**Can solar energy save the world?**By Benny Peiser | *The Economist*, November 15, 2013

Despite more than 30 years of research, development and deployment, solar energy has been unable to solve the inherent and obdurate problems that make this technology uneconomical for the foreseeable future.

First, solar energy remains too expensive and can subsist only with the support of government handouts or solar subsidies. Second, its multibillion subsidies are causing economic hardship and social conflict as huge amounts of money are being transferred from poor and ordinary families to wealthy green investors. Third, photovoltaic energy generation is too irregular and causes huge knock-on problems as a result. And finally, where large-scale solar energy competes with conventional energy at a sizeable level, the entire electrical grid faces disruptions and economic damage.

Germany, which has long been the world leader in generating solar electricity, is the best and worst case in point. It demonstrates why solar isn't working. More than half of the world's solar panels are installed in Germany. But solar energy is notoriously unreliable as a power source no matter how much a country has installed.

Solar subsidies for German financiers are extremely generous. They guarantee investors an 8-10% annual return for 20 years. As a result, more than a million German families already have installed solar panels. However, Germany's unmatched solar boom has saddled the country with obligations of more than €130 billion in subsidies, leading to ever-rising energy prices. These billions are being paid by ordinary families and small and medium-sized businesses in what is undoubtedly one of the biggest wealth transfers from poor to rich in modern European history.

As wealthy homeowners and businesses owners install solar panels on their houses and commercial buildings, low-income families, living in rented apartments, have to pay for rocketing electricity bills. Many can no longer afford to pay, so the utilities companies are cutting off their power. Therefore, solar energy is only a luxury item for wealthy households.

Since the introduction of Germany's renewable energy tax in 2000, German consumers' electricity bills have doubled. Germany has the second most expensive electricity in Europe. No wonder the chancellor, Angela Merkel, has warned that the rapid expansion of green energy programs is weakening Germany's competitive advantage in the global economy. And it will be the same for other nations.

On June 6th this year, Germany's solar power production touched a new record of 23.4 gigawatts, meeting almost 40% of the country's entire peak electricity demand. But to understand that this world record is quite meaningless, consider the grid's narrow escape last winter. For many weeks in December and January, Germany's 1.1 million solar power systems generated almost no electricity. To prevent blackouts, grid operators had to import nuclear energy from France and the Czech Republic and power up an old oil-fired power plant in Austria.

Of all the unintended consequences of Germany's *Energiewende* perhaps the most extraordinary is the devastating effect of solar (and wind) power generation on the price of electricity generated by natural gas. Almost 20% of gas power plants in Germany have become unprofitable and face shutdown as renewables flood the electricity grid with preferential energy. To avoid blackouts, the government has had to subsidise uneconomic gas and coal power stations so that they can be used as a back-up when the sun is not shining and renewables fail to generate sufficient electricity. Again, Germany will not be alone in this situation. Other countries face the same fate.

No wonder a growing number of European countries are cutting back subsidies, while others, such as Spain and the Czech Republic, have ended support for renewables altogether. Germany, too, has been scaling back its generous state support. Solar energy can’t save the world because every country will face the same problems that Germany experienced.