

**Hyper-ion** <sup>TM</sup> 伏羲

# Ultra Low Carbon & Ultra High Efficiency

——Hyper-ion HJT Products Sales book V5.0

*Risen Energy Co., Ltd. / Product Center / March 2024*

# Trend of Cell Technologies

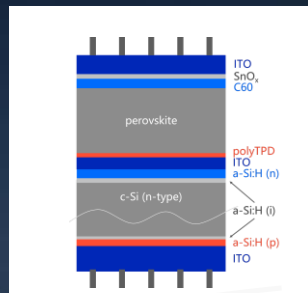
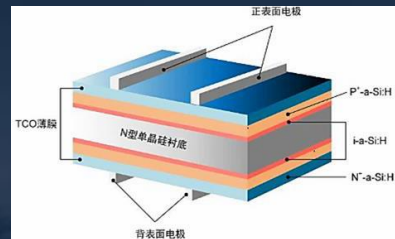
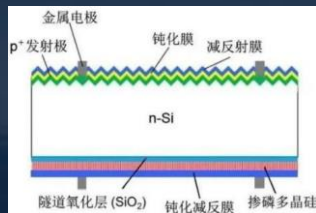
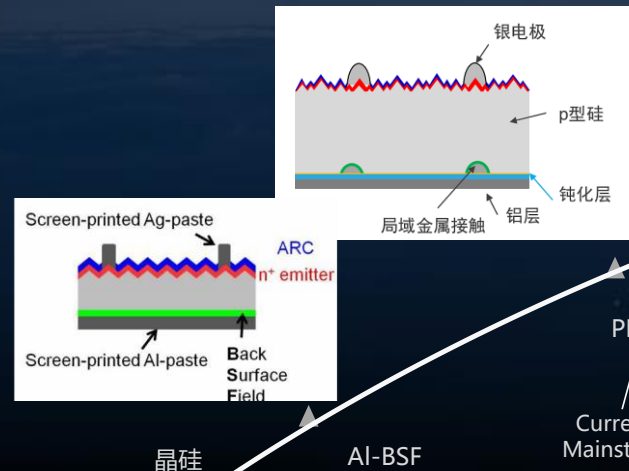


Single junction silicon solar cell world record 26.81%

Theoretical efficiency limit of silicon solar cell 29.4%

Tandem cell world record 33.9%

35%+



Inevitable form of future solar cell technology

- The conversion efficiency of single (*p-n*) junction solar cells has a S-Q theoretical efficiency limit, for crystalline is about 29.4%, which basically reaches its theoretical limit.
- At present, all technologies that break through the 27% efficiency are tandem cells.

# More Benefits and Less Carbon Emission



Hyper-ion 伏<sup>TM</sup>

## MORE BENEFITS

- Higher Efficiency,
- Lower BOS, Lower LCOE



## LOWER CARBON

- Fewer processes and lower processing temperature
- Less silicon-materials

# R&D Milestones



**2018**

Mastered low-temperature processing for HJT and successfully produced HJT module



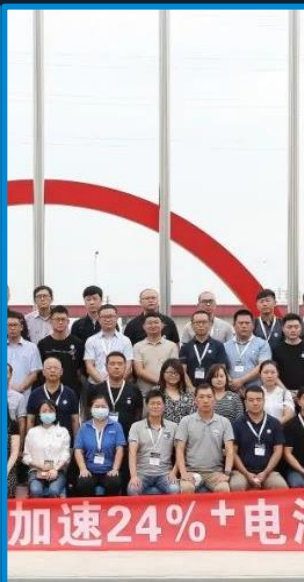
**2019**

Established 500MW pilot line at Jintan ,Changzhou City, and released the industry's first half -cell HJT module with efficiency of 21.9%



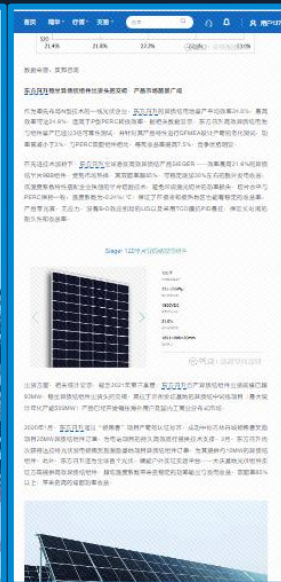
**2020**

Won the "HJT Power Generation Excellence Award" from TÜV Rheinland



**2020**

Mass-produced HJT solar cell efficiency reached 24.2% in Jintan factory, Chnagzhou



**2020&2021**

Shipment of HJT modules has ranked first globally for two consecutive years



**2022**

Launched G12 HJT Module named Hyper-ion, maximum power output up to 700Wp

# R&D Milestones



**2022**

Take the lead in achieving mass production of 210 HJT cells based on ultra-thin wafer



**2022**

Awarded the world's first certificate for HJT module with 210 ultra-thin solar cells from TÜV SÜD



**2023**

Achieved mass-production for 0BB HJT cells with a maximum efficiency up to 25.5%, and production capacity reached 4GW in Jintan



**2023**

Signed 1 GW HJT module supply agreement



**2023**

Risen's Nanbin base with 15 GW HJT production capacity started operation in Aug

# 4 World Records in a Row



**4 consecutive world records for HJT**

**25.8%**  
Average module conversion efficiency of the best batch

**26.1%**  
Optimal cell efficiency

**110 $\mu$ m}**  
Wafer thickness for full-scale mass production

# Technical Roadmap of Risen



**Cell & Wafer technology:** Half-ingot & half-cut wafer technology / mass-production technology for 100 $\mu$ m wafer/ Wafer passivation technology / Back-contact HJT cell technology / Low-silver-content paste technology / OBB cell technology

**Module Technology :** Stress-free interconnection technology / Multi-layer ARC technology / Optimized module light management design / Special scenario application development



# HJT Solar Cell



**OBB**

Cost reduction and efficiency

**-0.24%**

**Power Temperature Coefficient**

Better power temperature coefficient ensures higher power production

**25.8%**

**Maximum Efficiency**

90µm ultra-thin cell  
Double-sided microcrystalline

**90%**

**Maximum Bifacial Factor**

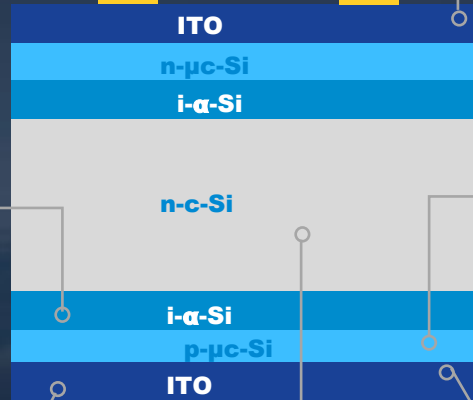
Perfect Symmetry

**TCO**

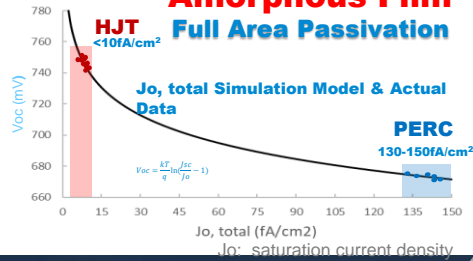
Best anti-PID performance  
Easier to stack Perovskite for stacking layer

