

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

**REGISTRATION FORM**

INVITATION TO BID NO. TS12-DSS-01

FOR SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM

TRANSMISSION SYSTEM EXPANSION PROJECT NO. 12

AVAILABLE DURATION FOR PURCHASING December 16, 2019 TO January 28, 2020

PRICE THB 1,000.-

**COMPLETE DATA IS REQUIRED FOR THE BIDDER'S OWN BENEFITS**

(โปรดกรอกรายละเอียดให้ครบถ้วนเพื่อประโยชน์ของบริษัท)

**Step 1** : Fill out this Registration Form in English (Typing is preferred)

**Step 2** : Submit this form for payment at Receivable Cashier Section (1<sup>st</sup> Floor, TOR 100 Bldg., Counter 4-8) Tel no. 02 436 5511

**Step 3** : Bring the payment receipt and the copy of filled-out Registration Form to receive the bidding documents at International Procurement Department - Transmission Segment (Room No. 1202/2, 12<sup>th</sup> Floor, Building Tor. 101) Tel no. 02 436 0341-42

FOR PURCHASER		TAX ID :	
NO.	RECEIPT NO. :	DATE :	PURCHASER (ผู้ซื้อ):
BIDDER'S NAME (บริษัทผู้ซื้อเอกสาร)			
ADDRESS (ที่อยู่)		COUNTRY :	
ATTN. (ผู้รับผิดชอบ):		FAX NO.:	TEL.:
E-mail :			
LOCAL REPRESENTATIVE (ตัวแทนในประเทศ)			
ADDRESS (ที่อยู่)		TAX ID :	
ATTN. (ผู้รับผิดชอบ):		FAX NO.:	TEL.:
E-mail :			
FOR PROCUREMENT OFFICER		CHANGE OF BIDDER'S NAME	TAX ID :
BIDDER'S LETTER NO. :		DATED :	
NEW BIDDER'S NAME (ชื่อผู้ซื้อเอกสารเปลี่ยนเป็น)			
ADDRESS (ที่อยู่)		COUNTRY :	
ATTN. (ผู้รับผิดชอบ):		FAX NO.:	TEL.:
E-mail :			
LOCAL REPRESENTATIVE (ตัวแทนในประเทศ)			
ADDRESS (ที่อยู่)		TAX ID :	
ATTN. (ผู้รับผิดชอบ):		FAX NO.:	TEL.:
E-mail :			
FOR PROCUREMENT OFFICER		FOR PURCHASER	
Procurement Officer (ผู้ส่งมอบเอกสาร)		Document received by (ผู้รับมอบเอกสาร)	



INVITATION TO BID NO. TS12-DSS-01

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 38,600,000.-

**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 Office of Prime Minister 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 December 16, 2019 to January 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](mailto:procurement.tse@egat.co.th)

For more details and downloading Registration Form for purchasing Bidding Documents on website :

<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, February 5, 2020 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

December 9, 2019

*Kannika Dhachalupat*

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



## ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เรื่อง ประกวดราคาซื้อ เลขที่ TS12-DSS-01

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

**สถานที่ส่งมอบ :** หน้าโรงงานผู้ผลิต

**ราคากลาง(รวมภาษีมูลค่าเพิ่ม) :** 38,600,000.- บาท

### **คุณสมบัติของผู้เสนอราคา**

1. ต้องเป็นนิติบุคคลผู้ผลิตพัสดุ หรือผู้มีอาชีพขายพัสดุที่ผลิตในประเทศไทยตามประกาศ และต้องไม่เป็นผู้ทำงานซึ่งสำนักนายกรัฐมนตรียได้แจ้งเวียนชื่อไว้ 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 16 ธันวาคม 2562 ถึงวันที่ 28 มกราคม 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 5 กุมภาพันธ์ 2563 เวลา 9:30 น. ถึง 10:00 น. และเปิดซองประกวดราคาเวลา 10:00 น. ณ ห้อง 1202/1 ชั้น 12 อาคาร ท.101 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 9 ธันวาคม 2562

กนกทิศา วิชาลัญญ์  
(นางกรรณิกา วิชาลัญญ์)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)  
ในการจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

1. ชื่อโครงการ ประกวราคาเลขที่ TS12-DSS-01  
งานจัดซื้อ Digital Substation Protection and Automation System  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12  
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
2. วงเงินงบประมาณที่ได้รับจัดสรร  
โครงการขยายระบบส่งไฟฟ้าระยะที่ 12 งบประมาณ 60,000 ล้านบาท
3. วันที่กำหนดราคากลาง 21 พฤศจิกายน 2562 (วันที่ อวส. อนุมัติ )  
ราคารวมภาษีมูลค่าเพิ่มเป็นเงิน 38,600,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ
4. แหล่งที่มาของราคากลาง  
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง
5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง
  - 5.1 นายคณาธิป สันตยานนท์ วศ.6 กวป-ส.
  - 5.2 นายรุหาญ รุจิรัฐธาร วศ.9 กวป-ส.

