Clean energy economy: new US partnership commitment

Global photovoltaic materials supplier DSM and prominent North American solar panel manufacturer Silfab Solar recently joined forces to bring high power modules using back-contact technology to the US market. On July 17, DSM and Silfab held an event in Bellingham, WA to mark the expansion of the facility there and celebrate the companies’ mutual commitment to the clean energy economy. PES talked to Nathan Arbitman, Strategy & Innovation Director of DSM Advanced Solar, to hear more about this new technology and the partnership.
PES: Welcome back to PES Solar, please can you introduce DSM and Silfab and describe the collaboration?

Nathan Arbitman: DSM is one of the world’s leading materials suppliers to the solar industry. We create advanced materials for solar panels that make them more efficient and help reduce the cost of PV electricity. Silfab Solar is the leading solar panel manufacturer in North America. They’re well known for their high-quality products and high level of service. Silfab has a very strong brand in the North American market, especially in the US.

DSM and Silfab formed a partnership focused on bringing back-contact technology to the market. Back-contact technology utilizes a type of solar cell in which the contacts are located on the back of the cell, thereby removing the grid lines from the front to provide a more uniform appearance. This makes the solar panels more aesthetically pleasing, which can be especially advantageous for residential roof top systems. But just as important, these panels also provide more power. Since the contacts are on the back of the panels, the cells capture more sunlight and convert more photons into electrons. This results in about 3% more electricity, something that is key on space-constrained rooftops.

PES: What did the recent event in Washington state entail?

NA: The event celebrated the expansion of Silfab’s facility in Bellingham, Washington to accommodate the partnership with DSM and the resulting increase in solar panel production. Together, we hosted a number of government officials, including Washington Governor Jay Inslee and Department of Commerce Director Lisa Brown.

PES: Why did DSM decide to partner with Silfab?

NA: DSM and Silfab share a vision that back-contact technology is the future of solar, and we’re working together to bring that technology to the North American market. Given that Silfab’s expertise is in making and selling high quality solar panels and DSM’s expertise is in delivering innovative solar materials, our partnership is a natural fit. We have a highly collaborative relationship, with an eye towards speed, quality and bringing advanced technology to the market. It’s really that fundamental vision that brought us together and has kept us working closely together.

PES: Could you talk a little bit about the history of back-contact technology and the solar industry?

NA: Back-contact technology has been around for quite a few years. However, the technology has finally reached the point where it’s not about developing new materials or processes, rather it’s about scaling up the value chain. There’s now sufficient supply of all of the key materials and assembly equipment so companies like Silfab that want to get that first-mover advantage can do so and really differentiate themselves by having access to high power, aesthetically pleasing solar panels.

PES: This partnership will be something of a game changer for the various players in the US solar industry. Could you say more about that?

NA: The US market is one that values high quality and high efficiency, especially in the rooftop segments where there’s a limited amount of space. A homeowner wants to get the most power out of their system’s panels and have an installation that looks great too. Making this technology available in the US is already driving a lot of interest, not just from homeowners and other building owners, but from others throughout the value chain like installers and distributors.

PES: Do you anticipate that other module manufacturers in the US will embrace the technology?

NA: It’s quite challenging to make money as a solar panel maker, especially in North America. I think our partnership with Silfab will show that this technology creates value along the supply chain from manufacturers through to consumers. As we demonstrate success through this partnership the word will get out and more and more players will adopt this technology.

PES: Could you go into back-contact technology and the role of conductive backsheet in more detail?
When you use back-contacted solar cells, you need a different way to get the electricity out of the solar panel and ultimately into the home, because tabbing and stringing is not used to interconnect the cells. The conductive backsheet contains a current-carrying foil that provides lossless conductivity and carries the current to the junction box on each module. This type of cell architecture also allows for flexibility in module design; you can use form factors of different shapes and sizes that allow you to meet the needs of a host of end-use applications.

Another thing that’s advantageous about back-contact technology is that, due to the presence of a metal foil which acts as a “heat-sink”, the modules actually operate at a lower temperature. This results in the modules running more efficiently and delivering more energy than conventional solar panels.

**PES:** A key element of DSM’s strategy is focusing on making sustainable solutions that reduce the impact of solar on the environment. How do you think backsheet technology fits into that?

**NA:** Our backsheets contain materials that are more easily recyclable than other backsheets. Specifically, they don’t have a fluorinated layer that cannot be recycled. Though the panels will last for about 30 years, it’s important that the modules are designed from the start with circularity in mind. As the solar industry grows, the issue of circularity will become more and more important. Both Silfab and DSM are committed to being at the forefront of circularity and solar technology.

**PES:** How does your product address past difficulties around mass production?

**NA:** Prior to DSM’s entry into this sector, conductive backsheets weren’t really available on a meaningful scale. With DSM’s significant investment in developing, commercializing and scaling up our conductive backsheet product, we’ve solved that issue, allowing industry players to feel confident that this technology will be available in the quantities and quality needed to allow back contact technology to grow.
‘This results in the modules running more efficiently and delivering more energy than conventional solar panels.’

**PES:** What is the current status of these back-contact modules? Are they being produced?

**NA:** We’re very much in production mode. While the modules that are being made through the collaboration with Silfab are initially meant for the US market, DSM is also pursuing opportunities to grow in other regions. Although regional needs and dynamics are different, solar is very much a global industry, and as a global company DSM is well positioned to work with partners in the US and in other parts of the world.

Back-contact modules are already being made by several other players around the world, in both Europe and Asia, and DSM makes and sells its backsheets to other companies in addition to Silfab. We’re always seeking other like-minded players who believe in the potential of this technology.

**PES:** Are there any other DSM projects or products that the solar industry should be aware of?

**NA:** DSM has several other exciting new products. Our flagship product line is our Anti-Reflective coating which we’ve augmented with an Anti-Soiling coating. This has generated a ton of interest from customers in desert environments like the Middle East, India and Western China. We also have a new Anti-Reflective coating product that can be applied to solar panels that have already been installed, to get an immediate 3% power gain. Both of these products are quite attractive to solar asset owners because they increase returns on investment.

In addition to our coatings’ portfolio, we also have a backsheet product line called Endurance backsheets which are used in mainstream applications throughout the world. We have customers in every region who are making modules with that backsheet because it strikes the right balance between excellent performance at the right cost, with the bonus recyclability aspect as well. More info: [www.dsm.com/solar](http://www.dsm.com/solar)

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**Diagram:**

- **A:** Aluminium frame
- **B:** Glass
- **C:** Encapsulant
- **D:** MWT or IBC cells
- **E:** Encapsulant
- **F:** Conductive backsheet