

EGAT's Privacy Notice on Procurement, Inventory Management and Contract Administration

Electricity Generating Authority of Thailand (EGAT) has performed the protection of the Personal Data regarding procurement, inventory management and contract administration to be in accordance with the **Personal Data Protection Act B.E. 2562** (the "2019 PDPA"), which comes into effect on June 1, 2022.

Details about EGAT's Privacy Notice on Procurement, Inventory Management and Contract Administration are available for you at https://www.egat.co.th/privacy-notice-procurement_en.html or the below QR Code.



The Redaction of Sensitive Personal Data

EGAT has announced the Privacy Notice on Procurement, Inventory Management and Contract Administration for the collection, use or disclosure of Personal Data, excluding the Sensitive Personal Data.

Should the documents you wish to submit to EGAT contain the Sensitive Personal Data as defined in Section 26 of the 2019 PDPA, pertaining to racial, ethnic origin, political opinions, cult, religious or philosophical beliefs, sexual behavior, criminal records, health data, disability, trade union information, genetic data, biometric data, or of any data which may affect you in the same manner, you shall redact or conceal such data before submitting to EGAT.

ประกาศความเป็นส่วนตัว (Privacy Notice) สำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญาของ กฟผ.

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) ได้ดำเนินการคุ้มครองข้อมูลส่วนบุคคลสำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญา เพื่อให้เป็นไปตามพระราชบัญญัติคุ้มครองข้อมูลส่วนบุคคลของประเทศไทย พ.ศ. 2562 (PDPA) ซึ่งมีผลบังคับใช้อย่างครบถ้วน ตั้งแต่วันที่ 1 มิถุนายน 2565 ทั้งนี้ ท่านสามารถศึกษารายละเอียดประกาศความเป็นส่วนตัว (Privacy Notice) สำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญา ได้ที่ <https://www.egat.co.th/privacy-notice-procurement.html> หรือที่ QR Code ด้านล่าง



การขิดฆ่าข้อมูลส่วนบุคคลอ่อนไหว

กฟผ. มีประกาศความเป็นส่วนตัว (Privacy Notice) สำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญา เพื่อใช้ในการเก็บรวบรวม ใช้ หรือเปิดเผย ข้อมูลส่วนบุคคล แต่ไม่เก็บข้อมูลส่วนบุคคลอ่อนไหว หากเอกสารของท่านที่ต้องส่งมอบให้ กฟผ. มีข้อมูลส่วนบุคคลอ่อนไหวตามที่ถูกบัญญัติไว้ในมาตรา 26 ของ PDPA ดังนี้ เชื้อชาติ เผ่าพันธุ์ ความคิดเห็นทางการเมือง ความเชื่อในลัทธิ ศาสนาหรือปรัชญา พฤติกรรมทางเพศ ประวัติอาชญากรรม ข้อมูลสุขภาพ ความพิการ ข้อมูลสหภาพแรงงาน ข้อมูลพันธุกรรม ข้อมูลชีวภาพ หรือข้อมูลอื่นใด ซึ่งกระทบต่อเจ้าของข้อมูลส่วนบุคคลในทำนองเดียวกันรวมอยู่ด้วย ขอให้ท่านขิดฆ่า หรือปกปิดข้อมูลดังกล่าว ก่อนส่งมอบให้แก่ กฟผ.

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, Bangkruai Branch, Nonthaburi.

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

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

***** 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. TIEC-S-04

Supply and Construction for Expansion of 500 kV Tha Tako Substation

Transmission System Improvement Project in Northeastern, Lower Northern, Central Regions and Bangkok Area to Enhance System Security

(Pre-Qualification)

Available Duration for Purchasing : September 21, 2022 - November 4, 2022

Price of Bidding Documents : USD 170.- or THB 5,000.-

Instructions

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

For Purchaser			TAX ID :
No.	Receipt No. :	Date :	
Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Local Representative			
Address			
			Tax ID :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
For Procurement Officer		Change of Bidder's Name	TAX ID :
Bidder's Letter No. :			Dated :
New Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Contact Information of In-charge Officer			
Name	Mr. Thana Kirdboonsong		
Email address	thana.kir@egat.co.th		
Telephone No.	66 2436 3342		
Mobile No.	66 87116 3690		



Invitation to Bid No. TIEC-S-04

Supply and Construction for Expansion of 500 kV Tha Tako Substation Transmission System Improvement Project in Northeastern, Lower Northern, Central Regions and Bangkok Area to Enhance System Security (Pre-Qualification)

The Electricity Generating Authority of Thailand (EGAT) is calling for the subject Invitation to Bid to be financed by EGAT's fund. The escalation factor (K) for price adjustment is applied to this Bid.

