



Redefine Solar

For Carbon-free Society

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AIKO YouTube Channel

<https://www.youtube.com/channel/UCwSDxKfXsY30TgRIkJoP0DQ>

- AIKO Company Profile
- ABC Technical Features
- ABC Values for Scenario

About AIKO

Through continuous innovation of product technology and manufacturing engineering, to be a global leader in the PV industry.

120GW+

Solar Cell Output

15,000+

Employees globally

20%

R&D person ratio

20

Global branches

3

R&D centers



■ Subsidiary ■ Production base ■ R&D platform

Innovation in manufacturing engineering

Carbon-free

2024 ■ Zero-carbon green factory

Jinan factory
100% green electricity | 90% water recovery | 30% waste heat recovery

2024 ■ AIKO INFINITE tech released with 25% efficiency

2022 ■ Smart factory integrating cell and module

2021 ■ Invented silver-free metallization technology

2017 ■ Built the world's 1st 5GW automated PV cell factory

AIKO ABC
Intelligent
Manufacturing

70GW capacity

35_{GW}
TOPCon cell

Yiwu
Tianji
Chuzhou

35_{GW}
(10GW under construction)
ABC cell & module

Yiwu
Zhuhai
Foshan
Jinan



AIKO is now a participant of United Nations Global Compact

AIKO is pleased to announce that we have joined the United Nations Global Compact, the world's largest international organization promoting sustainable business development, committing to contribute to the world's sustainable development by aligning the operations and strategies with ten universal principles on human rights, labor, the environment and anti-corruption. As a participant of the United Nations Global Compact, we encourage you to visit www.unglobalcompact.org and learn more on sustainable development.

WE SUPPORT

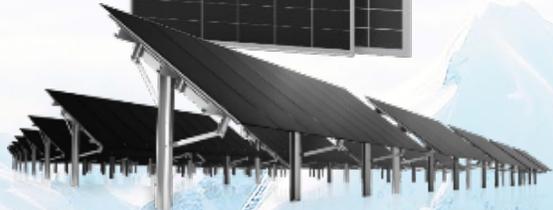
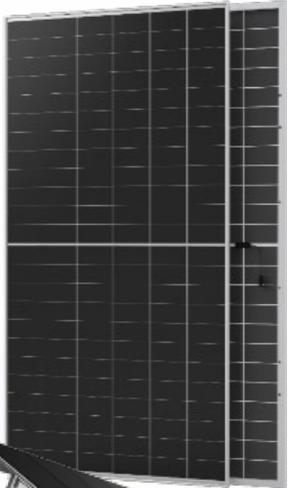


- AIKO Company Profile
- ABC Technical Features
- ABC Values for Scenario

AIKO ABC - Born for Scenarios

Stellar

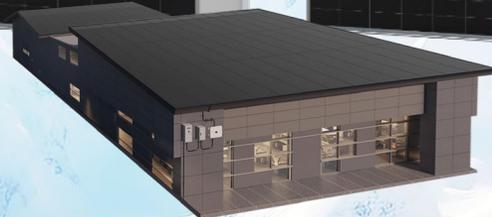
640-650W
2382*1134*30mm



Utility

Comet

645-655W
2382*1134*33mm



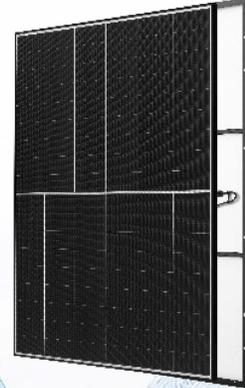
C&I

620-630W (while stock lasts)
2323*1134*35mm



Nebular

440-445W
1762*1134*30mm



Residential

Neostar

505-510W
1954*1134*30mm



455 - 460W
1757*1134*30mm



465 - 470W
1757*1134*30mm



■ AIKO ABC – **Nebular**

440-445W 1762x1134x30 8.6kg

NEBULAR

2P Mono-Facial Module

430W-460W

AIKO-A440-MAH54Tm		AIKO-A445-MAH54Tm	
STC	NOCT	STC	NOCT
440	334	445	338
40.47	38.41	40.57	38.51
34.23	32.49	34.33	32.58
13.84	11.16	13.93	11.24
12.86	10.29	12.97	10.38
22.0%		22.3%	



Provide customers with
high-value products with high power, high income and ultra-safety



Higher Power

6%-9% higher than TOPCon module



Higher Returns

- Partial Shading Optimisation
- Better Temperature Coefficient
- Lower Degradation ($\leq 1\%$ / $\leq 0.35\%$)



Ultra-Safety

- High Temperature Restriction
- Micro-crack Resistance

Higher Power – Higher power under same land area

1757*1134*30mm



Model	Specification	2024		
		Q2 (W)	Q3-Q4 (W)	2025 Q1 (W)
AIKO-A-MAH54Mw AIKO-A-MAH54Dw	Mono-glass /Dual-glass black frame white backsheet	465/470	470/475	490
Compared with TOPCon Module		440	445	450
ABC power leading for		25+	25+	40
AIKO-A-MAH54Mb AIKO-A-MAH54Db	Mono-glass full black/ Dual-glass full black	455	460	480
Compared with TOPCon Module		430	435	440
ABC power leading for		25	25	40

Note: New generation products for Q4 will release in SNEC 2024.

Higher Power – Higher power under same land area

1954*1134*30mm

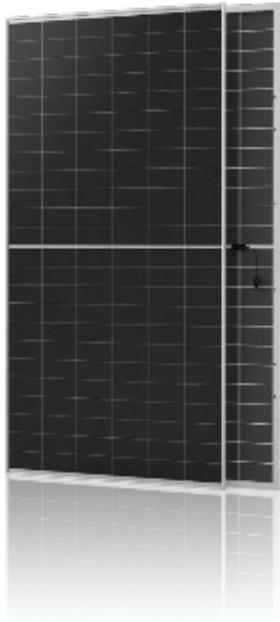


Model	Specification	2024		
		Q2 (W)	Q3-Q4 (W)	2025 Q1 (W)
AIKO-A-MAH60Mw (10MW MOQ)	Mono-glass White (1954×1134)	510	515	545
Compared with TOPCon Module		500	505	510
ABC power leading for		10	10	35
AIKO-A-MAH60Mb	Mono-glass Black (1954×1134)	505	510	535
Compared with TOPCon Module		490	495	500
ABC power leading for		15	15	35

Note: New generation products for Q4 will release in SNEC 2024.

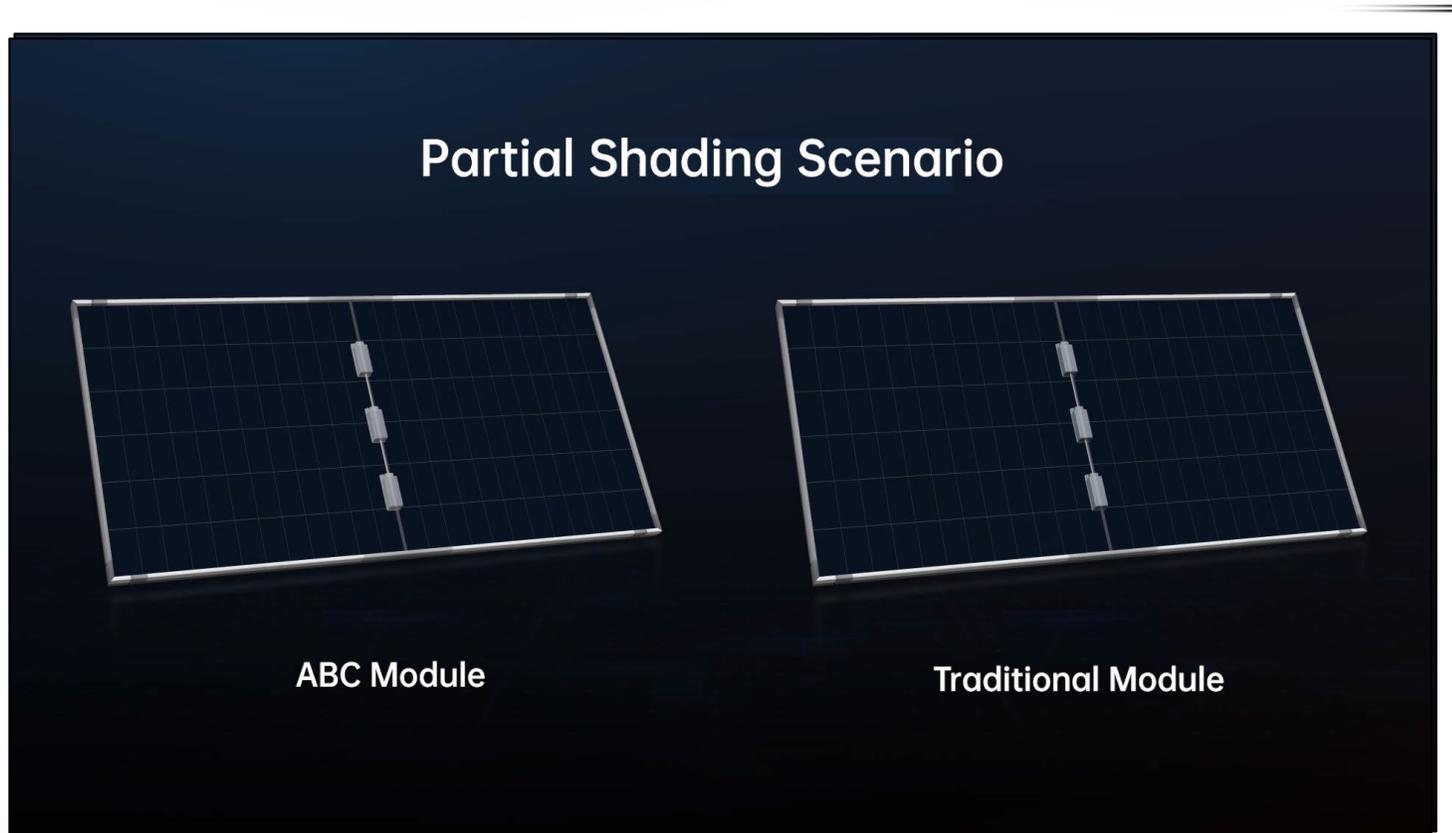
Higher Power – Higher power under same land area