**n type-wafer**

No B-O induced LID



**Amorphous Film Full Area Passivation**

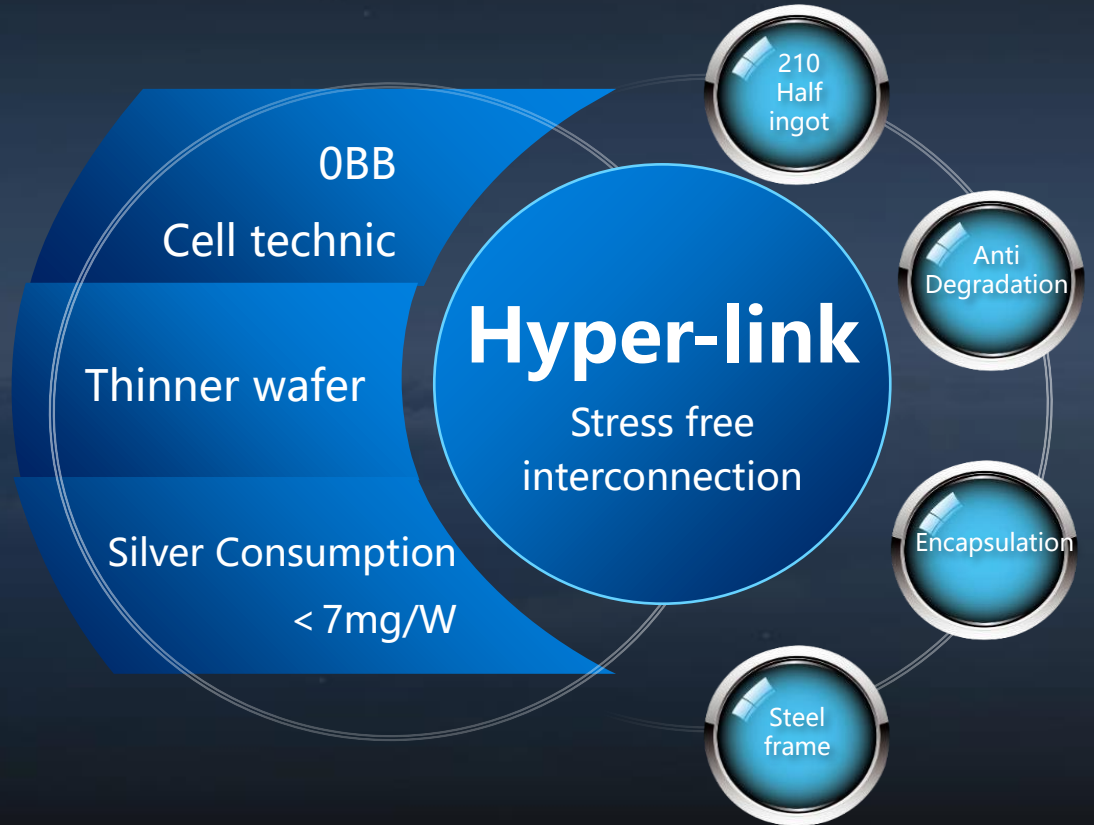
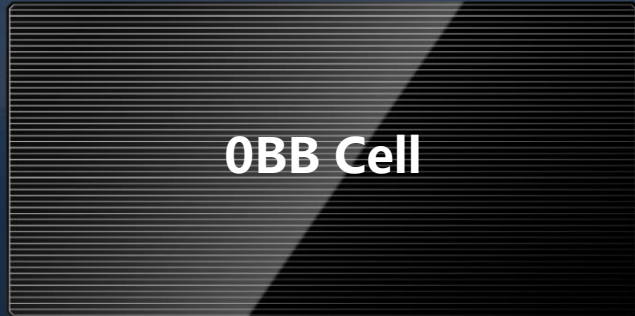


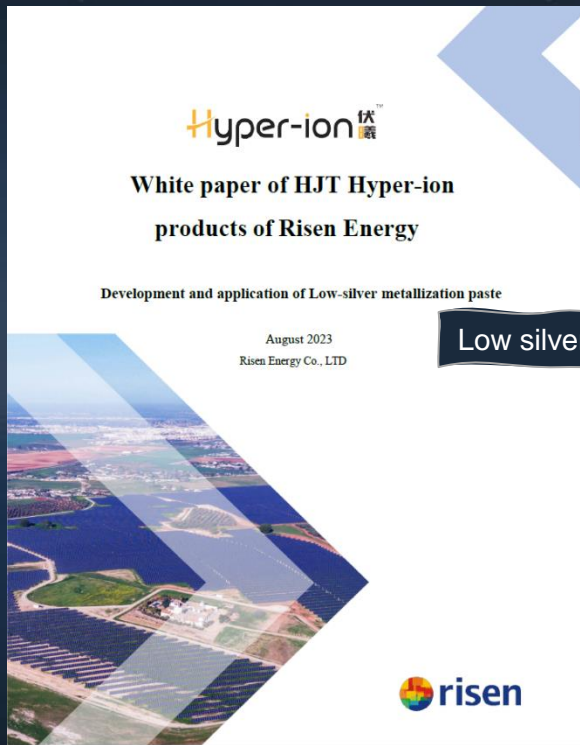
Amorphous film passivation,  $V_{oc}$  over 740mV



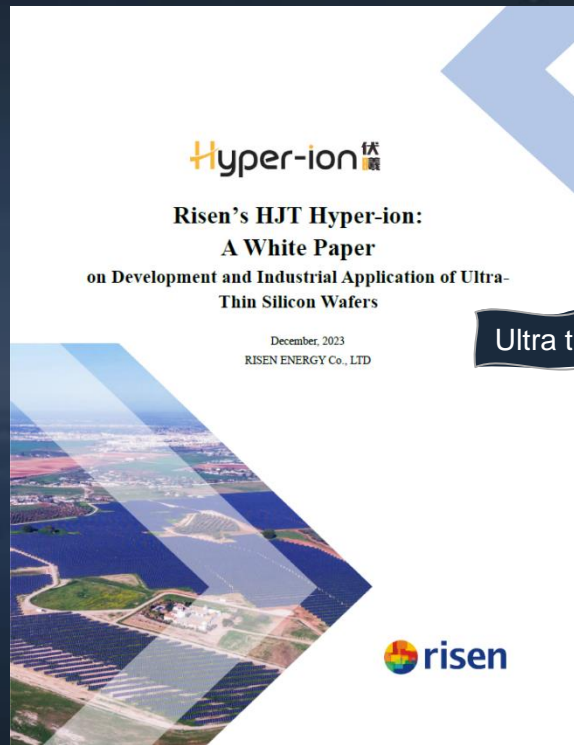
# 120+

HJT related patents  
(Until end of 2023)



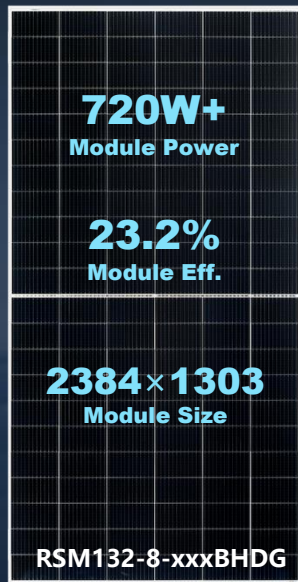


Low silver metallization

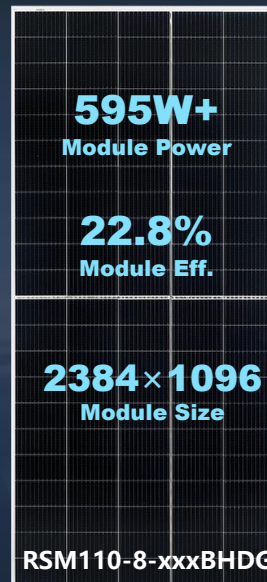


Ultra thinner wafer

Utility-scale



Commercial &  
Utility-scale





## RSM132-8-xxxBHDG

**132 Cells**

HJT Bifacial Module

**700-720Wp**

Module Power

**22.5-23.2%**

Module Efficiency

**-0.22%/°C**

Voc Temperature  
Coefficient

**-0.24%/°C**

Pmax Temperature  
Coefficient

**85%±10%**

Bifacial Factor

**2384x1303x33mm** ( Aluminum frame )

**2384x1303x35mm** ( Steel frame )

Module Size

**37.5kg** ( Aluminum frame )

**40.5kg** ( Steel frame )

Module Weight

- Please check the latest product datasheet for details.