Place of Construction : Tha Tako Substation

Medium Cost (including Value Added Tax and other expenses) : THB 269,000,000.-

Eligibility of Bidders

1. The Bidder and the Equipment shall be named in EGAT Accepted List as specified in the bidding documents.
2. The Bidder shall be a juristic person who provides such services 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.
3. 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.
4. 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.
5. 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.
6. 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 21, 2022 to November 4, 2022 at USD 170.- or THB 5,000.- per copy, non-refundable, at the following address :

International Procurement Department - Transmission Segment
(Room No. 301, 3rd Floor, Tor 082 Building)
Procurement and Inventory Management Division
Electricity Generating Authority of Thailand
Bangkrui, Nonthaburi 11130, Thailand
Telephone no. 66 2436 0342
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/>.

Payment can be made by a certified cheque or money order payable to EGAT or by a telegraphic transfer to EGAT's current 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.

Kamnika Drachalapat

Bidding Documents in CD-ROM will be either airmailed or airfreighted to the buyer at EGAT's expense upon receipt of the relevant remittance. In case the buyer requires the Bidding Documents to be sent by Express Mail Service (EMS), the charge will be at the buyer's expense.

Delivery of Bids

Bids shall be submitted at Bidding Room, 1st Floor, Tor 082 Building during 9:30 hrs. to 10:00 hrs., Bangkok Standard Time, December 6, 2022 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

September 14, 2022

Kannika Dhachalapat

(Mrs. Kannika Dhachalapat)

Chief, International Procurement Department - Transmission Segment



ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
เรื่อง ประกวดราคาจ้าง เลขที่ TIEC-S-04
(Pre-Qualification)

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดหาและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 500 KV ท่าตะโก สำหรับโครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเฉียงเหนือ ภาคเหนือตอนล่าง ภาคกลาง และกรุงเทพมหานคร เพื่อเสริมความมั่นคงระบบไฟฟ้า โดยทำสัญญาแบบปรับราคาได้ (ค่า K) โดยใช้งบประมาณ กฟผ.

สถานที่ก่อสร้าง : สถานีไฟฟ้าแรงสูงท่าตะโก

ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) : 269,000,000.- บาท

คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นผู้ประกอบการและพัสดุที่ผ่านการคัดเลือกคุณสมบัติเบื้องต้นตามบัญชีรายชื่อที่ระบุในเอกสารประกวดราคา
2. ต้องเป็นนิติบุคคลผู้มีอาชีพรับจ้างตามประกวดราคาจ้างดังกล่าว และต้องไม่เป็นผู้ทำงานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทำงานตามคำสั่ง กฟผ.
3. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศประกวดราคาค้างนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาค้างนี้
4. ต้องไม่เป็นที่ปรึกษาของ กฟผ. หรือมีส่วนร่วมในบริษัทที่ปรึกษาของ กฟผ. ในงานนี้ หรือต้องไม่มีผู้ปฏิบัติงาน กฟผ. เข้าไปมีส่วนร่วมในกิจการของผู้เสนอราคา ไม่ว่าจะในฐานะผู้ถือหุ้นที่มีสิทธิควบคุมการจัดการ กรรมการ ผู้อำนวยการ ผู้จัดการ พนักงาน ลูกจ้าง ตัวแทน หรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
5. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นนั้น
6. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคา ในนามของกิจการร่วมค้าหรือกิจการร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.

การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 5,000.- ได้ที่ แผนกจัดจ้างต่างประเทศสายงานระบบส่ง (ห้อง 301 ชั้น 3 อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082) กองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง ฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 21 กันยายน 2565 ถึงวันที่ 4 พฤศจิกายน 2565 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล procurement.tse@egat.co.th ทั้งนี้ สามารถ download แบบฟอร์มลงทะเบียนผู้ซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/>

กมลทิศา วิชาญกุล

การยื่นซองประกวดราคา

กำหนดยื่นซองประกวดราคา ในวันที่ 6 ธันวาคม 2565 เวลา 09:30 น. ถึง 10:00 น. และเปิดซองประกวดราคาเวลา 10:00 น. ณ ห้องประกวดราคา ชั้น 1 อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 14 กันยายน 2565