2382*1134*30mm



Model	Specification	2024		
		Q2 (W)	Q3-Q4 (W)	2025 Q1 (W)
AIKO-G-MCH72Mw	Mono-glass (2382×1134)	645/650	650/655	670/675
Compared with TOPCon Module		615	620	625
ABC power leading for		35+	35+	45+
AIKO-G-MCH72Dw	Dual-glass (2382×1134)	640/645	645/650	665/670
Compared with TOPCon Module		610	615	620
ABC power leading for		35+	35+	45+

Higher Returns – Partial Shading Optimisation



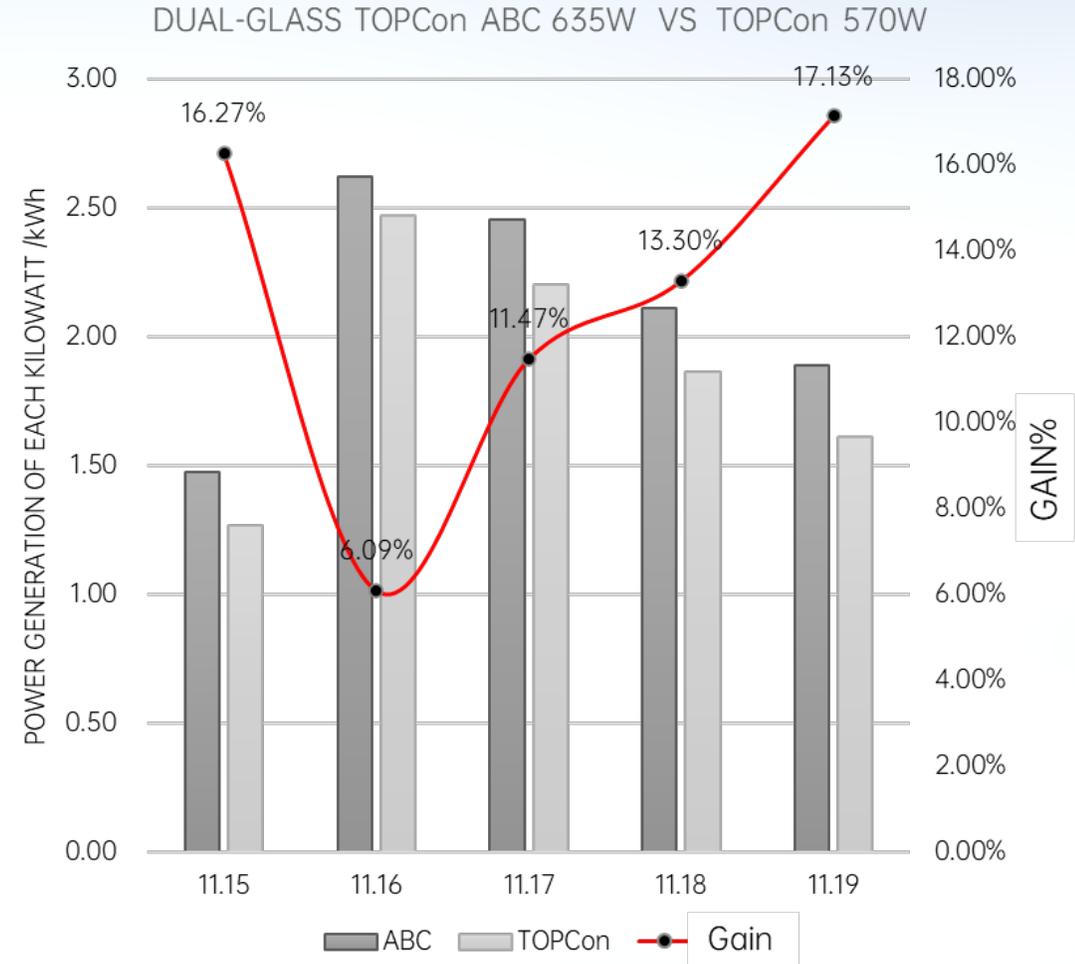
When a cell is fully shaded, ABC can produced extra **30%** electricity than TOPCon



Shading Performance Test – Tree Shading

The spec production gain of ABC dual-glass 635W over TOPCon dual-glass 570W in 5 days is **12.04%**

Type	ABC Dual-glass 635W	TOPCon Dual-glass 570W	Gain
Spec Production (kWp/kWh)	10.54	9.41	+12.04%
Accumulated Production (kWh)	80.33	64.36	+24.81%

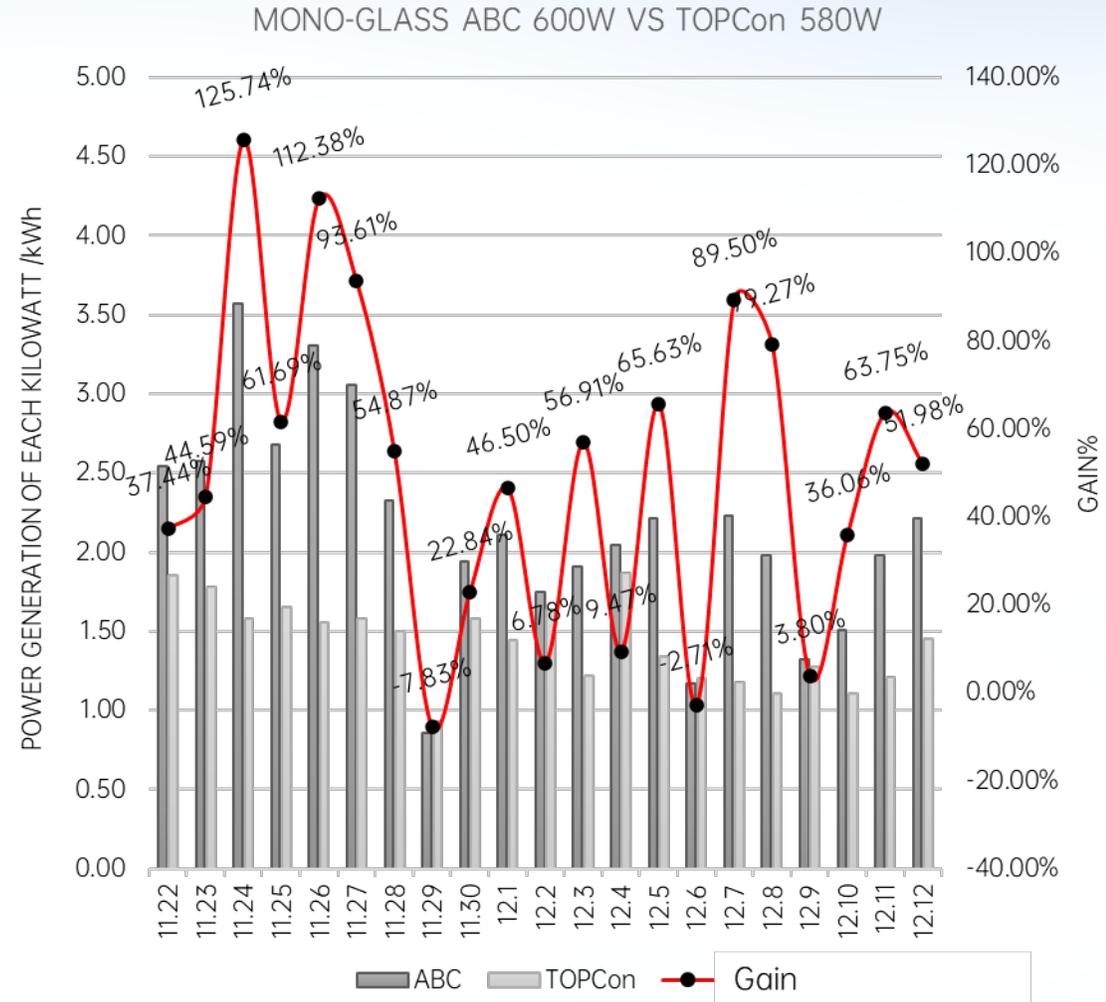


- 1、Baseline: TOPCon Installed 12 module for each type
- 2、No. of cells: 144(6*24) Location: Guangdong, Zhanjiang Time range: 5 days;

