win and develop several key multi-megawatt solar energy installations. Before joining SPI, Mr. Hafter held positions of increasing responsibility at a variety of companies involved in energy and/or construction management. For over ten years, he served at PowerLight Corporation (acquired by SunPower Corp.), where he was a member of the board of directors, and then joined the company to lead PowerLight's successful entry into Europe.

Hafter先生在太阳能行业关于发展大规模可再生能源和商业地产规划项目方面是一位非常成功的资深人士。之前，Eric担任太阳能能源有限公司（SPI）首席战略官期间，曾帮助该公司成功赢得并发展几个关键性的多兆瓦太阳能装置。在加入SPI之前，Hafter先生曾担任多家公司能源和（或）工程管理上的职务。在过去的十几年间，他曾作为Powerlight公司（现在被SunPower收购）的董事会一员带领公司成功进入欧洲市场。

"Sharp has been at the forefront of solar technology and innovation since the industry's inception. Further, they have led solar expansion in the United States, providing world class products built right here in the US," said Hafter. "I'm thrilled to join such a capable company and team, and look forward to helping Sharp expand into a total photovoltaic solution company."

Hafter认为，自该公司建立起，夏普公司就一直位于太阳能技术和创新的前沿。此外，夏普将其引入美国，并为美国提供世界一流的太阳能产品。对Hafter而言，他非常高兴能加入到这个公司和团队，并期望能够帮助惠普全面进军太阳能光伏解决公司。

"Eric brings critical utility and commercial scale solar experience to Sharp," said Mr. Takahashi. "We are pleased to have him leading our efforts as we expand our presence in the rapidly growing large-scale solar market."

同时，夏普CEO高桥先生说：“Eric的到来能为夏普提供非常重要的具有工业规模的太阳能方面的经验。当前夏普公司处在一个高速发展大规模太阳能市场的局面，我们非常高兴他能来领导我们的工作。”

The company also announced the departure of Solar Energy Solutions Group Vice President Ron Kenedi to pursue other interests. "We thank Mr. Kenedi for his tremendous contributions in starting and building Sharp's presence in the U.S. solar market," said Mr. Takahashi.

公司同时宣布解雇该公司前任副总裁Ron Kenedi先生。同时，高桥先生对于Kenedi先生能在美国市场上立足做出的贡献表示感谢。

For more information, visit Sharp Electronics Corporation at www.sharpusa.com.
更多信息请登录夏普公司网站：www.sharpusa.com.

2. LDK Solar Commences Commercial Production in Second 5,000 MT Train in its Polysilicon Plant

赛维LDK正式投产第二条5000吨多晶硅生产线

Source: LDK Solar | 来源: 赛维LDK

LDK Solar Co., Ltd. ("LDK Solar") (NYSE: LDK), a leading manufacturer of multicrystalline solar wafers and PV products, today announced that its second 5,000 MT polysilicon train has completed the commissioning process and commenced commercial production. This second train, located at the 15,000 MT Mahong Polysilicon Plant in Xinyu City, China, is expected to reach its designed annualized capacity within three to six months. This achievement should assist LDK Solar polysilicon facilities to achieve the expected production costs and annual capacity targets.

赛维LDK昨日宣布其第二条5000吨多晶硅生产线已经完成试运行并正式投入商业生产。这是新余市15000吨级马洪多晶硅厂的第二条生产线，预计在未来3到6个月内达到设计产能。这将有助于赛维LDK实现其成本控制和年产量的目标。

"We are very pleased to commence commercial production in the second train of our Mahong plant," stated Xiaofeng Peng, Chairman and CEO of LDK Solar. "Lessons we learned and experience gained from the first train has been applied and allowed us to increase our speed of execution in commissioning and starting up commercial production of the second train. Quality of the polysilicon produced to date confirms the state-of-the-art technology implemented at our Mahong polysilicon facility. This achievement enables us to continue our progress in improving economies of scale, and is a clear demonstration of the hard work and commitment of our operations team. We look forward to continued success in increasing our polysilicon production to meet the growing needs of the solar industry worldwide."