กมลทิศา ชัยกุล

(นางกรรณิกา ธชาลภูมิ)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

(ฉบับแก้ไข)

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)
ในการจัดซื้อจัดจ้างที่มีใขงานก่อสร้าง

1. ชื่อโครงการ Bid No. TIEC-S-04

งานจัดหาและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 500 kv ท่าตะโก

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเฉียงเหนือ ภาคเหนือตอนล่าง ภาคกลาง
และกรุงเทพมหานคร เพื่อเสริมความมั่นคงระบบไฟฟ้า

/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. วงเงินงบประมาณที่ได้รับจัดสรร

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเฉียงเหนือ ภาคเหนือตอนล่าง ภาคกลาง
และกรุงเทพมหานคร เพื่อเสริมความมั่นคงระบบไฟฟ้า งบประมาณ 94,040 ล้านบาท

3. วันที่กำหนดราคากลาง 1 กันยายน 2565 (วันที่ ชสพ. อนุมัติ)

ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 269,000,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ

4. แหล่งที่มาของราคากลาง

หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง

5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง

5.1 นายฉัตรชัย	เชาวนาธิคม	หมฟ-ส. กวอ-ส.
5.2 นายภาณุวัฒน์	ลิขิตผลมดุง	ห่อต-ส. กวอ-ส.
5.3 นางสาวจารุวรรณ	พิพัฒน์มงคลพร	หวอ-ส. กวอ-ส.
5.4 นายเมธา	รักปาน	กวป-ส.
5.5 นายสุวัฒน์	ศักดิ์สมกุลอุทัย	กวธ-ส.

หมายเหตุ ค่าใช้จ่ายอื่นๆ ได้แก่ ค่าใช้จ่ายที่ กฟผ. ต้องจ่ายตามวิธีการพิจารณาเปรียบเทียบราคาที่กำหนดไว้
ในเอกสารประกวดราคา เช่น อากรขาเข้า เป็นต้น

นางสาวอัสยา ข่างวิทยากาน

นางสาวอัสยา ข่างวิทยากาน
ทจตส-ท.

14 ก.ย. 2565

MEDIUM COST FOR BID NO. TIEC-S-04


SUMMARY OF BID PRICE

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Schedule	Description	Currency	Supply of Equipment		Local Currency (excluding VAT) Baht Amount	Local Transportation (excluding VAT) Baht Amount	Local Transportation, Construction and Installation (excluding VAT) Baht Amount
			Foreign Supply	Local Supply			
			CIF Thai Port	Ex-works Price (excluding VAT) Baht			
			Amount	Amount			
1	500 KV THA TAKO SUBSTATION	THB	99,826,710.92				
				74,145,924.36	45,718,208.16	300,146.00	29,129,635.17
BID PRICE		THB	99,826,710.92	Baht 74,145,924.36	Baht 45,718,208.16	Baht 300,146.00	Baht 29,129,635.17
OTHER EXPENSES		THB	1,996,534.22				
VAT		THB	7,127,627.16	Baht 5,190,214.71	Baht 3,200,274.57	Baht 21,010.22	Baht 2,039,074.46
SUMMARY OF BID PRICE		THB	108,950,872.30	Baht 79,336,139.07	Baht 48,918,482.73	Baht 321,156.22	Baht 31,168,709.63
TOTAL MEDIUM COST		THB	268,695,359.95				
TOTAL MEDIUM COST (ROUND)		THB	269,000,000.00				


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 นางสาวอัสยา ช่างวิทยา
 หจก.ส.ท.
 14 ปี.ย. 2565

Medium Cost for BID NO. TIEC-S-04
SCHEDULE 1 : 500 KV THA TAKO SUBSTATION
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Currency (excluding VAT) Baht	Local Transportation (excluding VAT) Baht	Local Transportation, Construction and Installation (excluding VAT) Baht
		Foreign Supply	Local Supply			
		CIF Thai Port	Ex-works Price (excluding VAT) Baht			
		Amount	Amount			
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT	THB	99,826,710.92	71,144,396.36			29,129,635.17
PART 1C : CIVIL WORK				45,718,208.16		
PART 1D : SUPPLY OF SPARE PARTS			3,001,528.00		300,146.00	
TOTAL PRICE	THB	99,826,710.92	Baht	Baht	Baht	Baht
			74,145,924.36	45,718,208.16	300,146.00	29,129,635.17


