

## 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](mailto: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-DSS-02

Supply of Digital Substation Protection and Automation System

Transmission System Expansion Project No. 12

Available Duration for Purchasing : September 8, 2020 - October 28, 2020

Price of Bidding Documents : THB 1,000.-

## 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](mailto: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 :			
<b>Contact Information of In-charge Officer</b>			
Name	Ms. Hathaipat Poonpolkul		
Email address	Hathaipat.p@egat.co.th		
Telephone No.	(66) 2436 0341		
Mobile No.	(66)8 9775 1690		



## Invitation to Bid No. TS12-DSS-02

### Supply of Digital Substation Protection and Automation System Transmission System Expansion Project No. 12

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 41,300,000.-

#### 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 September 8, 2020 to October 28, 2020 at THB 1,000.- per copy, non-refundable, 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  
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, 12<sup>th</sup> Floor, Building Tor. 101 during 9:30 hrs. to 10:00 hrs., Bangkok Standard Time, November 5, 2020 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

August 28, 2020

*Kannika Dhachalapat*  
(Mrs. Kannika Dhachalapat)

Chief, International Procurement Department -  
Transmission Segment



## ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เรื่อง ประกวดราคาซื้อ เลขที่ TS12-DSS-02

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะซื้อ Digital Substation Protection and Automation System สำหรับโครงการขยายระบบส่งไฟฟ้าระยะที่ 12 โดยใช้ประมาณ กฟผ.

**สถานที่ส่งมอบ** : หน้าโรงงานผู้ผลิต

**ราคากลาง(รวมภาษีมูลค่าเพิ่ม)** : 41,300,000.- บาท

### คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นนิติบุคคลผู้ผลิตพัสดุ หรือผู้มีอาชีพขายพัสดุที่ผลิตในประเทศไทยตามประกาศ และต้องเป็นผู้ที่ทำงานซึ่งปลั๊กกระทรวงการคลังได้แจ้งเวียนชื่อไว้ 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. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นนั้น
5. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.

### การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 1,000.- 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 8 กันยายน 2563 ถึงวันที่ 28 ตุลาคม 2563 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0341 หรืออีเมล [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th) ทั้งนี้ สามารถ download แบบฟอร์มลงทะเบียนผู้ซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/>

### การยื่นซองประกวดราคา

กำหนดยื่นซองประกวดราคา ในวันที่ 5 พฤศจิกายน 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 28 สิงหาคม 2563

**กมลทิพย์ วิชาลัญญ์**

(นางกรรณิกา วิชาลัญญ์)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)  
ในการจัดซื้อจัดจ้างที่มีใ้ใช้งานก่อสร้าง

1. ชื่อโครงการ Bid No. TS12-DSS-02  
งานจัดซื้อ Digital Substation Protection and Automation System  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12  
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
2. วงเงินงบประมาณที่ได้รับจัดสรร  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12 งบประมาณ 60,000 ล้านบาท
3. วันที่กำหนดราคากลาง 7 สิงหาคม 2563 (วันที่ อวส. อนุมัติ )  
ราคารวมภาษีมูลค่าเพิ่มเป็นเงิน 41,300,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ
4. แหล่งที่มาของราคากลาง  
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง
5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง  
นายคณาริป์ สันตยานนท์ วศ.6 กวป-ส.

นางสาวทศภัทร พูนผลกุล  
หขตส-ท.  
28 ส.ค. 2563

**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**SUMMARY OF BID PRICE**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

No.	Description	Supply of Equipment		Local Currency (excluding VAT) Baht Amount
		Local Supply		
		Ex-works Price (excluding VAT) Baht		
		Amount		
1	Schedule 1 : 115 kV Digital Substation Protection and Automation Equipment		37,368,171.13	1,241,666.67
<b>BID PRICE</b>		Baht	37,368,171.13	Baht 1,241,666.67
<b>VAT</b>		Baht	2,615,771.98	Baht 86,916.67
<b>SUMMARY OF BID PRICE</b>		Baht	39,983,943.11	Baht 1,328,583.34
<b>SUMMARY OF BID PRICE</b>		Baht	41,312,526.45	
<b>SUMMARY OF MEDIUM COST (ROUNDED)</b>		Baht	41,300,000.00	

