

Notice to Bidder

Subject : Online Payment for Purchase of Bidding Documents

Due to the outbreak of COVID-19 in Thailand, please be informed of the online payment for purchase of bidding documents as follows:

- 1) Payment shall be made by bank transfer or telegraphic transfer to EGAT's account no. 109-6-01958-2 (swift code : KRTHTHBK), Krung Thai Bank Public Company Limited, Bangkrui Branch, Nonthaburi.

All bank charges and fees incurred by the payment of bidding documents shall be under the buyer's responsibility.

- 2) Download the Registration Form and fill out all necessary information by typing. (Complete data is required.)
- 3) Submit the fill-out Registration Form and the proof of payment from 1) to the email address of the in-charge officer and procurement.tse@egat.co.th in the CC. before 15.00 hrs. Bangkok Standard Time.
- 4) After the payment has been verified for approximately 3 working days, the in-charge officer will send the link for downloading the bidding documents together with a copy of the receipt to the purchaser's email address in the Registration Form. (Purchaser can contact for the original receipt when the situation resumes to normal.)

***** Please note that this online payment process is a temporary measure due to the COVID-19 outbreak. The online payment process will be available until further notice from EGAT *****

Registration Form

Invitation to Bid No. TS12-CR-05 and GBA3-CR-05

Supply of Control and Protection Equipment

Transmission System Expansion Project No. 12

Bulk Power Supply for the Greater Bangkok and Vicinity Area Phase 3

Available Duration for Purchasing : June 24, 2020 - August 11, 2020

Price of Bidding Documents : THB 2,000.-

Instructions

- 1) Payment shall be made by bank transfer or telegraphic transfer to EGAT's account no. 109-6-01958-2 (swift code : KRTHTHBK), Krung Thai Bank Public Company Limited, Bangkruai Branch, Nonthaburi.
- 2) Fill out this Registration Form in English by typing. (Complete data is required.)
- 3) Submit the filled-out Registration Form and the proof of payment to the in-charge officer via email (with cc. procurement.tse@egat.co.th) before 15.00 hrs. Bangkok Standard Time.
- 4) The in-charge officer will send the link for downloading the bidding documents together with a copy of the receipt to the purchaser's email address in the Registration Form, which will take approximately 3 working days. (Purchaser can contact for the original receipt when the situation resumes to normal.)

For Purchaser			TAX ID :
No.	Receipt No. :	Date :	
Bidder's Name			
Address			
		Country :	
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Local Representative			
Address			
		Tax ID :	
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
For Procurement Officer		Change of Bidder's Name	TAX ID :
Bidder's Letter No. :			Dated :
New Bidder's Name			
Address			
		Country :	
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
<u>Contact Information of In-charge Officer</u>			
Name	Wirinya Chavanasunthonphot		
Email address	wirinya.cha@egat.co.th		
Telephone No.	0 2436 0341		
Mobile No.	09 1449 5492		



Invitation to Bid No. TS12-CR-05 and GBA3-CR-05
Supply of Control and Protection Equipment
Transmission System Expansion Project No. 12
Bulk Power Supply for the Greater Bangkok and Vicinity Area Phase 3

The Electricity Generating Authority of Thailand (EGAT) is calling for the subject Invitation to Bid to be financed by EGAT's fund.

Place of Delivery : Ex-works

Medium Cost (including Value Added Tax) : THB 89,500,000.-

Eligibility of Bidders

1. Bidder shall be a local manufacturer or provide such locally manufactured materials and/or equipment and shall not be named in the List of Work Abandoners published by the Permanent Secretary, Ministry of Finance, and/or in the Debarment List and/or in the List of Work Abandoners declared by EGAT.
2. The Bidder shall not be a Jointly Interested Bidder with other Bidders as from the date of EGAT's issuance of the Invitation, or shall not be a person who undertakes any action as an "Obstruction of Fair Price Competition" for this Invitation.
3. The Bidder shall not either be EGAT's consultant or involve in EGAT's consultancy company under this Invitation to Bid, or shall not have EGAT's personnel involved in his business as shareholder having voting right that can control his business, director, manager, officer, employee, agent, or consultant except those who are officially ordered by EGAT to act or participate therein.
4. The Bidder shall not be the person who is privileged or protected not to be taken any legal proceedings under Thai Court; Provided that such Bidder's government declares that such special privilege is waived.
5. The Bidder who is a joint venture or consortium shall carry out all the work under such formation from the time of bidding until the fulfillment of the Contract.

Availability of Bidding Documents

Bidding Documents in CD-ROM will be available for examination of Bidder's Qualifications and purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from June 24, 2020 to August 11, 2020 at THB 2,000.- per copy, non-refundable, at the following address :

International Procurement Department - Transmission Segment
(Room No. 1202/2, 12th Floor, Building Tor. 101)
Procurement and Inventory Management Division
Electricity Generating Authority of Thailand
Bangkruai, Nonthaburi 11130
Telephone no. 0 2436 0341
E-mail : procurement.tse@egat.co.th

Please find more details and download Registration Form for purchasing Bidding Documents at <http://www4.egat.co.th/fprocurement/biddingeng/>.

Delivery of Bids

Bids shall be submitted at Room No. 1202/1, 12th Floor, Building Tor. 101 during 9:30 hrs. to 10:00 hrs., Bangkok Standard Time, August 20, 2020 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

June 17, 2020

Kannika Dhachalapat

(Mrs. Kannika Dhachalapat)

Chief, International Procurement Department -
Transmission Segment



ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
เรื่อง ประกวดราคาซื้อ เลขที่ TS12-CR-05 and GBA3-CR-05

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะซื้อ Control and Protection Equipment สำหรับโครงการขยายระบบส่งไฟฟ้าระยะที่ 12 และโครงการขยายระบบไฟฟ้าในเขตกรุงเทพและปริมณฑล ระยะที่ 3 โดยใช้งบประมาณ กฟผ.

สถานที่ส่งมอบ : หน้าโรงงานผู้ผลิต

ราคากลาง (รวมภาษีมูลค่าเพิ่ม) : 89,500,000.- บาท

คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นนิติบุคคลผู้ผลิตพัสดุหรือผู้มีอาชีพขายพัสดุที่ผลิตในประเทศไทยตามประกาศ และต้องไม่เป็นผู้ที่งานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทำงานตามคำสั่ง กฟผ.
2. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศประกวดราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาครั้งนี้
3. ต้องไม่เป็นที่ปรึกษาของ กฟผ. หรือมีส่วนร่วมในบริษัทที่ปรึกษาของ กฟผ. ในงานนี้ หรือต้องไม่มีผู้ปฏิบัติงาน กฟผ. เข้าไปมีส่วนร่วมในกิจการของผู้เสนอราคา ไม่ว่าจะในฐานะผู้ถือหุ้นที่มีสิทธิควบคุมการจัดการ กรรมการ ผู้อำนวยการ ผู้จัดการ พนักงาน ลูกจ้าง ตัวแทน หรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
4. ต้องไม่เป็นผู้ได้รับเอกลิขสิทธิ์หรือความคุ้มครอง ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้ละสิทธิ์และความคุ้มครองเช่นนั้น
5. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.

การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 2,000.- บาท ได้ที่ แผนกจัดซื้อต่างประเทศสายงานระบบส่ง (ห้อง 1202/2 ชั้น 12 อาคาร ท.101) กองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง ฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 24 มิถุนายน 2563 ถึงวันที่ 11 สิงหาคม 2563 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0341 หรืออีเมล procurement.tse@egat.co.th ทั้งนี้ สามารถ download แบบฟอร์มลงทะเบียนผู้ซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/>

การยื่นซองประกวดราคา

กำหนดยื่นซองประกวดราคา ในวันที่ 20 สิงหาคม 2563 เวลา 9:30 น. ถึง 10:00 น. และเปิดซองประกวดราคา เวลา 10:00 น. ณ ห้อง 1202/1 ชั้น 12 อาคาร ท.101 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 17 มิถุนายน 2563

กมลิกา ธวัชกุล

(นางกรรณิกา ธวัชกุล)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)
ในการจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

1. ชื่อโครงการ Bid No. TS12-CR-05 and GBA3-CR-05
งานจัดซื้อ Control and Protection Equipment
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12
โครงการขยายระบบไฟฟ้าในเขตกรุงเทพและปริมณฑล ระยะที่ 3
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
2. วงเงินงบประมาณที่ได้รับจัดสรร
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12 งบประมาณ 60,000 ล้านบาท
โครงการขยายระบบไฟฟ้าในเขตกรุงเทพและปริมณฑล ระยะที่ 3 งบประมาณ 12,100 ล้านบาท
3. วันที่กำหนดราคากลาง 8 พฤษภาคม 2563 (วันที่ อวส. อนุมัติ)
ราคารวมภาษีมูลค่าเพิ่มเป็นเงิน 89,500,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ
4. แหล่งที่มาของราคากลาง
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง
5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง
 - 5.1 นางสาวสิริภัทร ลักษณ์ากุล วศ.7 กวป-ส.
 - 5.2 นายพลเสกข์ รักเปี่ยม วศ.6 กวป-ส.

นางสาวสิริภัทร
นางสาวหทัยภัทร พูนผลกุล
หขตส-ท.
17 มิ.ย. 2563

อภส.-อภค.

