

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. SPPC-CR-16

Supply of Control and Protection Equipment

Main Transmission System Expansion Project for
Power Purchase from SPP Cogeneration Power Plant,
Based on Request for Proposal 2010

Available Duration for Purchasing : June 23, 2020 - July 22, 2020

Price of Bidding Documents : THB 500.-

| 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 <u>by typing</u> . (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) <u>before 15.00 hrs.</u> 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 : | | | |
| Contact Information of In-charge Officer | | | |
| Name | Mr. Jatuphon Poleewatana | | |
| Email address | jatuphon.p@egat.co.th | | |
| Telephone No. | 0 2436 0341 | | |
| Mobile No. | 09 2824 1942 | | |



Invitation to Bid No. SPPC-CR-16
Supply of Control and Protection Equipment
Main Transmission System Expansion Project for
Power Purchase from SPP Cogeneration Power Plant,
Based on Request for Proposal 2010

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 22,700,000.-

Eligibility of Bidders

1. The 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 23, 2020 to July 22, 2020 at THB 500.- 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, July 30, 2020 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

June 16, 2020

Kannika Dhachalupat

(Mrs. Kannika Dhachalupat)
Chief, International Procurement Department -
Transmission Segment



ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เรื่อง ประกวดราคาซื้อ เลขที่ SPPC-CR-16

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะซื้อ Control and Protection Equipment สำหรับโครงการขยายระบบส่งไฟฟ้าหลักเพื่อรองรับโรงไฟฟ้าผู้ผลิตเอกชนรายเล็กระบบ Cogeneration ตามระเบียบการรับซื้อไฟฟ้าปี 2553 โดยใช้งบประมาณ กฟผ.

สถานที่ส่งมอบ : หน้าโรงงานผู้ผลิต

ราคากลาง(รวมภาษีมูลค่าเพิ่ม) : 22,700,000.- บาท

คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นนิติบุคคลผู้ผลิตพัสดุ หรือผู้มีอาชีพขายพัสดุที่ผลิตในประเทศไทยตามประกาศและต้องไม่เป็นผู้ทำงานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ 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 ตัวแทนหรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
4. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นนั้น
5. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.

การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 500.- 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 23 มิถุนายน 2563 ถึงวันที่ 22 กรกฎาคม 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 30 กรกฎาคม 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 16 มิถุนายน 2563

กมลทิพย์ วิชาญกุล
(นางกรรณิกา วิชาญกุล)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

MEDIUM COST FOR BID NO. SPPC-CR-16
SUMMARY OF BID PRICE
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE
FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR
PROPOSAL 2010

| No. | Description | Supply of Equipment |
|---|--|---|
| | | Local Supply |
| | | Ex-works Price (excluding VAT) Baht |
| | | Amount |
| 1 | Schedule 1 : 115 kV Control and Protection Equipment | 21,185,344.00 |
| BID PRICE | | Baht 21,185,344.00 |
| VAT | | Baht 1,482,974.08 |
| SUMMARY OF MEDIUM COST | | 22,668,318.08 |
| SUMMARY OF MEDIUM COST (ROUNDED) | | 22,700,000.00 |

นางสาวทพยภัทร พูนผลกุล
ทชตส-ท.