นางสาวทศภัทร พูนผลกุล  
 พชตส-ท.  
 28 ส.ค. 2563

**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**Schedule 1 - 115 kV Digital Substation Protection and Automation Equipment**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		Local Currency	
					Local Supply		(excluding VAT) Baht	
					Ex-works Price (excluding VAT) Baht	Amount		
Unit Price	Amount	Unit Price	Amount					
1-1	DIGITAL SUBSTATION SYSTEM – 115 KV BUS PROTECTION (LOW IMPEDANCE, NO SWITCHING ZONE, 10 FEEDERS)	- Specification No.1008 - Panel No. 1R - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	536,166.00	536,166.00	XXXXXX	XXXXXX
1-2	DIGITAL SUBSTATION SYSTEM – 115 KV LINE PROTECTION (PRIMARY IED-87L,21BU,67N,50BF,79,25) (SECONDARY IED-21P,67N,50BF,79,25) AND 115 KV LINE PROTECTION (PRIMARY IED-87L,21BU,67N,50BF,79,25) (SECONDARY IED-21P,67N,50BF,79,25)	- Specification No.1008 - Panel Nos. 2R - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	SET	1,144,355.30	1,144,355.30	XXXXXX	XXXXXX
1-3	DIGITAL SUBSTATION SYSTEM – 115 KV LINE PROTECTION (PRIMARY IED-87L,21BU,67N,50BF,79,25) (SECONDARY IED-21P,67N,50BF,79,25) AND 115 KV LINE TO PEA PROTECTION (PRIMARY IED-21P,67N,67/67N,81,27,50BF,79,25) (SECONDARY IED-21P,67N,67/67N,81,27,50BF,79,25)	- Specification No.1008 - Panel No. 3R - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	SET	1,012,916.00	1,012,916.00	XXXXXX	XXXXXX
1-4	DIGITAL SUBSTATION SYSTEM – 115/22 KV TRANSFORMER PROTECTION (PRIMARY IED-87K,51T/51TG,50BF) (SECONDARY IED-87K,51T/51TG,50BF) (FEEDER IED-51/51G,81,27)	- Specification No.1008 - Panel Nos. 4R,5R - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	2	SET	452,050.00	904,100.00	XXXXXX	XXXXXX
1-5	DIGITAL SUBSTATION SYSTEM – CAPACITOR BANK PROTECTION PANEL (PRIMARY IED-60C, 51C/51CG, 59C, 27C, 50BF) (SECONDARY IED-60C, 51C/51CG, 59C, 27C, 50BF)	- Specification No.1008 - Panel No. C115-1 - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	267,718.00	267,718.00	XXXXXX	XXXXXX
1-6	DIGITAL SUBSTATION SYSTEM – BREAKER CONTROL UNIT PANEL (4-BCU)	- Specification No.1008 - Panel Nos. BCU-1 and BCU-2 - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	2	SET	1,877,929.00	3,755,858.00	XXXXXX	XXXXXX
1-7	DIGITAL SUBSTATION SYSTEM – BREAKER CONTROL UNIT PANEL (6-BCU)	- Specification No.1008 - Panel Nos. BCU-3 and BCU-4 - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	2	SET	2,877,202.90	5,754,405.80	XXXXXX	XXXXXX
1-8	DIGITAL SUBSTATION SYSTEM – METERING PANEL (6 KWH&KVARH METERS)	- Specification No.1008 - Panel No. MP - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	1,415,179.70	1,415,179.70	XXXXXX	XXXXXX
1-9	EMERGENCY CONTROL PANEL	- Specification No.1008 - Panel No. ECP - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	260,145.00	260,145.00	XXXXXX	XXXXXX

- Project 1-C1 -

นางสาวหทัยภัทร พูนผลกุล  
 หจตส.ท.

