Risen Energyâ??s Low-Silver Strategy for HJT Technology: A Long-Term Roadmap

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NINGBO, China, March 9, 2026 /PRNewswire/ â?? Recent discussions within the photovoltaic industry have intensified around reducing silver paste costs and developing innovative metallization materials. In this context, we revisit Risen Energyâ??s technical white paperâ??White Paper of HJT Hyper-ion Products: Development and Application of Low-Silver Metallization Pasteâ??to reexamine the companyâ??s early strategic insights, experimental validations, and foundational preparations. This retrospective analysis aims to provide industry peers with practical perspectives derived from hands-on experience.

I. Foresight and Systematic Planning: Beyond Mere Substitution

Confronting silverâ??s limited reserves and price volatility, Risen Energy recognized that adopting low-cost metal alternatives was imperative for sustainable growthâ??akin to the historical transition from gold to copper interconnects in integrated circuits. The companyâ??s approach extended beyond conceptual substitution to systematic implementation:

Comprehensive Material Selection: Risen Energy evaluated candidate metals (e.g., copper, aluminum, zinc, nickel) based on three criteria: electrical conductivity, global reserves, and market stability. Copper emerged as a prime candidate due to its high conductivity (5.96Ã?10â•· S/m), ample reserves, and cost-effectiveness.

Strategic Technology Pathway: While electroplating offers a silver-free alternative, Risen Energy prioritized low-silver-content pasteâ??where a silver shell encapsulates low-cost metal coresâ??for its compatibility with existing production lines and rapid scalability.

Rigorous Reliability Validation: The white paper shows that modules employing low-silver-content pastes demonstrate excellent degradation rate performance after undergoing damp heat (DH) and thermal cycling (TC) tests with severity levels multiplied by several times. In some cases, their

performance even surpasses that of modules using pure silver pastes, and their power generation capacity is comparable to that of pure silver paste modules.

II. From Innovation to Industrialization: Leadership in Mass Production

Risen Energyâ??s HJT products have achieved stable, large-scale mass production on production lines for multiple years. Currently, the pure silver consumption of Risen Energyâ??s HJT cells has been reduced to 3.9 milligrams per watt (mg/W), a level that is at the forefront globally.

III. Reflections and Future Outlook: Value-Driven Progress

This review highlights three core principles underpinning Risen Energyâ??s strategy:

Inherent Synergy Between HJT and Low-Silver Materials: HJTâ??s low-temperature manufacturing, bifaciality, and superior passivation provide an ideal platform for safe, efficient metallization innovation.

Cost Reduction as a Value Multiplier: By integrating material optimization with process excellence, Risen Energy ensures lower LCOE and higher ROI without compromising reliability or power output.

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Material Innovation as an Industry Catalyst: Silver reduction transcends cost savings, representing a paradigm shift in photovoltaic technology and sustainability.

Thank you to all customers and partners for your continuous attention to and trust in Risen Energyâ??s HJT technology. Risen Energy will continue to uphold the original aspiration of â??cost reduction and efficiency improvementâ?•, promote the industrialization process of HJT technology, and contribute solid strength to the global energy transition.

Photo â??
https://mma.prnewswire.com/media/2927920/White_paper_of_HJT_Hyper_ion_products_of_Risen_Energ

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