

## IN A KEY TECHNOLOGY FOR OUR FUTURE ENERGY SUPPLY, EUROPE SHOULD STAND ON ITS OWN FEET

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European Solar Manufacturing Council (ESMC) Co-President Eicke Weber calls for a rapid revival of European cell production to break free from dependence on China. 50 billion euros in sales and 180,000 jobs are in sight.



Eicke Weber, 70, headed the world-renowned Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg for ten years. For a time, he sat on the supervisory board of what was once the world's largest solar cell manufacturer, Q Cells, and has known the industry inside out ever since. A native of Franconia with a doctorate in physics, he has taught at the University of California at Berkeley and at the University of Freiburg. In 2016, he ran for the FDP in the state elections in Baden-Württemberg.

Photo: wikipedia.org

**Mr. Weber, shortly after the turn of the millennium, no company manufactured more solar cells than Q Cells in Thalheim, Saxony-Anhalt. Today, solar cell production in Germany is tending towards zero. How did this crash in the power-generating heart of every photovoltaic system come about?**

The cardinal mistake was that the German government helped on the one side photovoltaics, which was still completely unprofitable at the time, with electricity generation costs of 50

euro cents per kilowatt hour, to enter the market with a guaranteed feed-in tariff. But it was never willing to build up a powerful, globally active solar industry with a targeted industrial and subsidy policy. For our domestic market ideologists, industrial policy is a "dirty word". One could also say: a taboo.

### **So the Chinese have jumped into this void?**

Exactly. They decided to make photovoltaics a key strategic industry for the future energy supply and provided the equivalent of around 50 billion US dollars in loan guarantees. Thus secured, solar factories in China sprang up like mushrooms by the dozen. Since then, the country has dominated the world market in photovoltaics.

**The truth is that the rapidly rising cost of solar power under the Renewable Energy Act has made household electricity rates, in particular, enormously more expensive. At the same time, the price jumps endangered the competitiveness of industry. So did policymakers have to take countermeasures?**

The fact that household electricity became more expensive so quickly was due to the decision of the black(conservative) - yellow(liberal) federal government coalition in 2009 to exempt electricity-intensive industries from the EEG surcharge - even those that did not compete internationally. Private consumers had to compensate for the shortfall. That was politically intended.

### **Photovoltaics (PV) should be discredited?**

It was obvious. At the very moment when solar energy began to become competitive with coal-fired power, there was a concerted effort to polemicize massively against the energy transformation. For example, with campaigns by the Initiative 'Neue Soziale Marktwirtschaft INSM' (New Social Market Economy). The fossil fuel producers feared for their secure income and found in the black-yellow government a willing executor. One example is that it abruptly ended the support for large ground-mounted systems. Suddenly, the mood among the population also changed. We can't afford the energy transformation, they said.

**Water under the bridge, one might say. The Chinese reliably supply the world with inexpensive and good solar cells. But you are vehemently advocating the revival of strong European and German cell production. Hasn't that ship sailed a long time ago?**

To start with, generating a kilowatt hour of electricity in sunny regions now costs barely more than one eurocent; here in Germany, we're talking about around four cents. This means that photovoltaics is the cheapest way to produce electricity today.

### **It would be that way even with solar cells purchased abroad.**

Counter question: Why do we want to build up battery cell production in Germany with all our might, a technology in which we are far from being the leader - in contrast to photovoltaics. We could also buy the battery cells cheaply from China in huge quantities.

## **So why?**

Because the local car manufacturers don't want to be dependent on supplies from China for such a key component of electromobility - and politicians are supporting them in this. We should as well value independence when it comes to the key technology for our future global energy supply. Especially after the experience of the Corona pandemic. It showed us the economic damage caused by broken supply chains, and what it means that we in Europe have lost fields of key added value, for example in microchips and many medicines. In the case of solar cells, of which not even half a percent of the global production currently is made here, we should stand on our own feet.

## **What else besides independence speaks for a comeback of the European solar industry?**

Since 1992, the global PV market has been growing by an incredible 38 percent per year on average - and yet it is still only in an embryonic state. Globally, about 760 Gigawatts (GW) of capacity was installed last year. According to climate forecasts, however, we will need PV capacity of at least 30,000 or even 60,000 GW by 2040 to keep global warming tolerable. This represents a gigantic business volume. Why should we leave it to the Chinese?