# Hyper-ion Advantages



## More stable power temperature coefficient

**-0.24%/°C**

(PV Magazine test results: **-0.247 %/°C**)

vs PERC **-0.34%/°C**

vs TOPCon **-0.29%/°C**

## Higher power retention rate

- First year degradation **≤1%**,  
linear degradation **0.3%**
- 30-year power retention rate  
over 90%



## High energy yield, High carbon value

- **6%+** higher than PERC
  - **3%+** higher than TOPCon
- Higher power generation brings higher carbon value

## Higher bifacial factor

- **15%** higher than PERC
  - **5%** higher than TOPCon
- Higher backside gain under  
the same conditions



## Lower LCOE and BOS cost

- High power and high efficiency
- Lead to lower BOS costs and LCOE



## Higher Power Higher efficiency

- Module Power **720Wp+**
- Module Efficiency **23.2%+**



## Low carbon footprint

Carbon Footprint **376.5kg eq CO<sub>2</sub>/kWh**  
(French Energy Agency Certification Score)

- **150-200kg eq CO<sub>2</sub>/kWh** lower than PERC
- **50-100kg eq CO<sub>2</sub>/kWh** lower than TOPCon



# Higher Bifaciality



## Bifacial Factor

The ratio of rear efficiency in relation to the front efficiency subject to the same irradiance. Simply speaking, if the bifacial factor is 90% and the rated power of front side is 100W, so the rear side power output at the same irradiance is  $100W \cdot 90\% = 90W$ .

Cell Type	PERC	TOPCon	HJT
Bifaciality of Cell	≈75%	≈85%	>90%
Bifaciality of Module	≈70%	≈80%	≈85%

### Percondition

- Rated Power: 100W

### Operation Environment (STC)

- $T_{cell}$ : 25°C
- Irradiance: 1000W/m<sup>2</sup>
- Albedo: 10%
- Air Mass: AM1.5

### Power output with real side

$$P_{PERC} = 100 + 100 \cdot 70\% \cdot 10\% = 107.0W$$

$$P_{TOPCon} = 100 + 100 \cdot 80\% \cdot 10\% = 108.0W$$

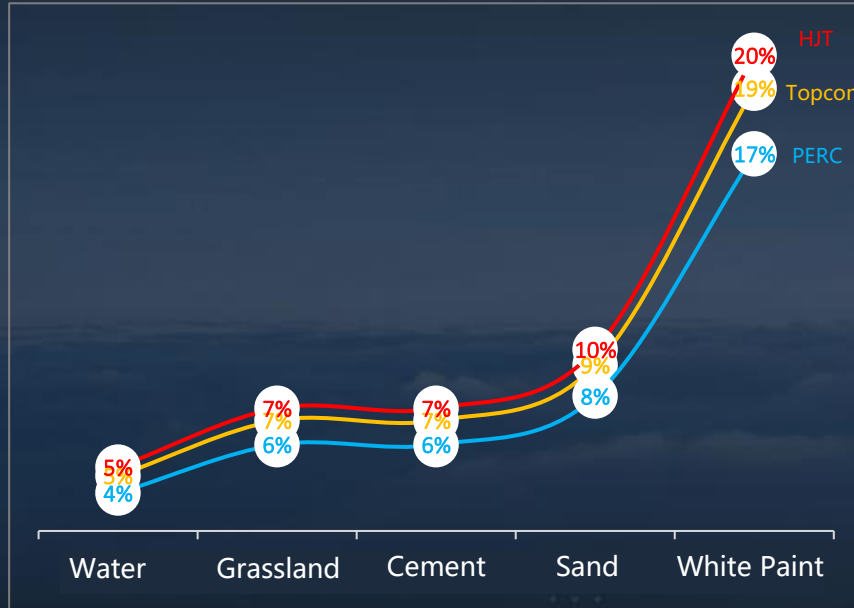
$$P_{HJT} = 100 + 100 \cdot 85\% \cdot 10\% = 108.5W$$

The higher the Albedo and bifacial factor, the greater the power generation gain of HJT PV modules

# Higher Bifacial Gain from HJT



Energy Gain from back side of modules on different ground conditions



Reference Albedo value for different ground conditions

Grass (July~August)	0.25	Asphalt	0.15
Lawn	0.18-0.23	Sandy land	0.1-0.25
Dry grass	0.28-0.32	Water surface ( $r > 45^\circ$ )	0.05
Wilderness	0.26	Water surface ( $r > 30^\circ$ )	0.08
Wasteland	0.17	Water surface ( $r > 20^\circ$ )	0.12
Grit	0.18-0.23	Water surface ( $-r > 10^\circ$ )	0.22
Clean concrete	0.3	Forest	0.05-0.18
Corroded concrete	0.2	Fresh snow	0.8-0.9
Clean cement	0.55	Old snow	0.45-0.7
Desert	0.24-0.28	Ice	0.69

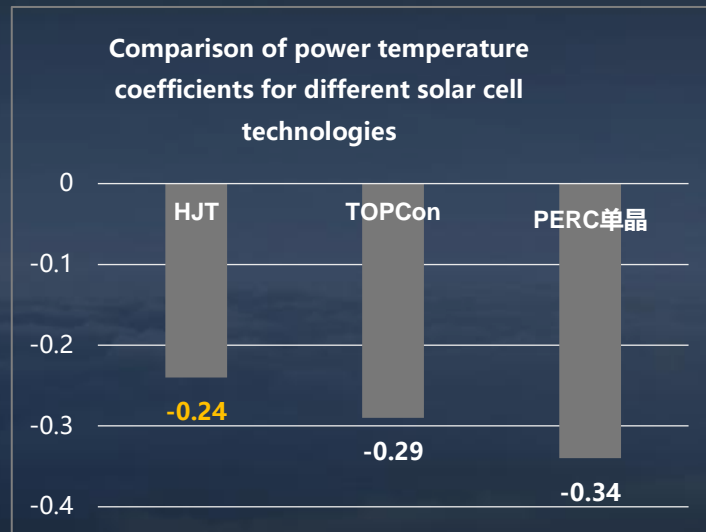
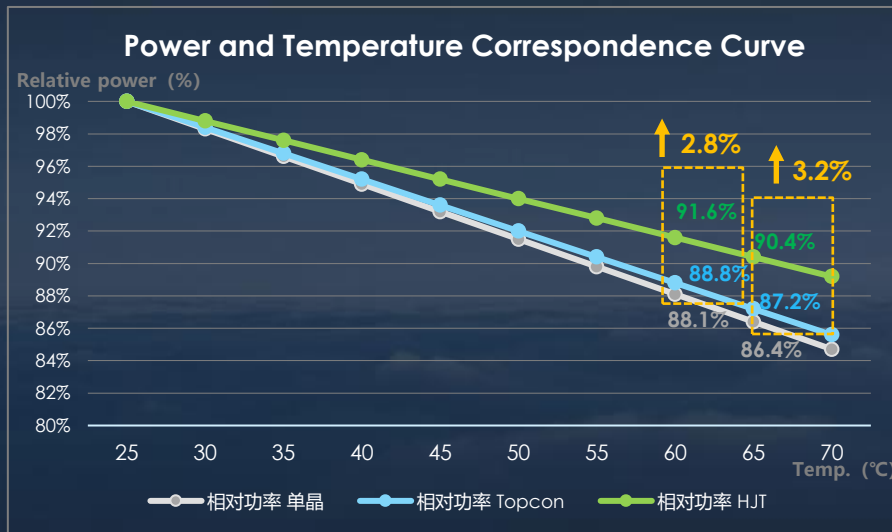
Note: "r" of the water surface is entrance ray angle

