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Spanish Sunburn

By Ben Sills - Oct 19, 2010

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November, 2010 (Bloomberg Markets) -- Prime Minister Zapatero's failed plan to transform his country into a carbon-free energy giant exposes the risks facing investors looking to profit from clean power.

German Vilimelis heard about Spain's solar gold rush from his brother-in-law in 2007.

Across the plains around Lerida, the northeastern Spanish town where they spent weekends, farmers were turning over their fields to photovoltaic panels to capitalize on government solar-energy subsidies. Vilimelis persuaded his father, Jaume, who made a living growing pears on 5 acres (2 hectares) of land in Lerida, to turn over a portion of his farm for the project, Bloomberg Markets reported in its November issue.

Vilimelis, 35, a procurement manager for a consumer goods company, pooled his family savings and mortgaged his apartment to obtain a loan of more than 400,000 euros (\$558,500) to cover the investment. Within nine months, the family's 80-kilowatt generation unit -- 500 solar panels on seven racks angled toward the sun -- was feeding power into the national grid.

Solar investors such as Vilimelis were lured by a 2007 law passed by the government of Prime Minister [Jose Luis Rodriguez Zapatero](#) that guaranteed producers a so-called solar tariff of as much as 44 cents per kilowatt-hour for their electricity for 25 years -- more than 10 times the 2007 average wholesale price of about 4 cents per kilowatt-hour paid to mainstream energy suppliers.

Thanks to the incentives, the family met the monthly cost of the loan and even earned a small profit. Once the debt was paid off in 2018, Vilimelis looked forward to making even more money during the 15 additional years of subsidies guaranteed under Spanish law.

'You Feel Cheated'

Now Vilimelis and more than 50,000 other Spanish solar entrepreneurs face financial disaster as the policy makers contemplate cutting the price guarantees that attracted their investment in the first place.

“You feel cheated,” he says. “We put our money in on the basis of a law.”

Zapatero introduced the subsidies three years ago as part of an effort to cut his country’s dependence on fossil fuels. At the time, he promised that the investment in renewable energy would create [manufacturing jobs](#) and that Spain could sell its panels to nations seeking to reduce carbon emissions.

Yet by failing to control the program’s cost, Zapatero saddled Spain with at least 126 billion euros of obligations to renewable-energy investors. The spending didn’t achieve the government’s aim of creating green jobs, because Spanish investors imported most of their panels from overseas when domestic manufacturers couldn’t meet short-term demand.

Stark Lesson

Spain stands as a lesson to other aspiring green-energy nations, including China and the U.S., by showing how difficult it is to build an alternative energy industry even with billions of euros in subsidies, says Ramon de la Sota, a private investor in Spanish photovoltaic panels and a former General Electric Co. executive.

“The government totally overshot with the tariff,” de la Sota says. “Now they have a huge bill to pay -- but where’s the technology, where’s the know-how, where’s the value?”

U.S. President [Barack Obama](#) highlighted solar energy as part of his plan to create green jobs this month with a decision to install photovoltaic panels on the roof of the White House. The government also approved the first large-scale solar-power projects on public land. Dublin-based utility NTR Plc and [Chevron Corp.](#) will build plants in California generating enough electricity between them to power about 600,000 homes.

Sun Surplus

At first glance, Spain appears to be the perfect incubator for a solar-energy revolution. Thanks to its location in southern Europe, the country’s land mass receives 900,000 terawatt-hours of [irradiation from the sun](#) each year, according to the European Commission -- more than 3,000 times the power used annually by its citizens. In contrast, Germany, Europe’s largest economy, receives less than half that amount of irradiation. (A terawatt-hour streams enough power to run 1 billion washing machines for 60 minutes.)

The challenge for Spain was to transform that free resource into an industry that made economic sense and attracted investors. The first problem lawmakers encountered was price. Solar power, like wind and

other renewable-energy sources, can't yet compete on price against electricity generated from natural gas or coal.

Power from the most-efficient photovoltaic plants costs utilities about \$275 per megawatt-hour to produce compared with about \$60 for a coal-fired plant, according to Bloomberg New Energy Finance. The cost of electricity from coal is held down in part by a plentiful supply of the mineral from established mines.