Shading Performance Test – Dynamic Shading

The spec production gain of ABC mono-glass 600W over TOPCon mono-glass 580W in 21 days is **50.72%**

Type	ABC Mono-glass 600W	TOPCon Mono-glass 580W	Gain
Spec Production (kWp/kWh)	45.27	30.03	+50.72%
Accumulated Production (kWh)	27.24	17.53	+55.36%



1、Baseline: TOPCon Installed 1 module for each type

2、No. of cells: 144(6*24) Location: Guangdong, Zhuhai

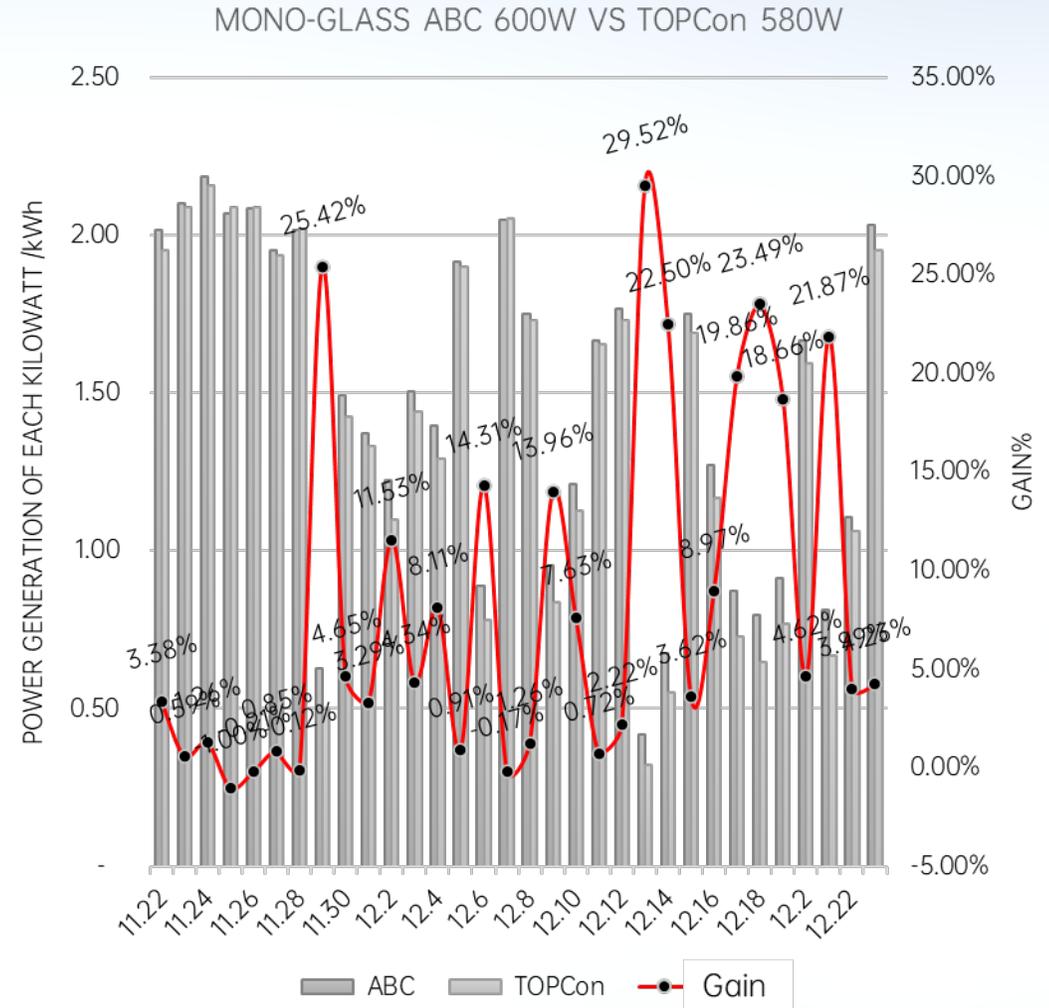
The simulation method is shown in the figure

Time range: 21 days Installation angle: 3°;

Shading Performance Test – Short-end Shading

The spec production gain of ABC mono-glass 600 over TOPCon mono-glass 580 in 32 days is **4.94%**

Type	ABC Mono-glass 600W	TOPCon Mono-glass 580W	Gain
Spec Production (kWp/kWh)	46.55	44.35	+4.94%
Accumulated Production (kWh)	27.93	25.92	+7.75%

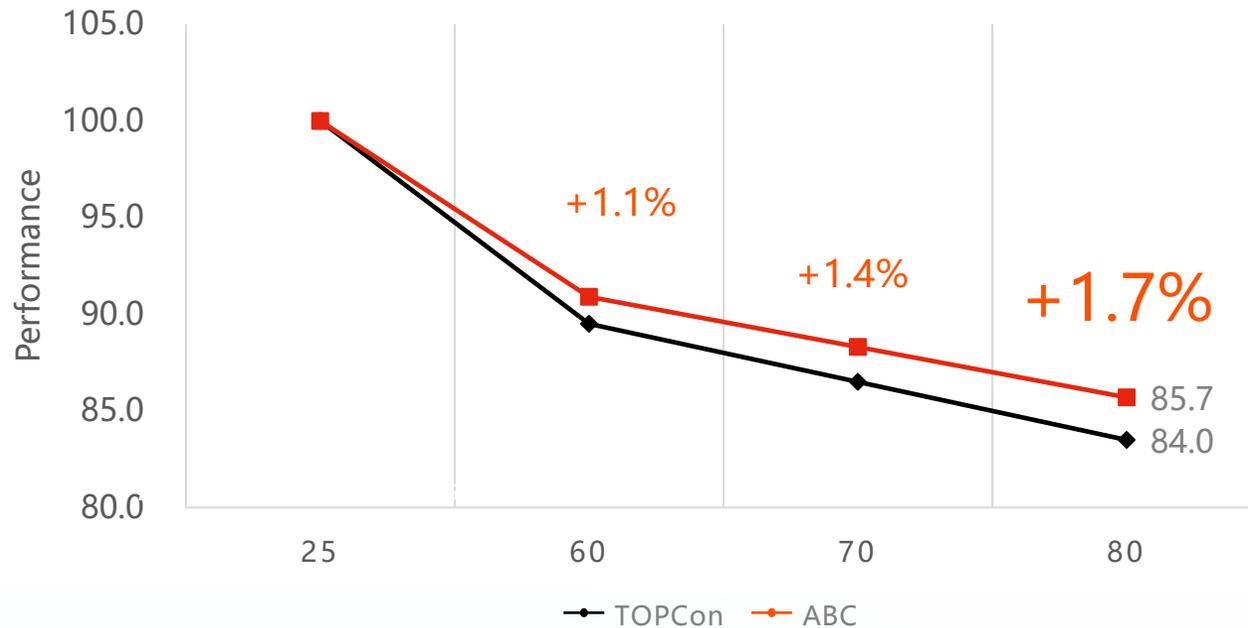


- 1、 Baseline: TOPCon Installed 1 module for each type The short edge of module is covered by opaque strip
- 2、 No. of cells: 144(6*24) Location: Guangdong, Zhuhai Time range: 32 days Installation angle: 3°;

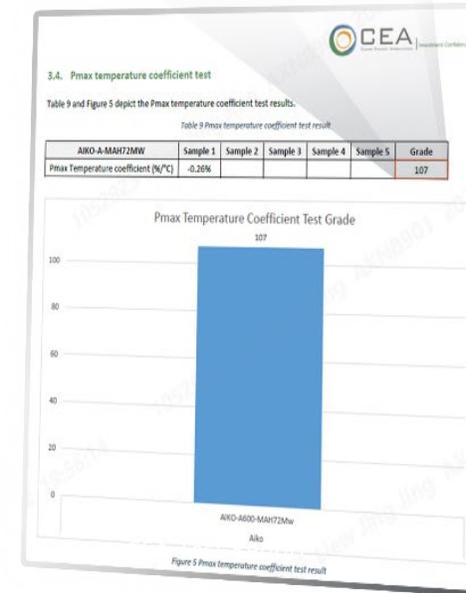
Higher Returns - Better Temperature Coefficient