"我们很高兴投产马洪硅料厂的第二条生产线，"赛维LDK的董事长兼CEO彭小峰表示，"我们从第一条生产线上学到的知识和经验帮助提高了第二条生产线的测试速度，使其加快投入商业化生产。目前生产出的多晶硅的质量证明了马洪硅料厂领先的技术。这项成果使我们的生产规模继续扩大，同时是我们施工团队辛勤汗水的结晶。我们将继续扩大多晶硅的生产来满足世界太阳能行业增长的需求。"

3. Solar thin-film reaches 20.3% efficiency

CIGS薄膜太阳能电池创造20.3%新效率纪录

Source: Renewable Energy Focus | 来源: Renewable Energy Focus

A solar thin-film cell has reached a top efficiency of 20.3% at the German Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Germany. The copper indium gallium diselenide (CIGS) solar thin-film cell is 0.5 cm² and has a total thickness of 4µm. ZSW says the efficiency record minimises the advance of multi-crystalline solar cells over thin-film to only 0.1%.

"Our researchers have made the cells in a CIGS laboratory coating plant using a modified co-evaporation process, which in principle can be scaled up to commercial production processes," says Dr Michael Powalla, Member of the Board and Head of the Photovoltaics Division at ZSW.

Powalla adds, however, that it will be some time before the high-efficiency CIGS solar thin-film cells can be commercialised. The efficiency record has been confirmed by Fraunhofer ISE.

ZSW says the efficiency of the relatively low-priced CIGS solar thin-film modules could rise from around 11% to about 15%. Furthermore, CIGS solar thin-film is expected to double its market share to 30% by 2012 from 2008 levels.

ZSW cooperates with Würth Solar on the development of CIGS solar thin-film technology.

德国一家太阳能和氢能研究机构ZSW近日宣布其铜铟镓硒（CIGS）太阳能电池的光电转化效率达到20.3%，这项记录得到了德国夫琅禾费太阳能系统研究所（Fraunhofer ISE）的证实。此次创造记录的CIGS太阳能电池面积为0.5平方厘米，厚度仅4微米。ZSW表示这项新纪录将CIGS与多晶硅太阳能电池的效率差距缩小到只有0.1%。

该机构在今年4月曾创造了20.1%的效率记录，突破了NREL（美国国家可再生能源实验室）保持了16年的记录，同时也标志着CIGS电池效率首次突破20%。

"我们的研究员在实验室使用了共蒸镀（co-evaporation）技术来制造CIGS电池，这种方法原则上可以放大应用于商业生产。" ZSW负责光伏部门的Michael Powalla博士说。但他同时表示，高效率CIGS薄膜电池的商业化生产还要有一段时间。根据ZSW预计，在未来几年普通CIGS电池的效率将从目前的11%提高到15%左右。同时CIGS薄膜太阳能电池的市场占有率将在2012年实现翻番，达到30%。ZSW目前正与Würth Solar公司合作开发CIGS电池技术。

4. Solar-Powered Robots for Cleaning up Oil Spills

MIT推出太阳能动力海面油污清理机器人

Source: Solar Novus Today |来源: Solar Novus Today

Researchers at MIT's Senseable City Lab have created a solar-powered robotic prototype called Seaswarm that could autonomously navigate the ocean surface to collect surface oil and process it on site.

The robots would make up a fleet of vehicles that may make cleaning up future oil spills less expensive and more efficient than current skimming methods.

The robot, which is 16 feet long and seven feet wide, uses two square meters of solar panels for self-propulsion. With just 100 Watts of power it could potentially clean continuously for weeks. It uses a conveyor belt covered with a thin nanowire mesh that absorbs oil. The fabric, developed by MIT Visiting Associate Professor Francesco Stellacci, can absorb up to twenty times its own weight in oil while repelling water. Heating the material allows the oil to be removed so that the nanofabric can be reused.

"We envisioned something that would move as a 'rolling carpet' along the water and seamlessly absorb a surface spill," said Senseable City Lab Associate Director Assaf Biderman. "This led to the design of a novel marine vehicle: a simple and lightweight conveyor belt that rolls on the surface of the ocean, adjusting to the wave's.

Using swarm behavior, the units will use wireless communication and GPS and manage their coordinates and ensure an even distribution over a spill site. By detecting the edge of a spill and moving inward, a single vehicle could clean an entire site autonomously or engage other vehicles for faster cleaning. MIT researchers estimate that a fleet of 5,000 Seaswarm robots would be able to clean a spill the size of the gulf in one month.