## **Because they have now superior production know-how?**

We should not forget that German mechanical engineering companies supply many of the plant components. So the knowledge is here, too. Irrespective of this, we now have to switch to a cell technology that produces higher electricity yields and in which we in Europe have a head start on development. The new cell types will be able to convert more than 24 percent of light into electrical energy - at least! The current generation might achieve this 24 percent at best.

## **The Chinese could quickly upgrade their factories.**

Mistake! The construction of heterojunction solar cells requires completely new equipment, and thus new factories. The technology change and the foreseeable gigantic demand are a unique opportunity for Germany and Europe to get back into the PV business.

## **With a world market share of 94 percent, China currently holds a quasi-monopoly in solar cells. What is the revival plan of the European Solar Manufacturers' Association ESMC, which you chair, to break this?**

We propose investing 20 billion euros from Europe's 750-billion-euro post-Corona economic recovery package to build a PV industry along the full value chain - from wafers to power electronics and cells to finished modules. Following the Chinese model, the money would not even have to be paid out, but should be available in the form of loan guarantees. If a purchase guarantee were added, we calculate that this would result in sales of 50 billion euros by 2026 and create almost 180,000 jobs.

**The bottom line is how much PV production do you want to bring back to Europe?**

We are aiming for three quarters of the solar power installed here to come from German, Spanish, Polish and French plants, and for two thirds of our production to be exported.

**Technology change, gigantic demand, climate policy pressure - under such ideal conditions, surely enough investors should be found in Europe, even without politicians coming to their aid?**

China already has a production capacity of 200 GW, we are starting from scratch. A clear signal from policymakers is important. After all, they are loosening up the billions anyway, also as part of the Green New Deal. The question is: Which industries will benefit most from the money to make Europe fit for the future?

**What exactly do you mean by that?**

I'm thinking, for example, of the urgently needed decarbonization of the steel and cement industries, which emit particularly high levels of climate-damaging CO<sub>2</sub>. To achieve this, we need enormous quantities of hydrogen from clean energy sources, as well as energy storage for reverse power generation when wind and sun are scarce.

**Has this really been thought through to the end? If massive solar cell factories are built around the world on the scale you describe, global demand will be met in 15 years at the latest. If the modules have a shelf life of at least 20 years, the need for replacement is manageable. Won't the landscape then be littered with investment ruins?**

The time window is narrow, that's true. We have to make the necessary decisions in the next two to three years. According to a model from Finland, which I do favour, it would make sense for 100 PV cell factories to be built worldwide around 2025, each with an annual capacity of 60 GW. With them, after ten years, we would reach the 60,000 gigawatts that need to be installed worldwide to shut down the last coal-fired power plant without endangering our energy supply, and to limit climate change to a tolerable level. The factories would have paid for themselves after five years at the latest, and could then be dismantled or repurposed after 10 years of operation.

**60,000 gigawatts! For Germany this would mean that every mountain ridge would have to be equipped with wind turbines and the valleys would have to be covered with solar panels. Climate saved - nature destroyed?**

We have to be clear: At stake is more than the preservation of nature and biodiversity. It is about our survival. Do we want to risk experiencing storms that sweep across the country at 250 to 300 kilometers per hour and take everything with them? Probably not. Too few people still realize that we are standing on the edge of the abyss.

**The young activists of the Fridays for Future movement are warning of precisely this scenario. Your party colleague, FDP leader Christian Lindner, recommends that they leave climate protection to the professionals. Good advice?**

That was one of the dumbest remarks, but I am sure he has regretted it a thousand times over. I understand that the activists still want to be able to live on this beautiful blue planet 60 years from now. That's why I understand they take to the streets week after week to protest. And the protests will not flatten out, they will become louder and louder and more urgent.

**Another personal question. What keeps you in the liberal party (FDP) that strictly rejects industrial policy and prefers to trust the market?**

I belong to a small core group of eco-liberals who see no contradiction between economy and ecology and consider the preservation of the environment to be a fundamental human right, in line with the Freiburg Theses of 1971. If the FDP had stuck to this insight of Flach, Scheel and Genscher, the Greens might not have been established in the first place. True liberalism must preserve this world for future generations. In this respect, I like to act as an underground voice in the FDP - especially this year, when we will celebrate 50 years of the Freiburg Theses!

**The interview was conducted by Dieter Dürand**

**The link to the original of this interview (in German) is:**

<https://greenspotting.de/2021/05/28/bei-einer-schluesselftechnologie-der-kuenftigen-energieproduktion-sollte-europa-auf-eigenen-beinen-stehen/>