Miscalculation

Spanish policy makers reasoned that generous subsidies would help the country meet its goal of 400 megawatts of installed solar power by 2010 as well as spur the development of a manufacturing industry.

The feed-in tariff proved too successful in luring investors. By the end of 2007, solar installations had exceeded the government's target, three years early, and the following year, investors pumped 16.4 billion euros into Spain's solar industry, quintupling power capacity to 3,500 megawatts from 700 megawatts.

"They underestimated the technology -- how cheaply panels could be installed and how quickly they could be installed," says [Jenny Chase](#), Zurich-based chief solar analyst at New Energy Finance. "When you have 40 megawatts of photovoltaic panels, you don't think that if you get it wrong, you'll end up with 3,500 megawatts."

Panel Demand

At the same time, Spanish installations triggered a spike in panel demand. The benchmark price of crystalline silicon panels rose to a record \$4.13 per watt in the second quarter of 2008, according to BNEF, a 28 percent increase from the same period in 2004. Most of the panels installed in Spain came from China and Germany.

Renewable-energy subsidies may not help to create companies that can operate on their own, says [Annie Petsonk](#), international counsel at the [Environmental Defense Fund](#). Policy makers need to plan for the long term when setting up tax breaks and grants, she says.

"Attempting to stimulate the deployment of a practical technology needs to be very carefully done," Petsonk says. "When the economy turns downward, the pressure to get rid of the subsidies can bring you crashing down."

Zapatero's Plan

Zapatero's predecessor, [Jose Maria Aznar](#), laid the foundation for Spain's development of renewable energy. In 2004, his government shifted to revising renewable-energy subsidies every four years instead of annually, which meant project revenue estimates were stable enough to raise financing, according to [Tomas Diaz](#), spokesman for the Spanish Photovoltaic Industry Association in Madrid.

When Zapatero came to power in April of the same year, his Socialist Party pushed green energy as a new source of economic growth. Under his program to create "the sustainable economy," he funneled 6.3 billion euros into developing renewable energy and embarked on a 250 billion-euro [transport plan](#) that aims to complete a 10,000-kilometer (6,000-mile) high-speed rail network by 2020.

He also introduced subsidies of up to 20,000 euros for buyers of electric vehicles as part of a 4 billion-euro package of tax deductions, grants and subsidized loans to spur the modernization of the country's auto industry.

'Poster Child'

In 2007, the Spanish parliament approved Zapatero's plan to introduce a feed-in solar tariff -- called that because it fixed the price at which producers can sell their power to the grid -- for photovoltaic plants at 10 times the wholesale rate. Spain's number crunchers failed to anticipate the spiraling cost of an open-ended incentive, says [Charles Yonts](#), a renewable-energy analyst at CLSA Ltd. in Hong Kong.

"Spain is the poster child of how things can go badly awry," he says. "Far too much money was being paid out."

Chinese panel manufacturers, thanks to their lower labor costs and ability to step up production, are best placed to benefit from any solar revolution, Yonts says.

Four of the five best-performing [solar stocks](#) this year are headquartered in China, including Qidong-based panel manufacturer Solarfun Power Holdings Co., according to data compiled by Bloomberg.

In [November 2007](#), Zapatero unveiled a solar plant at his official residence in Madrid, with photovoltaic panels made by Spain's Isofoton SA.

"We are a world power in this field, we are capable of exporting our technology and competing across five continents and we are today at the forefront of the renewable-energy industry," he said.

Investment Surge

The surge in investment put Spain at the center of the solar-energy business just as Bilbao-based power company [Iberdrola SA](#) became the world's largest producer of wind power, using turbines produced in Spain by Gamesa Corporacion Tecnologica SA. Iberdrola is the largest shareholder in Gamesa, with a 15 percent stake.

As the state's renewable-energy costs spiraled, Zapatero reduced the subsidy for new solar parks by about a quarter starting on Sept. 30, 2008. The move virtually eliminated any new solar investment in 2009, according to the Photovoltaic Industry Association.

Isofoton, the panel maker Zapatero deployed as a symbol of the Spanish solar industry, suffered an 83 percent sales slump and its losses almost tripled to 226 million euros in 2009. In June of this year, the closely held company was taken over by Madrid-based Affirma Energy Engineering & Technology SL and South Korea's TopTec Co., which invested 50 million euros to strengthen the company's balance sheet.