Bifaciality of HJT Module	Bifaciality of TOPCon Module	Bifaciality of PERC Module	Notes
85%	80%	70%	Based on double-glass encapsulation, the difference in power generation is also related to the PV system designing and installation structures

# Stable Power Temperature Coefficient



HJT Power  
Temperature Coefficient **-0.24 %/°C** Excellent performance in high temperature areas



## Precondition

- $T_{STC}$ : 25°C
- Rated Power: 100Wp

## Operation Environment (STC)

- $T_{air}$ : 30°C (Summer)
- $T_{oper}$ : 60/65°C  
(Usually 30-35°C higher than air temperature)

## Power output with real side

- $P_{PERC}$  = 88.16W
- $P_{TOPCon}$  = 88.8W
- $P_{HJT}$  = **91.6W**



# Higher Power Generation



- Harbin, China (45.9°N);
- Average annual temperature: 4.7°C;
- Total horizontal radiation: 1347 kWh/m<sup>2</sup>

## Low-temperature application scenario

Module Type	DC/AC ratio	Bifacial factor for simulation	First year degradation	Annual degradation	Installed capacity (MWp)	First year power generation (MWh)	Normalized power generation in year 25 (kWh/KWp)	Normalized average power generation over 25 years (kWh/KWp)	Normalized average power generation gain over 25 years
Bifacial PERC 665Wp	1.28	70%	2.00%	0.45%	11.47	1400	1246	1323	baseline
Bifacial TOPCon 585Wp	1.27	80%	1.00%	0.40%	11.40	1438	1299	1368	<b>+ 3.40%</b>
<b>Bifacial HJT 710Wp</b>	1.27	85%	1.00%	0.30%	11.37	1446	1341	1394	<b>+ 5.37%</b>

# Higher Power Generation

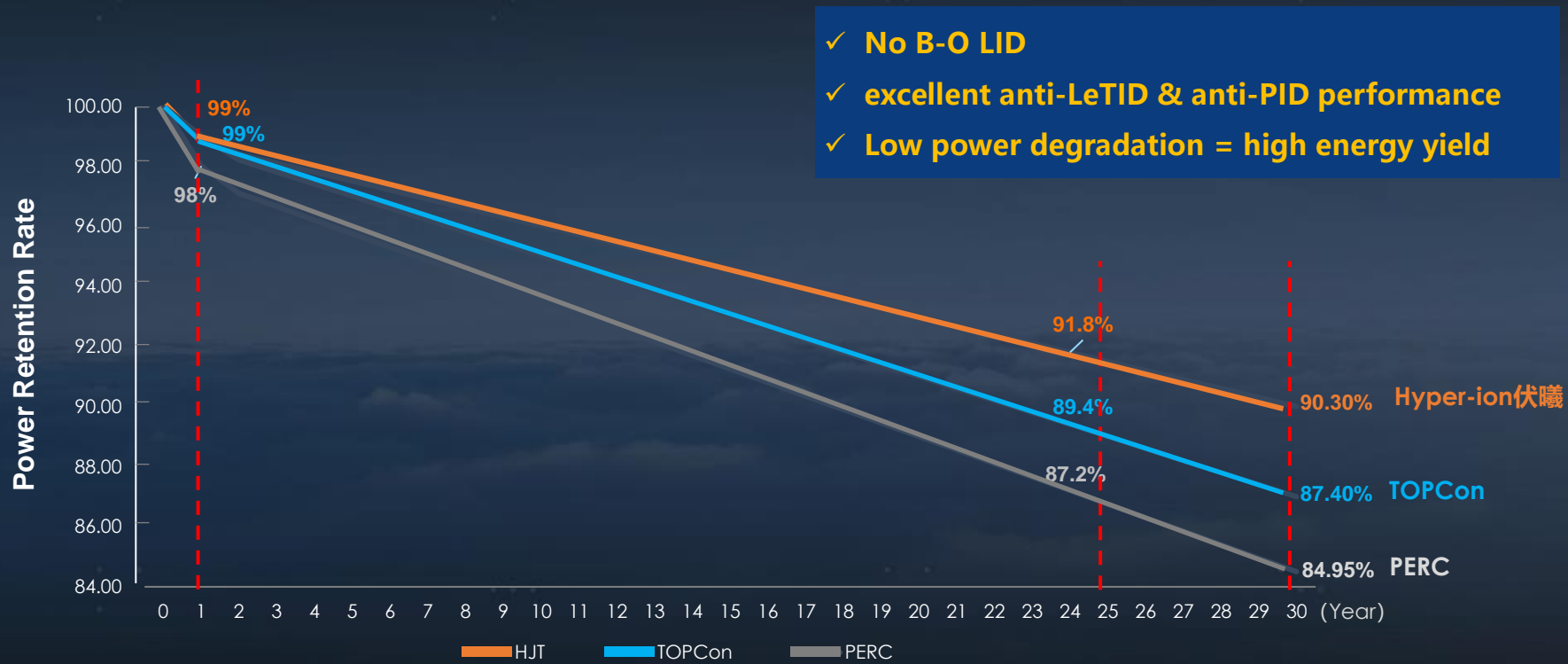


- Abu Dhabi (24.4°N)
- Average annual temperature: 28.5°C
- Total horizontal radiation: 2015.1 KWh/m<sup>2</sup>

## High-temperature application scenario

Module Type	DC/AC ratio	Bifacial factor for simulation	First year degradation	Annual degradation	Installed capacity (MWp)	First year power generation (MWh)	Normalized power generation in year 25 (KWh/KWp)	Normalized average power generation over 25 years (KWh/KWp)	Normalized average power generation gain over 25 years
Bifacial PERC 665Wp	1.12	70%	2.00%	0.45%	10.05	1843	1640	1741	baseline
Bifacial TOPCon 585Wp	1.09	80%	1.00%	0.40%	9.80	1905	1643	1813	+ 4.14%
<b>Bifacial HJT 710Wp</b>	1.12	85%	1.00%	0.30%	10.02	1917	1778	1847	+ 6.09%

# Lower Overall Degradation



## 18级飓风测试

### Modules for extreme wind conditions

子样编号 Sample No.	检测参数及结果 Test parameters and results				结果 Result
	安装角度(°)	管道风速[V <sub>管</sub> ] [m/s]	换算风速[V <sub>等</sub> ] (m/s)	持续时间[s]	
1	30	24	40	-	组件以及安装系统完好
2	30	24	40	-	组件以及安装系统完好
1	30	30	50	-	组件以及安装系统完好
2	30	30	50	-	组件以及安装系统完好
1	30	37.0	61.7	180	组件以及安装系统完好
2	30	37.0	61.7	180	组件以及安装系统完好

备注：1 号和 2 号样品为并排安装，管道风速从 0 开始加速到每个管道风速节点，稳定后观察样品运行状态如样品完好，则管道风速加速到下一个风速节点直到风速到达 18 级风标准，在稳定后观察样品运行状态如样品完好则进行 180s 的风速保持，如样品在某一管道风速节点失效，则立即关闭风洞风机，并记录样品运行状态。

备注 Remark	
	1. 依据技术协议 $V_{等} = \frac{V_{管}}{(1-n)}$ ; 2. 风洞技术要求详见客户要求 3. 样品安装详细信息见附件

Passed **the wind tunnel class 18 test** (duration **180s**)  
with module and mounting system intact.

