

## Notice to Bidder

### Subject : Reception of Enquiry Documents via Online Process

Due to the outbreak of COVID-19 in Thailand, please be informed of the reception of enquiry documents via online process as follows:

- 1) Download the Registration Form and fill out all necessary information by typing.  
(Complete data is required.)
- 2) Submit the fill-out Registration Form from 1) to the email address of the in-charge officer and [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th) in the CC. before 15.30 hrs., Bangkok Standard Time.
- 3) The in-charge officer will send the link for downloading the enquiry documents to the purchaser's email address in the Registration Form within approximately 2 working days.

***\*\* Please note that the reception of enquiry documents via online process is a temporary measure due to the COVID-19 outbreak. This online process will be available until further notice from EGAT \*\****

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# Registration Form

Enquiry No. TS12-CR-15

Supply of Control and Protection Equipment

Transmission System Expansion Project No. 12

Availability for Receiving Enquiry Documents : October 30, 2020 - February 4, 2021

## Instructions

- 1) Fill out this Registration Form in English by typing. (Complete data is required.)
- 2) Submit the filled-out Registration Form to the in-charge officer via email (with cc. [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th) before 15.30 hrs., Bangkok Standard Time.
- 3) The in-charge officer will send the link for downloading the enquiry documents to the purchaser's email address in the Registration Form, which will take approximately 2 working days.

For Purchaser			TAX ID :
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 :			
Local Representative			
Address			
		Tax ID :	
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
<u>Contact Information of In-charge Officer</u>			
Name	Ms. Hathaipat Poonpolkul		
Email address	Hathaipat.p@egat.co.th		
Telephone No.	(66) 2436 0341		
Mobile No.	(66)8 9775 1690		



Enquiry No. TS12-CR-15

**Supply of Control and Protection Equipment  
Transmission System Expansion Project No. 12**

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

**Place of Delivery** : Ex-works

**Medium Cost (including Value Added Tax)** : THB 1,210,000.-

**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 Enquiry, or shall not be a person who undertakes any action as an "Obstruction of Fair Price Competition" for this Enquiry.
3. The Bidder shall not either be EGAT's consultant or involve in EGAT's consultancy company under this Enquiry, 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 quotation until the fulfillment of the Contract.

**Availability of Enquiry**

The details of the Enquiry will be available for examination of Bidder's Qualifications and obtainable during 8:00 hrs. to 15:30 hrs., Bangkok Standard Time, as from October 30, 2020 at the following address :

International Procurement Department - Transmission Segment

(Room No. 1202/2, 12<sup>th</sup> Floor, Building Tor. 101)

Procurement and Inventory Management Division

Electricity Generating Authority of Thailand

Bangkrui, Nonthaburi 11130

Telephone no. 0 2436 0341

E-mail : [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th)

Please find more details at <http://www4.egat.co.th/fprocurement/biddingeng/>.

**Delivery of Quotation**

Quotation shall be submitted at Room No. 1202/1, 12<sup>th</sup> Floor, Building Tor. 101 during 9:30 hrs. to 10:00 hrs., Bangkok Standard Time, February 4, 2021 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

October 30, 2020

*Kannika Dhachalapat*

(Mrs. Kannika Dhachalapat)

Chief, International Procurement Department –  
Transmission Segment



**ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย**  
**เรื่อง สอบราคาซื้อ เลขที่ TS12-CR-15**

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

**สถานที่ส่งมอบ** : หน้าโรงงานผู้ผลิต

**ราคากลาง (รวมภาษีมูลค่าเพิ่ม)** : 1,210,000.- บาท

**คุณสมบัติของผู้เสนอราคา**

1. ต้องเป็นนิติบุคคลผู้ผลิตพัสดุ หรือผู้มีอาชีพขายพัสดุที่ผลิตในประเทศไทยตามประกาศ และต้องไม่เป็นผู้ที่งานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทำงานตามคำสั่ง กฟผ.
2. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศสอบราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการสอบราคาครั้งนี้
3. ต้องไม่เป็นที่ปรึกษาของ กฟผ. หรือมีส่วนร่วมในบริษัทที่ปรึกษาของ กฟผ. ในงานนี้ หรือต้องไม่มีผู้ปฏิบัติงาน กฟผ. เข้าไปมีส่วนร่วมในกิจการของผู้เสนอราคา ไม่ว่าจะในฐานะผู้ถือหุ้นที่มีสิทธิควบคุมการจัดการ กรรมการ ผู้อำนวยการ พนักงาน ลูกจ้าง ตัวแทน หรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
4. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นนั้น
5. ผู้ประสงค์ยื่นของสอบราคาในนามของกิจการร่วมค้าหรือกิจการร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการสอบราคาในนามของกิจการร่วมค้าหรือกิจการร่วม ตั้งแต่การเสนอราคาจนสิ้นสุดข้อผูกพันกับ กฟผ.