ณัฐพงษ์ พงษ์พา

นางสาวทพีนทร์ พูนผลกุล

- 9 ธ.ค. 2562

**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**SUMMARY OF BID PRICE**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

No.	Description	Currency	Supply of Equipment		
			Local Supply		Local Currency (excluding VAT) Baht Amount
			Ex-works Price (excluding VAT) Baht		
			Amount		
1	Schedule 1 : Digital Substation Protection and Automation Equipment		34,789,898.00	1,241,667.00	
<b>BID PRICE</b>			<b>Baht</b> 34,789,898.00	<b>Baht</b> 1,241,667.00	
<b>VAT</b>			<b>Baht</b> 2,435,292.86	<b>Baht</b> 86,916.69	
<b>TOTAL BID PRICE</b>			<b>Baht</b> 37,225,190.86	<b>Baht</b> 1,328,583.69	
<b>SUMMARY OF BID PRICE</b>			<b>Baht</b> 38,553,774.55		
<b>SUMMARY OF MEDIUM COST (ROUNDED)</b>			<b>Baht</b> 38,600,000.00		

**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Schedule 1 : 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			
					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. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	543,343.00	543,343.00	XXXXX	XXXXX
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 TO PEA PROTECTION (PRIMARY IED-21P,67N,81,27,50BF,79,25) (SECONDARY IED-67/67N,81,27,50BF,79,25)	- Specification No.1008 - Panel Nos. 2R and 5R - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	2	SET	894,538.00	1,789,076.00	XXXXX	XXXXX
1-3	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. 3R,4R - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	2	SET	458,102.00	916,204.00	XXXXX	XXXXX
1-4	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. 6R - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	271,303.00	271,303.00	XXXXX	XXXXX
1-5	DIGITAL SUBSTATION SYSTEM -- BREAKER CONTROL UNIT PANEL (4-BCU)	- Specification No.1008 - Panel Nos. BCU-1, BCU-2, BCU-3 and BCU-4 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	4	EACH	1,903,063.00	7,612,252.00	XXXXX	XXXXX
1-6	DIGITAL SUBSTATION SYSTEM -- METERING PANEL (8 KWH&KVARH METERS)	- Specification No.1008 - Panel No. MP - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	1,822,741.00	1,822,741.00	XXXXX	XXXXX
1-7	EMERGENCY CONTROL PANEL	- Specification No.1008 - Panel No. ECP - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3 and TP-E-10.1	1	EACH	255,010.00	255,010.00	XXXXX	XXXXX
1-8	DIGITAL SUBSTATION SYSTEM -- GPS RECEIVER PANEL	- Specification No.1008 - Panel No. GPS - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2 and TP-E-20.3	1	EACH	308,014.00	308,014.00	XXXXX	XXXXX

เลขาฯ พ.บ.พ.

นางสาวพิมพ์ภัทร ขุนผลกุล

- 9 ธ.ค. 2562

นางศุภารัตน์ ไชยพันธ์  
อวส.  
น.ส/บ.ล

**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Schedule 1 : 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
1-9	DIGITAL SUBSTATION SYSTEM -- MERGING UNIT PANEL FOR FEEDER (FEEDER CONSISTS OF 1-CT(3ph), 1-VT(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. MU701-1, MU702-1, MU703-1, MU704-1, MU705-1, MU707-1 and MU708A-1 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	7	EACH	837,200.00	5,860,400.00	XXXXX	XXXXX
1-10	DIGITAL SUBSTATION SYSTEM -- MERGING UNIT PANEL FOR TRANSFORMER (TRANSFORMER CONSISTS OF 3-CT(3ph), 1-VT(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 MU705-2 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	2	EACH	1,584,831.00	3,169,662.00	XXXXX	XXXXX
1-11	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 meging units shall be provided for each switchgear and instrument transformer for redundancy. - Panel No. MU700-1 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2, TP-E-20.3, TP-E-20.4 and TP-E-20.5	1	EACH	837,200.00	837,200.00	XXXXX	XXXXX
1-12	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. KTL-E-1, KTL-E-2, KTL-E-3 sh.1&2 and TP-E-20.3	1	SET	2,358,327.00	2,358,327.00	XXXXX	XXXXX
1-13	24 CORE NON-METALLIC OPTICAL FIBER CABLE (MULTIMODE)	- Specification No.1008 - Drawing Nos. KTL-E-1, KTL-E-2 and TP-E-20.3	3000	METER	109.00	327,000.00	XXXXX	XXXXX
1-14	EFLEX AND/OR HDPE CONDUIT WITH HOT-DIP GALVANIZED STEEL CLAMP	- Specification No.1008 - Conduit Diameter Size = 50 mm. - Supplied with Hot-Dip Galvanized Steel Clamp 1 Set per 1 Meter of Conduit - Drawing Nos. KTL-E-1, KTL-E-2 and TP-E-20.3	3000	METER	55.00	165,000.00	XXXXX	XXXXX

