Huasun Heterojunction Full-scenario Solution

01 Desert

In response to growing global calls for renewable energy, photovoltaic (PV) power generation has garnered widespread recognition as a highly efficient and clean energy source. Desert areas, distinguished by their plentiful solar resources and vast land, are increasingly seen as optimal sites for PV power plant constructions, offering substantial environmental advantages.

***The following data is sourced from PVsyst simulations of heterojunction (HJT) modules in desert conditions, juxtaposed against simulations for PERC and TOPCon modules of equivalent size.**

Sufficient solar resources

Abundant land resources

Positive environmental benefits

Solution in Desert Scenario

Module power: 720W

Module Dimension: 2384mm*1303mm

Array: 1P

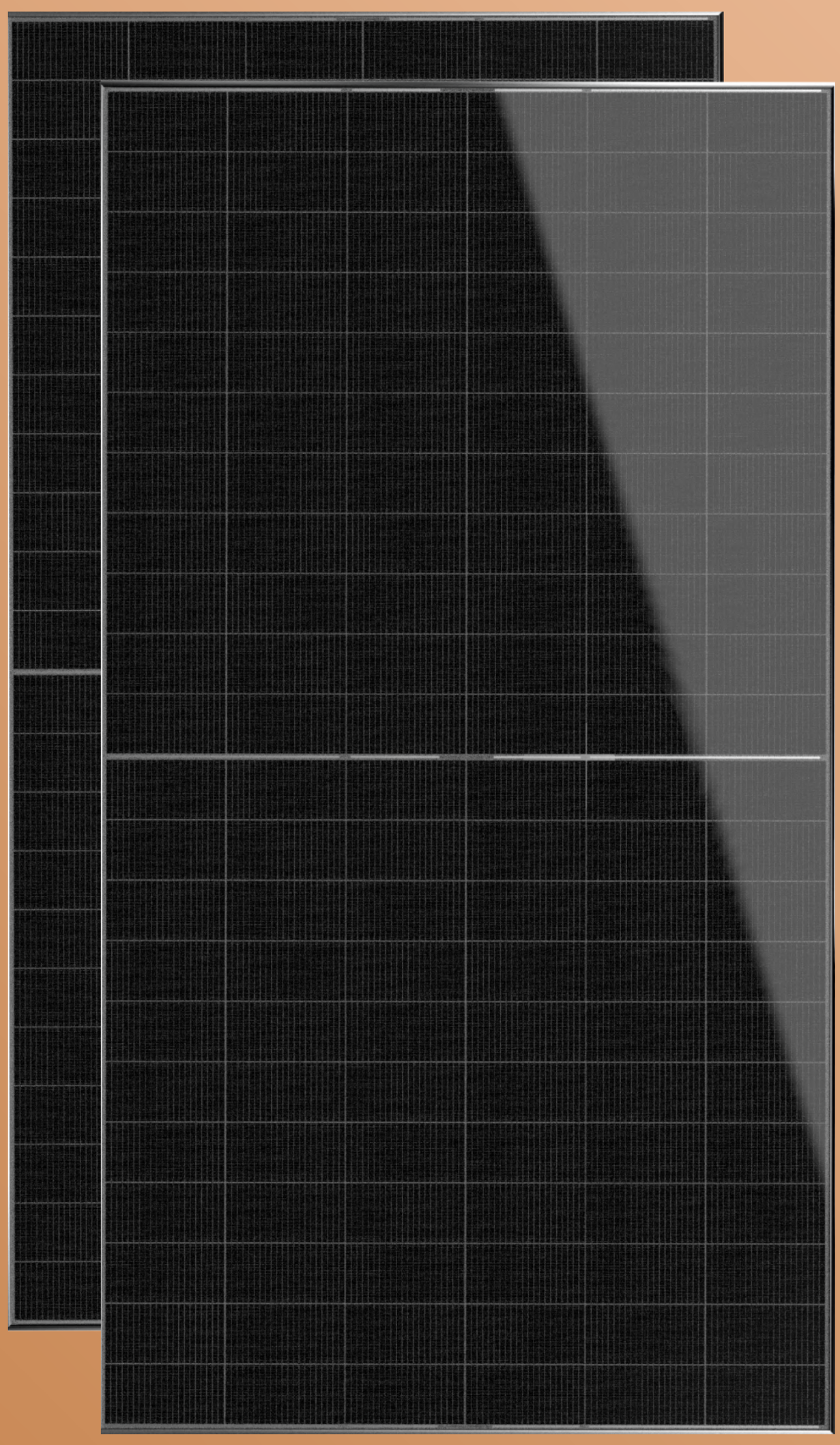
Installation Tilt: ±60°

Module Ground Height at Max Tilt Angle: 0.5m

Modules Per String: 28 Pieces

Pnom Ratio: 1.19

AC System Capacity: 96.8MVA

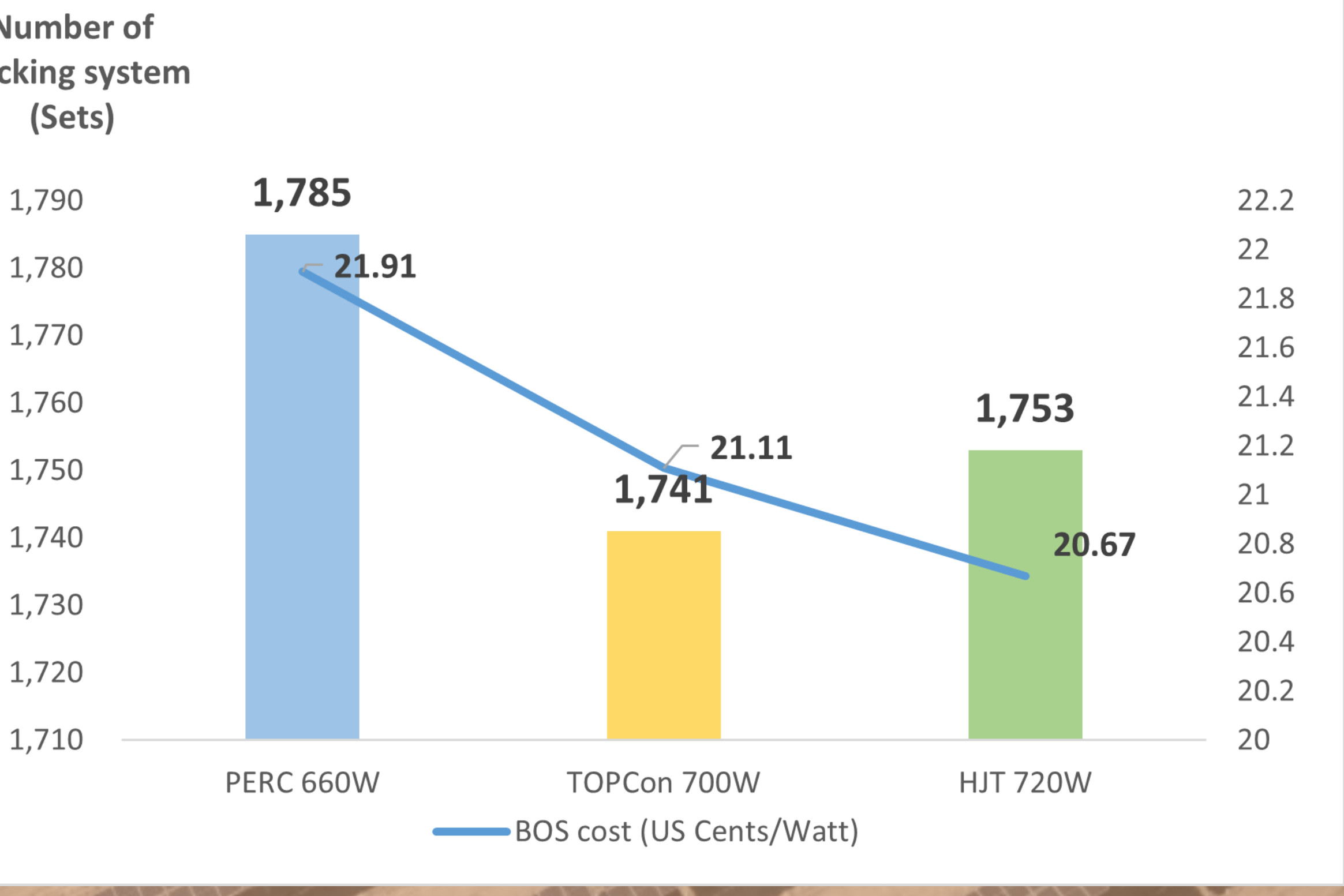


Huasun G12-132
HJT Solar Module

Advantages of HJT Solution

Comparison of PV modules with same dimension:

