

Silicon. Solar. Sustainability.

Solar energy – is it a sound business proposition? This question has been asked for decades by business leaders. At Dow Corning, we believe the answer is a resounding “yes,” and we are committed to helping solar energy become an accessible, economically viable and self-sustaining energy alternative around the world.

Dow Corning has a unique “from sand to sun*” position as the only supplier to the PV industry to be fully integrated on the silicon-based material value chain – from the basic building blocks of silicon feedstock used to make ingots and wafers, to sealing materials used to assemble solar modules.

“We are using our unique position of providing solar solutions from sand to sun to accelerate the journey to making solar energy a sustainable, viable energy alternative. Our commitment to solar energy is a prime example of our commitment to sustainable development,” says Marie Eckstein, Vice President and General Manager of Dow Corning’s Advanced Technologies and Ventures Business.

“We are using our in-depth knowledge of the ‘silicon chemistry set’ to drive toward grid parity so that solar-generated electricity can serve diverse regions – from outlying areas that are currently off the electrical grid to urban centres. Solar energy meets all the fundamentals of sustainable development. It’s good for people and communities. It makes sound environmental sense. And, it makes sound business sense. It is a business model that we believe is sustainable over the long term.”

The Changing Economics of Solar

Many experts feel that in as little as five years, the economics of solar energy will make PV the electricity source of choice for a growing portion of the globe.

Consider these statistics. The average cost per kilowatt hour produced with PV technology currently is 20 to 40 US cents and decreasing, while the average cost per kilowatt hour produced with fossil fuel is 14 cents and rising. The time it takes to reach the energy payback point for a crystalline PV module – the point at which the energy it produces covers the energy used in its production – is about four years and declining. The typical financial payback of a PV system is seven to 12 years and decreasing, depending on location. In several parts of the world, photovoltaics have already reached a break-even, grid-parity peak electricity cost.

Shining Light on the Silicon Chemistry Set

The depth of Dow Corning’s expertise in silicon-based materials, or what we fondly refer to as the ‘silicon chemistry set’, will play a pivotal role in our ability to help PV producers invent the future in solar. The fundamental strong technical fit of the silicon atom with PV application

Marie Eckstein, Vice President and General Manager of Dow Corning's Advanced Technologies and Ventures Business



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performance requirements makes solar a prime area of opportunity to innovate and grow profitably. Despite the fact that PV devices have been around for decades, this is still a young industry at the early stage of its life cycle.

“We are continuing to increase our investments year over year to bring the power of silicon to the industry, to reduce costs and get to grid parity,” Eckstein says. “We’ll be doing that a variety of ways: through silicon metal or other silicon-based materials, as well as through innovative processing and materials science. We are unique across industries in that our entire R&D focus is dedicated to exploring the potential of the silicon atom. We’re bringing the depth of understanding of chemistry and technology that we’ve been applying to electronics and construction and many different industries to the whole PV value chain. We’re addressing key issues such as availability of raw materials and cost, durability and performance of solar modules.”

A Dow Corning joint venture, Hemlock Semiconductor Corporation (HSC), is aggressively expanding its capacity to meet the worldwide demand for polycrystalline silicon. Dow Corning has a majority shareholder position in HSC, which

is the world’s leading polycrystalline silicon manufacturer. HSC, which traditionally served the semiconductor microchip market with hyper-pure versions of its product, now serves both the electronics and solar industries.

Helping Our Customers Invent the Future

Dow Corning is committed to contributing to the sustainability of the solar industry by helping our customers invent the future for solar and making sure they are successful.

“We will continue to help our customers make a difference in solar by offering solutions and options that can significantly contribute to addressing short- and mid-term availability of materials along the value chain, the mid-term profitable growth expansion of our customers and the long-term sustainability of the PV industry,” Eckstein says. “In close relationships with our customers, we will meet these challenges. Most importantly, we will contribute to meeting the global demand for energy, which is expected to double by 2050.” ■

For more information visit www.dowcorning.com/solar or email solar.solutions@dowcorning.com

*“From sand to sun” is a trademark of Dow Corning Corporation.