นางสุดารัตน์ ไชยพันธ์  
 อวส. 7 ส.ต. ๕3

filename: TS12-DSS-02.xlsx

28 ส.ค. 2563

**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**Schedule 1 : 115 kV Digital Substation Protection and Automation Equipment**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		Local Currency	
					Local Supply		Local Currency	
					Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount
1-10	DIGITAL SUBSTATION SYSTEM – GPS RECEIVER PANEL	- Specification No.1008 - Panel No. GPS - Drawing Nos. TR-E-1, TR-E-2 sh.1, TR-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	303,944.00	303,944.00	XXXXXX	XXXXXX
1-11	DIGITAL SUBSTATION SYSTEM – MERGING UNIT PANEL FOR FEEDER (FEEDER CONSISTS OF 1-CT(3ph), 1-VI(3ph) AND 1-BREAKER)	- Specification Nos.1008 and SD-FOT-P22 - 2 separate meging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel Nos. MU701A-1, MU701-1, MU702-1, and MU706-1 - Drawing Nos. TR-E-1, TR-E-2 sh.2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	4	EACH	826,142.00	3,304,568.00	XXXXXX	XXXXXX
1-12	DIGITAL SUBSTATION SYSTEM – MERGING UNIT PANEL FOR TRANSFORMER FEEDER (TRANSFORMER FEEDER CONSISTS OF 1-CT(3ph), AND 1-BREAKER)	- Specification Nos.1008 and SD-FOT-P22 - 2 separate meging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel Nos. MU703-1, and MU704-1 - Drawing Nos. TR-E-1, TR-E-2 sh.2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	2	EACH	851,770.00	1,703,540.00	XXXXXX	XXXXXX
1-13	DIGITAL SUBSTATION SYSTEM – MERGING UNIT PANEL FOR TRANSFORMER (TRANSFORMER CONSISTS OF 4-CT(3ph), 1-VI(3ph), 1-TRANSFORMER, AND 1-BREAKER)	- Specification Nos.1008 and SD-FOT-P22 - 2 separate meging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel Nos. MU703-2 and MU704-2 - Drawing Nos. TR-E-1, TR-E-2 sh.2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	2	EACH	1,996,082.00	3,992,164.00	XXXXXX	XXXXXX
1-14	DIGITAL SUBSTATION SYSTEM – MERGING UNIT PANEL FOR 115 KV CAPACITOR BANK (115 KV CAPACITOR BANK CONSISTS OF 1-CT(3ph), 1-CT(1ph), AND 1-BREAKER)	- Specification Nos.1008 and SD-FOT-P22 - 2 separate meging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel No. MU706A-1 - Drawing Nos. TR-E-1, TR-E-2 sh.2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	1	EACH	1,233,207.00	1,233,207.00	XXXXXX	XXXXXX

