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## Cost and Reliability Improvement for Cigs-Based Pv on Flexible Substrate

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.Global Solar Energy rapidly advances the cost and performance of commercial thin-film CIGS products using roll-to-roll processing on steel foil substrate in compact, low cost deposition equipment, with in-situ sensors for real-time intelligent process control. Substantial increases in power module efficiency, which now exceed 13 , are evident at GSE factories in two countries with a combined capacity greater than 75 MW. During 2009 the average efficiency of cell strings (3780 cm<sup>2</sup>) was increased from 7 to over 11 , with champion results exceeding 13 Continued testing of module reliability in rigid product has reaffirmed extended life expectancy for standard glass product, and has qualified additional lower-cost methods and materials. Expected lifetime for PV in flexible packages continues to increase as failure mechanisms are elucidated, and resolved by better methods and materials. Cost reduction has been achieved through better materials utilization, enhanced vendor and material qualification and selection. The largest cost gains have come as a result of higher cell conversion efficiency and yields, higher processing rates, greater automation and improved control in all process steps. These improvements...



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