

BOQ มหาวิทยาลัยเทคโนโลยีราชมงคลล้านนา เชียงราย 459.54 kW Rev.1 (2024)

Item	Description							Remark
		Model / Brand	Quantity	Unit	Price / Unit		Total Price	
					Material	Installation		
1	Permit Coordination	Government	1	Set		120,000.00	120,000.00	
2	Engineering / Design Work	PV Syst	1	Set		50,000.00	50,000.00	
3	Procurement / Installation	-	1	Set			-	
							-	
3.1	PV Module 690 W	AKCOM	666	Panel	4,135,860.00	166,500.00	4,302,360.00	
3.2	String Inverter SUN2000-100KTL-M2	Huawei	4	ea	773,960.00	8,000.00	781,960.00	
3.3	String Inverter SUN2000-50KTL-M3	Huawei	0	ea	-	-	-	
3.3	Rapid shutdown for comply with EIT standard with Emergency Botton	Projoy	0	ea	-	-	-	ตามมาตรฐาน วศท.กำหนดให้ต้องติดตั้ง Rapid shutdown ตั้งแต่วันที่ 1 ก.ค. 2566
3.3	Controller Box for DC24V กล่องควบคุมไฟฟ้า (Rapid Shutdown Device)	Projoy	0	ea	-	-	-	
3.3	สายไฟเลี้ยง Rapit shutdown	Thai Yazaki	0	m	-	-	-	
3.3	DC Fuse(Inline Fuse)	Uriarte	0	set	-	-	-	
3.4	DC Connector	Multi Contact	55	ea	11,000.00	3,850.00	14,850.00	
3.5	DC Extension Cable (Solar Cable) FD depends on calculation	Helukabel/JJ Lap/Prysmian/Link	15,000.00	m	540,000.00	90,000.00	630,000.00	
3.6	AC Cable						-	
3.6.1	AC Cable CV Cable size ...1C x 70.. Sq.mm.(Inverter to MDB Solar)	Thai Yazaki	2000	m	900,000.00	360,000.00	1,260,000.00	
3.6.2	AC Cable CV Cable size ...240.. Sq.mm. (MDB Solar to TR)	Thai Yazaki	150	m	142,500.00	30,000.00	172,500.00	
3.6.4	AC Cable THW Cable size ...120.. Sq.mm. (AC Collection Ground)	Thai Yazaki	50	m	27,500.00	4,000.00	31,500.00	
3.6.5	AC Cable THW Cable size ...16.. Sq.mm. (Ground)	Thai Yazaki	300	m	18,900.00	7,500.00	26,400.00	
3.6.5	AC Cable THW Cable size ...6.. Sq.mm. (DC Ground)	Thai Yazaki	500	m	22,500.00	7,500.00	30,000.00	
3.6.6	Acc . AC Cable (cable lag,Terminat lag,support cable grend)	Thai Yazaki	1	Set	30,000.00	15,000.00	45,000.00	
3.7	Main Distribution Board	Precise					-	
3.7.1	Main Distribution Board (MDB)	Precise	1	ea	450,000.00	5,000.00	455,000.00	
3.8	Grounding System	Kumwell	1	Set	15,000.00	5,000.00	20,000.00	
3.9	Mounting Structure (459.54 kWp)	-	1	Set	1,608,390.00	827,172.00	2,435,562.00	
3.10	Cable Tray	Perforated Tray					-	
3.10.1	Cable Tray 100x100x2400	Perforated Tray	150	ea	231,000.00	22,500.00	253,500.00	
3.10.3	Cable Tray 200x100x2400	Perforated Tray	50	ea	67,500.00	10,000.00	77,500.00	
3.10.4	Cable Tray 300x100x2400	Perforated Tray	15	ea	29,625.00	4,500.00	34,125.00	
3.10.5	Cable ladder 400x100x2400	Perforated Tray	0	ea	-	-	-	
3.10.6	Conduit and Flaxible, Support Cable Tray		1	Lot	35,000.00	25,000.00	60,000.00	
							-	
3.11	Metering System						-	
3.11.1	PQM Meter (UMG 512 Pro)	Janitza	1	ea	120,000.00	15,000.00	135,000.00	
3.11.2	Revenue Meter	EDMI ATLAS ,MK10E	0	ea	-	-	-	
3.12	Protection System						-	
3.12.1	Relay Protection System (SEL-751)	SEL-751	0	lot	-	-	-	
3.13	Other Accessories						-	
3.13.1	Transformer 500 kVA	-	1	ea	400,000.00	30,000.00	430,000.00	
3.13.2	22kV For Transformer	STC,Precise	1	Set	120,000.00	50,000.00	170,000.00	
3.13.3	22 kV Sac Cable		70	m	15,750.00	3,500.00	19,250.00	
3.13.4	Current Transformer MV	-	3	ea	96,000.00	15,000.00	111,000.00	
3.13.5	Potential Transformer MV	-	1	ea	51,700.00	10,000.00	61,700.00	
3.13.6	Concret Pole and Support CT,VT and Acc.	STC	1	ea	35,000.00	25,000.00	60,000.00	
3.13.7	Concret Pole For Riser Pole Incomming + Outgoing	STC	0	ea	-	-	-	
3.13.8	Drop Out Fuse	Precise	3	ea	9,000.00	3,000.00	12,000.00	
3.13.9	Lightning Arrester 21 kV 10 kA	Precise	3	ea	12,000.00	3,000.00	15,000.00	
3.13.10	Electrical Distribution Box	Schneider	1	ea	15,000.00	8,000.00	23,000.00	
3.13.11	Electrical System (Lighting Fixture, Receptacle)	Philips	1	Set	8,000.00	2,000.00	10,000.00	
3.14	Monitoring System						-	
3.14.1	Smart Logger 3000A	Huawei	1	ea	30,000.00	10,000.00	40,000.00	
3.14.2	RS485 for Zero Export	lapp	1	Set	20,000.00	5,000.00	25,000.00	
3.14.3	LAN Wiring System	TP Link	1	Set	5,000.00	3,500.00	8,500.00	
3.14.4	UPS	Leonic	1	ea	5,000.00	1,000.00	6,000.00	
4	Safety System						-	
4.1	Warning Sign,Fire Extinguisher 1 Sets ,Equipment Name Plate (Acrylic)		1	Set	10,000.00	3,000.00	13,000.00	
4.2	Ladder For Service		0	Set	-	-	-	
4.3	Inverter Support Structure and Fence		1	Set	70,000.00	20,000.00	90,000.00	
5	Test and Comissioning System						-	
5.1	Commissioning Work		1	Set		35,000.00	35,000.00	
6	Others						-	
6.1	Hand rail Lifegrad			Set	-	-	-	
6.2	Walkway			Set	-	-	-	
6.3	Water Cleaning system			Set	-	-	-	
6.4	Mobilization		1	Set	-	100,000.00	100,000.00	
6.5	Unload and Transportation		1	Set	250,000.00	100,000.00	350,000.00	
6.6	Insurance			Set	-		-	
6.7	Management and Overhead		1	Set		300,000.00	300,000.00	
	Total				10,311,185.00	2,503,522.00	12,814,707.00	
					Total		12,814,707.00	
	System Size (KWdc) = Q'ty Panel x PV Module Rate							
	THB/W				22.44	5.45	27.89	