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
SUMMARY OF BID PRICE
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
TRANSMISSION SYSTEM EXPANSION PROJECT NO.12
BULK POWER SUPPLY FOR THE GREATER BANGKOK AND VICINITY AREA PHASE 3

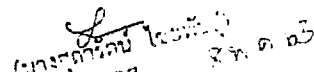
No.	Description	Supply of Equipment	
		Local Supply	
		Ex-works Price (excluding VAT) Baht	
		Amount	
1	TRANSMISSION SYSTEM EXPANSION PROJECT NO.12		82,491,730.00
2	BULK POWER SUPPLY FOR THE GREATER BANGKOK AND VICINITY AREA PHASE 3		1,189,437.00
SUMMARY PRICE		Baht	83,681,167.00
VAT		Baht	5,857,681.69
SUMMARY OF MEDIUM COST		Baht	89,538,848.69
SUMMARY OF MEDIUM COST (ROUNDED)		Baht	89,500,000.00

In case Bidder proposes price discount without specifying whether or not it includes Value Added Tax (VAT), EGAT will consider it as the price discount excluding VAT.

Rev.8N

นางจันทิรา
 นางสาวหทัยภัทร ชูณผลกุล
 ทชตส-ท.
 17 มี.ย. 2563

- Part 1-C1 -


 (นางสาวจันทิรา ชูณผลกุล)
 17 มี.ย. 2563
 filename : Total Price_TS12-CR-05 and GBA3-CR-05.xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-1	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel No. 1AF/1AR. Dwg Nos. PK2-E-1, PK2-E-2, PK2-E-3 and TP-E-10.1	1	EA	1,118,284.00	1,118,284.00
A1-2	LOCKOUT RELAY (86, 10 contacts)	Supply as loose part (7 NO and 3 NC), for being installed in the existing Panel. Specification No. 1002 Dwg Nos. PK2-E-2	1	EA	16,212.00	16,212.00
A1-3	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 64 ports) See Note No.1, Specification No. 1002 and SD-FOT-P22. Dwg Nos. PK2-E-2 and TP-E-10.16	1	EA	443,442.00	443,442.00
A1-4	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel No. 54R. Dwg Nos. TS-E-1.2, TS-E-2.2, TS-E-3.1 and TP-E-10.1	1	EA	985,533.00	985,533.00
A1-5	MARSHALLING PANEL FOR FR5	Panel No. MP-FRS1. Dwg Nos. TS-E-1.2 and TP-E-10.3	1	EA	177,680.00	177,680.00
A1-6	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPCL. Dwg Nos. TS-E-1.2 and TP-E-10.3	1	EA	186,020.00	186,020.00
A1-7	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 112 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. TS-E-2.2 and TP-E-10.15.	1	EA	666,336.00	666,336.00
A1-8	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing: - Meter panel 2 EA - Transducer panel 1 EA Specification No. 1002 Dwg No. TS-E-1.2	3	EA	16,415.00	49,245.00
A1-9	WATT AND VAR TRANSDUCER (W&VAR-TDR)	Supply as loose part, for being installed in the existing Transducer panel Specification No. 1002 Dwg No. TS-E-1.2	1	EA	16,097.00	16,097.00
A1-10	VOLTAGE TRANSDUCER (V-TDR 3 PH)	Supply as loose part, for being installed in the existing Transducer panel Specification No. 1002 Dwg No. TS-E-1.2	1	EA	16,097.00	16,097.00
A1-11	CURRENT TRANSDUCER (A-TDR 3 PH)	Supply as loose part, for being installed in the existing Transducer panel Specification No. 1002 Dwg No. TS-E-1.2	1	EA	16,097.00	16,097.00
			1	EA	16,097.00	16,097.00

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นางสาวหทัยภัทร พูนผลกุล

หจตส-ท.

17 มี.ย. 2563

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-12	MCB, 0.5A, 3 POLE FOR PT	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. TS-E-1.2	1	EA	1,638.00	1,638.00
A1-13	kW&kVARh METER	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. TS-E-1.2	2	EA	185,724.00	371,448.00
A1-14	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. TS-E-1.2	2	EA	4,513.00	9,026.00
A1-15	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. TS-E-1.2	2	EA	1,939.00	3,878.00
A1-16	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. TS-E-1.2	2	EA	907.00	1,814.00
A1-17	LATCHING RELAY (4 contacts)	Supply as loose part, for being installed in the existing IP panel Specification No. 1002 Dwg No. TS-E-1.2	1	EA	3,768.00	3,768.00
A1-18	115/22 kV TRANSFORMER PROTECTION (2 RESTRAINS, 2-51, 1-BF)	Panel No. 3F/3R. Dwg Nos. PN-E-1, PN-E-2, PN-E-3 and TP-E-10.1	1	EA	936,848.00	936,848.00
A1-19	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1. Dwg Nos. PN-E-1 and TP-E-10.3	1	EA	177,680.00	177,680.00
A1-20	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part, for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg No. PN-E-2	1	EA	4,513.00	4,513.00

นางสาวทศกัฏฐ์ พูนผลกุล
 พชตส-ท.
 17 มิ.ย. 2563

(Handwritten signature and date)
 วันที่ 17 มิ.ย. 2563

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-21	BREAKER FAILURE RELAY (50BF+62BF)	Supply as loose part, for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg No. PN-E-2	1	EA	79,944.00	79,944.00
A1-22	LOCKOUT RELAY (86, 10 contacts)	Supply as loose part (7 NO and 3 NC), for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg No. PN-E-2	1	EA	16,212.00	16,212.00
A1-23	TEST SWITCH (TS, for relays)	Supply as loose part, for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg Nos. PN-E-2	1	EA	4,590.00	4,590.00
A1-24	CUT OFF SWITCH, 4 CONTACTS (50BFC0, SS, EPS, 43RCC, 284CS)	Supply as loose part, for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg Nos. PN-E-2	1	EA	905.00	905.00
A1-25	INDICATING LAMP (R,G,I,L,LG)	Supply as loose part (Red color), for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg Nos. PN-E-2	1	EA	297.00	297.00
A1-26	PUSH BUTTON	Supply as loose part, for being installed in the existing Panel No. 7F/7R. Specification No. 1002 Dwg Nos. PN-E-2	1	EA	297.00	297.00
A1-27	CURRENT TRANSDUCER (A-TDR)	Supply as loose part, for being installed in the existing Transducer panel : Specification No. 1002 Dwg No. PN-E-1	1	EA	8,661.00	8,661.00
A1-28	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing Transducer panel : Specification No. 1002 Dwg No. PN-E-1	1	EA	16,415.00	16,415.00

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
		Unit Price	Amount			
A1-29	LATCHING RELAY (4 contacts)	Supply as loose part, for being installed in the existing IP panel Specification No. 1002 Dwg No. PN-E-1	1	EA	3,768.00	3,768.00
A1-30	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1. Dwg Nos. PN-E-1 and TP-E-10.3	1	EA	186,020.00	186,020.00
A1-31	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel No. 8R. Dwg Nos. BKN-E-1, BKN-E-2, BKN-E-3 and TP-E-10.1	1	EA	985,533.00	985,533.00
A1-32	WATT AND VAR TRANSDUCER (W&VAR-TDR)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. BKN-E-1	1	EA	16,097.00	16,097.00
A1-33	VOLTAGE TRANSDUCER (V-TDR 3 PH)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. BKN-E-1	1	EA	16,097.00	16,097.00
A1-34	CURRENT TRANSDUCER (A-TDR 3 PH)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. BKN-E-1	2	EA	16,097.00	32,194.00
A1-35	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing: - Meter panel 2 EA - Tranducer panel 1 EA Specification No. 1002 Dwg No. BKN-E-1	3	EA	16,415.00	49,245.00
A1-36	MCB, 0.5A, 3 POLE FOR PT	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. BKN-E-1	1	EA	1,638.00	1,638.00
A1-37	kWh&kVARh METER	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. BKN-E-1	2	EA	185,724.00	371,448.00

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- Project 1-C4 -

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-38	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. BKN-E-1	2	EA	4,513.00	9,026.00
A1-39	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. BKN-E-1	2	EA	1,939.00	3,878.00
A1-40	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. BKN-E-1	2	EA	907.00	1,814.00
A1-41	LATCHING RELAY (4 contacts)	Supply as loose part, for being installed in the existing IP panel Specification No. 1002 Dwg No. BKN-E-1	1	EA	3,768.00	3,768.00
A1-42	ETHERNET SWITCH	Supply as loose part, for being installed in the existing GPS receiver panel Specification No. 1002 Dwg No. BKN-E-1	1	EA	74,298.00	74,298.00
A1-43	115 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 10 feeders)	Panel Nos. 15R and 16R. Dwg Nos. SDO-E-1, SDO-E-2 SH.2, SDO-E-3 and TP-E-10.1	1	SET	1,584,228.00	1,584,228.00
A1-44	115/22 kV TRANSFORMER PROTECTION (2 RESTRAINS, 2-51, 1-BF)	Panel Nos. 17R and 18R. Dwg Nos. SDO-E-1, SDO-E-2 SH.2, SDO-E-3 and TP-E-10.1	2	EA	523,751.00	1,047,502.00
A1-45	INTERPOSING PANEL TYPE IP1	Panel No. IP1. Drawing Nos. SDO-E-1, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	1	EA	530,046.00	530,046.00
A1-46	LATCHING RELAY (4 contacts)	Supply as loose part, for being installed in the existing IP panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	3,768.00	7,536.00

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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-47	WATT AND VAR TRANSDUCER (W&VAR-TDR)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	16,097.00	32,194.00
A1-48	VOLTAGE TRANSDUCER (V-TDR 3 PH)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	16,097.00	32,194.00
A1-49	CURRENT TRANSDUCER (A-TDR 3 PH)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	16,097.00	32,194.00
A1-50	CURRENT TRANSDUCER (A-TDR)	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	16,097.00	32,194.00
A1-51	VOLTAGE TRANSDUCER (V-TDR)	Supply as loose part, for being installed in the existing Tranducer panel : Specification No. 1002 Dwg No. SDO-E-1	2	EA	8,661.00	17,322.00
A1-52	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing Tranducer panel : Specification No. 1002 Dwg No. SDO-E-1	1	EA	8,661.00	8,661.00
A1-53	MCB, 0.5A, 3 POLE FOR FT	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	4	EA	16,415.00	65,660.00
A1-54	MCB, 3A, 3 POLE WITH AUX. INC	Supply as loose part, for being installed in the existing Tranducer panel Specification No. 1002 Dwg No. SDO-E-1	2	EA	1,638.00	3,276.00
			1	EA	1,987.00	1,987.00

