

GlassPoint Presents New Cost Saving Results from its Gigawatt Solar Project in Oman

Technical paper co-authored with Petroleum Development Oman presented at SolarPACES 2017 details 55% cost reductions compared to pilot

Fremont, Calif. –October 3, 2017– [GlassPoint Solar](#), the leading supplier of solar energy to the oil and gas industry, recently published new cost saving achievements in a technical paper presented at SolarPACES 2017. The paper, co-authored with GlassPoint's partner and customer Petroleum Development Oman (PDO), details how the companies have to date reduced costs by more 55 percent as the technology scales up from a seven-megawatt (MW) pilot to Miraah, a one-gigawatt solar thermal project under construction on an oilfield in Oman. These savings resulted from the use of improved designs, enhanced tooling and increased workforce productivity in deploying its enclosed trough technology.

"GlassPoint's pilot project for PDO, which produces steam for oil production, has been operating successfully for more than four years. During this time, we worked closely with our partners at PDO to enhance the technology for oilfield deployment and improve overall cost efficiency as we scale by a factor of 100," said Ben Bierman, GlassPoint COO and Acting CEO. "The results presented at SolarPACES reflect our ongoing commitment to innovation and cost reduction to deliver the most energy per dollar spent."

GlassPoint's enclosed trough technology was designed to produce steam used in thermal enhanced oil recovery (EOR), a process typically fueled by burning natural gas. This unique solar thermal design takes parabolic trough collectors, or large curved mirrors, and puts them inside an agricultural greenhouse. The mirrors concentrate sunlight on a pipe filled with oilfield-grade water and boils the water directly into steam.

"The greenhouse serves as protection, foundation, and structure in one, enabling major cost and performance advantages compared to exposed solar designs. Most importantly, the zero-wind environment lets us reduce the amount of raw materials used throughout the entire system. Using less material reduces the weight and costs of the solar collectors, and makes the plant easier to install and easier to maintain," explained Pete von Behrens, GlassPoint's CTO.

The paper, *Deploying Enclosed Trough for Thermal EOR at Commercial Scale*, details many of the ways GlassPoint has been able to simplify its solar collectors, which are suspended from thin wires from the greenhouse roof.

GlassPoint optimized the equipment and mirror manufacturing process, improving yield in the factory and mirror performance in the field. The mirror material was reduced by 18 percent to a little over 1 kg/m², reducing material costs. They also deployed a new, lighter and stiffer mirror support structure. The new aluminum space frame design, assembled onsite, is five times stiffer than the previous design and cut aluminum usage by 30 percent. GlassPoint is also deploying a new drive system, which is used to rotate the mirrors to track the sun, that uses one-third fewer motors, and further reduces installation and maintenance costs.

GlassPoint also improved construction productivity, overcoming the challenges of operating in remote desert conditions. In addition to developing special tooling and equipment to streamline installation, GlassPoint also focused on careful training of its local contractors, who had no experience with solar projects. As a result, Miraah has already achieved 60 percent reduction in labor hours and has a clear path to further reductions as construction progresses.

GlassPoint's seven MW_t pilot for PDO has been operating since 2013 and paved the way for Miraah, which began construction in November 2015 at the same oilfield in south Oman. It will generate 1,021 MW of peak thermal energy once complete, making it one of the world's largest solar plants of any kind. Miraah will be comprised of 36 standard greenhouse blocks built in a continuous sequence. In August 2017, the first greenhouse block was completed safely, on schedule and on budget with the construction of the remaining 35 blocks ongoing.

Held last week in Chile, SolarPACES is the world's leading technical conference on concentrating solar power (CSP) industry. Last year in the United Arab Emirates, the SolarPACES executive committee awarded GlassPoint the Technology Innovation Award for its innovations and cost breakthroughs.

About GlassPoint Solar

GlassPoint Solar is the leading supplier of solar to the oil and gas industry. The global oil and gas industry consumes an amount of energy equal to 10% of its own production, making it one of the biggest markets for renewable energy. Operating worldwide from the Middle East to California, GlassPoint's enclosed trough technology delivers the lowest cost energy to power oilfield operations. By harnessing sunshine, instead of burning natural gas or other fuels, GlassPoint helps oil producers reduce operating expenses while significantly cutting greenhouse gas emissions.

GlassPoint is one of the fastest-growing solar companies in the world with more than one gigawatt of solar oilfield projects under construction, and was recognized by the World Economic Forum as a Technology Pioneer for its role in enabling more economical and sustainable oil production.

For more information, visit GlassPoint.com

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