	PERC 660W	TOPCon 700W	HJT 720W
Module Power (Wp)	660	700	720
Dimension (mm)	2,384×1,303	2,384×1,303	2,384×1,303
First year power degradation	2%	1%	1%
Linear power degradation	0.45%	0.4%	0.3%
Bifaciality	70%	80%	90%
Number of strings (Strings)	5,356	5,224	5,260
Number of modules (Pieces)	160,680	151,496	147,280
Floor space (Hectare)	97.58	92	89.47



Calculations based on PV system solution with horizontal single-axis tracking.

Lower BOS Cost

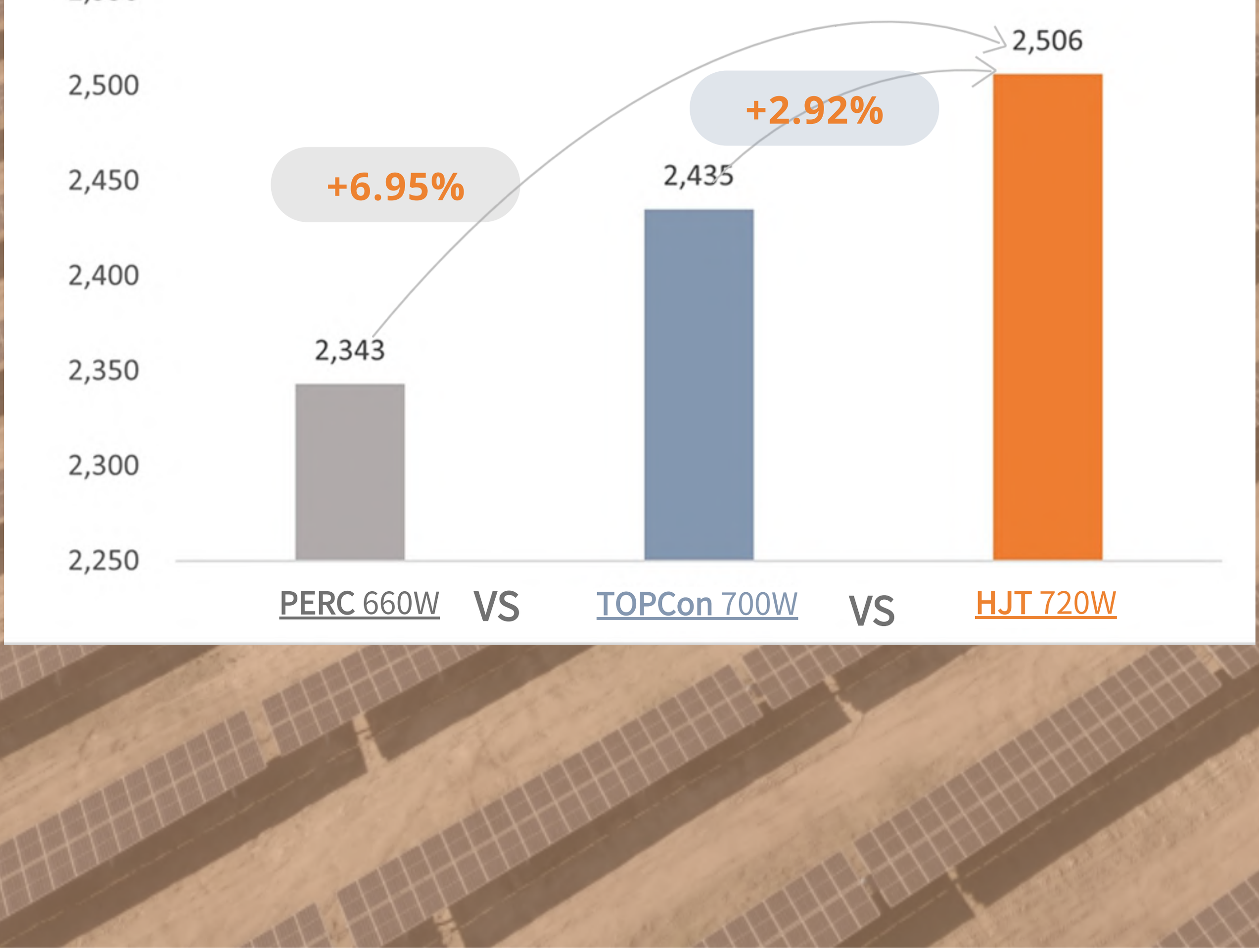
(in a 100MW PV project with horizontal single-axis tracking system)