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-55	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 64 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. SDO-E-2 SH.2 and TP-E-10.15.	1	EA	443,442.00	443,442.00
A1-56	115 kV LINE PROTECTION (21, 21, 79, 1-BF)	Panel No. 11F/11R. Dwg Nos. NW-E-1 SH.1, NW-E-2 SH.1, NW-E-3 and TP-E-10.1	1	EA	1,087,577.00	1,087,577.00
A1-57	VOLTAGE TRANSDUCER (V-TDR 3 PH)	Supply as loose part. for being installed in the existing 4F/4R panel : Specification No. 1002 Dwg No. NW-E-1 SH.1	1	EA	16,097.00	16,097.00
A1-58	CURRENT TRANSDUCER (A-TDR 3 PH)	Supply as loose part. for being installed in the existing 4F/4R panel : Specification No. 1002 Dwg No. NW-E-1 SH.1	1	EA	16,097.00	16,097.00
A1-59	kWh&kVARh METER	Supply as loose part. for being installed in the existing Meter panel : Specification No. 1002 Dwg No. NW-E-1 SH.1	1	EA	16,097.00	16,097.00
A1-60	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part. for being installed in the existing: - Meter panel 2 EA - 4F/4R panel 2 EA Specification No. 1002 Dwg No. NW-E-1 SH.1	2	EA	185,724.00	371,448.00
A1-61	TEST SWITCH (FOR METERING)	Supply as loose part. for being installed in the existing Meter panel Specification No. 1002 Dwg No. NW-E-1 SH.1	4	EA	4,513.00	18,052.00
A1-62	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part. for being installed in the existing Meter panel Specification No. 1002 Dwg No. NW-E-1 SH.1	2	EA	16,415.00	32,830.00
			2	EA	1,939.00	3,878.00

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- Project 1-C7 -

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 KV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-63	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. NW-E-1 SH.1	2	EA	907.00	1,814.00
A1-64	LATCHING RELAY (4 contacts)	Supply as loose part, for being installed in the existing IP panel Specification No. 1002 Dwg No. NW-E-1 SH.1	1	EA	3,768.00	3,768.00
A1-65	DIRECTIONAL OVERCURRENT RELAY (57/67N)	Supply as loose part, for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA	93,115.00	93,115.00
A1-66	TRIPPING RELAY (94P, 94BU, 51X, 79X)	Supply as loose part, for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	2	EA	21,823.00	43,646.00
A1-67	LOCKOUT RELAY (86, 10 contacts)	Supply as loose part (7 NO and 3 NC), for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA	16,212.00	16,212.00
A1-68	CUT OFF SWITCH, 20 CONTACTS (PTTCO, 85CO, 43CCS)	Supply as loose part, for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA	2,506.00	2,506.00
A1-69	CUT OFF SWITCH, 4 CONTACTS (50BFCO, SS, EPS, 43RCC, 284CS)	Supply as loose part, for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	3	EA	905.00	2,715.00
A1-70	CUT OFF SWITCH, 10 CONTACTS (DTTCO, 87CO, 86ACO, 50/51SCO)	Supply as loose part, for being installed in the existing 4F/4R panel Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA	1,630.00	1,630.00

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		
					Local Supply		
					Ex-works Price (excluding VAT) Baht		
					Unit Price	Amount	
A1-71	INDICATING LAMP (R.G,I,L,LG)	Supply as loose part (Red color), for being installed in the existing Panel No. 4F/4R. Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA		297.00	297.00
A1-72	PUSH BUTTON	Supply as loose part. for being installed in the existing Panel No. 4F/4R. Specification No. 1002 Dwg No. NW-E-2 SH.1	1	EA		297.00	297.00
A1-73	115 KV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel No. 77. Dwg Nos. BP2-E-1.2, BP2-E-2, BP2-E-3 and TP-E-10.1	1	EA		297.00	297.00
A1-74	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Same type as KS substation. Supply as loose part. for being installed in the existing Panel No. 89. Specification No. 1002 Dwg No. BP2-E-2	1	EA		925,412.00	925,412.00
A1-75	TRIPPING RELAY (94P, 94BU, 51X, 79X)	Supply as loose part. for being installed in the existing Panel No. 89. Specification No. 1002 Dwg No. BP2-E-2	1	EA		303,659.00	303,659.00
A1-76	CUT OFF SWITCH, 10 CONTACTS (DITCO, 87CO, 86ACO, 50/51SCO)	Supply as loose part. for being installed in the existing Panel No. 89. Specification No. 1002 Dwg No. BP2-E-2	1	EA		21,823.00	21,823.00
A1-77	CUT OFF SWITCH, 4 CONTACTS (50BFCO, SS, EPS, 43RCC, 284CS)	Supply as loose part. for being installed in the existing Panel No. 89. Specification No. 1002 Dwg No. BP2-E-2	1	EA		1,630.00	1,630.00
A1-78	INDICATING LAMP (R,G,I,L,LG)	Supply as loose part (Red color), for being installed in the existing Panel No. 89. Specification No. 1002 Dwg No. BP2-E-2	1	EA		905.00	905.00
			2	EA		297.00	594.00

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- Project 1-C9 -

filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-79	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part, for being installed in JYV10B, Specification No. 1002 Dwg No. BP2-E-2	3	EA	1,939.00	5,817.00
A1-80	230 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 8 feeders)	Panel Nos. 1R and 3R. Dwg Nos. BGS-E-1.1, BGS-E-2.1, BGS-E-3.1 and TP-E-10.1	2	EA	757,790.00	1,515,580.00
A1-81	230 kV BUS PROTECTION (HIGH IMPEDANCE)	Panel Nos. 2R and 4R. Dwg Nos. BGS-E-1.1, BGS-E-2.1, BGS-E-3.1 and TP-E-10.1	2	EA	380,859.00	761,718.00
A1-82	230 kV LINE PROTECTION (87L, 1ph, 79)	Panel Nos. 5R, 7R, 9R and 12R. Dwg Nos. BGS-E-1.1, BGS-E-2.1, BGS-E-3.1 and TP-E-10.1	4	EA	437,349.00	1,749,396.00
A1-83	230 kV LINE PROTECTION (21P, 1ph, 2-BF, DTT)	Panel Nos. 6R, 8R, 10R and 13R. Dwg Nos. BGS-E-1.1, BGS-E-2.1, BGS-E-3.1 and TP-E-10.1	4	EA	515,004.00	2,060,016.00
A1-84	230/115 kV TRANSFORMER PROTECTION (5 RESTRAINS, 5-51, 1-BF, 59)	Panel Nos. 11R and 14R. Dwg Nos. BGS-E-1.1, BGS-E-2.1, BGS-E-3.1 and TP-E-10.1	2	EA	892,037.00	1,784,074.00
A1-85	INTERPOSING PANEL TYPE IP5	Panel No. IP1. Dwg Nos. BGS-E-1.1, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	1	EA	409,856.00	409,856.00
A1-86	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1. Dwg Nos. BGS-E-1.1 and TP-E-10.3	1	EA	186,020.00	186,020.00
A1-87	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1. Dwg Nos. BGS-E-1.1 and TP-E-10.3	1	EA	177,680.00	177,680.00
A1-88	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1 and MP-RTU2. Dwg Nos. BGS-E-1.1 and TP-E-10.3	2	EA	186,020.00	372,040.00
A1-89	MARSHALLING PANEL FOR TELEPROTECTION (230 kV General)	Panel No. MP-Tele1. Dwg Nos. BGS-E-1.1, TP-E-10.2, DW-TPS-D01-111-01 SH. P1-P4, P7, P9, P11 and DW-TPS-D01-114-01 SH. P1-P3.	1	EA	179,816.00	179,816.00

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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-90	TRANSDUCER PANEL	Panel No. TDR1 included 1-TEMP TDR, 2-DC TDR, 1-AC TDR, 6-W&VAR TDR, 8-V TDR(1ph), 2-A TDR(1ph), 2-R TDR, 2-T TDR, 1-VTR and 6-TS. Dwg Nos. BGS-E-1.1 and TP-E-10.2	1	EA	502,557.00	502,557.00
A1-91	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 48 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. BGS-E-2.1 and TP-E-10.15	1	SET	369,144.00	369,144.00
A1-92	36 Cores Non-metallic Optical Fiber Cable	Supply as loose part. Spec.No.1002 & SD-FOT-P22 Dwg Nos. BGS-E-1.1 and DW-FOT-D01-202-02 SH.P9	1000	meter	118.00	118,000.00
A1-93	BFLEX AND/OR HDPE CONDUIT WITH HOT-DIP GALVANIZED STEEL CLAMP	Supply as loose part. Spec.No.1002 & SD-FOT-P22 Dwg Nos. BGS-E-1.1 and DW-FOT-D01-202-02 SH.P9	1000	meter	30.00	30,000.00
A1-94	OFC INTERFACING PANEL, I-FTC AND ACCESSORIES	Panel No. OFC Interfacing Panel Spec. No. 1002 and SD-FOT-P22. Dwg Nos. BGS-E-1.1 and TP-E-10.16.	2	EA	42,375.00	84,750.00
A1-95	115 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 10 feeders)	Panel Nos. 1R, 2R, 3R and 4R. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	2	EA	1,584,228.00	3,168,456.00
A1-96	115/22 kV TRANSFORMER PROTECTION (3 RESTRAINS, 2-51, 2-BF)	Panel Nos. 5R and 9R. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	2	EA	606,706.00	1,213,412.00
A1-97	115 kV LINE PROTECTION (87L, 21, 79, 2-BF)	Panel Nos. 6R and 7R. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	2	EA	1,004,437.00	2,008,874.00
A1-98	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel Nos. 8R. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	1	EA	997,229.00	997,229.00