-Project 1-C2 -

นางสาว หทัยภัทร พูนผลกุล  
 หจก. ส.ท.  
 นางสาว หทัยภัทร พูนผลกุล

28 ส.ค. 2563

(นางสุดารัตน์ ไชยพันธุ์) filename: TS12-DSS-02.xlsx  
 อวส. 7 ส.ค. 63



**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**Schedule 1 : 115 kV Digital Substation Protection and Automation Equipment**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		Local Currency	
					Local Supply		(excluding VAT) Baht	
					Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount
1-15	DIGITAL SUBSTATION SYSTEM – MERGING UNIT PANEL FOR TIE BAY (TIE BAY CONSISTS OF 1-VT(3ph) AND 1-BREAKER)	- Specification Nos.1008 and SD-FOT-P22 - 2 separate merging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel No. MU700-1 - Drawing Nos. TR-E-1, TR-E-2 sh.2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	1	EACH	826,142.00	826,142.00	XXXXXX	XXXXXX
1-16	DIGITAL SUBSTATION – IEC61850 STATION LEVEL EQUIPMENT: ENGINEERING WORKSTATION, HMI SERVER, GATEWAY, SUPERVISORY SOFTWARE	- Specification No.1008 - Additional equipment optimized by bidder to fulfill station-level function shall be included. - Operator console and chairs shall be provided in the set as well. - Drawing Nos. TR-E-1, TR-E-2 sh.1&2, TR-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	1	EACH	2,383,821.00	2,383,821.00	XXXXXX	XXXXXX
1-17	24 CORE NON-METALLIC OPTICAL FIBER CABLE (MULTIMODE)	- Drawing Nos. TR-E-1, TR-E-2 sh.1&2 and TP-E-20.3 - Multimode type OM2	2000	METER	111.00	222,000.00	XXXXXX	XXXXXX
1-18	REFLEX AND/OR HDPE CONDUIT WITH HOT-DIP GALVANIZED STEEL CLAMP	- Specification No.SD-FOT-P22-02/04/61 - Conduit Diameter Size = 50 mm. - Supplied with Hot-Dip Galvanized Steel Clamp 1 Set per 1 Meter of Conduit	2000	METER	30.00	60,000.00	XXXXXX	XXXXXX
1-19	DIGITAL SUBSTATION SYSTEM – OFC INTERFACING PANEL	- Drawing Nos. TR-E-1, TR-E-2 sh.1&2 and TP-E-20.3 - Specification Nos.1008 and SD-FOT-P22 - Panel Nos. FTC-A1 and FTC-B1	2	SET	148,845.00	297,690.00	XXXXXX	XXXXXX
1-20	DIGITAL SUBSTATION SYSTEM – ETHERNET SWITCH PANEL	- Drawing Nos. TR-E-2 sh.1 and TP-E-20.3 - Specification No.1008 - Panel Nos. ESW-A1 and ESW-B1	2	SET	1,167,273.00	2,334,546.00	XXXXXX	XXXXXX
1-21	LINE CURRENT DIFFERENTIAL RELAY (87L)	- Drawing Nos. TR-E-2 sh.1 and TP-E-20.3 - Supply as Loose Part for Installation at CT Substation - Secondary Current Input Rating : 5A - Supplied with E1 (2 Mbps) Converter Device and 2 Sets of 30 m Coaxial Cables - Specification No.1002	3	EACH	303,659.00	910,977.00	XXXXXX	XXXXXX
1-22	BUS DIFFERENTIAL RELAY (Low Impedance-No Switching Zone)	- Same type as supplied in item 1-2 and 1-3 - Supply as Spare Part - Same Model Type as Supplied in Item 1-1	1	EACH	439,336.00	439,336.00	XXXXXX	XXXXXX

นางสาวทศภัทร พูนผลกุล  
 หนชตส-น

- Project 1-C3 -

28 ส.ค. 2563

(นางสุดารัตน์ ไซยพันธ์) filename : TS12-DSS-02.xlsx  
 อวส. 7 ส.ค. 63

**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**Schedule 1 : 115 kV Digital Substation Protection and Automation Equipment**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		Local Currency	
					Local Supply		(excluding VAT) Baht	
					Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount
1-23	LINE CURRENT DIFFERENTIAL RELAY (87L)	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 and 1-3 - Including Function (87L, 21BU, 67N, 50BF, 79, 25) with E1 Interface Device	1	EACH	303,659.00	303,659.00	XXXXXX	XXXXXX
1-24	DISTANCE RELAY (21+79) FOR 115 kV with 79/25	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 and 1-3 - Including Function (21P, 67N, 50BF, 79, 25)	1	EACH	192,195.00	192,195.00	XXXXXX	XXXXXX
1-25	DISTANCE RELAY (21+79) FOR 115 kV with 79/25	Supply as Spare Part - Same Model Type as Supplied in Item 1-3 - Including Function (21P, 67N, 67/67N, 81, 27, 50BF, 79, 25)	1	EACH	192,195.00	192,195.00	XXXXXX	XXXXXX
1-26	TRANSFORMER DIFFERENTIAL RELAY (87K, 3 restraint windings)	Supply as Spare Part - Same Model Type as Supplied in Item 1-4 - Including Function (87K, 51T/51TG, 50BF)	1	EACH	133,574.00	133,574.00	XXXXXX	XXXXXX
1-27	UNBALANCE SENSING RELAY (Current type for 115 kV-60C)	Supply as Spare Part - Same Model Type as Supplied in Item 1-5 - Including Function (60C, 51C/51CG, 59C, 27C, 50BF)	1	EACH	36,109.00	36,109.00	XXXXXX	XXXXXX
1-28	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG, 51/51G, 51S/51SG, 51C/51CG)	Supply as Spare Part - Same Model Type as Supplied in Item 1-4 - Including Function (51/51G, 81, 27)	1	EACH	57,382.00	57,382.00	XXXXXX	XXXXXX
1-29	BAY CONTROL UNIT (BCU)	Supply as Spare Part - Same Model Type as Supplied in Item 1-6 and 1-7	1	EACH	425,162.00	425,162.00	XXXXXX	XXXXXX
1-30	ETHERNET SWITCH	Supply as Spare Part - Same Model Type as Supplied in Item 1-20	1	EACH	74,298.00	74,298.00	XXXXXX	XXXXXX
1-31	kWh&kVARh METER	Supply as Spare Part - Same model type as supplied in item 1-8	1	EACH	185,724.00	185,724.00	XXXXXX	XXXXXX
1-32	DIGITAL SUBSTATION SYSTEM – MERGING UNIT SET (1-CT(3ph), 1-VT(3ph), 8-BI, 8-BO)	Supply as Spare Part	1	SET	346,761.00	346,761.00	XXXXXX	XXXXXX
1-33	DIGITAL SUBSTATION SYSTEM – DESIGN OF COMPLETE DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM BY SYSTEM INTEGRATOR	- Specification No.1008 - Sec Note 1 - Drawing Nos. TR-E-1, TR-E-2, TR-E-3 sh.1&2, TP-E-20.1, TP-E-20.2 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	1	SET	2,358,333.33	2,358,333.33	XXXXXX	XXXXXX