16 ส.ย. 2563

นางสุดารัตน์ ไชยพันธ์
อวส.
ร.พ.ด.บ3

MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|---|--|------|------|-----------------------------------|------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) | |
| | | | | | Unit Price | Amount |
| 1-1 | 115 kV LINE TO PEA PROTECTION (21P, 67L/67LG, 1-BF) | Panel No. 3R. Dwg.Nos. SL-E-1, SL-E-2, SL-E-3, TP-E-9.1, TP-E-10.1, TP-E-11 | 1 | EA | 599,370 | 599,370.00 |
| 1-2 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -Specification No. 1002 -Dwg.Nos. BMN-E-1, BMN-E-2, BMN-E-3 | 1 | EA | 184,169 | 184,169.00 |
| 1-3 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, SNO - Specification No. 1002 | 1 | EA | 21,823 | 21,823.00 |
| 1-4 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -81CO, 27CO - Specification No. 1002 | 2 | EA | 1,400 | 2,800.00 |
| 1-5 | CUT OFF SWITCH, 20 CONTACTS (PTTCO, 85CO, 43CCS) | -PTTCO - Specification No. 1002 | 1 | EA | 2,506 | 2,506.00 |
| 1-6 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 -Dwg.No. BMN-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-7 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21P, Specification No. 1002 -Dwg.Nos. UD3-E-1.2, UD3-E-2.2, UD3-E-3.2 | 1 | EA | 184,169 | 184,169.00 |
| 1-8 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21BU, Specification No. 1002 -Dwg.Nos. UD3-E-1.2, UD3-E-2.2, UD3-E-3.2 | 1 | EA | 184,169 | 184,169.00 |
| 1-9 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, SNO - Specification No. 1002 | 1 | EA | 21,823 | 21,823.00 |
| 1-10 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -81CO, 27CO - Specification No. 1002 | 2 | EA | 1,400 | 2,800.00 |
| 1-11 | 115 kV LINE TO PEA PROTECTION (21P, 67L/67LG, 1-BF) | Panel No. 56R. Dwg.Nos. TS-E-1.2, TS-E-2.2, TS-E-3.1, TP-E-9.1, TP-E-10.1, TP-E-11 | 1 | EA | 599,370 | 599,370.00 |

ฉบับร่าง
นางสาวหทัยภัทร พูนผล
พชคส-ท.

16 ส.ย. 2563

นางสาวหทัยภัทร พูนผล
พชคส-ท.
25-11-63

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MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|--|--|------|------|-----------------------------------|--------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) | |
| | | | | | Unit Price | Amount |
| 1-12 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. TS-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-13 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. TS-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-14 | 115 kV LINE TO PEA PROTECTION (21P, 67L/67LG, 2-BF) | Panel No. 4R. Dwg.Nos. KA-E-1.2, KA-E-2.3, KA-E-3.2, TP-E-9.1, TP-E-10.1, TP-E-11 | 1 | EA | 677,733 | 677,733.00 |
| 1-15 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. KA-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-16 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. KA-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-17 | 115 kV LINE TO PEA CONTROL AND PROTECTION (87L+21), 67L/67LG, 1-BF) | Panel Nos. 35R and 36R. Dwg.Nos. BSP-E-1.2, BSP-E-2.2, BSP-E-3, TP-E-9.1, TP-E-10.1, TP- E-11 | 2 | EA | 812,365 | 1,624,730.00 |
| 1-18 | EGAT-PEA INTERFACING PANEL(3-REMOTE I/O AND ACCESSORIES) | -Specification No. 1002 - Dwg.No. BSP-E-2.2, TP-E-6.10 sh.1&2, TP-E- 10.1, DW-FOT-D01-202-02 sh.P9&P11 | 1 | EA | 253,762 | 253,762.00 |
| 1-19 | BREAKER FAILURE RELAY (50BF+62BF) | -Specification No. 1002 - Dwg.No. BSP-E-2.2 | 3 | EA | 79,944 | 239,832.00 |
| 1-20 | LOCKOUT RELAY (86, 10 contacts) | -86BF, Specification No. 1002 - Dwg.No. BSP-E-2.2 | 3 | EA | 16,212 | 48,636.00 |
| 1-21 | DC UNDERVOLTAGE RELAY (27XB,27XR) | -Specification No. 1002 - Dwg.No. BSP-E-2.2 | 3 | EA | 4,513 | 13,539.00 |

- Project 1-C2 -

(นางสุภาวดี ไชยรัตน์)
 อวส. 8-พ.ท.๒3

filename : Price_SPPC-CR-16.xlsx

นางสาวทัญญิทร พูนผลกุล
 ทชตส-ท.