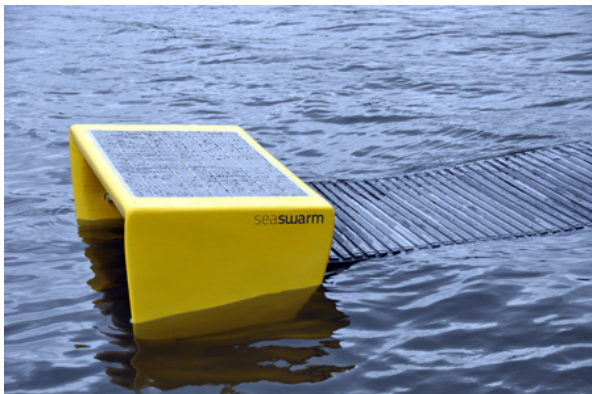
Senseable City Lab's initial Seaswarm prototype will be unveiled at the Venice Biennale's Italian Pavilion on Saturday, August 28. The Venice Biennale is an international art, music and architecture festival whose current theme addresses how nanotechnology will change the way we live in 2050.

来自MIT的SENSEable City实验室的研究人员制作了一个太阳能驱动的机器人原型机，这个叫海蜂（Seaswarm）的机器人可以在海面自主航行，收集海面泄漏的原油并就地处理。

机器海蜂大约长5米，宽2米，装备有2平方米的太阳能电池板驱动动力系统。使用100W的动力，它可以持续工作数周时间。它使用附着纳米丝网的传送带吸附油污，这种由 Francesco Stellacci教授开发的织物可以吸收自身重量20倍的油污。加热这种材料就可以把吸附的原油除去以实现这种纳米织物的重复利用。

“我们设想了一种在水面移动的‘滚动地毯’，它可以无缝的吸收海面的漏油。” SENSEable City实验室的副主任Assaf Biderman表示，“这个灵感促使我们设计一个海上机器人：一个简单轻便的传送带，随着海浪调节在海面上的转动。”

在实际使用中，机器人将组成舰队使清理漏油事故更加经济高效。与真正的蜂群的行为类似，这些机器人自主使用无线网络和GPS来组织协同，在漏油海域均匀分布。一台机器人可以寻找浮油的边界再逐步向内自动清理一片油污，或者它会呼叫其他机器人来协作加快清理进程。MIT 的研究员表示5000个海蜂机器人就可以在一个月之内清理一个海湾区域内的漏油。



* If you are the marketing of the solar pv company, please share us your company news.
请与我们联系分享贵公司的新闻。

Price Info | 价格信息

1. Solar cell and wafer makers still aggressively pushed price up.

电池片硅片制造商仍然积极推高价格

Source: PV insights | 来源: 光伏透视

Solar cell makers still aggressively expand their capacity in the coming months, due to the solid orders from solar panel makers. In order to secure the solar PV wafer supply, solar cell makers also try to secure the wafer supply. Therefore, solar cell and wafer makers still made the selling price up or kept price stable in the past one week. However, solar system makers reported solar system installation in Germany and in Italy drop significantly in July and in August. PVinsights expect that solar module makers are still expecting a good solar PV system installation in 4Q10 so as to build some inventory. As a result, PVinsights.com, www.pvinsights.com, kept the opinion of a solid solar PV component price in August.

由于组件厂商稳定的订单支持, 电池片制造商在未来数月仍然积极推高价格。为了确保硅片的供应, 电池片和硅片制造商在过去一周将销售价格提升或者保持价格的稳定。然而, 光伏系统集成商报道说德国和意大利在7月和8月的安装量已有显著下降。Pvinsight预计组件制造商仍然估计在2010年第4季度的安装量会比较大。因此, pvinsight的观点是8月光伏材料的价格会保持稳定。