- Project I-C4 -

นางสาวหทัยภัทร พูนผลกุล  
 หน.ศ.ส.ท.  
 28 ส.ค. 2563

(นางสุดารัตน์ ไชยพันธ์) filename : TS12-DSS-02.xlsx  
 อวส. 7 ส.ค. 63

**MEDIUM COST FOR BID NO. TS12-DSS-02**  
**Schedule 1 : 115 kV Digital Substation Protection and Automation Equipment**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Supply of Equipment		Local Currency	
					Local Supply		(excluding VAT)	
					Ex-works Price (excluding VAT) Baht		Baht	
					Unit Price	Amount	Unit Price	Amount
1-34	DIGITAL SUBSTATION SYSTEM -- SYSTEM INSTALLATION SUPERVISOR	- Specification No.1008 - System Installation Supervisor is responsible for item no. 1-1 to 1-20 - Drawing Nos. TR-E-1, TR-E-2, TR-E-3 sh.1&2, TP-E-20.1, TP-E-20.2 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5		MAN-DAY	XXXXXX	XXXXXX	1,241,666.67	1,241,666.67
<b>Total Price for Schedule 1</b>					Baht	37,368,171.13	Baht	1,241,666.67

**Note 1.**

\*\*\* Scope of work for System Integrator (SI) to design complete digital substation protection and automation system:

1. SI shall design a complete digital substation protection and automation system as well as communication network based on the IEC 61850 standard to coordinate with equipment provided by EGAT, i.e. fault recording system (FRS), capacitor bank protection NCIT (Non-Conventional Instrument Transformer) and tele protection.
2. SI shall configure each IED and communication network to fulfill the designed digital substation protection and automation system.
3. SI shall design engineering work stations, HMI data servers, gateways and all system software required to run the IEC 61850 based substation protection and automation system along with the existing EGAT's SCADA. Signal list for data to be displayed on HMI and sent to NCC/RCC shall be discussed with EGAT.
4. SI shall provide complete schematic and wiring diagrams in both hardcopy and electronic file of the digital substation protection and automation system including programmable logic schemes of each IED, HMI graphic display, SSD files, ICD files, SCD files, CID files, signal list of all SV,GOOSE and MMS and communication network connection diagram. Furthermore, software needed for the mentioned SCL file configuration shall be provided as well.

นางสาว พงษ์พร  
นางสาวหทัยภัทร พูนผลกุล  
พชตส-ท.