# Higher Reliability



# HJT suitable for a wide range of application scenarios with high reliability

Passed series of IEC tests such as 3X IEC, salt mist, ammonia, dust and sand, Un-uniform snow load, etc.

**CERTIFICATE**  
No. Z2 082429 0157 Rev. 13

Holder of Certificate: **Risen Energy Co., Ltd**  
110000 Ningbo, Zhejiang  
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:

Product: **Crystalline Silicon Terrestrial Photovoltaic Mono-Crystalline Silicon Photovoltaic Module**

The product was tested on a voluntary basis and complies with the essential requirements of the applicable standards. The certification mark shown above can be affixed to the product. It is not permitted to affix the certification mark in any way. In addition, the certification holder must not transfer the requirements of the testing and certification regulations of TÜV SÜD Group here to the third parties. This certificate is valid until the latest date unless it is renewed earlier. A details see: [www.tuv-sud.com/eng](http://www.tuv-sud.com/eng)

Test report no.: 704061802965-13  
Valid until: 2028-03-27  
Date: 2023-04-03  
(Zhuo Zhang)

Page 1 of 2  
TÜV SÜD Product Service Center - Certification Body - Federal state: 010328 Munich

**CERTIFICATE**  
No. Z2 082429 0169 Rev. 07

Holder of Certificate: **Risen Energy Co., Ltd**  
110000 Ningbo, Zhejiang  
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:

Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Module Mono-Crystalline Silicon Photovoltaic Module**

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed to the product. It is not permitted to affix the certification mark in any way. In addition, the certification holder must not transfer the requirements of the testing and certification regulations of TÜV SÜD Group here to the third parties. This certificate is valid until the latest date unless it is renewed earlier. A details see: [www.tuv-sud.com/eng](http://www.tuv-sud.com/eng)

Test report no.: 704061802965-07  
Valid until: 2028-12-10  
Date: 2023-12-15  
(Zhuo Zhang)

Page 1 of 2

**TUV NORD**

To: **Risen Energy Co., Ltd**  
Company: 110000 Ningbo, Zhejiang  
PEOPLE'S REPUBLIC OF CHINA

Contact: Mr. Yang Shou  
Email: yangshou@risen.com

Subject: **Announcement of cancellation**  
No. 010000122P02  
File No. 01010  
License holder: Risen Energy Co., Ltd  
No. 01010  
Certificate No. 44 280 19 488749 327013A3818  
Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Module Mono-Crystalline Silicon Photovoltaic Module**  
Date: 2023-02-15

From: **TÜV NORD**  
Company: 110000 Ningbo, Zhejiang  
PEOPLE'S REPUBLIC OF CHINA  
Contact: Mr. A. W. G. H. J. M. van der Vliet  
Email: a.w.g.h.j.m.van.der.vliet@tuv-nord.com

The cancellation is due to:  
1. The product is no longer available for sale.  
2. The product is no longer used for the intended purpose.  
3. The product is no longer used for the intended purpose.  
4. The product is no longer used for the intended purpose.  
5. The product is no longer used for the intended purpose.  
6. The product is no longer used for the intended purpose.  
7. The product is no longer used for the intended purpose.  
8. The product is no longer used for the intended purpose.  
9. The product is no longer used for the intended purpose.  
10. The product is no longer used for the intended purpose.

Please pay attention to the following: (1) The product is no longer available for sale. (2) The product is no longer used for the intended purpose. (3) The product is no longer used for the intended purpose. (4) The product is no longer used for the intended purpose. (5) The product is no longer used for the intended purpose. (6) The product is no longer used for the intended purpose. (7) The product is no longer used for the intended purpose. (8) The product is no longer used for the intended purpose. (9) The product is no longer used for the intended purpose. (10) The product is no longer used for the intended purpose.

Page 1 of 2

**SGS**

**VERIFICATION OF COMPLIANCE**

SGS CERTIFICATION

Holder of Certificate: **Risen Energy Co., Ltd**  
110000 Ningbo, Zhejiang  
PEOPLE'S REPUBLIC OF CHINA

Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Module Mono-Crystalline Silicon Photovoltaic Module**

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed to the product. It is not permitted to affix the certification mark in any way. In addition, the certification holder must not transfer the requirements of the testing and certification regulations of TÜV SÜD Group here to the third parties. This certificate is valid until the latest date unless it is renewed earlier. A details see: [www.tuv-sud.com/eng](http://www.tuv-sud.com/eng)

Test report no.: 704061802965-13  
Valid until: 2028-03-27  
Date: 2023-04-03  
(Zhuo Zhang)

Page 1 of 2

**certisolis**

**Evaluation Carbone simplifiée**  
ECS CRE4 N°355-2023\_002

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed to the product. It is not permitted to affix the certification mark in any way. In addition, the certification holder must not transfer the requirements of the testing and certification regulations of TÜV SÜD Group here to the third parties. This certificate is valid until the latest date unless it is renewed earlier. A details see: [www.tuv-sud.com/eng](http://www.tuv-sud.com/eng)

Test report no.: 704061802965-13  
Valid until: 2028-03-27  
Date: 2023-04-03  
(Zhuo Zhang)

Page 1 of 2

# More Contributes to Carbon Neutrality



## Lower Carbon Footprint



Page 2/2

### Résultats

	RSM132-8-xxxBHDG					
Puissance ( 0/+5W)	690	695	700	705	710	715
<b>G (kg eq CO2/kWc)</b>	390,147	387,340	384,573	381,846	379,157	376,505

### Détail du calcul

	RSM132-8-xxxBHDG					
Puissance ( 0/+5W)	690	695	700	705	710	715
Polysilicium	103,920	103,173	102,436	101,709	100,993	100,287
Lingot	71,556	71,042	70,534	70,034	69,541	69,054
Wafers	20,578	20,430	20,284	20,140	19,998	19,858
Cellules	91,926	91,275	90,623	89,980	89,347	88,722
Modules	25,961	25,775	25,591	25,409	25,230	25,054
Verre	52,551	52,172	51,800	51,432	51,070	50,713
Trempe	10,971	10,892	10,814	10,737	10,662	10,587
Encapsulant	12,673	12,582	12,492	12,404	12,316	12,230
<b>G (kg eq CO2/kWc)</b>	390,147	387,340	384,573	381,846	379,157	376,505