-0.26%/°C VS **-0.29%/°C**

Power Output Under Various Operating Temperature

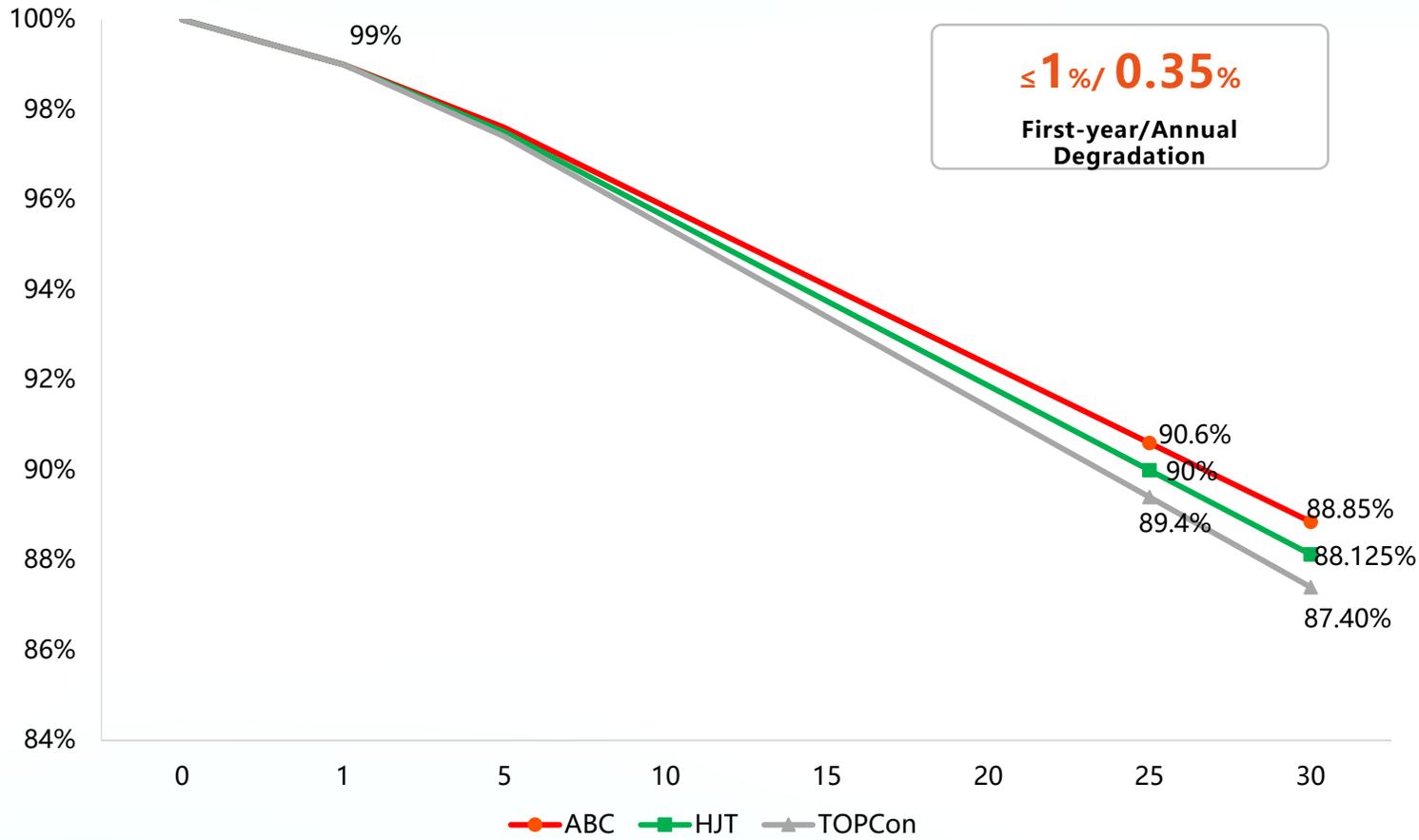


ABC Module
Grade **107**/100



Higher Returns - Lower Degradation

Linear power output over a 30-year life cycle



≤ 1% / 0.35%
First-year/Annual Degradation

Degradation in 25 years:

ABC modules

↓0.6%, compared with HJT module

↓1.2%, compared with TOPCon module

Degradation in 30 years :

ABC modules

↓0.7%, compared with HJT module

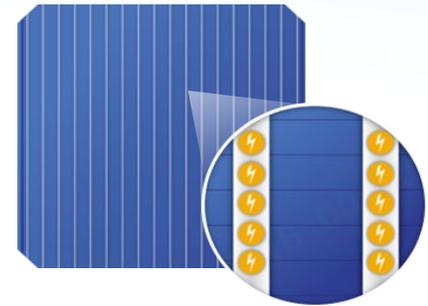
↓1.5%, compared with TOPCon module

100MW PV Farm			
Production in 30 years (GWh)			Growth Rate
Reference Tech	ABC		
HJT	3,095	3,107	+0.36%
TOPCon	3,084		+0.71%

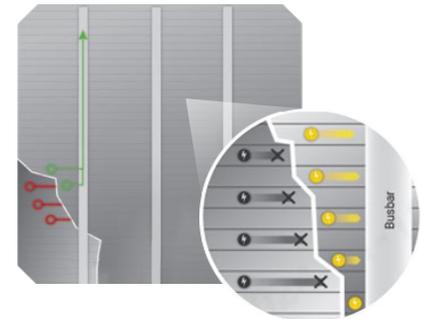
Ultra Safety – Micro-crack Resistance



No Crack Cell
Current collection in metal grids



Micro-crack Cell
Current collection is blocked



Ultra Safety - High Temperature Restriction

TUV Test Report

Test Report

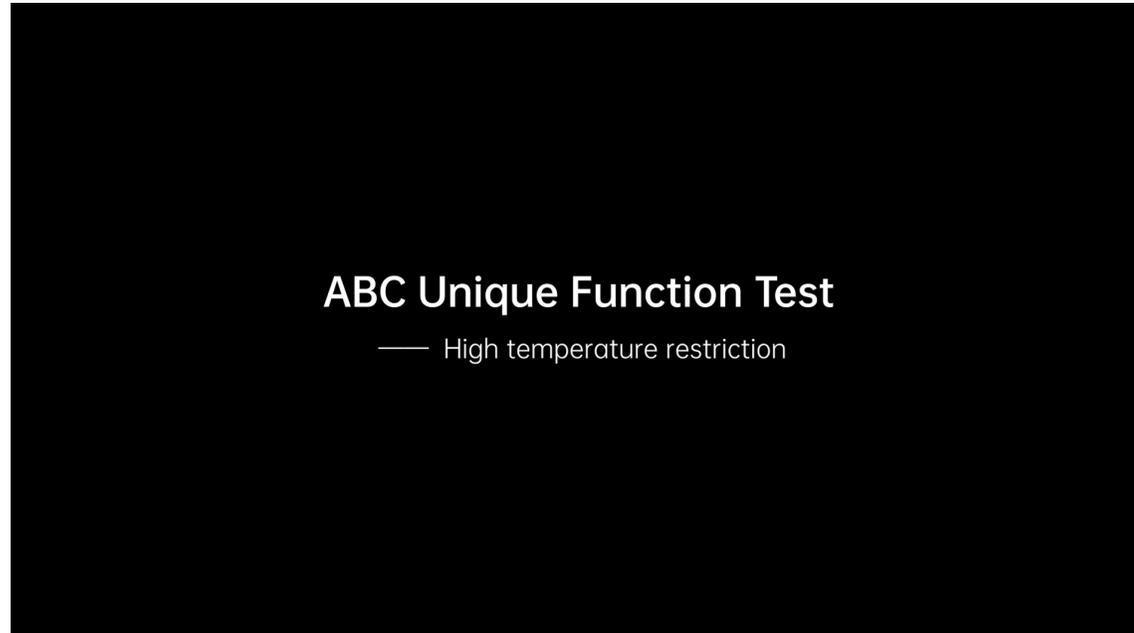
File No.: PVP09048/23P-02 Test Report No.: TRPVP09048/23P/02

Clause	Requirement + Test	Result - Remark	Verdict																																																																																				
Test results of IEC 61215-2																																																																																							
Module type: AIKO-A19-MAH72Mw																																																																																							
4.6 Performance at STC (initial) - MQT06.1																																																																																							
Test date (MM/DD/YYYY): 10/09/2023																																																																																							
Natural sunlight																																																																																							
Irradiance [W/m²]: 1000																																																																																							
Temperature [°C]: 25																																																																																							
P [W]: 609.54																																																																																							
I [A]: 12.3																																																																																							
FF [%]: 81.41																																																																																							
Result - Remark																																																																																							
Verdict																																																																																							
Connection circuit: <input type="checkbox"/> S / <input checked="" type="checkbox"/> SPS / <input type="checkbox"/> PS																																																																																							
Irradiance during each cycle [W/m²]: 979																																																																																							
resistance [%]:																																																																																							
Maximum measured cell temperature of other 2 cells with lowest shunt resistance [°C]: C17: 96.1 D2: 99.9																																																																																							
Shading rate of the other 2 cells with lowest shunt resistance [%]: C17: 100 D2: 100																																																																																							
Maximum measured cell temperature of cell with highest shunt resistance [°C]: E12: 92.0																																																																																							
Shading rate of cell with highest shunt resistance [%]: E12: 100																																																																																							
Supplementary information: Position of solar cells (front side view):																																																																																							
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Authoritative testing agency report:
ABC maximum cell temperature: < 100°C

Maximum measured cell temperature of other 2 cells with lowest shunt resistance [°C]: C17: 96.1 D2: 99.9