- 9 บ.ค. 2561  
 นางสาวกัญญา พงษ์  
 นางสาวกัญญา ใจพันธ์  
 21 พ.ค. 62

**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Schedule 1 : 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			
					Unit Price	Amount	Unit Price	Amount
1-15	DIGITAL SUBSTATION SYSTEM -- FIBER OPTIC PATCH PANEL	- Specification Nos.1008 and SD-FOT-P22 - Panel Nos. FTC-A1 and FTC-B1 - Drawing Nos. KTL-E-2 and TP-E-20.3	2	SET	150,840.00	301,680.00	XXXXX	XXXXX
1-16	DIGITAL SUBSTATION SYSTEM -- ETHERNET SWITCH PANEL	- Specification No.1008 - Panel Nos. ESW-A1 and ESW-B1 - Drawing Nos. KTL-E-2 and TP-E-20.3	2	SET	1,182,897.00	2,365,794.00	XXXXX	XXXXX
1-17	LINE CURRENT DIFFERENTIAL RELAY (87L)	- Supply as Loose Part for Installation at UB2 Substation - Secondary Current Input Rating : 5A - Supplied with E1(2 Mbps) Converter Device and 2 Sets of 30 m Coaxial Cables - Specification No.1002 - Same type as supplied in item 1-2	2	EACH	297,592.00	595,184.00	XXXXX	XXXXX
1-18	CUT OFF SWITCH, 10 CONTACTS (DTTCO, 87CO, 86ACO, 50/51SCO)	Supply as Loose Part for Installation at UB2 Substation - Specification No.1002	2	EACH	1,598.00	3,196.00	XXXXX	XXXXX
1-19	DC UNDER VOLTAGE RELAY (27XB,27XR)	Supply as Loose Part for Installation at UB2 Substation - Specification No.1002	4	EACH	4,423.00	17,692.00	XXXXX	XXXXX
1-20	TRIPPING RELAY (94P, 94BU, 51X, 79X)	Supply as Loose Part for Installation at UB2 Substation - Specification No.1002 - Number of Contact = 10 NO	4	EACH	21,387.00	85,548.00	XXXXX	XXXXX
1-21	DISTANCE RELAY (21) FOR 115 kV without 79/25	Supply as Loose Part for Installation at UB2 Substation - Specification No.1002 - Secondary Current Input Rating : 5A	2	EACH	180,489.00	360,978.00	XXXXX	XXXXX
1-22	TEST SWITCH (TS, for relays)	Supply as Loose Part for Installation at UB2 Substation - Specification No.1002	8	EACH	4,499.00	35,992.00	XXXXX	XXXXX
1-23	BUS DIFFERENTIAL RELAY (Low Impedance-No Switching Zone)	Supply as Spare Part - Same Model Type as Supplied in Item 1-1	1	EACH	430,557.00	430,557.00	XXXXX	XXXXX
1-24	LINE CURRENT DIFFERENTIAL RELAY (87L)	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 - Including Function (87L, 21BU, 67N, 50BF, 79, 25) with E1 Interface Device	1	EACH	297,592.00	297,592.00	XXXXX	XXXXX