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01 Sep 2022

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นางสาวอสิยา ขำวงษ์
นางสาวอสิยา ขำวงษ์
ทจตส-ท.
14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation, Construction and Installation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1AB4 : Surge Arrester	THB	2,190,000.00	438,000.00	289,080.00
Schedule 1AB5 : Current Transformer and Junction Box	THB	14,130,000.00	765,000.00	1,638,450.00
Schedule 1AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	3,372,000.00	568,000.00	1,300,200.00
Schedule 1AB9 : Power Circuit Breaker	THB	46,514,662.00		5,116,612.82

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ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง

Medium Cost for BID NO. TIEC-S-04

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation, Construction and Installation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1AB10 : Disconnecting Switch	THB	23,665,260.00	3,309,000.00	2,967,168.60
Schedule 1AB12 : AC&DC Distribution Board and Termination Box			63,788.00	7,016.68
Schedule 1AB14 : Substation Steel Structure			18,277,486.14	5,026,308.69
Schedule 1AB15 : Insulator				641,995.15
Schedule 1AB18 : Low Voltage Cable and Conductor			26,511,099.12	6,075,460.22



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นางสาวอภิสยา ช่างวิทยาภ

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นางสาวอภิสรา ชัยพันธ์

นางสาวอภิสรา ชัยพันธ์

นางสาวอภิสรา ชัยพันธ์

14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation, Construction and Installation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1AB19 : Switchyard Lighting Fixtures			180,985.20	49,770.93
Schedule 1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware	THB	1,241,174.88	1,812,565.92	699,815.60
Schedule 1AB21 : Bus Fitting	THB	3,729,936.34		854,777.08
Schedule 1AB22 : Grounding Material	THB	4,707,796.38	1,377,634.54	1,482,702.27



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อาภา ชิงอินทพร

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Medium Cost for BID NO. TIEC-S-04

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation, Construction and Installation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1AB23 : Substation Miscellaneous	THB	275,881.32	778,897.44	241,720.13
Schedule 1AB24 : Control and Protection System			14,220,902.00	1,430,990.00
Schedule 1AB25 : Fault Recording System			2,841,038.00	284,103.00
Schedule 1AB38 : Remote Terminal Unit				3,564.00
Schedule 1AB39 : Commissioning				969,900.00



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Medium Cost for BID NO. TIEC-S-04

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation, Construction and Installation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1AB40 : Installation of Equipment and Steel Structure Supplied by EGAT				50,000.00
PART 1AB	THB	99,826,710.92	Baht	Baht
			71,144,396.36	29,129,635.17



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Medium Cost for BID NO. TIEC-S-04

PART 1C : CIVIL WORK

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Local Currency
	(excluding VAT) Baht Amount
Schedule 1C1 : Foundation Work	17,555,956.00
Schedule 1C2 : Cable Trench	11,131,087.00
Schedule 1C4 : Earth Work, Road and Crushed Rock Surfacing	1,319,503.00
Schedule 1C6 : Drainage System	7,447,718.00
Schedule 1C7 : Special Construction Works	2,329,180.16
Schedule 1C8 : Miscellaneous	104,148.00
Schedule 1C9 : Fire Protection System	5,830,616.00
PART 1C	Baht 45,718,208.16



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**Medium Cost for BID NO. TIEC-S-04
PART 1D : SUPPLY OF SPARE PARTS**

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation (excluding VAT) Baht Amount
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	
Schedule 1D24 : Spare Parts for Control and Protection System			2,409,775.00	240,974.00
Schedule 1D25 : Spare Parts for Fault Recording System			591,753.00	59,172.00
PART 1D			Baht 3,001,528.00	Baht 300,146.00



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Medium Cost for BID NO. TIEC-S-04

1AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT)			
					Foreign Supply		Local Supply		Baht		Baht	
					CIF Thai Port		Ex-works Price (excluding VAT)					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB4-1	396 kV Surge Arrester completed with corona ring, grading ring as per Ratings and Features RF SA9Y11	6		THB	365,000.00	2,190,000.00			XXXXXX	XXXXXX		
1AB4-2	Steel Supporting Structure for SA9Y11(for Item No. 1AB4-1), H=9.00 m as per Dwg. No. ST-LA-9-01 and SD-AB-0-01	6					73,000.00	438,000.00	XXXXXX	XXXXXX		
1AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB4-1 thru 1AB4-2	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	289,080.00	289,080.00		
				THB	2,190,000.00		Baht		Baht			
Total Price for Schedule 1AB4							438,000.00		289,080.00			



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Medium Cost for BID NO. TIEC-S-04

1AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT)			
					Foreign Supply		Local Supply		Baht		Baht	
					CIF Thai Port		Ex-works Price (excluding VAT)					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB5-1	525 kV CT, 1550 kV BIL, 1500/2000/3000:1//1//1//1//1A, 50 kA, oil filled as per Rating and Features RF CT99F2	9		THB	1,570,000.00	14,130,000.00			XXXXXX	XXXXXX		
1AB5-2	Steel Supporting Structure for CT99F2 (for Item 1AB5-1) H=9.00 m. as per Dwg. No. ST-CT-9-01 and SD-AB-0-01	9					85,000.00	765,000.00	XXXXXX	XXXXXX		
1AB5-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB5-1 thru 1AB5-2											
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	1,638,450.00	1,638,450.00		
				THB	14,130,000.00		Baht		Baht			
Total Price for Schedule 1AB5							765,000.00		1,638,450.00			



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Medium Cost for BID NO. TIEC-S-04

1AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB9-1	550 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB9952(IEC)	3		THB	7,831,277.00	23,493,831.00			XXXXXX	XXXXXX		
1AB9-2	550 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB995R(IEC) (for 525 kV 55 Mvar Y-connected five-limbed core type shunt reactor with 110 kV 0.99 Mvar neutral reactor with earthed neutral)	2		THB	7,629,126.00	15,258,252.00			XXXXXX	XXXXXX		
1AB9-3	Controlled Switching Device with Control Cable link between Power Circuit Breaker and Controlled Switching Device for Item No. 1AB9-2	2		THB	1,889,500.00	3,779,000.00			XXXXXX	XXXXXX		
1AB9-4	Circuit breaker marshalling KIOSK (Designed by Contractor)	5		THB	634,918.00	3,174,590.00			XXXXXX	XXXXXX		
1AB9-5	Steel Supporting Structure for CB9952(IEC) (Item No. 1AB9-1)*	3		THB	141,236.00	423,708.00			XXXXXX	XXXXXX		
1AB9-6	Steel Supporting Structure for CB995R(IEC) (Item No. 1AB9-2)*	2		THB	141,236.00	282,472.00			XXXXXX	XXXXXX		


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Medium Cost for BID NO. TIEC-S-04

1AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB9-7	BLANK SWING RACK PANEL WITH FIXED PLATE AND DIN RAILS for installation Item 1AB9-3 as per Dwg. No. TP-E-10.1	1		THB	102,809.00	102,809.00			XXXXXX	XXXXXX		
1AB9-8	Cost of Local Transportation, Construction and Installation for Item No. 1AB9-1 thru 1AB9-7			THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	5,116,612.82	5,116,612.82		
Total Price for Schedule 1AB9				THB	46,514,662.00		Baht		Baht 5,116,612.82			

*The design of supporting structures of circuit breaker shall be verified by circuit breaker manufacturer.



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 14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

1AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB10-1	550 kV 4000 A air switch with grounding blade (high creepage) motor operated as per Ratings and Features RF DS99KI(IEC) (phase spacing = 9.00 m)	4		THB	2,089,117.00	8,356,468.00			XXXXXX	XXXXXX		
1AB10-2	550 kV 4000 A air switch (high creepage) motor operated as per Ratings and Features RF DS99KH(IEC) (phase spacing = 9.00 m)	8		THB	1,913,599.00	15,308,792.00			XXXXXX	XXXXXX		
1AB10-3	Steel Supporting Structure for DS99KI as per EGAT's Dwg. No. ST-DS-9-01 and SD-AB-0-01, H = 9.00 m (The structure shall be suitable for connecting with an earth fixed point (Item no. 1AB22-5) on the opposite side of grounding blade)	4					275,750.00	1,103,000.00	XXXXXX	XXXXXX		
1AB10-4	Steel Supporting Structure for DS99KH as per EGAT's Dwg. No. ST-DS-9-01 and SD-AB-0-01, H = 9.00 m (The structure shall be suitable for connecting with earth fixed points (Item no. 1AB22-5) on both sides)	8					275,750.00	2,206,000.00	XXXXXX	XXXXXX		


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Medium Cost for BID NO. TIEC-S-04

1AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local	
					Foreign Supply		Local Supply		Transportation, Construction and Installation (excluding VAT) Baht	
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB10-5	Cost of Local Transportation, Construction and Installation for Item No. 1AB10-1 thru 1AB10-4									
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	2,967,168.60	2,967,168.60
Total Price for Schedule 1AB10				THB	23,665,260.00		Baht		3,309,000.00 2,967,168.60	



