

Boeing Spectrolab Terrestrial Solar Cell Surpasses 40 Percent Efficiency

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Boeing [NYSE: BA] today announced that Spectrolab, Inc., a wholly-owned subsidiary, has achieved a new world record in terrestrial concentrator solar cell efficiency. Using concentrated sunlight, Spectrolab demonstrated the ability of a photovoltaic cell to convert 40.7 percent of the sun's energy into electricity. The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) in Golden, Colo., verified the milestone.

"This solar cell performance is the highest efficiency level any photovoltaic device has ever achieved," said Dr. David Lillington, president of Spectrolab. "The terrestrial cell we have developed uses the same technology base as our space-based cells. So, once qualified, they can be manufactured in very high volumes with minimal impact to production flow."

High efficiency multijunction cells have a significant advantage over conventional silicon cells in concentrator systems because fewer solar cells are required to achieve the same power output. This technology will continue to dramatically reduce the cost of generating electricity from solar energy as well as the cost of materials used in high-power space satellites and terrestrial applications.

"These results are particularly encouraging since they were achieved using a new class of metamorphic semiconductor materials, allowing much greater freedom in multijunction cell design for optimal conversion of the solar spectrum," said Dr. Richard R. King, principal investigator of the high efficiency solar cell research and development effort. "The excellent performance of these materials hints at still higher efficiency in future solar cells."

Spectrolab is reducing the cost of solar cell production through research investments and is working with several domestic and international solar concentrator manufacturers on clean, renewable solar energy solutions. Currently, Spectrolab's terrestrial concentrator cells are generating power in a 33-kilowatt full-scale concentrator system in the Australian desert. The company recently signed multi-million dollar contracts for its high efficiency concentrator cells and is anticipating several new contracts in the next few months.

Development of the high-efficiency concentrator cell technology was funded by the NREL's High Performance Photovoltaics program and Spectrolab.

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