

# SMARTER ENERGY SOLUTION

## Preventive Maintenance Solar System



Customer Name : <u>Steve Park</u>				Maintenance : <u>MA</u>	Date : <u>11 December 2024</u>	
Solar Panel				Inverter		
Brand	Model	Capacity	Install	Brand	Model	S/N
<u>Qamko</u>	<u>GRA144M450</u>	<u>10</u> Kwp.	<u>30</u> Panels	<u>Solis</u>	<u>3P10K-4G</u>	<u>1107A2214220001</u>

Before Preventive Maintenance Solar System								
Solar Panels	Operating Voltage / Current				Time	Inspection		Remark
String 1	Panels	Voc <u>672.0</u> Vdc	Vmp <u>590.0</u> Vdc	Isc <u>2.17</u> A.	<u>14:20</u>	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 2	Panels	Voc <u>594.2</u> Vdc	Vmp <u>502.0</u> Vdc	Isc <u>2.14</u> A.	:	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 3	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 4	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 5	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 6	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 7	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 8	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 9	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 10	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 11	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 12	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	

After Preventive Maintenance Solar System								
Solar Panels	Operating Voltage / Current				Time	Inspection		Remark
String 1	Panels	Voc <u>675.0</u> Vdc	Vmp <u>598.0</u> Vdc	Isc <u>1.87</u> A.	<u>19:00</u>	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	<u>21200000</u>
String 2	Panels	Voc <u>598.9</u> Vdc	Vmp <u>488.0</u> Vdc	Isc <u>1.86</u> A.	:	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 3	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 4	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 5	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 6	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 7	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 8	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 9	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 10	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 11	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
String 12	Panels	Voc _____ Vdc	Vmp _____ Vdc	Isc _____ A.	:	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	

Inverter Inspection				Remark
Device	Readings from Smarter Meter	Readings from Inverter Display	Field Measured Readings	
Inverter	AC Line Voltage			
	Phase L1 to Grd : <u>233.2</u> Vac	Phase L1 to Grd : <u>231.6</u> Vac	Phase L1 to Grd : <u>232.1</u> Vac	
	Phase L2 to Grd : <u>232.3</u> Vac	Phase L2 to Grd : <u>233.1</u> Vac	Phase L2 to Grd : <u>232.6</u> Vac	
	Phase L3 to Grd : <u>232.4</u> Vac	Phase L3 to Grd : <u>233.8</u> Vac	Phase L3 to Grd : <u>231.6</u> Vac	
	AC Line Current			
	Phase L1 to Grd : <u>5.10</u> A	Phase L1 to Grd : <u>1.7</u> A	Phase L1 to Grd : <u>1.95</u> A	
	Phase L2 to Grd : <u>1.20</u> A	Phase L2 to Grd : <u>1.7</u> A	Phase L2 to Grd : <u>1.94</u> A	
	Phase L3 to Grd : <u>8.10</u> A	Phase L3 to Grd : <u>1.7</u> A	Phase L3 to Grd : <u>1.94</u> A	

Comment : \_\_\_\_\_

# SMARTER ENERGY SOLUTION

## Electrical Room Inspection



Customer Name : \_\_\_\_\_ Date : \_\_\_\_\_

Solar Panel				Inverter		
Brand	Model	Capacity	Install	Brand	Model	S/N
		Kwp.	Panels			

Device	Ambient Temperature	Temperature				Remark
Inverter	41.0 C	Inside : 46.7 C	Outside : 42.3 C	Heatsync : 48.3 C		
AC Cabinet	38.0 C	MCB Breaker : 40 A. 38.2 C	RCCB Breaker : _____ A. _____ C	AC SPD : 3 Phase 38.0 C		
		AC Cable : 10 Sq.m. 37.8 C	Smart Meter : 39.4 C 3 Phase	CT Ratio : 190/5 A. Meter Ratio : 30 A.		
		AC Terminal : 37.8 C				
		String No.	DC Fuse	DC Breaker	DC SPD	MC4 Connector
DC Cabinet 1	37.0 C	String 1	37.1 C _____ A.	36.9 C _____ Vdc A.	36.9 C _____ Vdc A.	37.9 C
		String 2	36.8 C _____ A.	37.2 C _____ Vdc A.	36.7 C _____ Vdc A.	38.1 C
		String 3	_____ C _____ A.	_____ C _____ Vdc A.	_____ C _____ Vdc A.	_____ C
		String 4	_____ C _____ A.	_____ C _____ Vdc A.	_____ C _____ Vdc A.	_____ C
EE Room	37.4 C	AC Cable : 16 Sq.m.	Main Breaker : 80 A.	MCCB Feed : _____ A.		
		Wireway : 37.6 C	MDB / LC : 38.4 C	_____ C		

Comment : \_\_\_\_\_

Inspection By : \_\_\_\_\_

( Bunharn Libnoy )  
Project Engineer

Date : \_\_\_\_/\_\_\_\_/\_\_\_\_

# SMARTER ENERGY SOLUTION

## Preventive Maintenance Solar System



Item	Solar System Inspection	Inspection		Remark
1	Clean the Solar panel ( Use clean water ) ทำความสะอาดแผงโซลาร์เซลล์ ( ใช้น้ำสะอาด )	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
2	Check to see if the solar panel's condition ตรวจสอบการแตกร้าวของแผงโซลาร์เซลล์	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
3	Inspect the mounting points of the roof mounting support legs for the risk of water leaking. (Use water Proof , Polyurethane PU, Sika MultiSeal AP to prevent water leakage) ตรวจสอบจุดยึดของ Support ที่ยึดกับหลังคา ว่ามีจุดเสี่ยงที่จะทำให้เกิดน้ำรั่วได้หรือไม่ ( ใช้ water proof , สีโรครัน PU , แคนซีก้าป้องกันน้ำ )	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
4	Inspect the mounting parts of the solar cell. ตรวจสอบสภาพโครงสร้างทั้งหมด เพื่อตัว PV, Mounting และอุปกรณ์ประกอบอื่นๆ ไม่หลวม	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
5	Inspect the condition of all cables to make sure The cables does not sag down to the roof. ตรวจสอบสภาพของสายทั้งหมดเพื่อให้แน่ใจว่า สายไม่หย่อนลงไปที่หลังคา	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6	Inspect the tightness of the wire terminals. ตรวจสอบความแน่นของขั้วสายไฟ			
6.1	-AC - Grid in Inverter	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.2	-Back - up in Inverter ( Specific model Hybrid )	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.3	-Battery ( Specific model Hybrid )	<input type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.4	-AC Breaker	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.5	-DC Breaker	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.6	-Fuse Holder	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.7	-Surge Protection	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.8	- Smarter Meter & CT ( Current Transformer )	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
7	Check whether the SISO Switch is defective ตรวจสอบ SISO Switch ว่าชำรุดหรือไม่	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
8	Inspect for malfunctions of the inverter and other related electrical equipment. ตรวจสอบความผิดปกติของอินเวอร์เตอร์และอุปกรณ์ไฟฟ้าอื่นๆ ที่เกี่ยวข้อง	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
9	Inspect heat of the solar panel whether there is an abnormal heat point or not (checked by using a thermal camera) การตรวจสอบความร้อนของแผงโซลาร์เซลล์ว่ามีจุดความร้อนผิดปกติหรือไม่ (ตรวจสอบโดยใช้กล้องถ่ายภาพความร้อน)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	

Comment : \_\_\_\_\_

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Inspection By : \_\_\_\_\_  
 ( Bunharn Libnoy )  
 Project Engineer  
 Date : \_\_\_\_/\_\_\_\_/\_\_\_\_