**376.5kg eq CO2/kWc**

### Typologie du numéro de série et du code ECS des modules :

Exemple numéro de série : 130801R6CZXXXXXXXXXXXXXXXXXXXXXXXXXXXX

- 13 : Fabrication Polysilicium (13 = Wacker + FBR GCL)
- 08 : Identification du site Wafer (08 = Wafer taille M10 Zhonghuan, Hohhot, Chine)
- 01 : Site de production des lingots : Zhonghuan, Hohhot, Chine)
- R6 : Identification des cellules (R6 = Risen, Chine, cells M10 HJT)
- CZ : Identification du site module (CZ = Changzhou, Chine)
- XX : Identification du verre

Code ECS : 431201113XXXXX

- 43 : Année de production + 25 (ex : pour 2018, 18+25 = 43)
- 12 : Mois de production + 11 (Janvier, 01+11=12)
- 01 : Jour de production
- 1 : Code de sécurité
- 13 (ou 14) : Code d'identification du Workshop de l'usine de production de modules RISEN à Changzhou, Chine
- XXXXX : Numéro de série

## Higher Carbon Value

Based on a 100MW project for one year

VS PERC

VS TOPCon



Carbon Emission

↓ 5760Tons

↓ 2880Tons



Power Generation

↑ 6MLNkwh

↑ 3MLNkwh



Carbon Values

↑ 400KRMB

200KRMB

According to current carbon trading price of 70RMB/Ton



HJT current is almost the same or even less than PERC, and the main reason for the high power is the increased voltage, **making it compatible with mainstream inverters already on the market!**

Solar cell	Power(W)	Voc	Isc	Vm	Im
210 PERC	670	46.29	18.38	38.59	17.37
210 HJT	710	50.01	18.00	41.93	16.95

# Economic Analysis | Lower LCOE and BOS cost



- Size: 100MW
- Location: Hainan, China
- Type: Fixed Tilt

Module Type	182-72 Topcon (baseline)	210-66 Topcon	210-66 HJT (Hyper-ion)
Module Power	585W	700W	<b>710W</b>
Module Efficiency	22.65%	22.58%	<b>22.86%</b>
30-year power retention rate	87.40%	87.40%	<b>90.3%</b>
Project area	baseline	baseline-0.35%	baseline <b>-1.76%</b>
BOS	baseline	baseline-1.78%	baseline <b>-2.49%</b>
LCOE	baseline	baseline-0.66%	baseline <b>-2.96%</b>
IRR	baseline	baseline+1.03%	baseline <b>+3.65%</b>

\* Power generation is closely related to location/climate/temperature



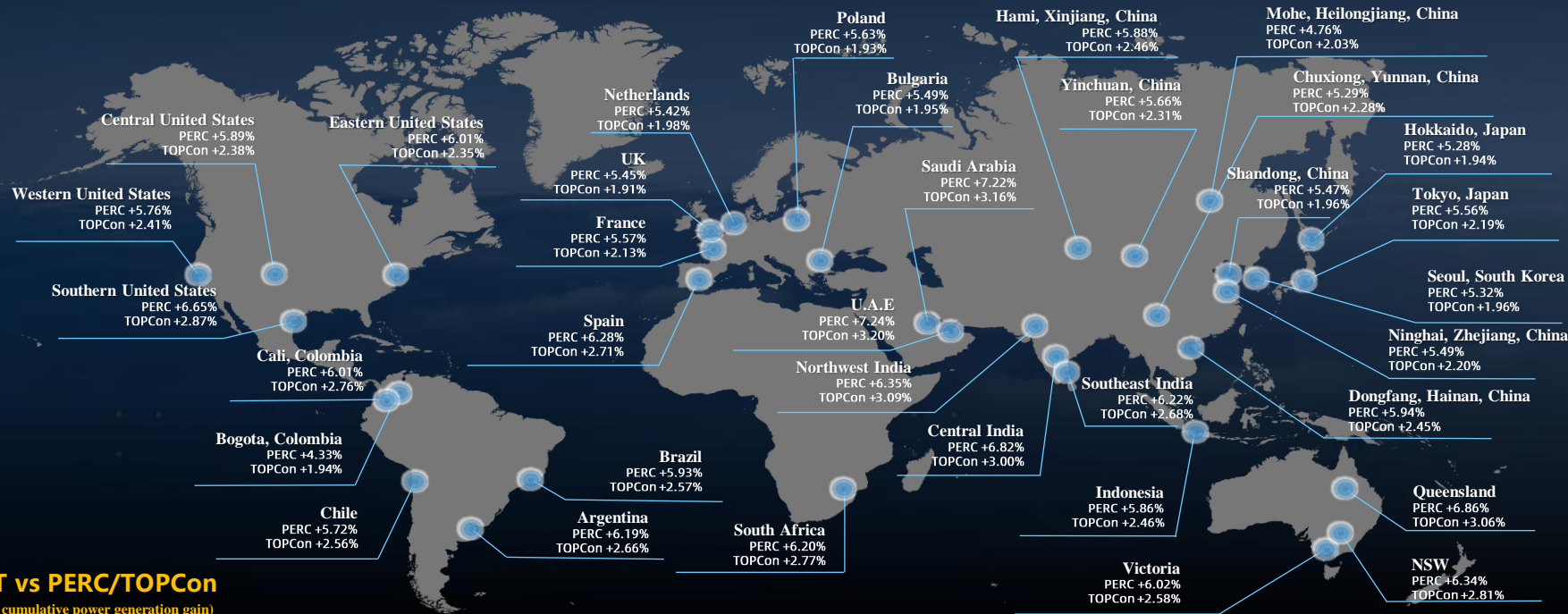
# HJT Global Generation Simulation Map



In high-temperature regions, the power generation of HJT is about **6%** higher than PERC and about **3%** higher than TOPCon.  
(such as the Middle East, Australia and the Southern United States, etc.)

Calculations Based on 100MW project (According to current carbon trading price of 70RMB/ton)

- Generate **6 million kWh** of electricity a year more than PERC, which is equivalent to **5,760 tons of CO<sup>2</sup>** emission reduction, bringing about **400,000 RMB** of carbon value .
- Generate **3 million kWh** of electricity a year more than TOPCon, which is equivalent to **2,880 tons of CO<sup>2</sup>** emission reduction, bringing about **200,000RMB** of carbon value.