16 ส.ย. 2563

MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|---|---|------|------|---|------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) Baht | |
| | | | | | Unit Price | Amount |
| 1-22 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -Specification No. 1002 - 50BF-CO, Dwg.No. BSP-E-2.2 | 3 | EA | 1,400 | 4,200.00 |
| 1-23 | WATT AND VAR TRANSDUCER (W&VAR-TDR) | -Specification No. 1002 - Dwg.No. BSP-E-1.2 | 2 | EA | 16,097 | 32,194.00 |
| 1-24 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. BSP-E-1.2 | 2 | EA | 16,097 | 32,194.00 |
| 1-25 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. BSP-E-1.2 | 2 | EA | 16,097 | 32,194.00 |
| 1-26 | 115 kV LINE TO PEA PROTECTION (21P, 21BU, 1-BF) | Panel No. 6R. Dwg.Nos. RN-E-1, RN-E-2, RN-E-3, TP-E-9.1, TP-E-10.1, TP-E-11 | 1 | EA | 737,937 | 737,937.00 |
| 1-27 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. RN-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-28 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. RN-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-29 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21P, Specification No. 1002 - Dwg.Nos. CP-E-1.2, CP-E-2.2, CP-E-3 | 1 | EA | 184,169 | 184,169.00 |
| 1-30 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21BU, Specification No. 1002 - Dwg.Nos. CP-E-1.2, CP-E-2.2, CP-E-3 | 1 | EA | 184,169 | 184,169.00 |
| 1-31 | BREAKER FAILURE RELAY (50BF+62BF) | -Specification No. 1002 - Dwg.Nos. CP-E-1.2, CP-E-2.2, CP-E-3 | 1 | EA | 79,944 | 79,944.00 |
| 1-32 | LOCKOUT RELAY (86, 10 contacts) | -86BF, Specification No. 1002 - Dwg.Nos. CP-E-1.2, CP-E-2.2, CP-E-3 | 1 | EA | 16,212 | 16,212.00 |

นางสาวทิพย์ทิพย์ พูนผลกุล
 ทชตส-ท.

16 มิ.ย. 2563

MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|--|---|------|------|---|--------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) Baht | |
| | | | | | Unit Price | Amount |
| 1-33 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. CP-E-1.2 | 1 | EA | 16,097 | 16,097.00 |
| 1-34 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. CP-E-1.2 | 1 | EA | 16,097 | 16,097.00 |
| 1-35 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, 5NO - Specification No. 1002 | 1 | EA | 21,823 | 21,823.00 |
| 1-36 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -81CO, 27CO - Specification No. 1002 | 2 | EA | 1,400 | 2,800.00 |
| 1-37 | 115 kV LINE TO PEA CONTROL AND PROTECTION ((87L+21), 67L/67LG, 1-BF) | Panel Nos. 43R and 44R. Dwg.Nos. AT2-E-1.2, AT2-E-2.2, AT2-E-3.2, TP-E-9.1, TP-E-10.1, TP-E-11 | 2 | EA | 812,365 | 1,624,730.00 |
| 1-38 | EGAT-PEA INTERFACING PANEL(3-REMOTE I/O AND ACCESSORIES) | -Specification No. 1002 - Dwg.No. AT2-E-2.2,TP-E-6.10 sh.1&2, TP-E-10.1, DW-FOT-D01-202-02 sh.P9&P11 | 1 | EA | 253,762 | 253,762.00 |
| 1-39 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21BU, Specification No. 1002 - Dwg.Nos. SLB-E-1, SLB-E-2.1, SLB-E-3 | 1 | EA | 184,169 | 184,169.00 |
| 1-40 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -94BU, 10NO - Specification No. 1002 | 1 | EA | 21,823 | 21,823.00 |
| 1-41 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, 5NO - Specification No. 1002 | 1 | EA | 21,823 | 21,823.00 |
| 1-42 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -27CO - Specification No. 1002 | 1 | EA | 1,400 | 1,400.00 |
| 1-43 | WATT AND VAR TRANSDUCER (W&VAR-TDR) | -Specification No. 1002 - Dwg.No. SLB-E-1 | 1 | EA | 16,097 | 16,097.00 |

MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | | |
|----------|--|---|------|------|---|---------|------------|
| | | | | | Local Supply | | |
| | | | | | Ex-works Price (excluding VAT) Baht | | |
| | | | | | Unit Price | Amount | |
| 1-44 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. SLB-E-1 | 1 | EA | | 16,097 | 16,097.00 |
| 1-45 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21P, Specification No. 1002 - Dwg.Nos. WNK-E-1, WNK-E-2, WNK-E-3 | 1 | EA | | 184,169 | 184,169.00 |
| 1-46 | DIRECTIONAL OVERCURRENT RELAY (67/67N) | -Specification No. 1002 - Dwg.Nos. WNK-E-1, WNK-E-2, WNK-E-3 | 1 | EA | | 93,115 | 93,115.00 |
| 1-47 | CUT OFF SWITCH, 10 CONTACTS (DTTCO, 87CO, 86ACO, 50/51SCO) | -21PSG, DTTCO -Specification No. 1002 | 2 | EA | | 1,630 | 3,260.00 |
| 1-48 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -81CO, 27CO - Specification No. 1002 | 2 | EA | | 1,400 | 2,800.00 |
| 1-49 | LOCKOUT RELAY (86, 10 contacts) | -86DTT, Specification No. 1002 -Dwg.No. WNK-E-2 | 1 | EA | | 16,212 | 16,212.00 |
| 1-50 | DC UNDERVOLTAGE RELAY (27XB,27XR) | -Specification No. 1002 -Dwg.No. WNK-E-2 | 1 | EA | | 4,513 | 4,513.00 |
| 1-51 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -67x, 10NO - Specification No. 1002 | 1 | EA | | 21,823 | 21,823.00 |
| 1-52 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, 5NO - Specification No. 1002 | 1 | EA | | 21,823 | 21,823.00 |
| 1-53 | 115 kV LINE TO PEA PROTECTION (21P, 21BU, 1-BF) | Panel No. 9R. Dwg.Nos. PR-E-1, PR-E-2, PR-E-3, TP-E-9.1, TP-E-10.1, TP-E-11 | 1 | EA | | 737,937 | 737,937.00 |
| 1-54 | WATT AND VAR TRANSDUCER (W&VAR-TDR) | -Specification No. 1002 - Dwg.No. PR-E-1 | 1 | EA | | 16,097 | 16,097.00 |

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MEDIUM COST FOR BID NO. SPFC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|--|--|--------|------|---|--------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) Baht | |
| | | Unit Price | Amount | | | |
| 1-55 | CURRENT TRANSDUCER (A-TDR 3 PH) | -Specification No. 1002 - Dwg.No. PR-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-56 | VOLTAGE TRANSDUCER (V-TDR 3 PH) | -Specification No. 1002 - Dwg.No. PR-E-1 | 1 | EA | 16,097 | 16,097.00 |
| 1-57 | 115 kV LINE TO PEA PROTECTION (21P, 21BU, 1-BF) | Panel No. 9R. Dwg.Nos. PR-E-1, PR-E-2, PR-E-3, TP-E-9.1, TP-E-10.1, TP-E-11 | 3 | EA | 737,937 | 2,213,811.00 |
| 1-58 | EGAT-PEA INTERFACING PANEL(3-REMOTE I/O AND ACCESSORIES) | -Specification No. 1002 - Dwg.No. AT2-E-2.2, TP-E-6.10 sh.1&2, TP-E-10.1, DW-FOT-D01-202-02 sh.P9&P11 | 3 | EA | 253,762 | 761,286.00 |
| 1-59 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21P, Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 10 | EA | 184,169 | 1,841,690.00 |
| 1-60 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21BU, Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 10 | EA | 184,169 | 1,841,690.00 |
| 1-61 | LINE CURRENT DIFFERENTIAL RELAY (87L) | -Supply as loose part -Specification No. 1002 -Dwg. No. BSP-E-1.2 | 2 | EA | 303,659 | 607,318.00 |
| 1-62 | LOCKOUT RELAY (86, 10 contacts) | -86DTT, 8NO/2NC -Supply as loose part -Specification No. 1002 | 30 | EA | 16,212 | 486,360.00 |
| 1-63 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -81x, 5NO -Supply as loose part - Specification No. 1002 | 30 | EA | 21,823 | 654,690.00 |

