Energy yield comparison of N-TOPCon bifacial and PERC bifacial in Yinchuan, Ningxia

An experimental study on the energy yield performance of TOPCon bifacial PV modules compared to PERC bifacial PV modules was conducted in Yinchuan (38 Á 35 ĺ N, 106 Á 1 ĺ E) , Ningxia province, the northwest of China. The experimental results have proven that the energy yield gain of TOPCon bifacial modules is up to 3.82% higher than that of the PERC modules.

Figure 1.The location information of Yinchuan

Project Design:

10 pieces N-TOPCon and 10 pieces P-PERC bifacial modules are installed in Ningxia (38.35ÚN, 106.1ÚE). The information of p-PERC and n-TOPCon bifacial module is shown in Table 1.

The panels are installed on adjustable mounting system with current tilt of 40Á, 1 meter height above the grass ground. The model type of inverter is Sungrow 20RT-20 and the data is collected at every minute.

Table 1. System Information

Results:

It is obvious that the N-TOPCon bifacial modules generate more energy than P-PERC bifacial modules from Figure 2.

On the one hand, the bifacility factor of N-TOPCon modules is 10%~15% higher than that of P-PERC modules. Therefore, the energy gain of TOPCon modules is significantly higher based on the same irradiation from rear side.

Another prominent difference is in temperature. The operating temperature of the N-TOPCon modules will lower down benefiting from lower temperature coefficient, and thus the power

Figure 3. The project picture

Figure 2. The Difference of Produced Energy in N-TOPCon and P-PERC Bifacial Modules