Excellent High Temperature Restriction



Normal Modules



- AIKO Company Profile
- ABC Technical Features
- ABC Values for Scenario

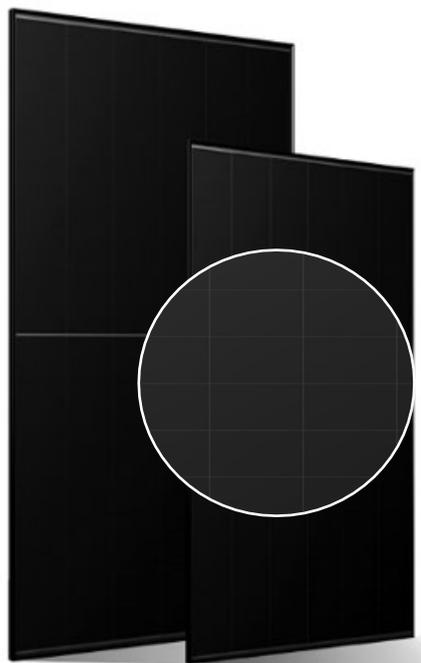
Residential Case Analysis



Basic Info	
Address	Reading, UK
Household	4-people family
Annual Consumption	8, 650kWh*
System Tilt/Orientation	36°/ South
Expected DC Capacity	5 kWp
Electricity Price	
smart export guarantee (P/kWh)	£ 0.15 /kWh
Electricity cost (P/kWh)	£ 0.34 /kWh
Financial	
Up-front Investment	100%

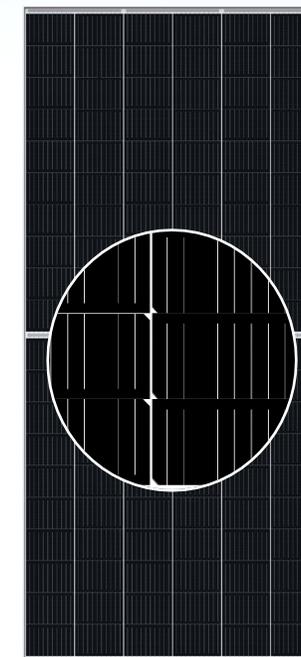
* Base Load: 3,650 KWh, Heat Pump 3,200 kWh, EV: 1,800 kWh

Product Comparison



ABC

Module	ABC	TOPCON	Advantage
Power	455W	435W	+20W More Power Output
Dimension	1757 x 1134	1762 x 1134	Almost Same Dimension
Conversion Efficiency	22.85%	21.77%	+5% High Efficiency
Pmax Temperature Coefficient	-0.26%/°C	-0.30%/°C	0.04%/°C Better Temp Coefficient
1 st -year Degradation	≤ 1.00%	≤ 1.00%	Same Degradation
Annual Degradation	≤ 0.35%	≤ 0.40%	+0.05% Less Degradation Annually



TOPCON

Residential Project Analysis

		ABC	TOPCON
DC Design	Module Output	455W	435W
	Module Qty	12 pcs	12 pcs
	DC Capacity	5.46 kWp	5.22 kWp
AC Design	Inverter Qty	1 pcs	1 pcs
	Inverter Nominal Power	5 kW	5 kW
	DC/AC Ratio	1.09	1.05
	Self-consumption Rate*	65%	65%

* PVsol software is used to calculate the self consumption rate

AIKO ABC: +12.3% Higher Production annually

ABC			
Spec Production	1062 kWh/kWp	PR Ratio	88.43%

TOPCON			
Spec Production	1020 kWh/kWp	PR Ratio	84.89%



PVsyst V7.4.7
VC5, Simulation date:
01/08/24 13:57
with V7.4.7

Project: Residential UK Benchmark.

Variant: AIKO 455W Black ABC

Aiko Energy Germany GmbH (Germany)



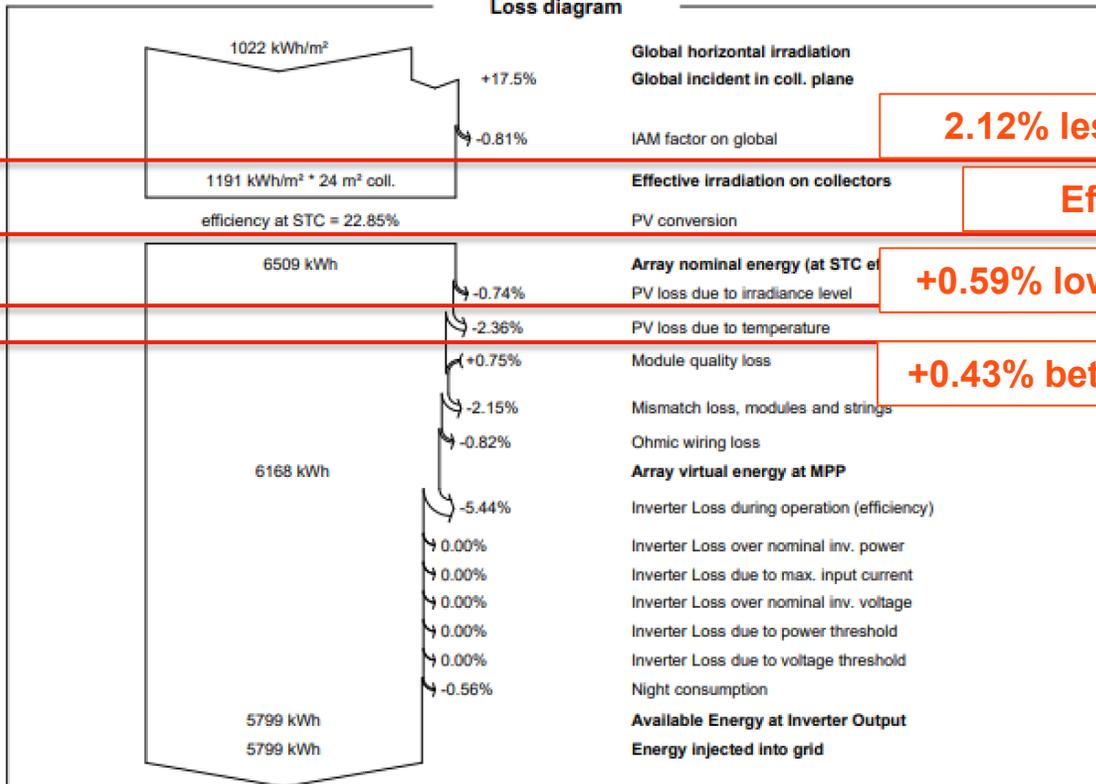
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Project: Residential UK Benchmark.

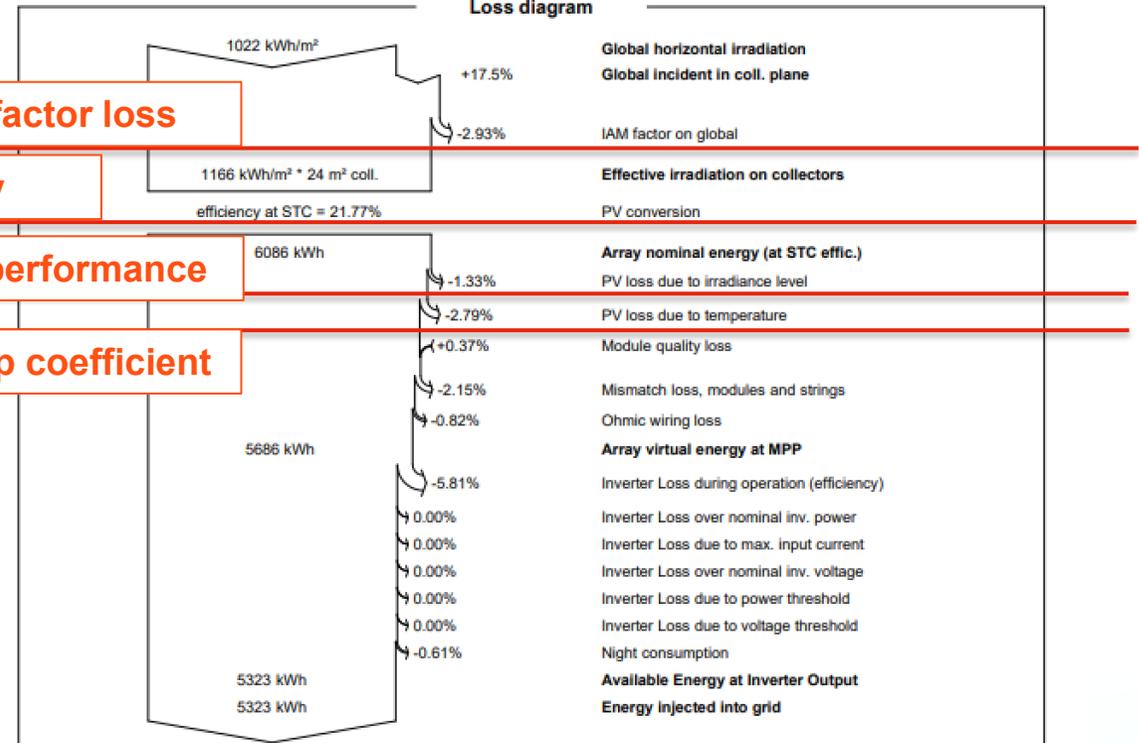
Variant: JA Solar 435W black

Aiko Energy Germany GmbH (Germany)