**HJT vs PERC/TOPCon**  
(25-year cumulative power generation gain)

# Empirical Comparison of Power Generation (HJT vs PERC)

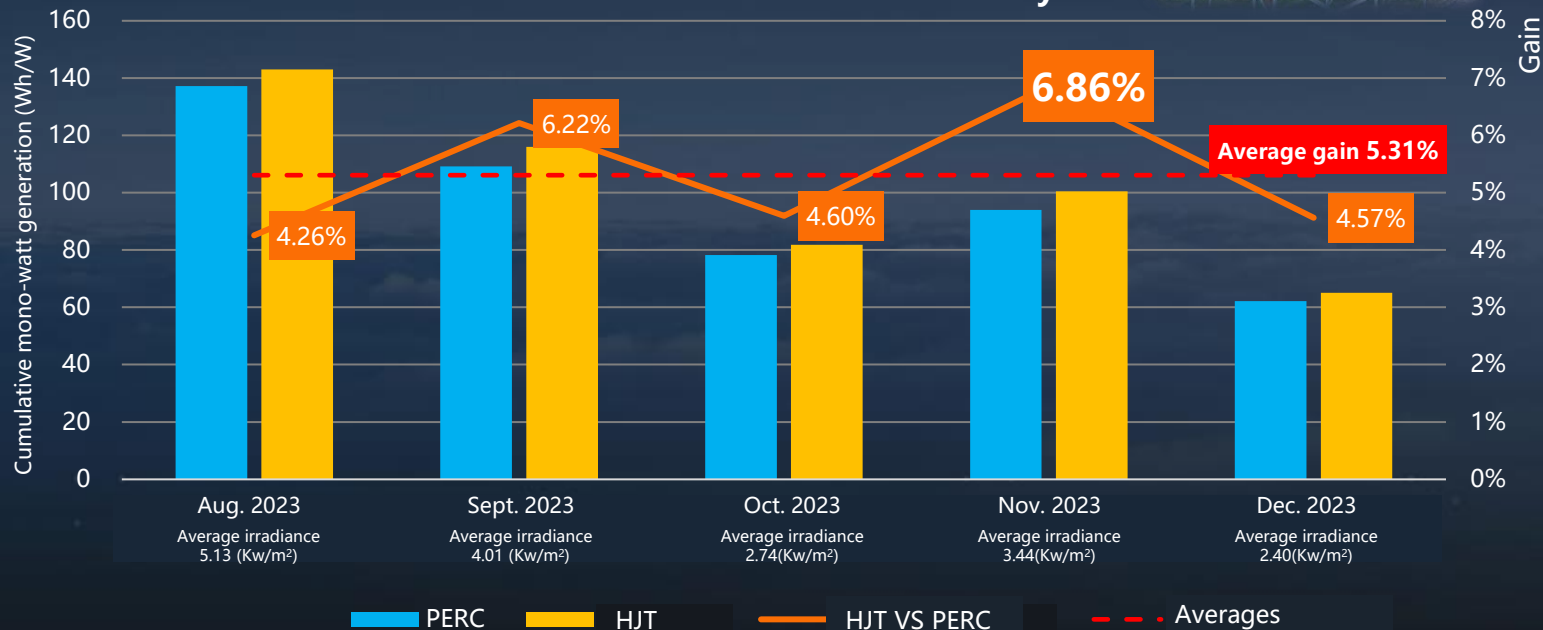


□ Location: Hainan

□ Generation gain up to **6.86%**



### HJT and PERC Power Generation Analysis



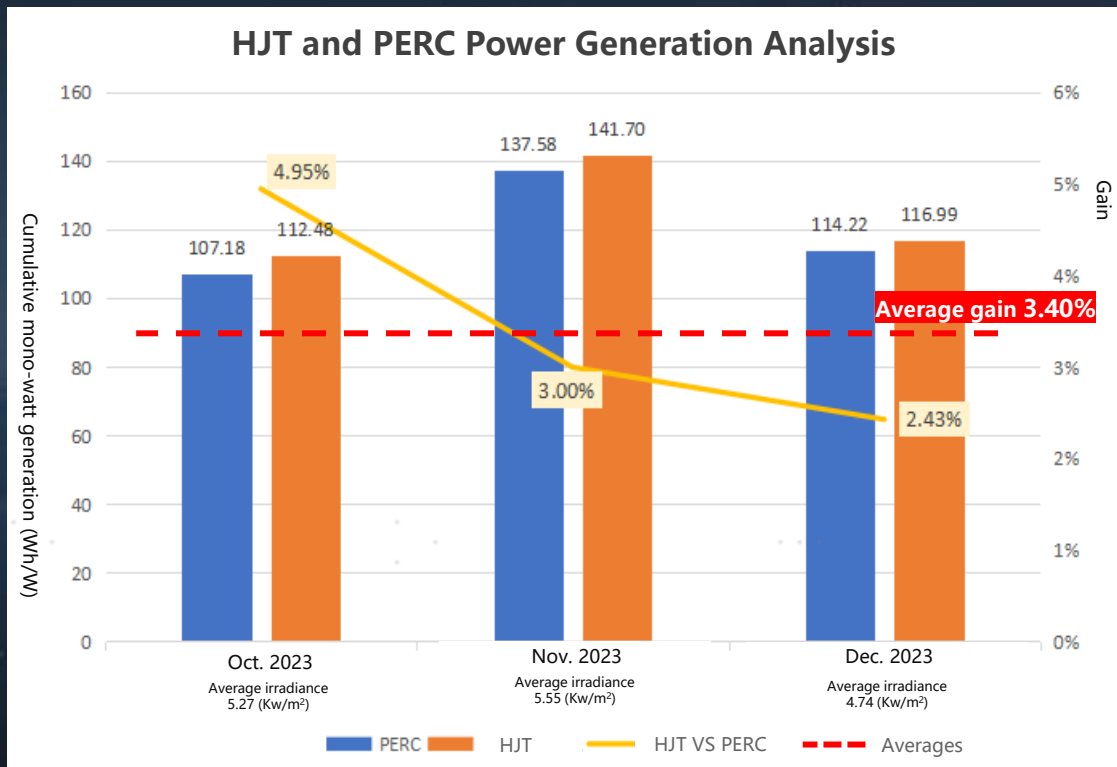
*Tested at CPVT: Hainan Province basement*