- Project 1-C5 -

28 ส.ค. 2563

(นางสุดารัตน์ ไข่ม้วน) filename: TS12-DSS-02.xlsx  
อวส. 7 ส.ค. 63

**Important Information**  
**for**  
**Invitation to Bid No. TS12-DSS-02**

---

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**.



## **2. Revision of Terms and Conditions**

The following terms and conditions contain revisions of the information or requirements included in Bidding Documents.

### **2.1 Article E-5. Patents and Copyrights**

The Contractor shall indemnify and hold EGAT, its officers, agents, and employees harmless against and from liability of any nature or kind, including costs and expenses for or on account of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance manufactured, delivered, or used in carrying out the Work under the Contract. All drawings, *systems designed* and the information contained therein as well as the use of any process, material or Equipment developed in the course of carrying out the Work under the Contract shall become the property of EGAT where EGAT shall have the right to use any or all of them for any purpose either for present or future projects. For the avoidance of doubt, none of them will be used solely for any commercial benefit which is not related to EGAT work.

### **2.2 Article F-10. Maintenance Guarantee and Article F-12. Maintenance Security**

Terms and conditions regarding maintenance guarantee and maintenance security specified in Article F-10. Maintenance Guarantee, F-12. Maintenance Security, and elsewhere in Bidding Documents shall not apply to system design. The amount of maintenance security shall be ten (10) per cent of the total Contract Price or ten (10) per cent of each schedule excluding the *cost of system design*, cost of installation supervisor and cost of test(s). With such exclusion, the specimen of maintenance guarantee in page F16 of Bidding Documents shall be deleted and replaced with the specimen shown in the following page. Apart from this exclusion of system design, other terms and conditions regarding maintenance guarantee and maintenance security remain the same as specified in Bidding Documents.

**SPECIMEN OF MAINTENANCE GUARANTEE**

To :

Date :

Electricity Generating Authority of Thailand  
Bangkruai, Nonthaburi 11130  
Thailand

Re : Maintenance Security for Contract  
No. EGAT \_\_\_\_\_

Gentlemen :

In accordance with the provision of the Contract for \_\_\_\_\_ No. EGAT \_\_\_\_\_ dated \_\_\_\_\_ (hereinafter referred to as the Contract), the contents of which have been noted by us that Messrs. \_\_\_\_\_ (hereinafter referred to as the Contractor) has to deposit with Electricity Generating Authority of Thailand, (hereinafter referred to as EGAT) a Maintenance Security to guarantee the proper functioning of the \_\_\_\_\_ of the Contract as specified in Article F-10. Maintenance Guarantee in the amount of \_\_\_\_\_ (in words : \_\_\_\_\_) which is equivalent to ten (10) per cent of the total Contract Price or ten (10) per cent of each schedule of the said Work, excluding the *cost of system design*, cost of installation supervisor and cost of test(s), we, the \_\_\_\_\_ as instructed by the Contractor, agree unconditionally to irrevocably guarantee as primary Obligor, the payment to EGAT at its first demand, without whatsoever right of objection on our part and without its first claim with the Contractor giving EGAT the right of claim for penalty, damages, liquidated damages or any expenses for which the Contractor may become liable to EGAT under the Contract.

We further agree that no extension of time, change in, addition to or other modification of terms of the Contract or work to be performed thereunder, or of the Specifications or other Contract Documents, which may be made between EGAT and the Contractor, shall in any way release us from any liability under the Maintenance Security, and we shall thereby waive notice of any such extension of time, change, addition or modification.

This Maintenance Security shall be valid and remain in full effect for a period of two (2) Years from the day immediately following the date of the acceptance of Equipment. If necessary, this Maintenance Security shall be extended as specified in Article F-10. Maintenance Guarantee.

Yours very truly,

\_\_\_\_\_  
Authorized Signature

# DATA SHEET

for

## Invitation to Bid No. TS12-DSS-02

---

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 Invitation to Bid.

### **Article B-3. Bid Security**

The amount of bid security shall be THB 2,065,000.-.