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- Project I-C11 -

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-99	115 kV BREAKER FAILURE PROTECTION (3-BF)	Panel Nos. 10R. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	1	EA	448,107.00	448,107.00
A1-100	METERING PANEL (6 kWh&kVarh METERS)	Panel Nos. MPL. Drawing Nos. BGS-E-1.2 sh. 1 to 2, BGS-E-2.2 sh.1, BGS-E-3.2 sh.1 and TP-E-10.1	1	EA	1,289,897.00	1,289,897.00
A1-101	INTERPOSING PANEL TYPE IP2	Panel No. IP1 and IP2. Drawing Nos. BGS-E-1.2 sh. 1 to 2, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	2	EA	386,900.00	773,800.00
A1-102	TRANSDUCER PANEL	Panel No. TDR1 included 1-TEMP TDR, 2-DC TDR, 1-AC TDR, 5-W&VAR TDR, 8-V TDR(1ph), 2-V TDR(3ph), 2-A TDR(1ph), 2-A TDR(3ph), 2-R TDR, 1-VTR and 5-TS. Drawing Nos. BGS-E-1.2 sh. 1 to 2 and TP-E-10.2	1	EA	514,879.00	514,879.00
A1-103	GPS RECEIVER PANEL	Panel No. GPS Receiver. (Ports of Ethernet Switch shall not be less than 48 ports) Specification No. 1002 and SD-FOT-P22. Drawing Nos. BGS-E-2.2 sh.1 and TP-E-10.16	1	SET	369,144.00	369,144.00
A1-104	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1. Drawing Nos. BGS-E-1.2 sh. 1 to 2 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-105	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1. Drawing Nos. BGS-E-1.2 sh. 1 to 2 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-106	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1. Drawing Nos. BGS-E-1.2 sh. 1 to 2 and TP-E-10.3.	1	EA	177,680.00	177,680.00
A1-107	115 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 12 feeders)	Panel Nos. 1R and 2R. Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	1	SET	1,584,228.00	1,584,228.00

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- Project 1-C12 -

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 filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-108	115/22 kV TRANSFORMER PROTECTION (2-3 RESTRAINS, 51, 1-BF)	Panel Nos. 3R Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	1	EA	715,458.00	715,458.00
A1-109	115/22 kV TRANSFORMER PROTECTION (2 RESTRAINS, 2-51, 1-BF)	Panel Nos. 4R & 5R Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	2	EA	523,751.00	1,047,502.00
A1-110	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel No. 6R. Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	1	EA	925,412.00	925,412.00
A1-111	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	87L supplied by EGAT. Panel Nos. 9R and 10R. Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	2	EA	621,753.00	1,243,506.00
A1-112	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel Nos. 7R and 8R. Dwg Nos. DBN-E-1, DBN-E-2, DBN-E-3 and TP-E-10.1	2	EA	985,533.00	1,971,066.00
A1-113	INTERPOSING PANEL TYPE IP1	Panel No. IP1 and IP2. Dwg Nos. DBN-E-1, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	2	EA	530,046.00	1,060,092.00
A1-114	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1. Dwg Nos. DBN-E-1 and TP-E-10.3	1	EA	177,680.00	177,680.00
A1-115	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1. Dwg Nos. DBN-E-1 and TP-E-10.3	1	EA	186,020.00	186,020.00
A1-116	TRANSDUCER PANEL	Panel No. TDR1 included 1-Temp TDR, 7-W&VAR TDR, 4-V TDR(1ph), 4-V TDR(3ph), 3-A TDR(1ph), 4-A TDR(3ph), 3-R TDR, 1-VTR and 10-TS. Dwg Nos. DBN-E-1 and TP-E-10.2	1	EA	641,642.00	641,642.00
A1-117	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1. Dwg Nos. DBN-E-1 and TP-E-10.3.	1	EA	186,020.00	186,020.00

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- Project 1-C13 -

(นางสุดารัตน์ ไชยพันธ์)
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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-118	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 48 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. DBN-E-2 and TP-E-10.15	1	SET	369,144.00	369,144.00
A1-119	kWh&kVARh METER	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. DBN-E-1	2	EA	185,724.00	371,448.00
A1-120	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. DBN-E-1	2	EA	4,513.00	9,026.00
A1-121	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. DBN-E-1	2	EA	16,415.00	32,830.00
A1-122	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. DBN-E-1	2	EA	1,939.00	3,878.00
A1-123	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in the existing Meter panel Specification No. 1002 Dwg No. DBN-E-1	2	EA	907.00	1,814.00
A1-124	115 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 10 feeders)	Panel Nos. 1R and 2R. Dwg Nos. KS-E-1.1 sh.1, KS-E-2.1 sh.1, KS-E-3.1 sh.1 and TP-E-10.1	1	SET	1,584,228.00	1,584,228.00
A1-125	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel Nos. 3R and 5R. Dwg Nos. KS-E-1.1 sh.1, KS-E-2.1 sh.1, KS-E-3.1 sh.1 and TP-E-10.1	2	EA	925,412.00	1,850,824.00
A1-126	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel Nos. 4R. Dwg Nos. KS-E-1.1 sh.1, KS-E-2.1 sh.1, KS-E-3.1 sh.1 and TP-E-10.1	1	EA	997,229.00	997,229.00

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- Project I-C14 -

(นางสุดารัตน์ ใจดี)
 อาส. 8 พ.ค. 63 filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		
					Local Supply		
					Ex-works Price (excluding VAT) Baht		
					Unit Price	Amount	
A1-127	115/22 kV TRANSFORMER PROTECTION (2 RESTRAINS, 2-51, 1-BF)	Panel Nos. 6R and 7R. Dwg Nos. KS-E-1.1 sh.1, KS-E-2.1 sh.1, KS-E-3.1 sh.1 and TP-E-10.1	2	EA		523,751.00	1,047,502.00
A1-128	INTERPOSING PANEL TYPE IP1	Panel No. IP1. Dwg Nos. KS-E-1.1 sh.1, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	1	EA		530,046.00	530,046.00
A1-129	TRANSDUCER PANEL	Panel No. TDR1 included 1-TEMP TDR, 2-DC TDR, 1-AC TDR, 5-W&VAR TDR, 5-V TDR(1ph), 3-V TDR(3ph), 2-A TDR(1ph), 3-A TDR(3ph), 2-R TDR, 1-VTR and 5-TS. Dwg Nos. KS-E-1.1 sh.1 and TP-E-10.2	1	EA		467,467.00	467,467.00
A1-130	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1. Dwg Nos. KS-E-1.1 sh.1 and TP-E-10.3	1	EA		177,680.00	177,680.00
A1-131	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1. Dwg Nos. KS-E-1.1 sh.1 and TP-E-10.3	1	EA		186,020.00	186,020.00
A1-132	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1. Dwg Nos. KS-E-1.1 sh.1 and TP-E-10.3	1	EA		186,020.00	186,020.00
A1-133	GPS RECEIVER PANEL	Panel No. GPS Receiver. (Ports of Ethernet Switch shall not be less than 32 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. KS-E-2.1 sh.1 and TP-E-10.15	1	EA		294,846.00	294,846.00
A1-134	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include EI converter and fiber optic. Same type as BGS substation. Supply as loose part, for being installed in Panel Nos. 805R, 807R. Specification No. 1002 Dwg Nos. NBR-E-1.1 sh. 1-2, NBR-E-2.1 sh.1, NBR-E-3.1 sh.1 and TP-E-10.1.	2	EA		303,659.00	607,318.00

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- Project I-C15 -

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 (นางศุภารัตน์ เขมพันธ์)
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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-135	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Same type as BGS substation. Supply as loose part, for being installed in Panel Nos. 310R, 312R. Specification No. 1002 Dwg Nos. TTK-E-1.1 sh. 1, TTK-E-2.1 sh.1, TTK-E-3.1 sh.1, and TP-E-10.1.	2	EA	303,659.00	607,318.00
A1-136	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Same type as PK3 substation. Supply as loose part, for being installed in Panel Nos. 3R. Specification No. 1002 Dwg Nos. PK1-E-1.1 sh. 1, PK1-E-2.1 sh.1, PK1-E-3.1 sh.1, and TP-E-10.1.	1	EA	303,659.00	303,659.00
A1-137	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel Nos. 15R Dwg Nos. PK3-E-1.1 sh.1, PK3-E-2.1 sh.1, PK3-E-3.1 sh.1, and TP-E-10.1	1	EA	925,412.00	925,412.00
A1-138	115 kV LINE PROTECTION (87L, 21, 79, 2-BF)	Panel Nos. 16R Dwg Nos. PK3-E-1.1 sh.1, PK3-E-2.1 sh.1, PK3-E-3.1 sh.1, and TP-E-10.1	1	EA	1,004,437.00	1,004,437.00
A1-139	INTERPOSING PANEL TYPE IP5	Panel No. IP2. Dwg Nos. PK3-E-1.1 sh.1, TP-E-6.4 SH.1/6-5/6 and TP-E-10.2	1	EA	409,856.00	409,856.00
A1-140	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1. Dwg Nos. PK3-E-1.1 sh.1, and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-141	230 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 6 feeders)	Panel Nos. 40R, 41R, 42R, 43R. Drawing Nos. LS-E-1.1 sh. 1 to 2, LS-E-2.1 sh. 1, LS-E-3.1 sh. 1 and TP-E-10.1.	4	SET	715,008.00	2,860,032.00
A1-142	115 kV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 12 feeders)	Panel Nos. 23R, 24R Drawing Nos. LS-E-1.1 sh. 1 to 2, LS-E-2.1 sh. 1, LS-E-3.1 sh. 1 and TP-E-10.1.	1	SET	1,584,228.00	1,584,228.00