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อรุณ ชื่นชื่นกุล

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Medium Cost for BID NO. TIEC-S-04

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB12-1	Termination Box type TB1 as per Dwg No. LT-TB-0-01	6					4,265.00	25,590.00	XXXXXX	XXXXXX		
1AB12-2	Outdoor Receptacle Box type ORB3 as per Dwg. No. SE-ORB-0-01 (for general purpose)	1					38,198.00	38,198.00	XXXXXX	XXXXXX		
1AB12-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB12-1 thru 1AB12-2	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	7,016.68	7,016.68		
Total Price for Schedule 1AB12							Baht 63,788.00		Baht 7,016.68			


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อวต. อผค.
 นางสาวอาศยา ข่างวิทยา
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 14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB14-1	500 kV take-off structure (B1) as per Dwg. No. ST-1 (Designed by Contractor)	6					1,613,480.74	9,680,884.44	XXXXX	XXXXX		
1AB14-2	500 kV beam (B1-1) as per Dwg. No. ST-1 (Designed by Contractor)	3					1,335,662.86	4,006,988.58	XXXXX	XXXXX		
1AB14-3	500 kV bus pole structure (BP901) as per Dwg. No. ST-BP-9-01 (H = 5.00 m)	22					81,199.68	1,786,392.96	XXXXX	XXXXX		
1AB14-4	500 kV bus pole structure (BP902) as per Dwg. No. ST-BP-9-02 (H = 12.00 m)	16					166,664.87	2,666,637.92	XXXXX	XXXXX		
1AB14-5	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	12					10,771.47	129,257.64	XXXXX	XXXXX		
1AB14-6	Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03	1					7,324.60	7,324.60	XXXXX	XXXXX		


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Medium Cost for BID NO. TIEC-S-04

1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local		
					Foreign Supply		Local Supply		Transportation, Construction and Installation (excluding VAT) Baht		
					CIF Thai Port		Ex-works Price (excluding VAT) Baht				
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
1AB14-7	Cost of Local Transportation, Construction and Installation for Item No. 1AB14-1 thru 1AB14-6										
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	5,026,308.69	5,026,308.69	
Total Price for Schedule 1AB14								Baht	18,277,486.14	Baht	5,026,308.69


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Medium Cost for BID NO. TIEC-S-04


1AB15 : Insulator

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB15-1	500 kV station post insulator ANSI TR. No. 391, high creepage distance of not less than 13,750 mm. as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXXX	XXXXXX		
1AB15-2	Suspension insulator fog type (17" minimum leakage distance and 36,000 lb minimum combined M&E strength) as per Specification attached. (For 500kV insulator assembly, 28 units per string consisting of 26 brown-glazed discs and 2 light gray-glazed discs)	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXXX	XXXXXX		
1AB15-3	Suspension insulator ANSI 52-3 as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXXX	XXXXXX		
1AB15-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB15-1 thru 1AB15-3	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	641,995.15	641,995.15		
Total Price for Schedule 1AB15							Baht		Baht	641,995.15		


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Medium Cost for BID NO. TIEC-S-04

1AB18 : Low Voltage Cable and Conductor


SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB18-1	750 V power cable as per Specification attached	Lump sum	Lump sum				1,554,933.60	1,554,933.60	XXXXX	XXXXX		
1AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				10,684,555.20	10,684,555.20	XXXXX	XXXXX		
1AB18-3	750 V lighting cable (THW) as per Specification attached	Lump sum	Lump sum				14,850.00	14,850.00	XXXXX	XXXXX		
1AB18-4	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum				6,266,172.00	6,266,172.00	XXXXX	XXXXX		
1AB18-5	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				5,584,001.28	5,584,001.28	XXXXX	XXXXX		
1AB18-6	Overhead ground wire as per Specification attached	Lump sum	Lump sum				24,710.40	24,710.40	XXXXX	XXXXX		
1AB18-7	Aluminum conductor as per Specification attached	Lump sum	Lump sum				2,381,876.64	2,381,876.64	XXXXX	XXXXX		
1AB18-8	Cost of Local Transportation, Construction and Installation for Item No. 1AB18-1 thru 1AB18-7	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	6,075,460.22	6,075,460.22		
Total Price for Schedule 1AB18							Baht		Baht			
									26,511,099.12			
									6,075,460.22			


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Medium Cost for BID NO. TIEC-S-04

1AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB19-1	Flood lighting fixture, LED lamp, 10000 lumen, wide-beam, complete with control gear as per Specification attached	12					15,082.10	180,985.20	XXXXXX	XXXXXX		
1AB19-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB19-1	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	49,770.93	49,770.93		
Total Price for Schedule 1AB19							Baht	180,985.20	Baht	49,770.93		


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Medium Cost for BID NO. TIEC-S-04

1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB20-1	Aluminum tube as per Specification attached	Lump sum	Lump sum				1,777,941.00	1,777,941.00	XXXXXX	XXXXXX		
1AB20-2	500 kV Compression connector as per Specification attached	Lump sum	Lump sum	THB	650,279.52	650,279.52			XXXXXX	XXXXXX		
1AB20-3	500 kV Miscellaneous hardware as per Specification attached	Lump sum	Lump sum	THB	590,895.36	590,895.36			XXXXXX	XXXXXX		
1AB20-4	230 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				Included in 1AB20-2	Included in 1AB20-2	XXXXXX	XXXXXX		
1AB20-5	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				34,624.92	34,624.92	XXXXXX	XXXXXX		
1AB20-6	Cost of Local Transportation, Construction and Installation for Item No. 1AB20-1 thru 1AB20-5	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	699,815.60	699,815.60		
				THB	1,241,174.88		Baht		Baht			
Total Price for Schedule 1AB20							1,812,565.92		699,815.60			

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Medium Cost for BID NO. TIEC-S-04

1AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB21-1	500 kV Bus fitting as per Specification attached	Lump sum	Lump sum	THB	3,451,562.02	3,451,562.02			XXXXXX	XXXXXX		
1AB21-2	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	278,374.32	278,374.32			XXXXXX	XXXXXX		
1AB21-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB21-1 thru 1AB21-2	Lump sum	Lump sum	THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	854,777.08	854,777.08		
				THB	3,729,936.34		Baht		Baht 854,777.08			
Total Price for Schedule 1AB21												


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Medium Cost for BID NO. TIEC-S-04

1AB22 : Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB22-1	Ground rod as per Specification attached	Lump sum	Lump sum	THB	28,678.68	28,678.68			XXXXX	XXXXX		
1AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum	THB			1,377,634.54	1,377,634.54	XXXXX	XXXXX		
1AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	2,163,977.52	2,163,977.52			XXXXX	XXXXX		
1AB22-4	Disconnecting switch safety Mats	36		THB	11,595.33	417,431.88			XXXXX	XXXXX		
1AB22-5	500 kV maintenance grounding connector and guide, bus connector, earthing and short-circuiting cable as per Specification attached	Lump sum	Lump sum	THB	592,427.04	592,427.04			XXXXX	XXXXX		
1AB22-6	500 kV grounding tool equipment, portable ground attachment rod and clamp (for three phase connections) as per Specification attached	2	set	THB	752,640.63	1,505,281.26			XXXXX	XXXXX		
1AB22-7	Cost of Local Transportation, Construction and Installation for Item No. 1AB22-1 thru 1AB22-6	Lump sum	Lump sum	THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	1,482,702.27	1,482,702.27		
 Total Price for Schedule 1AB22				THB	4,707,796.38		Baht		Baht			
								1,377,634.54		1,482,702.27		

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Medium Cost for BID NO. TIEC-S-04

1AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

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Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				260,884.80	260,884.80	XXXXX	XXXXX		
1AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	275,881.32	275,881.32			XXXXX	XXXXX		
1AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum				303,380.64	303,380.64	XXXXX	XXXXX		
1AB23-4	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				214,632.00	214,632.00	XXXXX	XXXXX		
1AB23-5	Cost of Local Transportation, Construction and Installation for Item No. 1AB23-1 thru 1AB23-4	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	241,720.13	241,720.13		
				THB	275,881.32		Baht		Baht			
Total Price for Schedule 1AB23							778,897.44		241,720.13			