- ๑ บ.ป. 2562 *อภินันท์ พงษ์ภักดิ์*

นางสาวพืชมิ่งขวัญ พงษ์ภักดิ์

*(นางสุดารัตน์ ไชยพันธ์)*  
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**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Schedule 1 : 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			
					Unit Price	Amount	Unit Price	Amount
1-25	DISTANCE RELAY (21+79) FOR 115 kV with 79/25	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 - Including Function (21P, 67N, 50BF, 79, 25)	1	EACH	188,355.00	188,355.00	XXXXX	XXXXX
1-26	DISTANCE RELAY (21+79) FOR 115 kV with 79/25	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 - Including Function (21P, 67N, 81, 27, 50BF, 79, 25)	1	EACH	188,355.00	188,355.00	XXXXX	XXXXX
1-27	DIRECTIONAL OVERCURRENT RELAY (67/67N)	Supply as Spare Part - Same Model Type as Supplied in Item 1-2 - Including Function (67/67N, 81, 27, 50BF, 79, 25)	1	EACH	91,255.00	91,255.00	XXXXX	XXXXX
1-28	TRANSFORMER DIFFERENTIAL RELAY (87K, 3 restraint windings)	Supply as Spare Part - Same Model Type as Supplied in Item 1-3 - Including Function (87K, 51T/51TG, 50BF)	1	EACH	130,905.00	130,905.00	XXXXX	XXXXX
1-29	UNBALANCE SENSING RELAY (Current type for 115 kV-60C)	Supply as Spare Part - Same Model Type as Supplied in Item 1-4 - Including Function (60C, 51C/51CG, 59C, 27C, 50BF)	1	EACH	35,388.00	35,388.00	XXXXX	XXXXX
1-30	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG,51/51G,51S/51SG,51C/51CG)	Supply as Spare Part - Same Model Type as Supplied in Item 1-3 - Including Function (51/51G, 81, 27)	1	EACH	56,236.00	56,236.00	XXXXX	XXXXX
1-31	BAY CONTROL UNIT (BCU)	Supply as Spare Part - Same Model Type as Supplied in Item 1-5	1	EACH	416,667.00	416,667.00	XXXXX	XXXXX
1-32	ETHERNET SWITCH	Supply as Spare Part - Same Model Type as Supplied in Item 1-16	1	EACH	72,814.00	72,814.00	XXXXX	XXXXX
1-33	kWh&kVARh METER	Supply as Spare Part - Same model type as supplied in item 1-6	1	EACH	182,013.00	182,013.00	XXXXX	XXXXX
1-34	DIGITAL SUBSTATION SYSTEM -- MERGING UNIT SET (1-CT(3ph), 1-VT(3ph), 8-BI, 8-BO)	Supply as Spare Part	1	SET	339,832.00	339,832.00	XXXXX	XXXXX
1-35	DIGITAL SUBSTATION SYSTEM -- DESIGN OF COMPLETE DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM BY SYSTEM INTEGRATOR	- Specification No.1008 - See Note 1 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-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	2,358,333.00	2,358,333.00	XXXXX	XXXXX

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**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Schedule 1 : 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
1-36	DIGITAL SUBSTATION SYSTEM -- SYSTEM INSTALLATION SUPERVISOR	- Specification No.1008 - System Installation Supervisor is responsible for item no. 1-1 to 1-16 - Drawing Nos. KTL-E-1, KTL-E-2, KTL-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	XXX	MAN DAY	XXXXX	XXXXX	1,241,667.00	1,241,667.00
<b>Total Price for Schedule 1</b>					<b>Baht</b>		<b>Baht</b>	
						<b>34,789,898.00</b>		<b>1,241,667.00</b>

**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 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.

  
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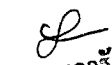
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**MEDIUM COST FOR BID NO. TS12-DSS-01**  
**Service of Installation Supervisor (Schedule 1)**  
**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**  
**TRANSMISSION SYSTEM EXPANSION PROJECT NO.12**

Item No.	Description	Qty.	Unit	Local Currency ( excluding VAT ) Baht	
				Unit Price	Amount
1-36	DIGITAL SUBSTATION SYSTEM -- SYSTEM INSTALLATION SUPERVISOR	XXX	MAN DAY	1,241,667.00	1,241,667.00

Note:

1. The quoted total man-days for installation supervisor shall be the required number of days for complete installation, erection, field test and commissioning of all equipment as specified.
2. In addition to the quoted total man-days above, EGAT will also pay the following :
  - a. Travelling time from and to Supervisor's home office as well as travelling time from and to the installation site including ten (10) working days of operation, if any, which will be at the same rate as the cost quoted per man-day.
  - b. Airfares round trip economy class between the Supervisor 's home office and Bangkok by the most expeditious and direct route.
3. Local transportation from and to installation site will be provided by EGAT.
4. If the working man-days are less than the quoted total man-days, the payment shall be on the basis of actual man-days.
5. For man-days exceeding the quoted total amount, no payment shall be made by EGAT. Any such additional man-days approved by EGAT shall be paid on the quoted man-days rate.

  
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เกษณีน พงษ์วงษ์  
 นางสาวพยับภัทร ชูณหอดุล  
 - 9 ธ.ค. 2562

# DATA SHEET

for

## Invitation to Bid No. TS12-DSS-01

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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 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 1,930,000.-.

### **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.”

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

The Contractor shall guarantee the proper functioning of Equipment for a period of two (2) Years.

Defective Equipment to be replaced with the whole new set

None

**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 Schedule of Equipment not timely delivered for each Day of delay. This sum is payable regardless of the actual loss and/or damages incurred.

**INVITATION TO BID NO. TS12-DSS-01**

**SUPPLY OF DIGITAL SUBSTATION PROTECTION AND AUTOMATION SYSTEM**

**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 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 Office of the Prime Minister 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.

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