720W HJT modules save 0.44 US cents/W compared to 700W TOPCon modules, and 1.24 US cents/W compared to 660W PERC modules in terms of BOS cost.

Due to the higher efficiency of HJT modules, fewer installations are required to meet the same power generation demand, resulting in significant labour cost savings.

Lower Labour Cost

In a fixed-mounted PV plant, using 720W HJT modules reduces labour costs by 0.09 US cents/W compared to 700W TOPCon modules, and by 0.25 US cents/W compared to 660W PERC modules.



Higher 1st Year Generation Hours

In a utility-scale PV plant with horizontal single-axis tracking in Saudi Arabia, Huasun's 720W HJT module generates approximately 115 hours (6.95%) more compared to a 660W PERC module, and 71 hours (2.92%) more compared to a 700W TOPCon module.

Higher Bifaciality

HJT modules boost ultra-high **bifaciality of 95%**, enhancing power generation on both sides and significantly boosting overall efficiency.

This capability is particularly advantageous in high-reflectivity environments such as deserts, where backside irradiation is stronger than in typical scenarios, resulting in a substantial increase in overall power output of the modules.

Baseline	PERC	TOPCon
Bifaciality	+20%	+10%
Energy yield gain from backside	+1.9%	+0.95%

*The 95% bifaciality represents the exceptional performance of Huasun's HJT module. Data presented here is based on a conservative bifaciality of 90%.

Baseline	PERC	TOPCon
Temperature coefficient	-0.1%	-0.05%
Efficiency loss	-2.85%	-1.77%

Optimized Temperature Coefficient

The HJT solar cell's inherent bifacial symmetrical structure and distinctive material properties can facilitate enhanced electron mobility and mitigate the risk of hotspots, thereby improving overall efficiency.

Combined with Huasun's advanced manufacturing process, Huasun HJT solar modules can maintain highly efficient and stable power generation performance in high temperature environments, thus improving the reliability and economic benefits of PV systems.

Higher ROI

Reduced Cost | Enhanced Yield

	Baseline	PERC	TOPCon
First Year Yield Gain		+6.95% ↑	+2.92% ↑
Internal Rate of Return (IRR)		+0.91% ↑	+0.35% ↑
Balance of System (BOS) Cost		-5.67% ↓	-2.11% ↓
Levelized Cost of Energy (LCOE)		-6.90% ↓	-2.55% ↓

Huasun's HJT modules offer significant advantages in desert scenario, featuring higher bifaciality, and optimized temperature coefficient. With high efficiency and low degradation, Huasun HJT modules not only reduce BOS cost but also lower the LCOE, delivering superior economic value to customers.

Huasun is committed to cooperating with global partners to improve the desert ecological environment and promote the development of green energy.