# Empirical Comparison of Power Generation (HJT vs PERC)



□ Location: Yinchuan

□ Generation gain up to **4.95%**



Tested at SGS: Yinchuan Ningxia Province basement

# Empirical Comparison of Power Generation (HJT vs TOPCon)



- Empirical test: PV magazine
- Generation gain up to **3.8%**

HJT module generates 3.8% more power than the best Topcon module



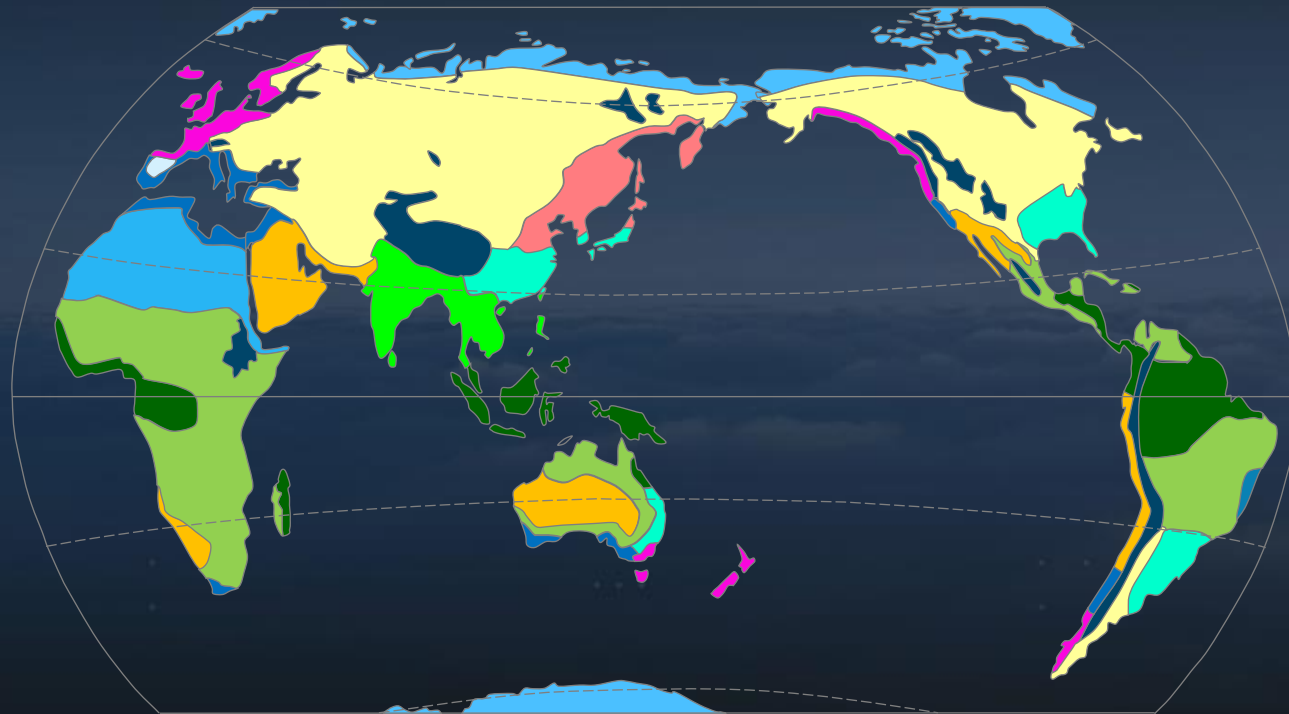
Product #	Product	kWh	Wh/Wp	PR	Poi	Type	Bifacial Y/N	Mono Y/N	Mono PERC Y/N	Sample selection method
51	RSM132-8-700BHDG	33.53	48.88	91.62%	685.95	Bifacial HJT	Bifacial	Multi	Others	3
37	[REDACTED]	21.33	48.49	90.89%	439.83	Bifacial PERC	Bifacial	Multi	Others	3
41	[REDACTED]	26.01	47.86	89.70%	543.58	Bifacial PERC	Bifacial	Multi	Others	1
26	[REDACTED]	17.89	47.69	89.39%	375.19	Bifacial PERC	Bifacial	Multi	Others	1
27	[REDACTED]	18.94	47.09	88.26%	402.25	Bifacial n-TOPCon	Bifacial	Multi	Others	3
42	[REDACTED]	26.59	47.01	88.11%	565.62	Bifacial n-TOPCon	Bifacial	Multi	Others	3
50	[REDACTED]	27.34	46.92	87.94%	582.67	Bifacial n-TOPCon	Bifacial	Multi	Others	3
38	[REDACTED]	25.03	46.75	87.63%	535.39	Bifacial PERC	Bifacial	Multi	Others	3
45	[REDACTED]	19.90	46.55	87.26%	427.45	Bifacial n-TOPCon	Bifacial	Multi	Others	3
28	Risen RSM114-6-405BMDG	18.66	46.37	86.93%	402.44	Bifacial PERC	Bifacial	Multi	Others	3
47	[REDACTED]	25.97	45.67	85.61%	568.66	Bifacial n-TOPCon	Bifacial	Multi	Others	3
43	[REDACTED]	25.80	45.53	85.34%	566.62	Bifacial n-TOPCon	Bifacial	Multi	Others	3
32	Risen RSM150-8-500BMDG	22.24	45.27	84.85%	491.24	Bifacial PERC	Bifacial	Multi	Others	1
34	[REDACTED]	20.18	45.24	84.80%	446.17	Bifacial PERC	Bifacial	Multi	Others	2

# Higher Price Premium



## Rigid Premium(BOS) & Elastic Premium(LCOE/IRR)

There will be a price premium of about **0.115RMB/W** for HJT products compared to TOPCon products.



### Tropical Climate

Compared to TOPCon,

Max Price premium ≈ **0.153RMB**

### Subtropical Climate

Compared to TOPCon,

Max price premium ≈ **0.101RMB**

### Temperate Climate

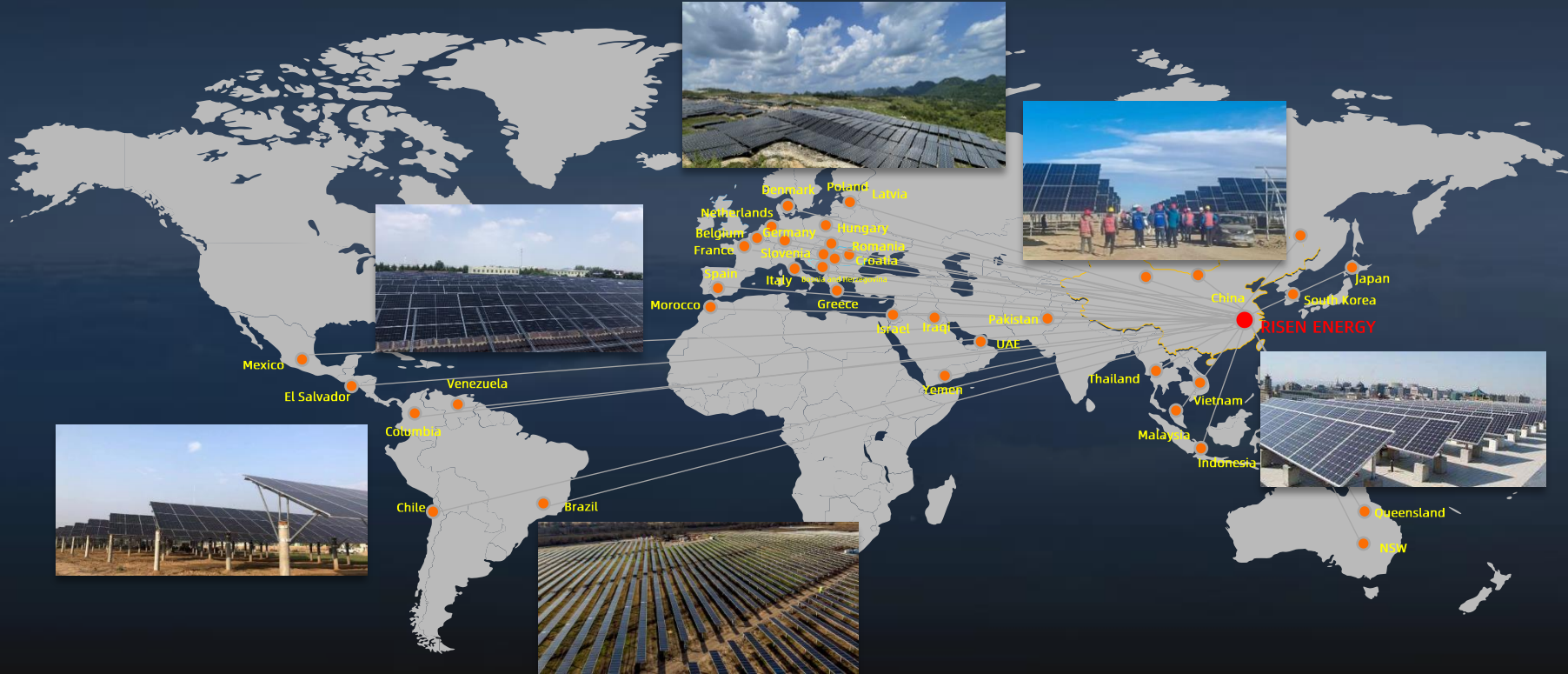
Compared to TOPCon,

Max price premium ≈ **0.092RMB**

# Global Shipment



- Shipment until now: **3GW+**
- Country of shipment: **40+**



# Hyper-ion — Capacity Planning 2024



Hyper-ion Module

**21** GW+

Hyper-ion Solar Cell

**19** GW+



Jiangsu Jintan Base



Intelligent Factor



Zhejiang Nanbin Base

15GW capacity production line for HJT cells and modules



AGV



Malaysia



**HJT Choose RISEN ENERGY**