**การขอรับเอกสารสอบราคา**

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอรับเอกสารสอบราคา ได้ที่ แผนกจัดซื้อต่างประเทศสายงานระบบส่ง (ห้อง 1202/2 ชั้น 12 อาคาร ท.101) กองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง ฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:30 น. ตั้งแต่วันที่ 30 ตุลาคม 2563 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0341 หรืออีเมล [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th) ทั้งนี้ สามารถดูรายละเอียดเพิ่มเติมได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/>

**การยื่นของสอบราคา**

กำหนดยื่นของสอบราคา ในวันที่ 4 กุมภาพันธ์ 2564 เวลา 9:30 น. ถึง 10:00 น. และเปิดซองสอบราคา เวลา 10:00 น. ณ ห้อง 1202/1 ชั้น 12 อาคาร ท.101 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 30 ตุลาคม 2563

**กมลทิศา ธาตุภูมิ**  
(นางกรรณิกา ธาตุภูมิ)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)  
ในการจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

1. ชื่อโครงการ Enquiry No. TS12-CR-15  
งานจัดซื้อ Control and Protection Equipment  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12  
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
2. วงเงินงบประมาณที่ได้รับจัดสรร  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12 งบประมาณ 60,000 ล้านบาท
3. วันที่กำหนดราคากลาง 12 ตุลาคม 2563 (วันที่ อวส. อนุมัติ )  
ราคารวมภาษีมูลค่าเพิ่มเป็นเงิน 1,210,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ
4. แหล่งที่มาของราคากลาง  
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง
5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง
  - 5.1 นายเอนก วุฒยวนิช หวคป-ส.
  - 5.2 น.ส. จินดาหรรษา หังสาจะระ วิศวกรระดับ 7

แทน พล. พงษ์ ๒๑๑  
นางสาวหทัยภัทร พูนผลฤ  
หขตส-ท.

30 ต.ค. 2563

อวส.-อผค.

**MEDIUM PRICE FOR ENQUIRY NO. TS12-CR-15**  
**SUMMARY OF ENQUIRY PRICE**  
**SUPPLY OF CONTROL AND PROTECTION EQUIPMENT**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

No.	Description	Supply of Equipment
		Local Supply
		Ex-works Price ( excluding VAT ) Baht
		Amount
1	Schedule 1 : 500 kV Control and Protection Equipment	1,131,378.00
SUMMARY PRICE		Baht 1,131,378.00
VAT		Baht 79,196.46
SUMMARY OF MEDIUM PRICE		Baht 1,210,574.46
SUMMARY OF MEDIUM PRICE (ROUNDED)		Baht 1,210,000.00

- Project 1-C1 -

นางสาวหทัยภัทร พูนผลกุล  
 หจกส-ท.

30 ต.ค. 2563

(นางสุดารัตน์ ไชยพันธ์)  
 อวส.

12 ต.ค. 63

filename : TS12-CR-15.xlsx

อวส.-อศค.

**MEDIUM PRICE FOR ENQUIRY NO. TS12-CR-15**  
**Schedule 1 : 500 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
1-1	500 kV SHUNT REACTOR PROTECTION (87R, 51R, 1-BF)	Panel Nos. 314R, 315R Specification No. 1005 Dwg. Nos.BSP2-E-1.1, BSP2-E-2.1 SH.3/3, BSP2-E-3.1 SH.2/2 and TP-E-10.1	2	EA	515,901.00	1,031,802.00
1-2	INTERPOSING RELAY (CCX,CTX)	Supply as loose parts. Installed in Panel No.IP31	8	EA	194.00	1,552.00
1-3	INDICATING LAMP (R,G,IL,LG)	Specification No.1005 Supply as loose parts. (4-GREEN, 4-RED) Installed in Panel No.IP31	8	EA	297.00	2,376.00
1-4	PUSH BUTTON	Specification No.1005 Supply as loose parts. Installed in Panel No.IP31	8	EA	297.00	2,376.00
1-5	DC UNDERVOLTAGE RELAY (27XB,27XR)	Specification No.1005 Supply as loose parts. Installed in Panel No.IP31	6	EA	4,513.00	27,078.00
		Specification No.1005				

นางสาวหทัยภัทร พูนผลกุล (นางสุดารัตน์ ไชยพันธ์)  
 พชตส-ท. อวส.  
 12 ต.ค. 63

- Project 1-C1 -

30 ต.ค. 2563


12 ต.ค. 63

filename : TS12-CR-15.xlsx

อวส.-อผก.