Loss diagram



Loss diagram



2.12% less IAM factor loss

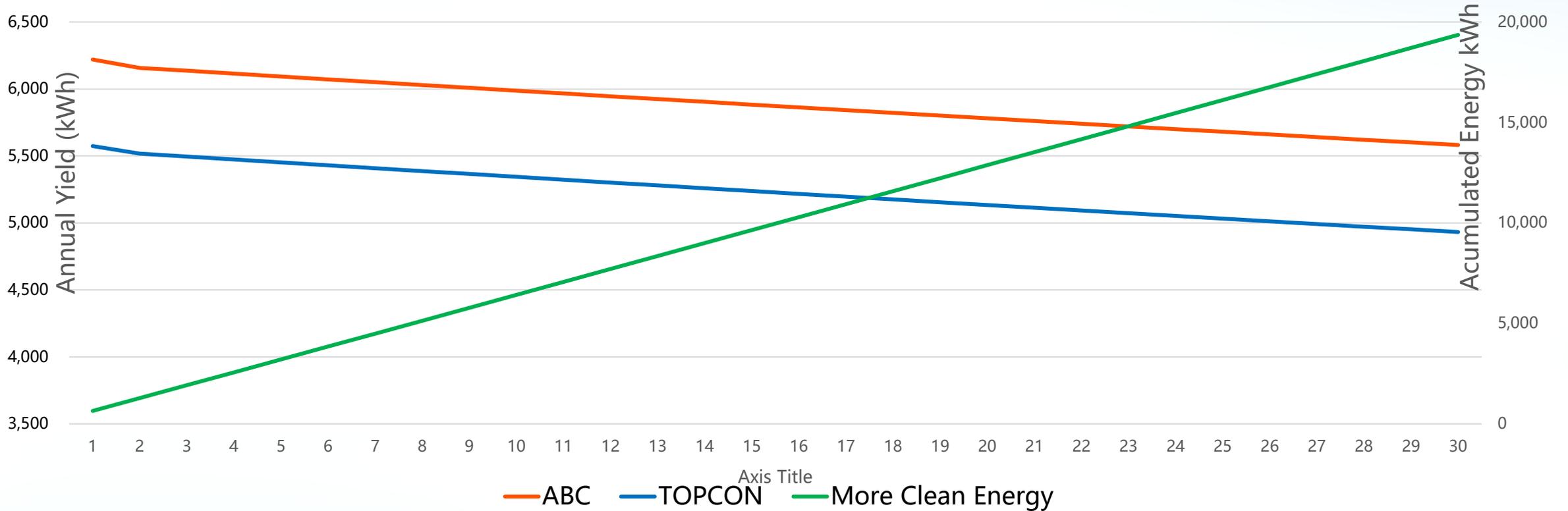
Efficiency

+0.59% low light performance

+0.43% better temp coefficient

+19,359 kWh(12.3%) Extra Clean Energy in Lifetime

Annual Yield (kWh)

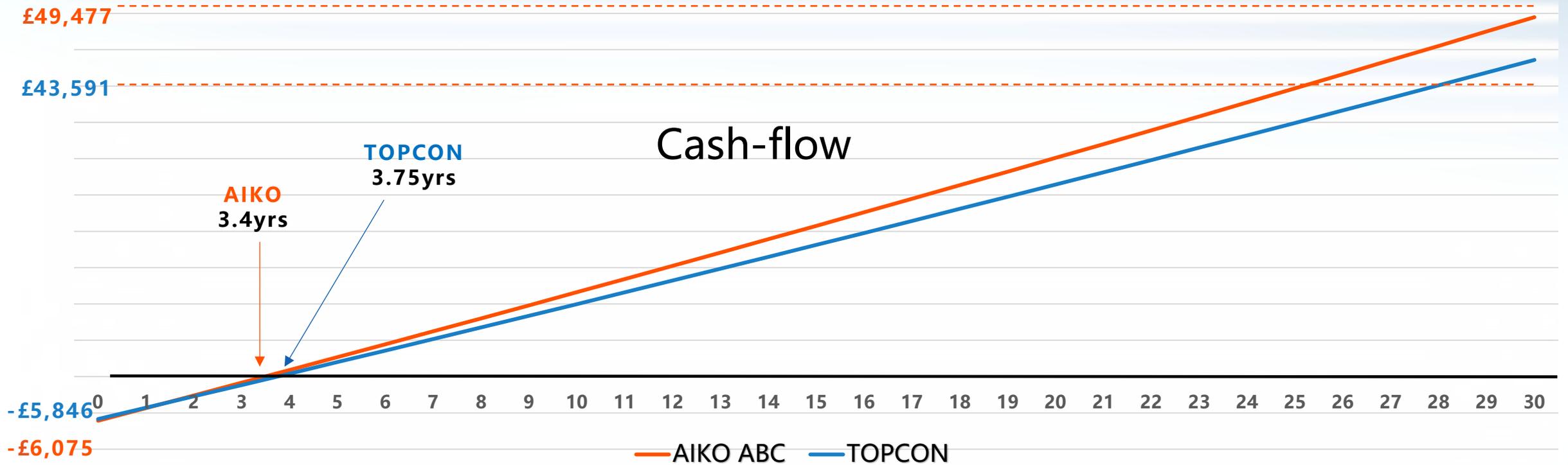


1st year Degradation
Linear Degradation

AIKO
≤ 1%,
≤0.35%/year

TOPCON
≤ 2%,
≤0.40%/year

Financial performance



Solution	1st Year		4th Year		10th Year		20th Year		30th Year	
	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain
ABC	£ 1,745	+£ 181	£ 6,990	+£ 728	£ 17,629	+£ 1,866	£ 36,183	+£ 3,899	£ 55,552	+£ 6,115
TOPCON	£ 1,564		£ 6,262		£ 15,825		£ 32,284		£ 49,438	

Residential Scenario

ABC vs. TOPCON

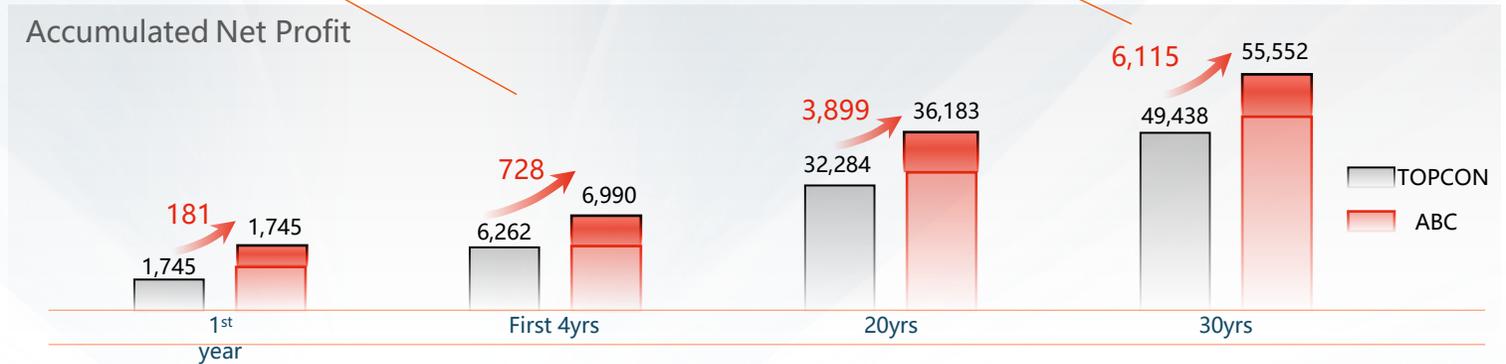
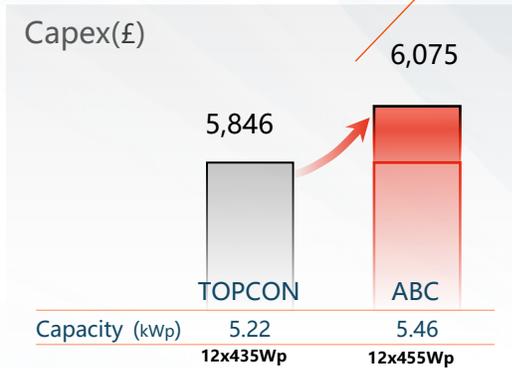
Installed Capacity
+4.6%

Payback Period
3.4yrs (4 months faster)

Higher Production
+12.3%

30yr ABC vs. TOPCON

Lifetime Benefits
+ 13.5% / £6,115



Annual Power Usage – 8,650 kWh



Remarks:

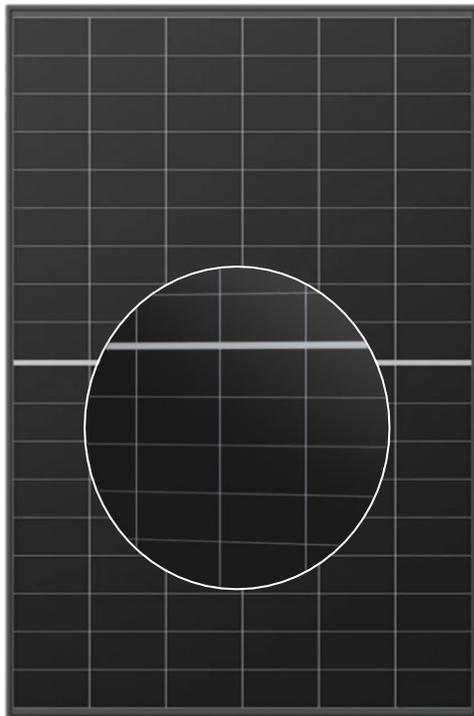
Location: Reading, UK
Household: 4-people family (2 x adults, 2 x kids)
Module Installation: 36° / South
Self-consumption: 0.34 £/kWh
smart export guarantee: 0.15 £/kWh
Financing: 100% upfront