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MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT. BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|----------|--|--|------|------|---|--------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) Baht | |
| | | | | | Unit Price | Amount |
| 1-64 | TRIPPING RELAY (94P, 94BU, 51X, 79X) | -52bx, 10NO -Supply as loose part -Specification No. 1002 | 60 | EA | 21,823 | 1,309,380.00 |
| 1-65 | DC UNDERVOLTAGE RELAY (27XB,27XR) | -For 52bx, 86DTT -Supply as loose part -Specification No. 1002 | 40 | EA | 4,513 | 180,520.00 |
| 1-66 | MCB, 6A, 2 POLE FOR DC SUPPLY | -For 52bx -Supply as loose part -Specification No. 1002 | 30 | EA | 907 | 27,210.00 |
| 1-67 | LATCHING RELAY (4 contacts) | -For 81COCX -Supply as loose part -Specification No. 1002 | 10 | EA | 3,768 | 37,680.00 |
| 1-68 | CUT OFF SWITCH, 8 CONTACTS (25CO, 79CO) | -81CO, 27CO -Specification No. 1002 | 10 | EA | 1,400 | 14,000.00 |
| 1-69 | CUT OFF SWITCH, 10 CONTACTS (DTTCO, 87CO, 86ACO, 50/51SCO) | -21PFG, DTTCO -Specification No. 1002 | 10 | EA | 1,630 | 16,300.00 |
| 1-70 | MCB, 0.5A, 3 POLE FOR PT | -Supply as loose part -Specification No. 1002 | 30 | EA | 1,638 | 49,140.00 |
| 1-71 | BREAKER FAILURE RELAY (50BF+62BF) | -Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 3 | EA | 79,944 | 239,832.00 |
| 1-72 | AUTO RECLOSING RELAY (79) | -Supply as loose part -Specification No. 1002 | 3 | EA | 53,288 | 159,864.00 |

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MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | | |
|----------|---|---|------|------|---|---------|------------|
| | | | | | Local Supply | | |
| | | | | | Ex-works Price (excluding VAT) Baht | | |
| | | | | | Unit Price | Amount | |
| 1-73 | 2-Way Joint Boxes with Accessories for OPGW and 36 Cores Non-metallic Optical Fiber Cable | Drawing Nos. DW-FOT-D01-202-02 SH.P9&P11. See Spec. No. SD-FOT-P22. | 5 | EA | | 15,337 | 76,685.00 |
| 1-74 | Cleats without Insulators (6-wire type) | Drawing Nos. DW-FOT-D01-202-02 SH.P9&P11. See Spec.No. SD-FOT-P22. | 5 | EA | | 2,532 | 12,660.00 |
| 1-75 | 36 Cores Non-metallic Optical Fiber Cable | -500 meter / 1 set -Drawing Nos. DW-FOT-D01-202-02 SH.P9&P11. See Spec. No. SD-FOT-P22. | 5 | set | | 59,000 | 295,000.00 |
| 1-76 | RIGID STEEL CONDUIT | -100 meter / 1set -Drawing Nos. DW-FOT-D01-202-02 SH.P9&P11. See Spec. No. SD-FOT-P22. | 1 | set | | 9,100 | 9,100.00 |
| 1-77 | BFLEX AND/OR HDPE CONDUIT WITH HOT-DIP GALVANIZED STEEL CLAMP | -300 meter / 1 set -Drawing Nos. DW-FOT-D01-202-02 SH.P9&P11. See Spec. No. SD-FOT-P22. | 5 | set | | 9,000 | 45,000.00 |
| 1-78 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21P, Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 1 | EA | | 184,169 | 184,169.00 |
| 1-79 | DISTANCE RELAY (21) FOR 115 kV without 79/25 | -21BU, Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 1 | EA | | 184,169 | 184,169.00 |
| 1-80 | LINE CURRENT DIFFERENTIAL RELAY (87L) | -Supply as loose part -Specification No. 1002 -Dwg. No. BSP-E-1.2 | 1 | EA | | 303,659 | 303,659.00 |

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MEDIUM COST FOR BID NO. SPPC-CR-16
Schedule 1 : 115 kV Control and Protection Equipment
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT

MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR POWER PURCHASE FROM SPP COGENERATION POWER PLANT, BASED ON REQUEST FOR PROPOSAL 2010

| Item No. | Description | Drawing No. / Reference No. | Qty. | Unit | Supply of Equipment | |
|-----------------------------------|--|---|------|------|---|----------------------|
| | | | | | Local Supply | |
| | | | | | Ex-works Price (excluding VAT) Baht | |
| | | | | | Unit Price | Amount |
| 1-81 | DIRECTIONAL OVERCURRENT RELAY (67/67N) | -Supply as loose part -Specification No. 1002 -Dwg. No. BSP-E-1.2 | 1 | EA | 93,115 | 93,115.00 |
| 1-82 | AUTO RECLOSING RELAY (79) | -Supply as loose part -Specification No. 1002 | 1 | EA | 53,288 | 53,288.00 |
| 1-83 | BREAKER FAILURE RELAY (50BF+62BF) | -Supply as loose part -Specification No. 1002 -Dwg. No. RN-E-1 | 1 | EA | 79,944 | 79,944.00 |
| Total Price for Schedule 1 | | | | | Baht | 21,185,344.00 |

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Important Information
for
Invitation to Bid No. SPPC-CR-16

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. SPPC-CR-16

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 1,135,000.-.

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 schedule 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. SPPC-CR-16
SUPPLY OF CONTROL AND PROTECTION EQUIPMENT
MAIN TRANSMISSION SYSTEM EXPANSION PROJECT FOR
POWER PURCHASE FROM SPP COGENERATION POWER PLANT,
BASED ON REQUEST FOR PROPOSAL 2010

Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for furnishing and delivering of Control and Protection Equipment under Main Transmission System Expansion Project for Power Purchase from SPP Cogeneration Power Plant, based on Request for Proposal 2010 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 | ✓ | ✓ | ✓ | |
| | GE | P443 | ✓ | ✓ | ✓ | |
| | | D30 | | ✓ | ✓ | Only for three-pole tripping and line protection without carrier scheme. |
| | | D60 | | ✓ | ✓ | |
| | | ALPSDA1 | ✓ | ✓ | ✓ | |
| | SEL | SEL-311C | | | ✓ | Only for three-pole tripping and line protection without carrier scheme. |
| | | SEL-421 | ✓ | ✓ | ✓ | |
| | Siemens | 7SA522 | ✓ | ✓ | ✓ | |
| | | 7SA6 series | ✓ | ✓ | ✓ | |
| | Schneider Electric | P443 | ✓ | ✓ | ✓ | |
| | Ingeteam | EF-ZT | ✓ | ✓ | ✓ | |
| | NR Electric | PCS-902 | ✓ | ✓ | ✓ | |
| | Toshiba | GRZ200 | | ✓ | ✓ | |
| | ZIV | ZLV | | ✓ | ✓ | |