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- Project 1-C16 -

(นางสาวหทัยภัทร พูนผลภู)
 ๒๓. ๕ พ.ย. ๖๓ filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-143	230 kV BREAKER FAILURE PROTECTION (3-BF)	Panel No. 43R. Drawing Nos. LS-E-1.1 sh. 1 to 2, LS-E-2.1 sh. 1, LS-E-3.1 sh. 1 and TP-E-10.1.	1	EA	467,004.00	467,004.00
A1-144	RESISTANCE TRANSDUCER (R-TDR)	Supply as loose part. for being installed in the existing 4C panel. Specification No. 1002 Drawing No. LS-E-1.1 sh. 1 to 2.	1	EA	9,777.00	9,777.00
A1-145	TEMPERATURE TRANSDUCER (T-TDR)	Supply as loose part. for being installed in the existing 4C panel. Specification No. 1002 Drawing No. LS-E-1.1 sh. 1 to 2.	1	EA	9,777.00	9,777.00
A1-146	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 32 ports) Specification No. 1002 and SD-FOT-P22. Drawing Nos. LS-E-2.1 and TP-E-10.15	1	EA	9,777.00	9,777.00
A1-147	115/22 kV TRANSFORMER PROTECTION (4 RESTRAINS, 4-51, 1-BF)	Panel Nos. 31R. Drawing Nos. RPB-E-1.2 sh. 1, RPB-E-2.2 sh.1, RPB-E-3.1 sh. 1 and TP-E-10.1.	1	SET	294,846.00	294,846.00
A1-148	MANUALLY OPERATED DISCONNECTED SWITCH	Supply as loose part. for being installed in the existing CB14 panel. Drawing Nos. RPB-E-2.3 sh.1.	1	EA	682,162.00	682,162.00
A1-149	INDICATING LAMP (R,G,I,L,G)	Supply as loose part (1-Red color, 1-Green color), for being installed in the existing CB14 panel. Drawing Nos. RPB-E-2.3 sh.1.	4	EA	451.00	1,804.00
A1-150	BREAKER CONTROL SWITCH (CS)	Supply as loose part. for being installed in the existing CB14 panel. Drawing Nos. RPB-E-2.3 sh.1.	2	EA	297.00	594.00
A1-151	TRIP TRANSFER SWITCH (43)	Supply as loose part. for being installed in the existing CB14 panel. Drawing Nos. RPB-E-2.3 sh.1.	1	EA	3,491.00	3,491.00
			1	EA	6,838.00	6,838.00

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- Project 1-C17 -

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 ๑๗๓. ๑๓๓๘ filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-152	CURRENT TRANSDUCER (A-TDR 3 PH)	Supply as loose part. for being installed in the existing TDR panel. A-TDR 3PH Drawing Nos. RPB-E-1.2 sh. 1	1	EA	16,097.00	16,097.00
A1-153	115 kV LINE PROTECTION (87L, 21, 79, 2-BF, 51S)	Panel Nos. 1R. Drawing Nos. BLG-E-1.1 sh. 1, BLG-E-2.1 sh. 1, BLG-E-3.1 sh. 1 and TP-E-10.1.	1	EA	1,061,161.00	1,061,161.00
A1-154	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel No. 2R. Drawing Nos. BLG-E-1.1 sh. 1, BLG-E-2.1 sh. 1, BLG-E-3.1 sh. 1 and TP-E-10.1.	1	EA	985,533.00	985,533.00
A1-155	115 kV LINE PROTECTION (87L, 87L, 79, 1-BF)	Panel No. 3R. Drawing Nos. BLG-E-1.1 sh. 1, BLG-E-2.1 sh. 1, BLG-E-3.1 sh. 1 and TP-E-10.1.	1	EA	1,038,197.00	1,038,197.00
A1-156	TRANSDUCER PANEL	Panel No. TDR2 including 6-V TDR 1ph, 3-W&VAR TDR, 2-DC TDR, 1-AC TDR and 3-TS. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-10.2.	1	EA	267,869.00	267,869.00
A1-157	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel Nos. MPC1. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-158	INTERPOSING PANEL TYPE IP2	Panel Nos. IP1. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-6.4 sh. 1/6, TP-E-6.4 sh. 2/6, TP-E-6.4 sh. 3/6, TP-E-6.4 sh. 4/6, TP-E-6.4 sh. 5/6.	1	EA	386,900.00	386,900.00
A1-159	MARSHALLING PANEL FOR RTU	Panel Nos. MP-RTU1. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-160	MARSHALLING PANEL FOR FRS	Panel Nos. MP-FRS. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-10.3.	1	EA	177,680.00	177,680.00

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-161	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 32 ports) Specification No. 1002 and SD-FOT-P22. Drawing Nos. BLG-E-1.1 sh. 1 and TP-E-10.15	1	SET	294,846.00	294,846.00
A1-162	115 kV LINE PROTECTION (21, 67, 79, 1-BF, DTT)	Panel Nos. 705R Dwg Nos. SH-E-1.1 sh. 1 to 2, SH1-E-2.1 sh. 1, SH1-E-3.1 sh. 1 and TP-E-10.1.	1	EA	985,533.00	985,533.00
A1-163	115 kV LINE PROTECTION (87L, 21, 79, 1-BF)	Panel Nos. 8R, 9R. Dwg Nos. MM2-E-1.1 sh. 1, MM2-E-2.1 sh. 1, MM2-E-3.1 sh. 1 and TP-E-10.1.	2	EA	925,412.00	1,850,824.00
A1-164	TRANSDUCER PANEL	Panel No. TDR2 including 2-V TDR 1ph, 2-W&VAR TDR and 2-TS. Dwg Nos. MM2-E-1.1 sh. 1 and TP-E-10.2.	1	EA	165,025.00	165,025.00
A1-165	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	907.00	1,814.00
A1-166	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Same type as MM2 substation. Supply as loose part, for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	303,659.00	607,318.00
A1-167	TRIPPING RELAY (94P, 94BU, 51X, 79X)	Supply as loose part, for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	21,823.00	43,646.00

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- Project 1-C19 -

(นางศุภาวิรัตน์ ไชยพันธ์)
 ท.ศ. 8 พ.ค. 63

filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-168	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part. for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	4,513.00	9,026.00
A1-169	TEST SWITCH (TS. for relays)	Supply as loose part. for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	4	EA	4,590.00	18,360.00
A1-170	INDICATING LAMP (R,G,I,L,G)	Supply as loose part (Red color), for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Drawing Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	297.00	594.00
A1-171	PUSH BUTTON	Supply as loose part. for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	297.00	594.00
A1-172	CUT OFF SWITCH, 10 CONTACTS (DTTCO, 87CO, 86ACO, 50/51SCO)	Supply as loose part. for being installed in Panel Nos. 611R, 612R. Specification No. 1002. Dwg Nos. MM3-E-1.3 sh. 1, MM3-E-2.1 sh. 1, MM3-E-3.3 sh. 1 and TP-E-10.1.	2	EA	1,630.00	3,260.00
A1-173	115 kV LINE PROTECTION (87L, 87L, 79, 1-BF)	Panel Nos. 1R. Drawing Nos. BLG2-E-1.1 sh. 1, BLG2-E-2.1 sh. 1, BLG2-E-3.1 sh. 1 and TP-E-10.1.	1	EA	1,038,197.00	1,038,197.00
A1-174	115/22 kV TRANSFORMER PROTECTION (4 RESTRAINS, 4-51, 1-BF)	Panel No. 2R and 3R. Drawing Nos. BLG2-E-1.1 sh. 1, BLG2-E-2.1 sh. 1, BLG2-E-3.1 sh. 1 and TP-E-10.1.	2	EA	682,162.00	1,364,324.00

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- Project 1-C20 -

(นางศุภารัตน์ ไชยพันธ์)
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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-175	TRANSDUCER PANEL	Panel No. TDR2 including 2-DC TDR, 1-AC TDR, 2-W&VAR TDR, 2-V TDR(3ph), 2-A TDR(1ph), 2-A TDR(3ph), 2-R TDR and 4-TS. Drawing Nos. BLG2-E-1.1 sh. 1 and TP-E-10.2.	1	EA	317,485.00	317,485.00
A1-176	METERING PANEL (4 kWh&kVarh METERS)	Panel No. MP1. Drawing Nos. BLG2-E-1.1 sh. 1, BLG2-E-2.1 sh. 1 and TP-E-10.1.	1	EA	997,919.00	997,919.00
A1-177	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel Nos. MPCL. Drawing Nos. BLG2-E-1.1 sh. 1 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-178	INTERPOSING PANEL TYPE IP1	Panel Nos. IP1. Drawing Nos. BLG2-E-1.1 sh. 1 and TP-E-6.4 sh. 1/6, TP-E- 6.4 sh. 2/6, TP-E-6.4 sh. 3/6, TP-E-6.4 sh. 4/6, TP-E-6.4 sh. 5/6.	1	EA	530,046.00	530,046.00
A1-179	MARSHALLING PANEL FOR RTU	Panel Nos. MP-RTU1. Drawing Nos. BLG2-E-1.1 sh. 1 and TP-E-10.3.	1	EA	186,020.00	186,020.00
A1-180	MARSHALLING PANEL FOR FRS	Panel Nos. MP-FRS. Drawing Nos. BLG2-E-1.1 sh. 1 and TP-E-10.3.	1	EA	177,680.00	177,680.00
A1-181	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 32 ports) Specification No. 1002 and SD-FOT-P22, Dwg Nos. BLG2-E-1 sh. 1 and TP-E-10.15.	1	SET	294,846.00	294,846.00
A1-182	115 kV LINE PROTECTION (21. 67, 79, 1-BF, DTT)	Panel Nos. 11R. Dwg Nos. CBD-E-1.1, CBD-E-2.1, CBD-E-3.1 and TP-E-10.1	1	EA	997,229.00	997,229.00
A1-183	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part, for being installed in the existing MP7-1 Specification No. 1002 Dwg No. CBD-E-1.1 and CBD-E-2.1.	2	EA	1,939.00	3,878.00