Commercial & Industrial Case



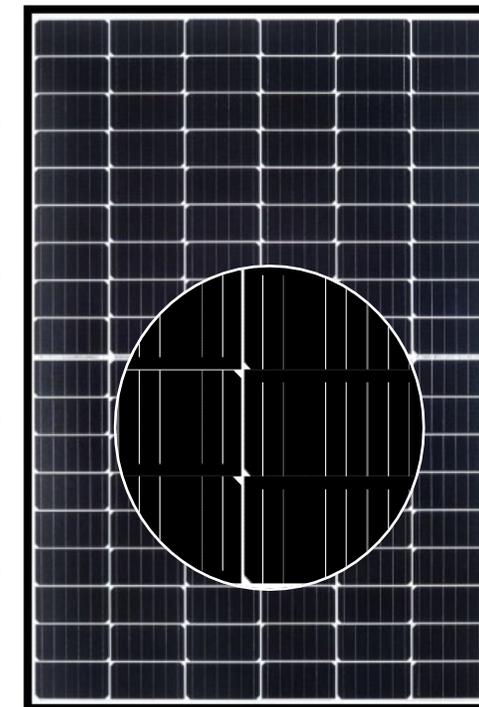
Basic Info	
Address	Manchester UK
Project type	C&I
System Tilt/Orientation	15°/ South
Expected DC Capacity	525 kWp
Power Offtake Agreement	
PPA (P/kWh)	£ 11.9 P/kWh
Financial	
Up-front Investment	100%

Product Comparison



ABC

Module	ABC	TOPCON	Advantage
Power	465W	440W	+25W More Power Output
Dimension	1134 x 1757	1134 x 1762	Almost Same Dimension
Conversion Efficiency	23.3%	22.0%	+5.9% High Efficiency
Pmax Temperature Coefficient	-0.26%/°C	-0.30%/°C	0.04%/°C Better Temp Coefficient
1 st -year Degradation	≤ 1.00%	≤ 1.00%	1.0% Less 1st-year Degradation
Annual Degradation	≤ 0.35%	≤ 0.40%	+0.05% Less Degradation Annually



TOPCON

		ABC	TOPCON
DC Design	Module Output	465W	440W
	Module Qty	1,200 pcs	1,200 pcs
	DC Capacity	558 kWp	528 kWp
AC Design	Inverter Qty	4 pcs	4 pcs
	Inverter Nominal Power	500 kW	500 kW
	DC/AC Ratio	1.12	1.06

AIKO ABC: +11.3% Higher Production Annually

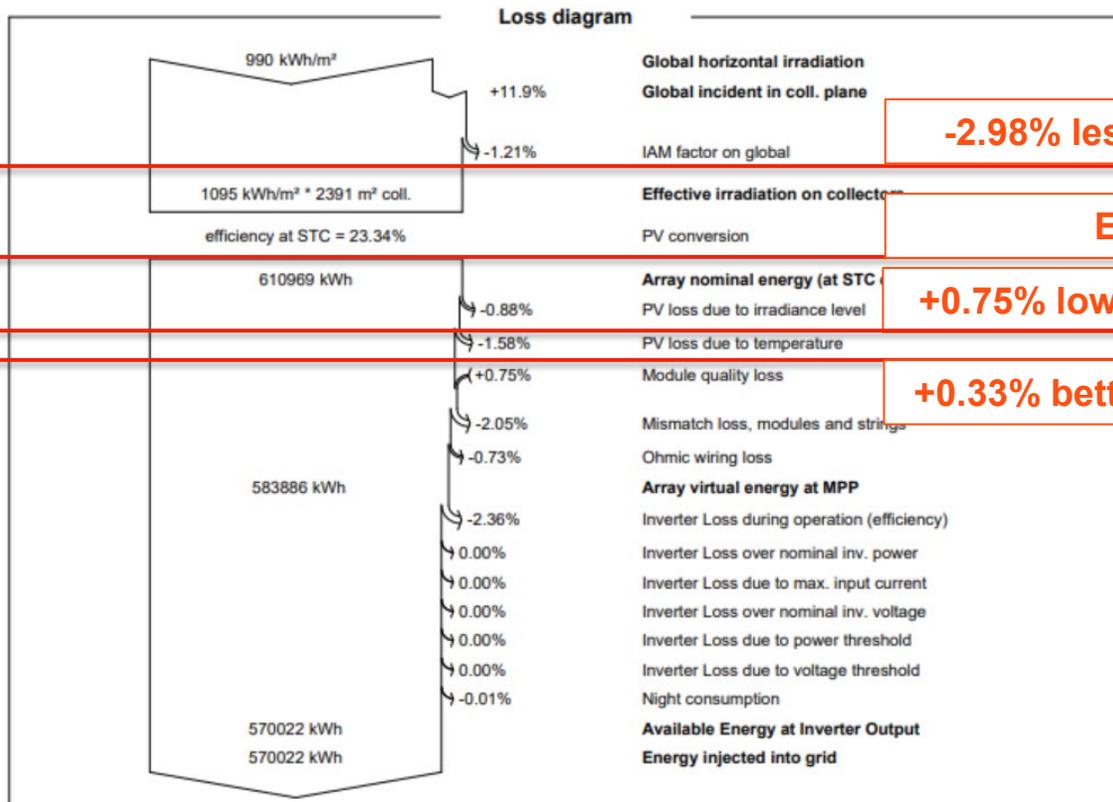
ABC			
Spec Production	1022 kWh/kWp	PR Ratio	92.18%

TOPCON			
Spec Production	976 kWh/kWp	PR Ratio	88.06%



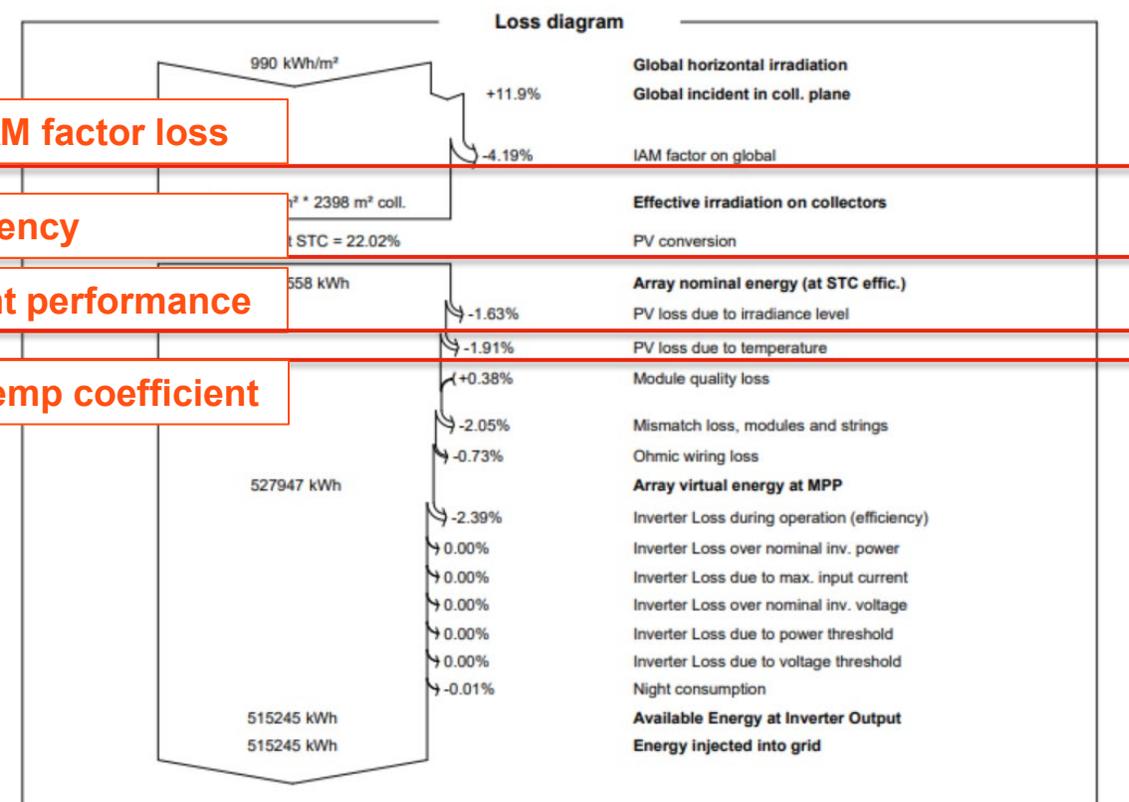
PVsyst V7.4.7
VC2, Simulation date:
02/08/24 07:30
with V7.4.7

Variant: AIKO 465w white, BF
Aiko Energy Germany GmbH (Germany)



PVsyst V7.4.7
VC0, Simulation date:
02/08/24 07:25
with V7.4.7

Variant: JA solar 440w white, BF
Aiko Energy Germany GmbH (Germany)