### **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:**

- 1) The evaluation of bid prices shall be on schedule basis.
- 2) Add the following as sub item No.6 of Item No.4,  
*“6. Cost of system design including VAT.”*



**INVITATION TO BID NO. TS12-DSS-02**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

---

**Invitation**

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for furnishing and delivering of Digital Substation Protection and Automation System 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 the Equipment of the type and similar rating proposed.
- 3 For Merging Unit, having one of the following qualifications:
  - 3.1 Proposing the Equipment of the type and ratings which has already been accepted by EGAT

OR

- 3.2 Having supply records of at least three (3) substations of the type proposed with at least three (3) consecutive years of successful operation at nominal system voltage of 110 kV or above in an oversea country (not his own country)
- 4 For 230 kV Control and Protection System and below, having the following qualifications:

- 4.1 Being local manufacturer
- 4.2 Having one of the following qualifications:

- 4.2.1 Having supply records of successful operation 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

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

- 5. For Supervisory Software of IEC 61850 Based Substation Control and Protection system:

Having supply record of implementing supervisory software in IEC 61850 based substation control and protection system which comprises at least two (2) manufactures of protective Intelligent Electronic Device (IED) with successful operation and use of at least one (1) year.

6. For substation control and protection system integrator:

Having practical experiences on design and implementation of an IEC 61850 based control and protection system including both station bus and process bus of at least two (2) 110 kV or above substations which shall be in successful operation for at least two (2) years. The substation shall be an overseas utility.

7. The proposed protective relays shall be the products from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY 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.

8. For Fault Recording System (FRS).

8.1 Having one of the following qualifications:

8.1.1 The cabinet and all Equipment are completely wired by the FRS manufacturer before shipping to Thailand.

OR

8.1.2 The cabinet and the equipment are wired in Thailand by the local cabinet manufacturer who has one of the following qualifications:

8.1.2.1 Having supply records of successful manufacturing/operation/use of at least three (3) units of the FRS cabinet in EGAT's Transmission System for at least three (3) consecutive years. The characteristics of the said FRS cabinets shall be as specified in "Specification No. 1003: Fault Recording System".

OR

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

The design and engineering shall be performed by the FRS manufacturer. The assembly, factory test and commissioning shall be in accordance with the FRS manufacturer's standard and shall be performed under the FRS manufacturer's supervisor.

8.2 The proposed FRS shall be the product from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR FAULT RECORDING SYSTEM which is attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications.

9. 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.

10. 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.

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

a. 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.

b. Type/model of the proposed FRS shall be as specified in EGAT ACCEPTED FAULT RECORDING SYSTEM LIST 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		✓	✓	



## 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	✓	✓	✓	
		7SS85	✓	✓	✓	
	Schneider Electric	P746	✓	✓	✓	
		P740	✓	✓	✓	
		Toshiba	GRB100	✓	✓	
	Mitsubishi	MBP-H1A		✓	✓	



1se เอกสารควบคุม
---------------------



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	✓	✓	
	Siemens	7VK6 series	✓	✓	✓	
	Schneider Electric	P821		✓	✓	
	Ingeteam	EF-ZT	✓	✓	✓	
	NR Electric	PCS-9611	✓	✓	✓	
Toshiba	GRD200	✓	✓	✓		

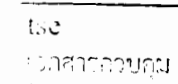
Notes

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.

EGAT  
 ๒๕๖๓

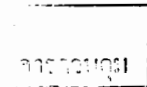
## EGAT ACCEPTED MAIN RELAY LIST No.2

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	✓	✓	✓	✓	



## 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 NR Electric	EF-MD	✓	✓	✓	✓	
		PCS-9611	✓	✓	✓	✓	
Toshiba	GRE140	✓	✓	✓	✓		
	GRD200	✓	✓	✓	✓		
ZIV	IRV		✓	✓	✓		
Synchronism Check Relay	ABB	REQ650	✓	✓	✓	Only product version 2.1 is accepted.	
		SPAU140C	✓	✓	✓		
	GE	P841	✓	✓	✓		
		F60	✓	✓	✓		
		F650	✓	✓	✓		

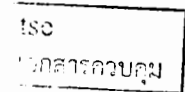





EGAT ACCEPTED MAIN RELAY LIST No.2

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	✓	✓	✓	✓	

*[Handwritten signature]*



## 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.