**MEDIUM PRICE FOR ENQUIRY NO. TS12-CR-15**  
**Schedule 1 : 500 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
1-6	KNIFE SWITCH ISOLATOR FOR BREAKER CONTROL UNIT	Supply as loose parts. Installed in Panel No.IP31 Specification No.1005	4	EA	70.00	280.00
1-7	MCB, 6A, 1 POLE FOR DC SUPPLY	Supply as loose parts. Installed in Panel No.IP31 Specification No.1005	2	EA	533.00	1,066.00
1-8	LOCKOUT RELAY (86, 10 contacts)	Supply as loose parts. (High Burden) Specification No.1005	4	EA	16,212.00	64,848.00
<b>Total Price for Schedule 1</b>					<b>Baht</b> <b>1,131,378.00</b>	

  
นางสุดารัตน์ ไชยพันธุ์  
อวส.

นางสาวหทัยภัทร พูนผลกุล  
ทชตส-ท.  
12 ม.ค. 63

- Project 1-C2 -

30 ต.ค. 2563

filename : TS12-CR-15.xlsx



## **Important Information**

**for**

### **Enquiry No. TS12-CR-15**

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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%**.

**DATA SHEET**  
**for**  
**Enquiry No. TS12-CR-15**

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

**Provisions not Applicable**

All provisions and words related to Foreign Supply shall not apply to this Enquiry.

**Article A-2. Eligibility of Bidders: General Requirements**

Item b. shall be revised as follows:

b. The Bidder shall be a receiver of the bidding documents from EGAT.

**Article B-3. Bid Security**

This article and any provisions regarding bid security found in the bidding documents are not applicable.

**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

- For 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 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.

**ENQUIRY NO. TS12-CR-15**

**SUPPLY OF CONTROL AND PROTECTION EQUIPMENT**

**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

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**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 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.

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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	
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	✓	✓	✓	
	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	✓	✓	✓	3-restraints
		RET650	✓	✓	✓	
	GE	P64x	✓	✓	✓	
		T35		✓	✓	4-restraints
		T60		✓	✓	
		SEL-387		✓	✓	
	SEL	SEL-487E	✓	✓	✓	
		SEL-587			✓	2-restraints
		SEL-787			✓	2-restraints
	Siemens	Duobias		✓	✓	5-restraints
		7UT6	✓	✓	✓	
	Schneider Electric	P645	✓	✓	✓	
		EF-TD	✓	✓	✓	3-restraints
	NR Electric	PCS-978	✓	✓	✓	
	Toshiba	GRT200	✓	✓	✓	
	ZIV	IDV	✓	✓	✓	3-restraints
	Mitsubishi	MRD-HA			✓	
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	✓	✓	✓	Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.
		REB500	✓	✓	✓	
	GE	P746	✓	✓	✓	
		P740	✓	✓	✓	
		P747	✓	✓	✓	
		B90	✓	✓	✓	
		B30	✓	✓	✓	
	SEL Siemens	SEL-487B	✓	✓	✓	
		7SS52	✓	✓	✓	
		7SS60	✓	✓	✓	Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.
	Schneider Electric	7SS85	✓	✓	✓	
		P746	✓	✓	✓	
		P740	✓	✓	✓	In case of double bus single breaker arrangement, maximum 8 feeders with 1 bus coupler and 2 bus sections are allowed.
	Toshiba	GRB100	✓	✓	✓	
	Mitsubishi	MBP-H1A		✓	✓	

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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		✓	✓	Only for 3-phase breaker failure function.
	SEL	SEL-501	✓	✓	✓	
	Siemens	7VK6 series	✓	✓	✓	
	Schneider Electric	P821		✓	✓	Only firmware version 1.F is accepted.
		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	✓	✓	✓	✓	
Overcurrent Relay		GRD200	✓	✓	✓	✓	
	ZIV	IRV		✓	✓	✓	
	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	
Overcurrent Relay	SEL	SEL-351A	✓	✓	✓	✓	Only for three-pole tripping.
		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	✓	✓	✓	✓	
	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
	SEL	DRS		✓	✓		Only for three-pole reclose
		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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## 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.



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**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
	INGETEM / Spain
	NR Electric / China
	Mitsubishi / Japan