



NEWS RELEASE

Solar Frontier Supplying Zero Energy Nano Building at SUNY Polytechnic Institute in Albany, New York

CIS modules to become part of "living laboratory" for renewable energy and energy efficiency technologies

San Jose, CA – 16 December, 2014 — Solar Frontier announced today that it has been selected to supply its CIS thin-film modules to the Zero Energy Nanotechnology (ZEN) building at the State University of New York Polytechnic Institute's (SUNY Poly) Colleges of Nanoscale Science and Engineering (CNSE). The Japanese solar energy solutions provider has already initiated the first of a series of deliveries for the ZEN Project. The total project will result in a PV Plant with a capacity of 2.4MW DC. Deliveries are expected to be completed by summer of 2015.

The project is part of a \$25 million partnership announced in September by CNSE and Japan's New Energy and Industrial Technology Development Organization (NEDO). The partnership will install, commission, test, and demonstrate state-of-the-art technologies that include solar photovoltaics, lighting, fuel cells, and smart building energy management systems.

Dr. Pradeep Haldar, Vice President of Entrepreneurship Innovation and Clean Energy Programs at CNSE, said, "In support of Governor Andrew Cuomo's high-tech vision driving New York State to become a leader in advanced research and clean technologies, the ZEN building will serve as a platform to demonstrate how leading-edge, clean-tech systems enable greater energy savings in buildings. For this pioneering effort we have selected Solar Frontier's CIS modules as one of the technologies to help get us there."

The 356,000 square-foot ZEN building, which is currently under construction at the state-of-the-art \$20 billion Albany NanoTech Complex, will be one of the largest net zero energy buildings in the world, and will serve as a "living laboratory" for renewable energy and energy efficiency technologies. It will be used to design ultra-high energy efficient technologies which can be adopted to cut the operating costs of buildings in New York State and around the world.

Charles Pimentel, Chief Operating Officer of Solar Frontier Americas, commented, "Net zero energy technologies are essential to an energy-efficient future in an urban world. CIS solar modules generate a higher electricity yield than crystalline silicon modules in real operating conditions, and can play an important role in realizing that future."

In urban environments Solar Frontier's CIS modules have a number of performance benefits. For example, they are less affected by shadow cover from nearby objects like buildings or other module arrays, leading to more kilowatt-hours than competitors in crowded urban areas. On top of their all-black aesthetics, their anti-glare properties are also more suitable for crowded urban environments where sun glare can have significant negative effects on the surrounding area and its inhabitants.

Solar Frontier is the world's largest provider of advanced CIS solar energy solutions by shipments and revenue, conducting operations from Tokyo, Japan. It has developed its CIS technology for over 20 years, achieving world-record 20.9% conversion efficiency on a CIS solar cell (0.5 cm²). In 2007, the

company entered commercial production in southern Japan before ramping up its 900MW Kunitomi manufacturing plant in 2011. Its advanced production process has enabled it to achieve the highest level of mass production thin-film efficiencies at world-class production costs. The upcoming 150 MW Tohoku Plant, a model for future overseas manufacturing facilities, is the latest step in Solar Frontier's mid-term growth plan, enabling production of CIS at higher conversion efficiencies and best-in-class cost levels.

Solar Frontier's Americas operations are based out of its regional office in San Jose, California. The New York region remains a candidate for the company's future plans to establish production bases for its proprietary technology outside of Japan, with ongoing collaboration with the State of New York. The U.S. is an important market as the company implements a renewed focus on global expansion, based on demand for the company's thin-film CIS solutions in markets around the world.

About Solar Frontier

Solar Frontier K.K., a 100% subsidiary of Showa Shell Sekiyu K.K. (TYO:5002) ("Solar Frontier"), has a mission to create the most economical, ecological solar energy solutions on Earth. Building on a legacy of work in solar energy since the 1970s, Solar Frontier today develops and manufactures CIS (denoting copper, indium, selenium) thin-film solar modules for customers in all sectors around the world. Solar Frontier's gigawatt-scale production facilities in Miyazaki, Japan, integrate compelling economical and ecological advantages into every module: from lower energy requirements in manufacturing to the higher overall output (kWh) of CIS in real operating conditions. Solar Frontier is headquartered in Tokyo, with offices in Europe, the U.S.A., and the Middle East. Visit www.solar-frontier.com for more information.

Showa Shell Sekiyu K.K.

Showa Shell Sekiyu K.K. is listed on the Tokyo Stock Exchange and has roots dating back more than 100 years in the downstream energy business.

About SUNY Polytechnic Institute

SUNY Polytechnic Institute (SUNY Poly) is New York's globally recognized, high-tech educational ecosystem, formed from the merger of the SUNY College of Nanoscale Science and Engineering and SUNY Institute of Technology. SUNY Poly offers undergraduate and graduate degrees in the emerging disciplines of nanoscience and nanoengineering, as well as cutting-edge nanobioscience and nanoeconomics programs at its Albany campus, and degrees in technology, professional studies, and the arts and sciences at its Utica/Rome campus. As the world's most advanced, university-driven research enterprise, SUNY Poly boasts more than \$20 billion in high-tech investments, over 300 corporate partners, and maintains a statewide footprint. The 1.3 million-square-foot Albany NanoTech megaplex is home to more than 3,500 scientists, researchers, engineers, students, faculty, and staff, in addition to Tech Valley High School. The Utica/Rome campus offers a unique high-tech learning environment, providing academic programs in technology, including engineering, cybersecurity, computer science, and the engineering technologies; professional studies, including business, communication, and nursing; and arts and sciences, with degrees and course offerings in natural sciences, mathematics, humanities, and social sciences. Thriving athletic, recreational, and cultural programs, events, and activities complement the campus experience. SUNY Poly operates the Smart Cities Technology Innovation Center (SCITI) at Kiernan Plaza in Albany, the Solar Energy Development Center in Halfmoon, CNSE's Central New York Hub for Emerging Nano Industries in Syracuse, the Photovoltaic Manufacturing and Technology Development Facility in Rochester, and the Smart System Technology and Commercialization Center (STC) in Canandaigua. SUNY Poly founded and manages the Computer Chip Commercialization Center (Quad-C) on its Utica campus and also manages the \$500 million New York Power Electronics Manufacturing Consortium, with nodes in Albany and Rochester, as well as the Buffalo High-Tech Manufacturing Innovation Hub at RiverBend, Buffalo Information Technologies Innovation and Commercialization Hub, and Buffalo Medical Innovation and Commercialization Hub. For information visit www.sunycnse.com and www.sunyit.edu.

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