

# Avoiding PID of Installed and Operating PV Modules in the Field (PV-5)



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## Scientific Achievement:

Reliability is one of the primary factors dictating the projected PV electricity cost (\$/kWh). PV reliability is critical to project developers, to quantify long-term performance and to increase confidence of investors and financial or insurance backers. This work addresses one of the major reliability issues—Potential-Induced Degradation (PID)—of already installed PV modules in the field.<sup>1</sup>

## Significance and Impact:

PID issues are avoided at the cell or module manufacturing level. However, a large number of PID-susceptible modules have already been installed in the field. This work eliminates or dramatically reduces the PID issue of PV modules already installed and operating in the field.

## Research Details:

- A large fraction of commercial PV cells get shunted due to high system voltage leakage current between the grounded module frame and the cells.
- The method developed at ASU uses commercially available, flexible Corning Willow Glass strips placed on the PV module glass superstrates, interrupting the current leakage path.
- Figure 1 shows the current interruption method, and Figure 2 shows the performance retention impact due to current interruption.

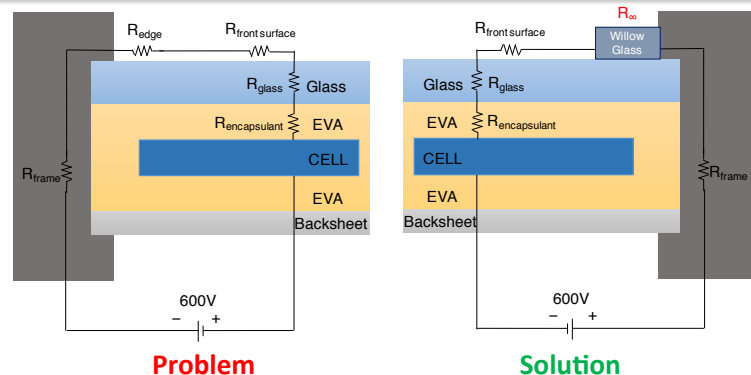


Fig 1. Interruption of PID leakage current path using Corning Willow Glass strips at the frame edges.

## Normalized I-V Parameters after PID-s

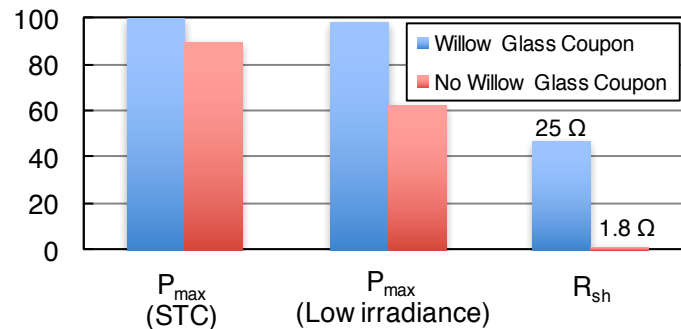


Fig 2. Performance impact on PV coupon with and without the Corning Willow Glass strips at the frame edges.

<sup>1</sup>**Publication:** J. Oh, G. TamizhMani, S. Bowden, and S. Garner, "Surface disruption method with flexible glass to prevent potential-induced degradation of the shunting type in PV modules," *IEEE J. Photovoltaics* 7, 62–67 (2017).

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