Germany, U.S.

Zapatero said Spain's clean-power industry employed 180,000 in 2007. During the next three years, jobs fell by a third to 116,000, according to a study by the Madrid-based Trade Union Institute of Work, Environment and Health.

Lawmakers in Germany may be repeating some of Spain's mistakes, Chase says. New solar-generating capacity in Germany reached 713 megawatts in the first quarter, almost 10 times the amount installed in the year-earlier period, thanks to government subsidies, she says.

In the U.S., Obama has rolled out a more modest program of inducements for clean-energy investors. The U.S. economic stimulus package included about \$67 billion in loans, loan guarantees, grants and tax credits for clean energy.

When Zapatero took a delegation to the White House on Oct. 13, 2009, Obama praised Spain as a model of green-energy-driven economic transformation.

'Worldwide Leader'

"We have enormous commercial ties between our two countries, and we pledged to work diligently to strengthen them, particularly around key issues like renewable energy and transportation, where Spain

has been a worldwide leader,” Obama said at a press conference.

[Miguel Sebastian](#), the minister responsible for Spain’s industry and energy policy, traveled two weeks later to the Solar Power International trade fair in Anaheim, California, with a group of executives to boost Spain’s renewable-energy exports.

In private encounters on the trip, Sebastian was criticized by Spanish executives for gyrations in the government’s energy policy, according to [Carlos Navarro](#), chairman of Siliken SA, Spain’s biggest solar panel maker, who was part of the delegation.

“You’re whiners,” Navarro says Sebastian told executives. Sebastian declined to be interviewed for this article; a spokesman for Zapatero declined to comment on criticisms of the government’s solar-subsidy policy.

‘Sinking’ Solar Investors

Navarro told Sebastian that the industry needed a stable set of rules to help match production to the level of demand in the market. Siliken, which is aiming to trade on the Madrid Stock Exchange by 2012, suffered a 61 percent sales slump in 2009 after Zapatero cut solar subsidies. Overseas revenue will fuel the company’s recovery this year, Navarro says.

“Sebastian was telling people that photovoltaic was a priority, while at home they are sinking us,” Navarro says during an interview at Siliken’s solar-module assembly plant near Valencia. “I’ve developed a bit of a motto: If the Socialist government says they’re going to help you, run!”

In April, after the [budget deficit](#) ballooned to 11.2 percent of GDP, Industry Ministry officials announced that the government was considering cutting the subsidies for existing solar facilities -- even though the law guaranteed those rates for 25 years.

Investor Uncertainty

The suggestion triggered outrage among the owners and operators of photovoltaic systems and caused investors to flee solar energy investments.

Because of lack of investor interest, Renovalia Energy SA and T-Solar Global SA postponed initial public offerings that aimed to raise about 300 million euros. Solar Opportunities SL suspended 1 billion euros of investment in Spanish photovoltaic plants. The price of panels fell to \$1.90 per watt by the second quarter of this year.

Foreign investors also joined in on the criticism, saying that rewriting the rules would jeopardize confidence in all Spanish assets. HgCapital, Hudson Clean Energy Partners and Impax Asset Management Group Plc wrote to Zapatero on May 27 saying the move would wipe out 400 million euros of client funds they had invested in the Spanish solar industry.

“The mere discussion of such a change at high government levels is already undermining confidence in Spain as a place for foreign direct investment,” the letter said.

40 Percent Cut

In June, Sebastian told solar executives he intended to reduce subsidies to existing photovoltaic plants by almost 40 percent, according to Photovoltaic Industry Association Chairman [Javier Anta](#), who attended the meeting.

That news plunged German Vilimelis into despair. Sacrificing about 10 tons of profitable pear production a year to turn over the 1-acre plot to solar power made sense under the original pricing system, especially as the panels required almost no maintenance. The cut would require his family to kick in their own cash every month to avoid defaulting on the loan.

“Banks are unforgiving,” he says. “It would mean no more holidays. We’d have to cut back on everything.”

Across Lerida, solar construction has stopped dead. Vilimelis and his partners face more months of uncertainty as the government keeps postponing a final decision on the subsidy levels. Should Zapatero push through the cuts, he may find that foreign investors are equally unwilling to forgive.

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