

Conrad Burke is the Irish CEO of Innovalight, a Californian solar energy start-up. He talked to Mary Sweetman about his company's competitive edge and the explosive growth of the clean tech sector in Silicon Valley.

**H**e's been profiled by *Time*, *The Economist* and *Red Herring*; had talks with Arnold Schwarzenegger, and been invited to the Davos World Economic forum for the past two years. No: he's not a politician, pop-star, or advocate for Third World trade-aid. The 40-year-old Irishman is engaged in California's most on-trend pursuit – attempting to help to save the planet and make lots of money in the process.

Conrad Burke, born in Bray, Co Wicklow, is CEO of Innovalight, a Silicon Valley-based start-up, set to go into prototype production using novel technology that could cut the cost of solar panels by anything from a quarter to a tenth.

"We raised \$28 million in October to build an early manufacturing line. The equipment is now starting to come in. But, from the point of view of being qualified and meeting the criteria in the marketplace, it's probably going to be about another couple of quarters, so our goal is to be selling in the marketplace in the summer of 2009," he told *The Market*.

Once the concept and market has been proven, Burke says Innovalight will outsource manufacturing. "It is not inconceivable that we would do something in Ireland. It's a little premature, but we will most likely offshore our manufacturing, and having a base in Ireland would be something that would be personally attractive to me."

The Wicklow man has a degree in physics from UCD and an MSc from Trinity College Dublin, and since graduating in 1989, he has lived in and run major operations in the US, Germany, UK, and Japan with roles in NEC Corporations, AT&T and Lucent Technologies. "I've always liked technology so I have immersed myself in industries that have a lot in common."

In addition, he was Senior Vice President for Marketing, Sales and Business Development of OMM, a start-up. From there, he did a stint in the venture capital world as a partner at Sevin Rosen Funds (SRF). "I did enjoy it," he says. "I enjoyed having exposure to a lot of technology and interesting aspects of funding new companies, but there was something missing. I like building a company - being

involved in an operational role, hands on, from the inside, so I think I prefer where I am right now."

**GREEN VC BOOM** Regardless, Burke obviously left SRF on good terms, as the partners were one of three investors that coughed up the \$28 million for Innovalight's prototype production plant.

The clean technology sector is now the biggest recipient of venture capital funds in the US. In 2006, more than \$4bn of venture capital was invested in environmental technologies, and in the first three quarters of 2007, VC investment had reached about \$3.8bn, with solar photovoltaics getting the lion's share.

On this score, Burke doesn't deny his company is sailing with the wind. "It's all relative, but versus some of the crowded sectors, maybe it is a little easier to raise capital for solar energy right now," he concedes. "Certainly, it's easier than starting another Web 2.0 or software company. The amount of money being pumped into green technology is pretty huge and that goes across all sectors; it's not just solar; there is also a huge ethanol boom here in the States...But venture capital people don't just hand you over a cheque. You have to have a value proposition that's differentiated from what's out there today and you have to build a management team that they believe in, that can execute and give them a return on their capital."

"I think it's good that there is a lot for capital flowing into some of these sectors," he continues. "For the first time, we are seeing an appreciation of green tech not only as solving some of the global warming issues, but also as a way to make a lot of money. Of course, within that, you are going to see companies, and you would question whether they should really be funded or whether we are seeing elements of a bubble. But that isn't any different from how other sectors have grown in the past. Venture capitalists are really looking for one or two massive hits, where the return-on-investment overshadows all of the other investments that may not be as successful."

"If I look out my window, I can see Google, Apple, Intel...all these great companies that once were start-ups. This centre has had a lot of history of innovation going back to the advent of the semi-



SWITCHED ON TO  
**SILICON VALLEY'S**  
NEXT WAVE



conductor and the computer industry and then the dotcom industry. Now I'm hearing a number of prominent green-tech investors say that the green revolution here in Silicon Valley may eclipse all of those past booms and become the next wave of innovation."

**COMPETITIVE TECHNOLOGY EDGE** Burke's company is focused on the manufacture of photovoltaic (PV) cells – in other words - silicon cells that are capable of turning sunlight directly into electricity. One of the reasons for the buzz surrounding Innovalight is its promise to make solar power substantially cheaper. "Right now solar PV doesn't make a lot of sense," Burke explains. "It's still a really expensive mechanism to generate electricity. The only reason it has been quite strong is that there have been government incentives led by countries like Germany, for example, which has one of the most attractive schemes in the world for users."

"But for it to grow into a really meaningful business, one has to build a product cost that assumes there are no incentives. Our ultimate long-term goal is to be about a tenth of the cost of today. Out of the gate, we are not going to be at that level, but we will be certainly a good 25 per cent cheaper than what exists today, and we too will take advantage of the incentives that are out there."

The competitive advantage stems from technology developed about eight years ago, when Innovalight was just a fledging campus spin-out at the University of Texas. Conventionally, PV cells are produced using silicon in its 'bulk' form (i.e. as a solid lump of silicon). In contrast, Innovalight's process centres on a 'nanocrystalline' silicon powder, which can be suspended in a liquid that can be 'printed' onto the device like an ink. "That allows you to deposit materials faster in smaller amounts, and there are some

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other fundamental aspects about how silicon behaves at those sizes that allow you to process it faster, cheaper, better," Burke explains.

It also means, that down the line, solar PV cells could be 'printed' onto portable battery packs, allowing for mobile power generation, or they could be incorporated into the glass panels that make up a building's fabric, creating so-called building integrated photovoltaics (BIPVs).

But while Innovalight waits for such markets to evolve, for the moment, it has its sights firmly on the existing niche for PV panels. "We see plenty of opportunity in good old-fashioned solar panels on a roof. It's a \$1 billion market. Customers, whether residential or commercial, put the panels on their roof, and plug into the grid."

Innovalight was honoured as a 'Technology Pioneer' by the World Economic Forum 2006, which - kudos aside - has been good for the business, Burke says. "It was a wonderful event in

the sense that it allowed us to have access to senior decision-makers all over the world. It also drew a lot of attention to our company; and that helped us with the recruiting and raised the visibility of the company."

Burke has been leading Innovalight for the past three years, raising funding and taking it from Austin, Texas, to Silicon Valley, which he describes as "a special place, unlike anywhere else in the US or world, with a unique ecosystem that is extremely helpful in building companies." As to the future, he envisages either an IPO or a sale to one of the bigger players in the energy industry. "As CEO, I have to consider all of those possibilities," he says, "but right now, we will focus on building a company, building a product, getting a product into the market, and getting customers to like our product and buy it." **M**