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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 | |
| Transformer Differential Protection | ABB | RET670 | ✓ | ✓ | ✓ | |
| | | RET650 | ✓ | ✓ | ✓ | 3-restraints |
| | 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 | ✓ | ✓ | ✓ | Only for breaker and a half, double bus double breaker or main and transfer bus arrangement. |
| | SEL | SEL-487B | ✓ | ✓ | ✓ | |
| | Siemens | 7SS52 | ✓ | ✓ | ✓ | |
| | | 7SS60 | ✓ | ✓ | ✓ | Only for breaker and a half, double bus double breaker or main and transfer bus arrangement. |
| | | 7SS85 | ✓ | ✓ | ✓ | |
| | Schneider Electric | P746 | ✓ | ✓ | ✓ | |
| | | P740 | ✓ | ✓ | ✓ | |
| | Toshiba | GRB100 | ✓ | ✓ | ✓ | |
| | Mitsubishi | MBP-H1A | | ✓ | ✓ | 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 | | | ✓ | |
| | GE | P141 | ✓ | ✓ | ✓ | Only for 3-phase breaker failure function. |
| | | P14Nx | ✓ | ✓ | ✓ | |
| | | C60 | | ✓ | ✓ | |
| | | F60 | | ✓ | ✓ | |
| | SEL | SEL-501 | ✓ | ✓ | ✓ | Only for 3-phase breaker failure function. |
| | Siemens | 7VK6 series | ✓ | ✓ | ✓ | |
| | Schneider Electric | P821 | | ✓ | ✓ | Only firmware version 1.F is accepted. |
| | 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 | ✓ | ✓ | ✓ | ✓ | |
| | GE | P14Dx | ✓ | ✓ | ✓ | ✓ | |
| | | P841 | ✓ | ✓ | ✓ | ✓ | |
| | SEL | SEL-351A | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-451 | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-751 | ✓ | ✓ | ✓ | ✓ | |
| | Siemens | 7SJ62 | ✓ | ✓ | ✓ | ✓ | |
| | | 7SJ85 | ✓ | ✓ | ✓ | ✓ | |
| | Schneider Electric | P141 | ✓ | ✓ | ✓ | ✓ | |
| | | P143 | ✓ | ✓ | ✓ | ✓ | |
| | Ingeteam | EF-MD | ✓ | ✓ | ✓ | ✓ | |
| | NR Electric | PCS-9611 | | | | ✓ | None of line fault locator. Only use with feeder. |
| | Toshiba | GRE140 | ✓ | ✓ | ✓ | ✓ | |
| | | GRD200 | ✓ | ✓ | ✓ | ✓ | |
| ZIV | IRV | | ✓ | ✓ | ✓ | | |
| Overcurrent Relay | ABB | REQ650 | ✓ | ✓ | ✓ | ✓ | |
| | GE | P141 | ✓ | ✓ | ✓ | ✓ | |
| | | P14Dx | ✓ | ✓ | ✓ | ✓ | |
| | | P14Nx | ✓ | ✓ | ✓ | ✓ | |
| | | P841 | ✓ | ✓ | ✓ | ✓ | |
| | | F60 | ✓ | ✓ | ✓ | ✓ | |
| | | F650 | ✓ | ✓ | ✓ | ✓ | |
| | | SR350 | ✓ | ✓ | ✓ | ✓ | |

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 | |
| Overcurrent Relay | SEL | SEL-351A | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-451 | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-551 | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-751 | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-751A | ✓ | ✓ | ✓ | ✓ | |
| | Siemens | 7SJ61 | ✓ | ✓ | ✓ | ✓ | |
| | | 7SJ62 | ✓ | ✓ | ✓ | ✓ | |
| | | 7SJ85 | ✓ | ✓ | ✓ | ✓ | |
| | | 7SJ82 | ✓ | ✓ | ✓ | ✓ | |
| | Schneider Electric | P120 | ✓ | ✓ | ✓ | ✓ | |
| | | P122 | ✓ | ✓ | ✓ | ✓ | |
| | | P141 | ✓ | ✓ | ✓ | ✓ | |
| | | P143 | ✓ | ✓ | ✓ | ✓ | |
| | Ingeteam | EF-MD | ✓ | ✓ | ✓ | ✓ | |
| | NR Electric | PCS-9611 | ✓ | ✓ | ✓ | ✓ | Only for three-pole tripping. |
| Toshiba | GRE140 | ✓ | ✓ | ✓ | ✓ | | |
| | GRD200 | ✓ | ✓ | ✓ | ✓ | | |
| ZIV | IRV | | ✓ | ✓ | ✓ | | |
| Synchronism Check Relay | ABB | REQ650 | ✓ | ✓ | ✓ | | Only product version 2.1 is accepted. |
| | | SPAU140C | ✓ | ✓ | ✓ | | |
| | GE | P841 | ✓ | ✓ | ✓ | | |
| | | F60 | ✓ | ✓ | ✓ | | |
| | | F650 | ✓ | ✓ | ✓ | | |

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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 | ✓ | ✓ | ✓ | | |

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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 | |
| Overfluxing Relay | Ingeteam | EF-TD | ✓ | ✓ | ✓ | | |
| Frequency Relay | GE | P94Vx | ✓ | ✓ | ✓ | ✓ | |
| | | MIV | | ✓ | ✓ | ✓ | |
| | SEL | SEL-351A | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-451 | ✓ | ✓ | ✓ | ✓ | |
| | | SEL-751 | ✓ | ✓ | ✓ | ✓ | |
| | Siemens | SEL-751A | ✓ | ✓ | ✓ | ✓ | |
| | | 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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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

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