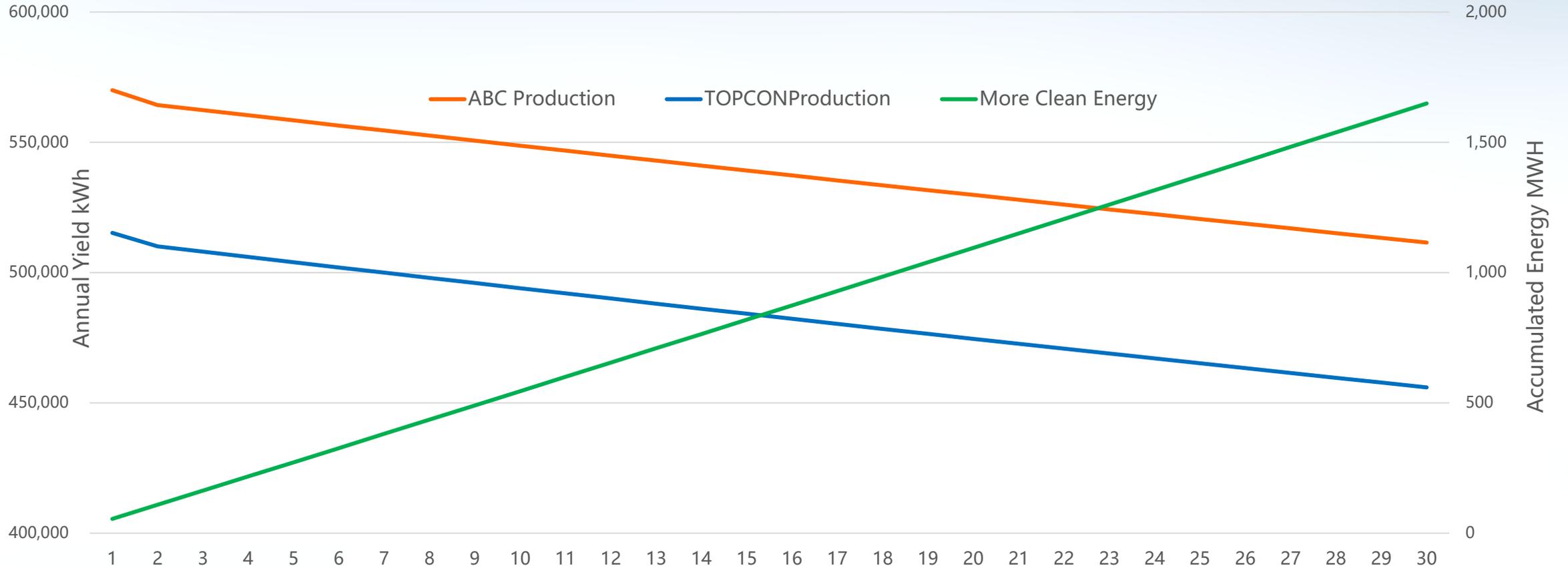
-2.98% less IAM factor loss

Efficiency

+0.75% low light performance

+0.33% better temp coefficient

+1,650 MWh(11.4%) Extra Clean Energy Harvesting

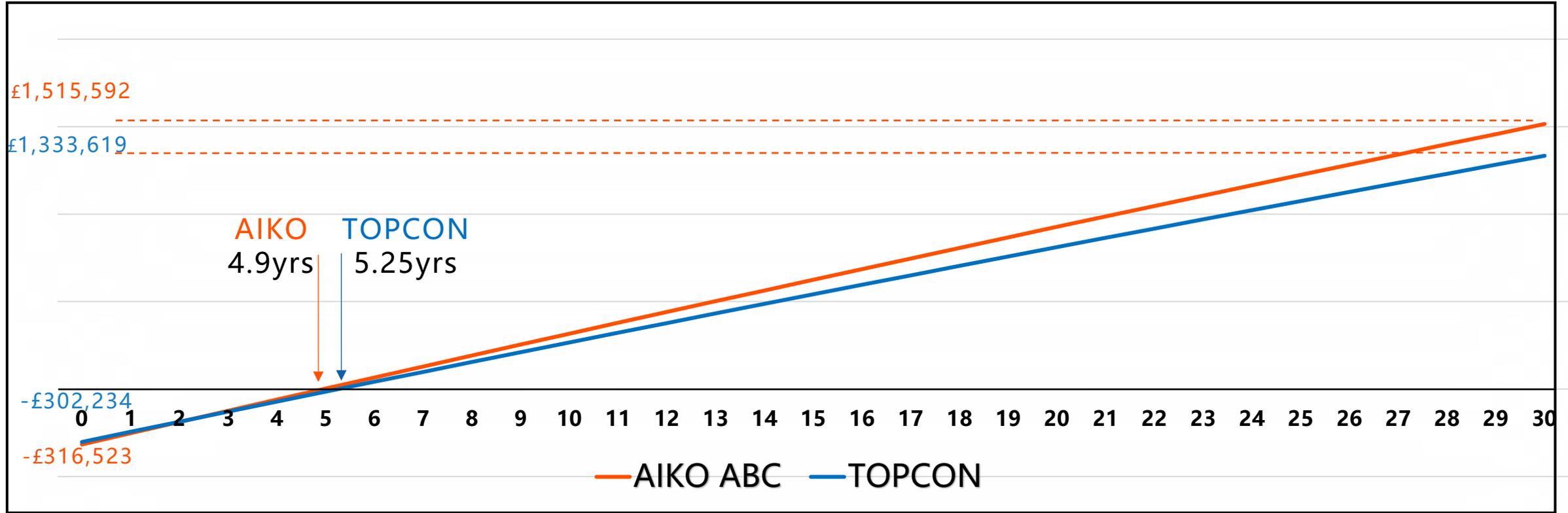


1st year Degradation
Linear Degradation

AIKO
≤ 1%,
≤0.35%/year

TOPCON
≤ 1%,
≤0.40%/year

Project Cashflow



Solution	1st Year		5th Year		10th Year		20th Year		30th Year	
	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain	Cashflow	Gain
ABC	£ 64,909	+£ 6,517	£ 319,925	+£ 32,372	£ 446,085	+£ 45,343	£ 1,243,889	+£ 130,295	£ 1,832,115	+£ 196,262
TOPCON	£ 58,292		£ 287,554		£ 400,741		£ 1,113,593		£ 1,635,853	

Commercial & Industrial Scenario

ABC vs. TOPCON

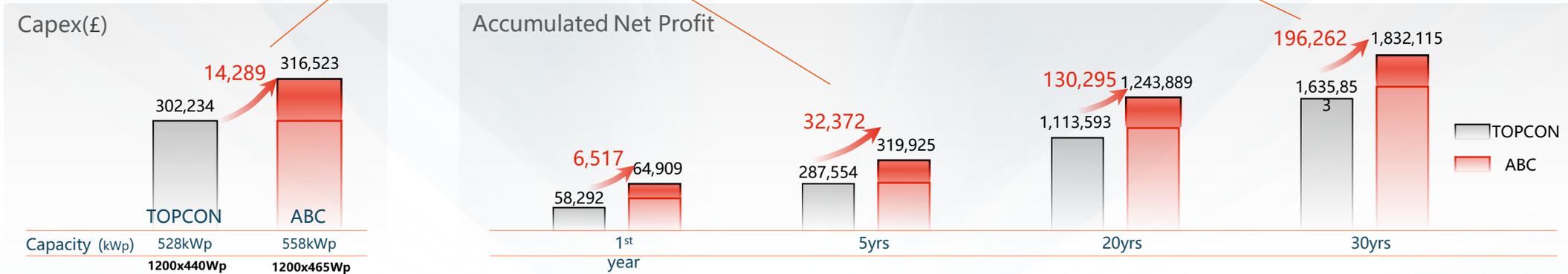
Installed Capacity
+5.7%

Payback Period
4.9yrs (4 months faster)

Higher Production
+11.3%

30yr ABC vs. TOPCON

Lifetime Benefits
+ 13.6% / £ 196,262



Remarks:
 Location: Manchester, UK
 Project Type: C&I
 Roof type: Gable roof
 Module Inclination: 15°
 Orientation : South
 PPA: £ 11.9/kWh

Residential Case Reference

Germany



Sweden



Germany



Germany



Japan



Germany





Scenario:
Residential

Location:
UK

Capacity:
7.7kW

Module Type:
Aiko 455W All Black

Installer:
Tile Energy



AIKO



FIND YOUR POWER

Scenario:
Commercial

Location:
St Matthews church,
Northampton, UK

Capacity:
25kW

Module Type:
Aiko 445W All Black

Installer:
Elech-tech

C&I Case Reference

Netherland



UK



Germany



Spain



Australia



Netherland





Scenario:
Commercial

Location:
London, UK

Capacity:
66.4KW

Module Type:
AIKO-MAH54Mw

Installer:
PV Plus



Scenario:
Commercial

Location:
South Wales, UK

Capacity:
1.3MW

Module Type:
Aiko 455 All Black Panels

Installer:
Hassie Electrical



Redefine Solar

For Carbon-free Society

Marina Shi – Northern Europe MD

Marc Eastgate - Business Development for South UK

Steve Pilkington - Business Development for North UK

Mohammad Alshrouf – NE Solution Manager

Shauna Furse – NE Marketing Manager