2. Solar Cell and Solar Module Spot Market Price

电池片和组件现货市场价格

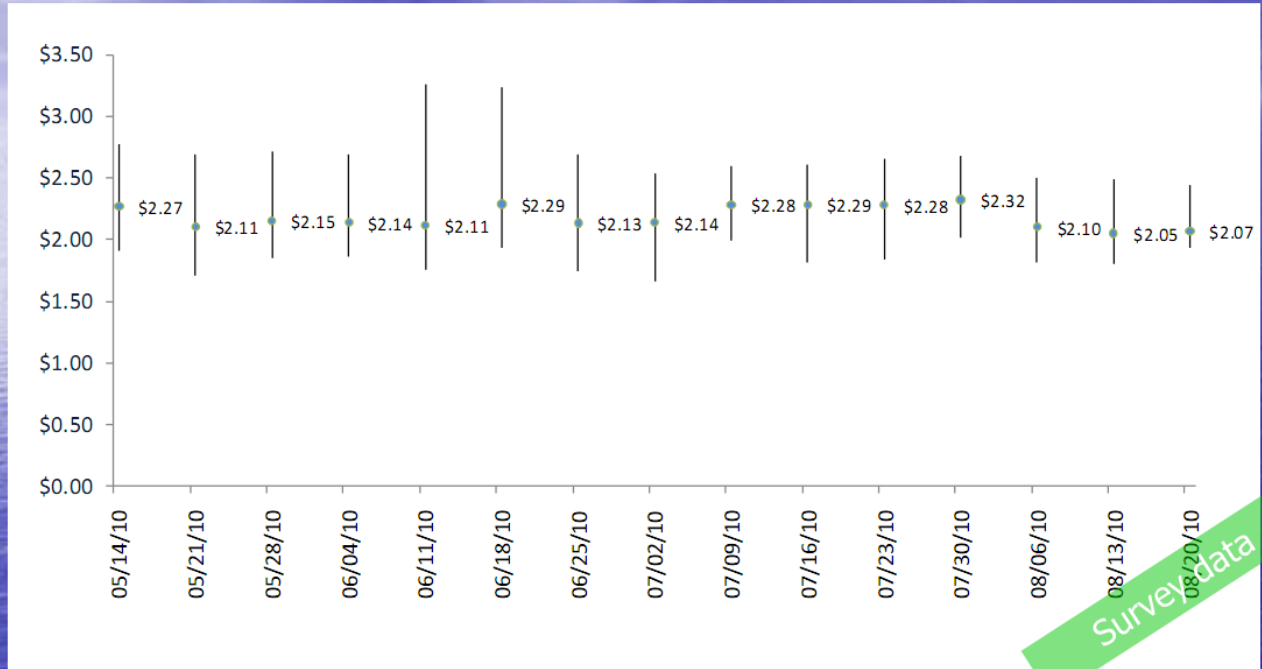
Source: PHOTON Consulting | 来源: PHOTON 咨询



c-Si module spot price history - German wholesale

(\$/W, spot market, through 08/20/2010)

PRELIMINARY



Data updated 08/20/2010 Next update by 08/31/2010
Source: PHOTON Consulting, LLC. Note: All data are rough estimates. Each weekly price point assumes the FX rate that was current as of that week. For current week data, FX rate of 1 EUR=1.28USD simple average of daily FX rate between 08/14/2010-08/20/2010 was used.

WS spot c-Si module prices up 1% WoW in Germany in USD terms
Month-to-date August average of \$2.07/W is down 8% vs. monthly average price in July of \$2.26/W

1. Upcoming Events* | 展会预告

Name	Date	Location
25 th EU PVSEC	6-10 th September, 2010.	Valencia, Spain.
Solar Power International 2010	12-14 th October, 2010	Los Angeles, USA.
PVTech Milan 2010	17-19 th November, 2010	Milan, Italy.

名称	时间	地点
25 th 欧洲光伏巡回展	9月6日-10日, 2010年	西班牙 瓦伦西亚
2010 th 美国太阳能国际展会	10月12日-14日, 2010年	美国 洛杉矶
2010 th 米兰光伏科技展	11月17日-19日, 2010年	意大利 米兰

2. Exhibition Reservation* | 展会预定

Name	Date	Location
World Future Energy Summit 2011	17-20 th January, 2011.	Abu Dhabi,
SNEC 2011	22-24 th February, 2011.	Shanghai, China.
PV Expo 2011	2-4 th March, 2011	Tokyo, Japan.
Green Energy Expo Korea 2011	6-8 th April, 2011.	Daegu, Korea.
Solar Expo 2011	4-6 th May, 2011.	Verona, Italy.

名称	时间	地点
2011 阿联酋未来能源展	1月17日-20日, 2010	阿联酋 阿布扎比
2011 上海国际太阳能光伏展	2月22日-24日, 2010.	中国 上海
2011 日本太阳能展	3月2日-4日, 2010.	日本 东京
2011 韩国太阳能及可再生能源展	4月6日-8日, 2010	韩国 大邱
2011 意大利维罗纳太阳能展	5月4日-6日, 2010	意大利 维罗纳

Hope to meet with you at EU PVSEC at Spain. Contact solar@nicholaswan.info
 希望与您在西班牙欧洲光伏展见。联系 solar@nicholaswan.info

*If you want to list your solar pv exhibition information here, please contact us at solar@nicholaswan.info
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Acknowledgements | 致谢

Nicholas Wan aims to provide an approach to the trends and news of the solar photovoltaic industry.
Nicholas Wan 致力于提供提供太阳能光伏行业趋势和新闻纵览

Thanks for the following solar photovoltaic media and editors.
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