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 นางสาวทศภัทร พูนผลกุล
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- Project 1-C21 -

(นางสุดารัตน์ ไชยพันธ์)
 อวส. 8 พ.ค. 63

filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-184	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part, for being installed in the existing MP7-1 Specification No. 1002 Dwg No. CBD-E-1.1 and CBD-E-2.1.	2	EA	907.00	1,814.00
A1-185	TEST SWITCH (FOR METERING)	Supply as loose part, for being installed in the existing MP7-1 Specification No. 1002 Dwg No. CBD-E-1.1 and CBD-E-2.1.	2	EA	16,415.00	32,830.00
A1-186	kWh&kVARI METER	Supply as loose part, for being installed in the existing MP7-1 Specification No. 1002 Dwg No. CBD-E-1.1 and CBD-E-2.1.	2	EA	185,724.00	371,448.00
A1-187	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part, for being installed in the existing MP7-1 Specification No. 1002 Dwg No. CBD-E-1.1 and CBD-E-2.1.	2	EA	4,513.00	9,026.00
A1-188	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 64 ports) Specification No. 1002 and SD-FOT-P22. Dwg Nos. CBD-E-1.1 and TP-E-10.15.	1	SET	443,442.00	443,442.00
A1-189	TEST SWITCH (TS, for relays)	Supply as loose part. Specification No. 1002	2	EA	4,590.00	9,180.00
A1-190	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part. Specification No. 1002	8	EA	4,513.00	36,104.00
A1-191	PUSH BUTTON	Supply as loose part. Specification No. 1002	1	EA	297.00	297.00
A1-192	MCB, 6A, 2 POLE FOR DC SUPPLY	Supply as loose part. Specification No. 1002	3	EA	907.00	2,721.00
A1-193	MCB, 0.5A, 3 POLE WITH AUX.	Supply as loose part. Specification No. 1002	1	EA	1,939.00	1,939.00
A1-194	MCB, 0.5A, 3 POLE FOR PT	Supply as loose part. Specification No. 1002	1	EA	1,638.00	1,638.00
A1-195	INDICATING LAMP (R,G,IL,LG)	Supply as loose part. Specification No. 1002	10	EA	297.00	2,970.00

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- Project 1-C22 -

(นางสุดารัตน์ ไชยพันธ์)
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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
		Unit Price	Amount			
A1-196	BREAKER CONTROL SWITCH (CS)	Supply as loose part. Specification No. 1002	2	EA	3,491.00	6,982.00
A1-197	CUT OFF SWITCH, 4 CONTACTS (50BFC0, SS, EPS, 43RCC, 284CS)	Supply as loose part. Specification No. 1002	2	EA	905.00	1,810.00
A1-198	DC UNDERVOLTAGE RELAY (27XB,27XR)	Supply as loose part. Specification No. 1002	11	EA	4,513.00	49,643.00
A1-199	LINE CURRENT DIFFERENTIAL RELAY (87L)	Installed in Panel Nos. 42R. Specification No. 1002. Drawing Nos. YL2-E-1.1 sh. 1, YL2-E-2.1 sh. 1, YL2-E-3.1 sh. 1 and TP-E-10.1.	1	EA	303,659.00	303,659.00
A1-200	GPS RECEIVER PANEL	Panel No. GPS Receiver (Ports of Ethernet Switch shall not be less than 64 ports) Specification No. 1002 and SD-FOT-P22. Drawing Nos. YL2-E-1.1 sh. 1 and TP-E-10.15	1	SET	443,442.00	443,442.00
A1-201	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Same type as DBN substation. For 3 phase and current rating 5 A. Supply as loose part, for being installed in Panel No. 38R. Specification No. 1002	1	EA	303,659.00	303,659.00

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 นางสาวหทัยภัทร พูนผลกุล
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- Project 1-C23 -

(นางสุดารัตน์ ไชยพันธ์)
 จกส.
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filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

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จกส.-๑๗๘.

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 KV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
A1-202	MCB, 0.5A, 2 POLE FOR PT	Supply as loose part. Specification No. 1002	50	EA	1,749.00	87,450.00
A1-203	MCB, 6A, 1 POLE FOR DC SUPPLY	Supply as loose part. Specification No. 1002	50	EA	533.00	26,650.00
A1-204	PUSH BUTTON	Supply as loose part. Specification No. 1002	50	EA	297.00	14,850.00
A1-205	RESISTANCE TRANSDUCER (R-TDR)	Supply as loose part. Specification No. 1002	10	EA	9,777.00	97,770.00
A1-206	TEMPERATURE TRANSDUCER (T-TDR)	Supply as loose part. Specification No. 1002	10	EA	9,777.00	97,770.00
A1-207	BUS DIFFERENTIAL RELAY (Low Impedance-No Switching Zone)	Supply as loose part. For current rating 1 A Specification No. 1002	1	EA	439,336.00	439,336.00
A1-208	BUS DIFFERENTIAL RELAY (High Impedance)	Supply as loose part. For current rating 1 A Specification No. 1002	1	EA	105,863.00	105,863.00
A1-209	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include E1 converter and fiber optic. Spare as loose part. For 1 phase and current rating 1 A. The link to communication of 87L shall be E1 interface. 2 sets of coaxial cables shall be provided. Specification No. 1002	1	EA	303,659.00	303,659.00

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- Project 1-C24 -

(นางสุดารัตน์ ไชยจันทร์)
 จกส.
 8 พ.ย. 63

filename : TS12-CR-05 and GBA3-CR-05 (TS12).xlsx

MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
 Schedule A1 : 230 & 115 kV Control and Protection Equipment
 SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
 TRANSMISSION SYSTEM EXPANSION PROJECT NO.12

Item No.	Description	Drawing No / Reference No.	Qty.	Unit	Supply of Equipment		
					Local Supply		
					Ex-works Price (excluding VAT) Baht		
					Unit Price	Amount	
A1-210	DISTANCE RELAY (21P1) FOR 230 kV, 1ph without 79/25	Spare as loose part. For 1 phase and current rating 1 A. Specification No. 1002	1	EA		297,581.00	297,581.00
A1-211	AUTO RECLOSING AND SYNCHRONISM CHECK RELAY (79+25)	Supply as loose part. Specification No. 1002	1	EA		46,113.00	46,113.00
A1-212	BREAKER FAILURE RELAY (50BF+62BF)	Supply as loose part. Specification No. 1002	1	EA		79,944.00	79,944.00
A1-213	TRANSFORMER DIFFERENTIAL RELAY (87K, 5 restraint windings)	Supply as loose part. Specification No. 1002	1	EA		238,809.00	238,809.00
A1-214	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG, 51/51G, 51S/51SG, 51C/51CG)	Supply as loose part. Specification No. 1002	1	EA		57,382.00	57,382.00
A1-215	OVERCURRENT GROUND BACKUP RELAY (51GB)	Supply as loose part. Specification No. 1002	1	EA		57,382.00	57,382.00
A1-216	OVERVOLTAGE RELAY (59N, 59C)	Supply as loose part. Specification No. 1002	1	EA		64,266.00	64,266.00
A1-217	LINE CURRENT DIFFERENTIAL RELAY (87L)	This item include EI converter and fiber optic. Spare as loose part. For 3 phase and current rating 5 A. The link to communication of 87L shall be EI interface. 2 sets of coaxial cables shall be provided. Specification No. 1002	1	EA		303,659.00	303,659.00
A1-218	DISTANCE RELAY (21) FOR 115 kV without 79/25	Spare as loose part. For 3 phase and current rating 5 A. (Primary Protection) Specification No. 1002	1	EA		184,169.00	184,169.00
A1-219	DISTANCE RELAY (21) FOR 115 kV without 79/25	Spare as loose part. For 3 phase and current rating 5 A. (Backup Protection) Specification No. 1002	1	EA		184,169.00	184,169.00
A1-220	DIRECTIONAL OVERCURRENT RELAY (67/67N)	Spare as loose part. For current rating 5 A. Specification No. 1002	1	EA		93,115.00	93,115.00
Total Price for Schedule A1							82,491,730.00

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MEDIUM COST FOR BID NO. TS12-CR-05 and GBA3-CR-05
Schedule B1 : 230 & 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
BULK POWER SUPPLY FOR THE GREATER BANGKOK AND VICINITY AREA PHASE 3

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment	
					Local Supply	
					Ex-works Price (excluding VAT) Baht	
					Unit Price	Amount
B1-1	230/115 kV TRANSFORMER PROTECTION (4 RESTRAINS, 5-51, 2-BF, 59)	Panel No. 37R. Drawing Nos. TPR-E-1.1 sh. 1 to 2, TPR-E-1.2 sh.1, TPR-E-2.1 sh. 1, TPR-E-3.1 sh. 1 and TP-E-10.1.	1	EA	892,292.00	892,292.00
B1-2	115 kV BREAKER FAILURE PROTECTION (1-BF)	Panel No. 38R. Drawing Nos. TPR-E-1.1 sh. 1 to 2, TPR-E-1.2 sh.1, TPR-E-2.1 sh. 1, TPR-E-3.1 sh. 1 and TP-E-10.1.	1	EA	297,145.00	297,145.00
Total Price for Schedule B1					Baht	1,189,437.00

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- Project 2-C1 -

(นางศุภรัตน์ ไชยพันธ์)
 8 พ.ค. 63

filename : TS12-CR-05 and GBA3-CR-05 (GBA3).xlsx

Important Information
for
Invitation to Bid No. TS12-CR-05 and GBA3-CR-05

The purpose of this section is to inform the Bidders to **carefully study** the details of the revised terms and conditions in the bidding documents. The following provisions have been **recently revised** as stated hereunder:

Article B-12. Evaluation and Comparison of Bids

The calculated insurance premium to be used for evaluation and comparison purpose has been revised from 0.0898% to **0.0629%**.

