

## PB-DH96NE-440 Solar Panel Performance Confirmation

Subject: Confirmation of Enhanced Power Output from Double Glass N-Type Bifacial Solar Panel  
Model PB-DH96NE-440

Dear customer,

Following your enquiry regarding the performance difference between our bifacial double-glass solar panel model PB-DH96NE-440 and conventional modules, we are pleased to confirm that independent laboratory testing and certification data substantiate a measurable performance advantage.

### 1. Test Data Reference

Based on the TÜV SÜD certification report (Document No. 701262507601)

These results demonstrate that, under ideal laboratory conditions, the module can achieve over 10 % more power than its monofacial rating under BNPI condition

It shows the following conditions were applied during testing (on page 42 of test report):

- STC: Front irradiance 1000 W/m<sup>2</sup> → Output: 440 W
- BNPI: Front irradiance 1000 W/m<sup>2</sup> + Rear irradiance 135 W/m<sup>2</sup> → Output: 485 W
- BSI: Front irradiance 1000 W/m<sup>2</sup> + Rear irradiance 300 W/m<sup>2</sup>

Measured gain at BNPI:

$$\frac{485 - 440}{440} = \frac{45}{440} = 0.1023 \approx \mathbf{10.2\%}$$

### 2. Field Application – Practical Gain

In real-world operation, actual performance depends on daily sunlight variation, installation height, angle, and surface reflectivity.

In typical BNPI installation environments, where rear-side irradiance varies throughout the day, the average practical gain is approximately 5 % more energy generation compared with standard single-glass monofacial solar panels. This reflects realistic conditions including changes in sunlight intensity, ambient temperature, roof reflection and shading.

The TÜV SÜD results confirm that our Powerbay PB-DH96NE-440 double-glass N-type bifacial panel under BNPI condition delivers higher energy yield than conventional panels. While laboratory data show potential powers above 10 %, in everyday conditions considering solar angle and irradiance variations, customers can expect an approximate 5 % increase in total energy generation compared to conventional panels.