

Jinkosolar Tiger Neo Commercial Rooftop Project in Dongfang city, Hainan, China

The 10 MW commercial rooftop project is located in Basuo town, Dongfang city, Hainan province, China. In order to provide guidance for module selection, the developer has conducted a modeling stimulation comparing power generation performance and gain rate of both Tiger Neo 78 cells bifacial module and the conventional P-type bifacial module.

1. Location and environment

The project is located in Dongfang city, Hainan (19.097112 ° N, 108.67689 ° E), which has tropical marine monsoon climate characterized by high temperature, humidity and high radiation throughout the year.

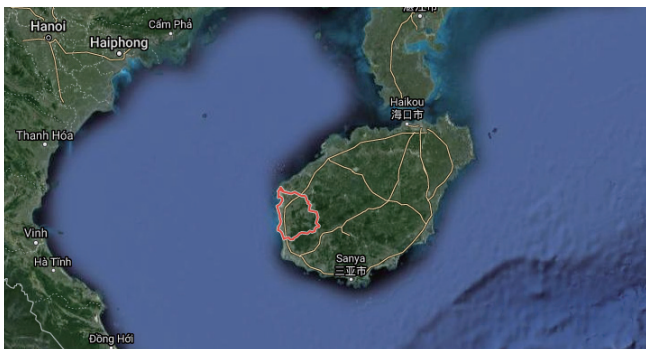


Figure 1. Location of Dongfang city, Hainan

According to the meteorological data measured by the local weather Bureau, the statistics of each meteorological element are as follows:

Item	Numerical Value
1 Average temp(°C)	23.6
2 Max temp(°C)	38.1
3 Min temp(°C)	3.2
4 Average rainfall(mm)	1725
5 Max rainfall(mm)	2687
6 Max wind speed(m/S)	33.1
7 Relative humidity(%)	80
8 Irradiance (kWh/m ²)	1620.5

Table 1. Meteorological data of Dongfang city

2. Comparison of power generation and gain rate

According to the comparison study between Tiger Neo 78 cells N-type module and P-type module, more suitable module size enables higher installation number of Tiger Neo than P-type module in the same rooftop area. Getting benefit from Tiger Neo's higher installation number and other competitive advantages, both of power generation performance and capacity of project increases significantly.

- a. Larger installed capacity: N-type module improved 15-20w working power as compared to P-type module, getting benefit from this feature, Tiger Neo modules allow for large project.
- b. Higher power generation: Due to lower temperature coefficient, Tiger Neo 78 cells modules increase working time by 3.44% as compared to P-type modules.
- c. Lower degradation rate: Tiger Neo has a performance warranty of 30 years. Over 25 years, the cumulative yield gain is 5.53%.
- d. Effectively reducing the LCOE(levelized cost of energy)by about 3.69% and increasing the total return on investment by 3.27%

	Unit	Conventional module	Tiger Neo 78	Gain rate
Power	W	590	605	-
Efficiency	%	21.1	21.68	-
Module size	mm	2465*1134	2465*1134	-
Weight	kg	30.6	30.6	-
Capacity	MWp	9.8	10.05	2.55%
Operation hours in the first year	h	1397	1445	3.44%
Cumulative operation hours in 25 years	h	325729.1	343734.8	5.53%
LCOE	RMB/kwh	0.331	0.3188	-3.69%
Investment return		14.67%	15.12%	3.27%

Table 2. Comparison of power generation and gain rate

3. Monthly power generation

Compared to P-type modules, Tiger Neo 605W high-efficiency module provides more equivalent operation hours throughout the year, with an average increase of 3.43%. Especially in summer and autumn (from April to October), Tiger Neo modules increase 3.67% of equivalent operation hours, which also highlights its superior power generation performance.

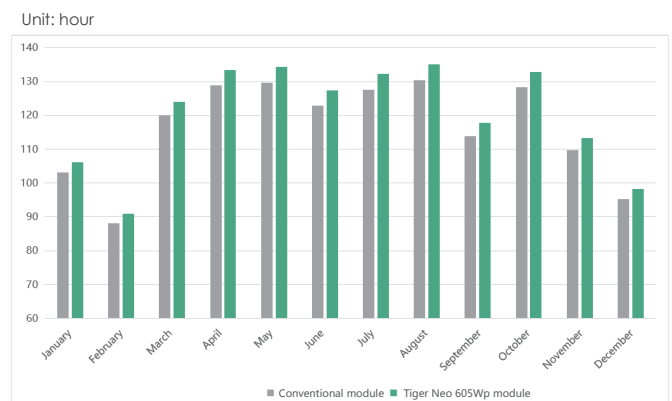


Figure 2. Monthly equivalent operation hours in the first year (h)