Article F-8. Payment:

If the Contractor requires the payment of foreign currency portion to be paid directly to the suppliers, he has to inform EGAT **which portion of the Contract Price, as stipulated in the term of payment of the Contract**, to be paid accordingly.

In case the local Contractor requires foreign currency or currencies to be paid directly to him, payment of such foreign currency or currencies will be made to the local Contractor in Thai Baht by using the **selling exchange rate** published by the Bank of Thailand on the **payment date** (previously stated as buying exchange rate on the bid opening date).

The number of days which payment for the first portion of foreign supply will be made after delivery, previously specified as 45 days, has been **deleted**.

Article F-9. Liquidated Damages for Late Delivery of Equipment:

The limit of liquidated damages, previously specified that does not exceed 10%, has been **deleted**.

DATA SHEET

for

Invitation to Bid No. TS12-CR-05 and GBA3-CR-05

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in bidding documents.

Provisions Regarding Foreign Supply

Equipment proposed for this invitation to bid shall be manufactured locally. Any provisions regarding foreign supply found in the bidding documents are not applicable.

Article B-3. Bid Security

The amount of bid security shall be THB 4,475,000.-.

Article B-4. Validity of Bids

The validity of the bid shall be for one hundred and twenty (120) Days from the date specified for opening of bid.

Article B-8. Information to be Submitted with Bid

Item m. is not applicable

Article B-12. Evaluation and Comparison of Bids:

The evaluation of bid prices shall be on a combination of all schedules basis.

Article E-29. Failure to Meet Requirements and F-10. Maintenance Guarantee

Maintenance Guarantee Period

- For all Equipment except Shunt Reactor, 200 MVA 230 kV and above Power Transformer and 500 kV System Voltage Equipment

The Contractor shall guarantee the proper functioning of Equipment for a period of one (1) Year except the following Equipment the guarantee period of which shall be as follows :

<u>Equipment</u>	<u>Period of Guarantee (Year)</u>
- Fault Recording System	2
- Control and Protection System	2
- <u>For Shunt Reactor, 200 MVA 230 kV and above Power Transformer and 500 kV System Voltage Equipment</u>	

The Contractor shall guarantee the proper functioning of Equipment for a period of five (5) Years.

Defective Equipment to be replaced with the whole new set

For GIS, Power Transformer, Power Circuit Breaker, Shunt Reactor, in case EGAT, at its sole discretion, requires the Contractor to replace any defected Equipment, the Contractor shall replace the Equipment with the whole new set as specified in Failure to Meet Requirements in section E and Maintenance Guarantee in section F.

Article F-9. Liquidated Damages for Late Delivery of Equipment

The Liquidated Damages shall be at the rate of one-tenth of one (0.10) per cent of the price of each complete item of Equipment not timely delivered for each Day of delay. This sum is payable regardless of the actual loss and/or damages incurred.

INVITATION TO BID NO. TS12-CR-05 and GBA3-CR-05
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
TRANSMISSION SYSTEM EXPANSION PROJECT NO.12
BULK POWER SUPPLY FOR THE GREATER BANGKOK
AND VICINITY AREA PHASE 3

Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for furnishing and delivering of Control and Protection Equipment under Transmission System Expansion Project No.12 and Bulk Power Supply for The Greater Bangkok and Vicinity Area Phase 3 hereinafter called Equipment in accordance with the terms, conditions and Specifications described in these Bidding Documents.

Eligibility of Bidders: General Requirements

All Bidders shall meet the following requirements; failure to so comply shall constitute sufficient ground for rejection.

- a. The Bidder shall be a partnership, firm or company, either alone or in joint venture or in consortium.
- b. The Bidder shall be a purchaser of the bidding documents from EGAT. For a joint venture or consortium, only one (1) member of the joint venture or consortium is required to purchase the bidding documents.

In the case where the Bidder is not the purchaser of the bidding documents, the purchaser shall notify EGAT of the name of the Bidder in writing *prior to the bid opening*.

- c. The Bidder shall be well-established and maintain a permanent place of business. For a joint venture or consortium, all members of the joint venture or consortium are required to meet this qualification.
- d. The Bidder shall not be named in the List of Work Abandoners published by the Permanent Secretary, Ministry of Finance, and/or in the Debarment List and/or in the List of Work Abandoners declared by EGAT.

- e. For the Bidder who changes name before submitting the bid, his experience records in previous name shall be considered as the experience records of the Bidder.
- f. The Bidder shall not be a Jointly Interested Bidder with other Bidders as from the date of EGAT's issuance of this invitation to bid, or shall not be a person who undertakes any action as an "Obstruction of Fair Price Competition" as defined in Additional Regulation for this invitation.
- g. The Bidder shall not either be EGAT's consultant or involve in EGAT's consultancy company under this invitation, or have EGAT's personnel involved in his business as shareholder having voting right that can control his business, director, manager, officer, employee, agent or consultant except the ones who are officially ordered by EGAT to act or participate therein.
- h. The Bidder shall not be the person who is privileged or protected not to be taken any legal proceeding under Thai court; provided that such Bidder's government declares that such special privilege is waived.
- i. In case of a joint venture or consortium, the Bidder shall carry out all the provision of the Equipment and all Work under such formation from the time of bidding until the fulfillment of the Contract and the parties to the joint venture or the consortium shall accept joint and several liability for performing all obligations under the bid and the Contract.
- j. The Bidder shall not propose to supply the Equipment from the country under the state of war whether declared or not.
- k. The Bidder shall have adequate fund to meet financial obligations incidental to this Contract.
- l. The Bidder shall submit documentary evidence established in accordance with Article B-8. Information to be Submitted with Bid to demonstrate the Bidder's sufficient eligibility to bid and qualification to perform the Contract.

Eligibility of Bidders: Technical Requirements

I. All Bidders shall meet the following requirements; failure to so comply shall constitute sufficient ground for rejection.

- a. The Bidder shall manufacture or supply the Equipment or Work as required under this invitation to bid.
- b. If the Bidder is a new company formed by acquisition of or merger with other companies or business units before submitting the Bid, the experience records of any of such previous companies or business units that meet the requirements set forth herein are acceptable as the experience records of the Bidder.

Reference records of either the parent or affiliated companies shall not be considered as the record of such Bidder.

- c. The Bidder shall have no just or proper claims pending against him with respect to breach in the performance of Contract on other similar works awarded by EGAT.

If the Bidder is a new company formed by acquisition of or merger with other companies or business units, the pending claim of any of such previous companies or business units shall be considered as pending claim of the Bidder.

- d. The Bidder shall have sufficient capacity to carry out the Work.
- e. The Bidder shall propose the Equipment manufactured by the qualified manufacturers who shall fulfill the following requirements:
 1. Being well-established and maintaining a permanent place of business.
 2. Regular manufacturing of Equipment of the type and similar ratings proposed.
 3. Being a local manufacturer.
 4. For 500 kV Control and Protection System, having one of the following qualifications:

Having supply records of successful operation/use of at least three (3) units of each type of Protective Relay Panels of which the characteristics are similar to the ones specified herein in EGAT's 500 kV Transmission System for at least three (3) consecutive years.

OR

Having a letter of acceptance for manufacturing and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein.

5. For 230 kV Control and Protection System and below, having one of the following qualifications:

Having supply records of successful operation/use of at least three (3) units of each type of Protective Relay Panels of which the characteristics are similar to the ones specified herein in EGAT's or other Electricity Authorities of Thailand's 220 kV or above Transmission System for at least three (3) consecutive years.

OR

Having a letter of acceptance for manufacturing and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein.

6. If the manufacturer is a new company formed by acquisition of or merger with other companies or business units, and any of such previous companies or other business units has the experience records that meet the requirements set forth herein, such experience records are acceptable as the experience records of the new company.
7. Having no just or proper claims pending against Equipment on other similar works.

In case the manufacturer is a new company formed by acquisition of or merger with other companies or business units, the pending claim of any of such previous companies or business units shall be considered as pending claim of the manufacturer.

- f. The proposed protective relays shall be the products from the manufacturers as listed in EGAT's Specifications and shall be in compliance with the details specified in EGAT's Specifications. Type/Model of the proposed main protective relays shall be as specified in EGAT ACCEPTED MAIN RELAY LIST No. 1 which is attached at the end of Section A. Invitation to Bid.

II. All Bidders should preferably meet the following technical requirements; failure to so comply may constitute sufficient ground for rejection.

The proposed protective relays shall be the products from the manufacturers as listed in EGAT's Specifications and shall be in compliance with the details specified in EGAT's Specifications. Type/Model of the proposed protective relays shall be as specified in EGAT ACCEPTED MAIN RELAY LIST No. 2 which is attached at the end of Section A. Invitation to Bid.

