

# SMARTER ENERGY SOLUTION

## Preventive Maintenance Solar System



Customer Name : <u>Botanica Foresta K. Motoyoki</u>				Maintenance : <u>MA 4</u>	Date : <u>7 November 2024</u>	
Solar Panel				Inverter		
Brand	Model	Capacity	Install	Brand	Model	S/N
<u>Costlox</u>	<u>EL450M9-60H</u>	<u>10</u> Kw.	<u>31</u> Panels	<u>Solis</u>	<u>RH3-3P10k-HVES-DB</u>	<u>110CA2223020028</u>

Before Preventive Maintenance Solar System								
Solar Panels	Operating Voltage / Current				Time	Inspection	Remark	
String 1	Panels Voc	<u>919.9</u> Vdc	Vmp	<u>427.8</u> Vdc	Isc	<u>7.54</u> A.	<u>13 : 30</u> <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Not Pass	
String 2	Panels Voc	<u>630.0</u> Vdc	Vmp	<u>541.6</u> Vdc	Isc	<u>7.31</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>486.4</u> Vdc	Vmp	<u>259.6</u> Vdc	Isc	<u>7.49</u> A.	<u>14 : 30</u> <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Not Pass	<u>Simarann</u>
String 2	Panels Voc	<u>587.3</u> Vdc	Vmp	<u>263.1</u> Vdc	Isc	<u>11.90</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>230.6</u> Vac	Phase L1 to Grd :	<u>231.1</u> Vac
	Phase L2 to Grd :	<u>229.8</u> Vac	Phase L2 to Grd :	<u>231.2</u> Vac
	Phase L3 to Grd :	<u>233.5</u> Vac	Phase L3 to Grd :	<u>232.7</u> Vac
	AC Line Current			
	Phase L1 to Grd :	<u>7.6</u> A	Phase L1 to Grd :	<u>13.0</u> A
	Phase L2 to Grd :	<u>6.7</u> A	Phase L2 to Grd :	<u>13.0</u> A
	Phase L3 to Grd :	<u>6.1</u> A	Phase L3 to Grd :	<u>13.0</u> A
	Phase L1 to Grd :		Phase L1 to Grd :	<u>12.86</u> A
Phase L2 to Grd :		Phase L2 to Grd :	<u>12.78</u> A	
Phase L3 to Grd :		Phase L3 to Grd :	<u>12.76</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	47.1 C	Inside : 48.9 C	Outside : 47.0 C	Heatsync : 48.5 C		
AC Cabinet	41.0 C	MCB Breaker : 40 A.	RCCB Breaker : _____ A.	AC SPD : 3 Phase		
		42.4 C	_____ C	41.1 C		
		AC Cable : 6 Sq.m.	Smart Meter : 41.0 C	CT Ratio : 150 5 A.		
		40.8 C	3 Phase	Meter Ratio : 30 A.		
DC Cabinet I	40.9 C	String No.	DC Fuse	DC Breaker	DC SPD	MC4 Connector
		String 1	44.9 C	47.4 C	44.2 C	43.5 C
			A.	Vdc A.	Vdc A.	
		String 2	45.3 C	47.0 C	43.4 C	41.9 C
			A.	Vdc A.	Vdc A.	
String 3	_____ C	_____ C	_____ C	_____ C		
	A.	Vdc A.	Vdc A.			
String 4	_____ C	_____ C	_____ C	_____ C		
	A.	Vdc A.	Vdc A.			
EE Room	39.7 C	AC Cable : 29 Sq.m.	Main Breaker : 100 A.	MCCB Feed : _____ A.		
		Wireway : 41.0 C	MDB / LC : 42.8 C	_____ C		

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

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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 ที่มีคันทันหลังคา ว่ามีจุดเสี่ยงที่จะทำให้เกิดน้ำรั่วได้หรือไม่ ( ใช้ water proof , สิริโอรน PU , แผ่นซีก้าป้องกันน้ำ )	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
4	Inspect the mounting parts of the solar cell. ตรวจสอบสภาพโครงสร้างทั้งหมด เพื่อดูว่า 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 checked="" type="checkbox"/> Pass	<input type="checkbox"/> Not Pass	
6.3	-Battery ( Specific model Hybrid )	<input checked="" 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. ตรวจสอบความผิดปกติของอินเวอร์เตอร์และอุปกรณ์ ไฟฟ้าอื่น ๆ 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 :

Inspection By :

( Bunharn Libnoy )  
Project Engineer

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