EGAT ACCEPTED MAIN RELAY LIST No.1

Description	Manufacturer	Accepted Type	Accepted Voltage Level			Notes
			500 kV	230 kV	115&69 kV	
Current Differential Protection	ABB	RED670	✓	✓	✓	
	GE	P543	✓	✓	✓	
		L90	✓	✓	✓	
	SEL	SEL-311L	✓	✓	✓	
	Siemens	7SD52	✓	✓	✓	
	Schneider Electric	P543	✓	✓	✓	
	Ingeteam	EF-LD	✓	✓	✓	
	NR Electric	PCS-931	✓	✓	✓	
Distance Protection	ABB	REL670	✓	✓	✓	Only for three-pole tripping and line protection without carrier scheme.
	GE	P443	✓	✓	✓	
		D30		✓	✓	
		D60		✓	✓	
		ALPSDA1	✓	✓	✓	Only for three-pole tripping and line protection without carrier scheme.
	SEL	SEL-311C			✓	
		SEL-421	✓	✓	✓	
	Siemens	7SA522	✓	✓	✓	
		7SA6 series	✓	✓	✓	
	Schneider Electric	P443	✓	✓	✓	
	Ingeteam	EF-ZT	✓	✓	✓	
	NR Electric	PCS-902	✓	✓	✓	
	Toshiba	GRZ200		✓	✓	
	ZIV	ZLV		✓	✓	



EGAT ACCEPTED MAIN RELAY LIST No.1

Description	Manufacturer	Accepted Type	Accepted Voltage Level			Notes	
			500 kV	230 kV	115&69 kV		
Transformer Differential Protection	ABB	RET670	✓	✓	✓		
		RET650	✓	✓	✓		
	GE	P64x	✓	✓	✓		
		T35		✓	✓		
		T60		✓	✓		
	SEL	SEL-387		✓	✓		4-restraints
		SEL-487E	✓	✓	✓		
		SEL-587			✓		2-restraints
		SEL-787			✓		2-restraints
	Siemens	Duobias		✓	✓		
		7UT6	✓	✓	✓		5-restraints
	Schneider Electric	P645	✓	✓	✓		
	Ingeteam	EF-TD	✓	✓	✓		3-restraints
	NR Electric	PCS-978	✓	✓	✓		
	Toshiba	GRT200	✓	✓	✓		
ZIV	IDV	✓	✓	✓			
Mitsubishi	MRD-HA			✓	3-restraints		
High Impedance Busbar Protection	ABB	REB650	✓	✓	✓		
	SEL	SEL-587Z	✓	✓	✓		
	Toshiba	GRB150	✓	✓	✓		

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EGAT ACCEPTED MAIN RELAY LIST No.1

Description	Manufacturer	Accepted Type	Accepted Voltage Level			Notes
			500 kV	230 kV	115&69 kV	
Low Impedance Busbar Protection	ABB	REB670	✓	✓	✓	
		REB500	✓	✓	✓	
	GE	P746	✓	✓	✓	
		P740	✓	✓	✓	
		P747	✓	✓	✓	
		B90	✓	✓	✓	
		B30	✓	✓	✓	
		SEL	SEL-487B	✓	✓	
	Siemens	7SS52	✓	✓	✓	
		7SS60	✓	✓	✓	
		Schneider Electric	7SS85	✓	✓	
		P746	✓	✓	✓	
		P740	✓	✓	✓	
	Toshiba	GRB100	✓	✓	✓	
	Mitsubishi	MBP-H1A		✓	✓	

Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.

Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.

In case of double bus single breaker arrangement, maximum 8 feeders with 1 bus coupler and 2 bus sections are allowed.

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EGAT ACCEPTED MAIN RELAY LIST No.1

Description	Manufacturer	Accepted Type	Accepted Voltage Level			Notes	
			500 kV	230 kV	115&69 kV		
Breaker Failure Protection	ABB	REQ650			✓	Only for 3-phase breaker failure function.	
	GE	P141	✓	✓	✓		
		P14Nx	✓	✓	✓		
		C60		✓	✓		
		F60		✓	✓		
	SEL	SEL-501	✓	✓	✓		Only for 3-phase breaker failure function.
	Siemens	7VK6 series	✓	✓	✓		Only firmware version 1.F is accepted.
	Schneider Electric	P821		✓	✓		
	Ingeteam	EF-ZT	✓	✓	✓		
	NR Electric	PCS-9611	✓	✓	✓		Only for 3-phase breaker failure function.
Toshiba	GRD200	✓	✓	✓			

Notes

1. The procedures for being listed in EGAT ACCEPTED MAIN RELAY LIST are specified in the EGAT's Pre-Qualification (PQ) process which can be requested from Transmission System Engineering Division.
2. If any types of relay in the list are planned to discontinue the manufacturing, the manufacturer or the representative is responsible for informing EGAT at least 1 year before the unavailable date.
3. The relays shall be configured to comply with all EGAT's required functions.



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EGAT ACCEPTED MAIN RELAY LIST No.2

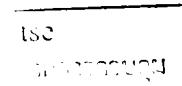
Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Directional Overcurrent Relay	ABB	REQ650	✓	✓	✓	✓	None of line fault locator. Only use with feeder.
	GE	P14Dx	✓	✓	✓	✓	
		P841	✓	✓	✓	✓	
	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-451	✓	✓	✓	✓	
		SEL-751	✓	✓	✓	✓	
	Siemens	7SJ62	✓	✓	✓	✓	
		7SJ85	✓	✓	✓	✓	
	Schneider Electric	P141	✓	✓	✓	✓	
		P143	✓	✓	✓	✓	
	Ingeteam	EF-MD	✓	✓	✓	✓	
	NR Electric	PCS-9611				✓	
	Toshiba	GRE140	✓	✓	✓	✓	
		GRD200	✓	✓	✓	✓	
ZIV	IRV		✓	✓	✓		
Overcurrent Relay	ABB	REQ650	✓	✓	✓	✓	
	GE	P141	✓	✓	✓	✓	
		P14Dx	✓	✓	✓	✓	
		P14Nx	✓	✓	✓	✓	
		P841	✓	✓	✓	✓	
		F60	✓	✓	✓	✓	
		F650	✓	✓	✓	✓	
		SR350	✓	✓	✓	✓	

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EGAT ACCEPTED MAIN RELAY LIST No.2

Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Synchronism Check Relay	SEL	SEL-279H	✓	✓	✓		
		SEL-351A	✓	✓	✓		
		SEL-451	✓	✓	✓		
		SEL-751	✓	✓	✓		
		SEL-751A	✓	✓	✓		
	Siemens	7VK61	✓	✓	✓		
		7SJ85	✓	✓	✓		
	Ingeteam	EF-MD	✓	✓	✓		
	NR Electric	PCS-9611	✓	✓	✓		
	Toshiba	GRD200	✓	✓	✓		
Auto Reclosing Relay	ABB	REQ650	✓	✓	✓		
	GE	P841	✓	✓	✓		
		F60		✓	✓		Only for three-pole reclose
		F650		✓	✓		Only for three-pole reclose
		DRS		✓	✓		Only for three-pole reclose
		SEL	SEL-279H		✓	✓	Only for three-pole reclose
		SEL-351A		✓	✓	Only for three-pole reclose	
		SEL-451		✓	✓	Only for three-pole reclose	
		SEL-751		✓	✓	Only for three-pole reclose	
	Siemens	7VK512	✓	✓	✓		
		7VK61	✓	✓	✓		
	Ingeteam	EF-ZT	✓	✓	✓		
	NR Electric	PCS-9611		✓	✓		Only for three-pole reclose
	Toshiba	GRD200	✓	✓	✓		



EGAT ACCEPTED MAIN RELAY LIST No.2

Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Overfluxing Relay	Ingeteam	EF-TD	✓	✓	✓		
Frequency Relay	GE	P94Vx	✓	✓	✓	✓	
		MIV		✓	✓	✓	
	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-451	✓	✓	✓	✓	
		SEL-751	✓	✓	✓	✓	
		SEL-751A	✓	✓	✓	✓	
	Siemens	7SJ85	✓	✓	✓	✓	
		7SJ82	✓	✓	✓	✓	
	Ingeteam	EF-MD	✓	✓	✓	✓	
	NR Electric	PCS-9611	✓	✓	✓	✓	
Under/Overvoltage Relay	GE	MIV		✓	✓	✓	None of VT input (open delta connection) for 59N.
		P94V	✓	✓	✓	✓	
	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-751	✓	✓	✓	✓	
		SEL-751A	✓	✓	✓	✓	
	Siemens	7SJ62	✓	✓	✓	✓	
		7SJ85	✓	✓	✓	✓	
		7SJ82	✓	✓	✓	✓	

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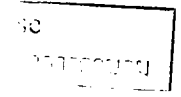
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EGAT ACCEPTED MAIN RELAY LIST No.2

Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Under/Overvoltage Relay	Schneider Electric	P141	✓	✓	✓	✓	Only for C-bank protection.
		P143	✓	✓	✓	✓	
	Ingeteam	EF-MD	✓	✓	✓	✓	
	NR Electric	PCS-9611		✓	✓	✓	
	Toshiba	GRD200	✓	✓	✓	✓	
	ZIV	IRV	✓	✓	✓	✓	

Notes

1. The procedures for being listed in EGAT ACCEPTED MAIN RELAY LIST are specified in the EGAT's Pre-Qualification (PQ) process which can be requested from Transmission System Engineering Division.
2. If any types of relay in the list are planned to discontinue the manufacturing, the manufacturer or the representative is responsible for informing EGAT at least 1 year before the unavailable date.
3. The relays shall be configured to comply with all EGAT's required functions.



EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY

Description	Manufacturer / Country
Protective Relay	ABB / Sweden, Switzerland, USA
	GE / USA, Canada, Spain, UK
	SEL / USA
	Siemens / Germany
	Reyrolle / UK
	Toshiba / Japan, Vietnam
	Schneider Electric / France, UK
	ZIV / Spain
	INGETEAM / Spain
	NR Electric / China
	Mitsubishi / Japan

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