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Medium Cost for BID NO. TIEC-S-04
 1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
 TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE
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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
						Foreign Supply		Local Supply		Ex-works Price (excluding VAT) Baht			
						CIF Thai Port							
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB24-1	500 kV LINE PROTECTION (21P, 79, 51S)	Panel Nos. 413R,416R Drawing Nos. TTK-E-1.1, TTK-E-2.1, TTK-E-2.4(1/4) TTK-E-3.1 TP.	2	EA				1,613,981.00	3,227,962.00	XXXXX	XXXXX		
1AB24-2	500 kV LINE PROTECTION (21P, 24L, 1-BF)	Panel Nos. 414R Drawing Nos. TTK-E-1.1, TTK-E-2.1, TTK-E-2.4(1/4) TTK-E-3.1 TP.	1	EA				1,574,212.00	1,574,212.00	XXXXX	XXXXX		
1AB24-3	500 kV LINE PROTECTION (21P, 24L, 2-BF)	Panel Nos. 417R Drawing Nos. TTK-E-1.1, TTK-E-2.1, TTK-E-2.4(1/4) TTK-E-3.1 TP.	1	EA				1,883,113.00	1,883,113.00	XXXXX	XXXXX		
1AB24-4	500 kV SHUNT REACTOR PROTECTION	Panel Nos. 415R,418R Drawing Nos. TTK-E-1.1, TTK-E-2.1, TTK-E-2.4(1/4) TTK-E-3.1 TP.	2	EA				2,415,178.00	4,830,356.00	XXXXX	XXXXX		
1AB24-5	500 kV TRIP CIRCUIT SUPERVISION (6-BKR)	Panel Nos. 412R Drawing Nos. TTK-E-2.1 and TP-E-10.1	1	EA				841,909.00	841,909.00	XXXXX	XXXXX		
1AB24-6	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel Nos.MPC 11 Drawing Nos. TTK-E-2.1 and TP-E-10.3	1	EA			Supplied by EGAT	Supplied by EGAT	364,775.00	364,775.00	XXXXX	XXXXX	

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Medium Cost for BID NO. TIEC-S-04
1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE
SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
						Foreign Supply		Local Supply		Ex-works Price (excluding VAT) Baht		Baht	
						CIF Thai Port							
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB24-7	MARSHALLING PANEL FOR FRS	Panel Nos.MP-FRS11 Drawing Nos.TTK-E-1.1, TTK-E-2.1, TTK-E-3.1, TP-E-10.3 and TP-E-10.2	1	EA		Supplied by EGAT	Supplied by EGAT	409,986.00	409,986.00	XXXXXX	XXXXXX		
1AB24-8	MARSHALLING PANEL FOR TELEPROTECTION (500 kV)	Panel Nos.MP-TELE11 Drawing Nos.TTK-E-1.1, TTK-E-2.1, TTK-E-3.1, TP-E-10.3 DW-TPS.	1	EA				579,451.00	579,451.00	XXXXXX	XXXXXX		
1AB24-9	WATT AND VAR TRANSDUCER (W&VAR-TDR)	Installed in Panel No.TDR94-1 Installed in 500 kV Relay Building #4 Drawing Nos. TTK-E-	2	EA				41,964.00	83,928.00	XXXXXX	XXXXXX		
1AB24-10	VOLTAGE TRANSDUCER (V-TDR)	Installed in Panel No.TDR94-1 Installed in 500 kV Relay Building #4 Drawing Nos. TTK-E-	2	EA				31,115.00	62,230.00	XXXXXX	XXXXXX		
1AB24-11	TEST SWITCH (TS, for relays)	Installed in Panel No.TDR94-1 Installed in 500 kV Relay Building #4 Drawing Nos. TTK-E-	2	EA				12,789.00	25,578.00	XXXXXX	XXXXXX		
1AB24-12	DC UNDERVOLTAGE RELAY (27XB,27XR)	Installed in Panel No.IP94-1 Installed in 500 kV Relay Building #4 Drawing Nos. TTK-E-	2	EA				11,115.00	22,230.00	XXXXXX	XXXXXX		

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 1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
 TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE
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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation			
						Foreign Supply		Local Supply		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
						CIF Thai Port							
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB24-13	AC UNDERVOLTAGE RELAY (27VTS,27XM,27SD,27UF,27C)	Installed in Panel No.IP94-1 Installed in 500 kV Relay Building #4. Drawing Nos. TTK-E-1.1. Scope of Work	2	EA				157,586.00	315,172.00	XXXXX	XXXXX		
1AB24-14	Cost of Local Transportation, Construction and Installation for Item No. 1AB24-1 thru 1AB24-13		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,422,080.00	1,422,080.00		
1AB24-15	MODIFY EXISTING CONTROL AND PROTECTION SYSTEM	See scope of work.	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX		8,910.00		
Total Price for Schedule 1AB24								Baht 14,220,902.00		Baht 1,430,990.00			


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Medium Cost for BID NO. TIEC-S-04

1AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
						Foreign Supply		Local Supply					
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
						Unit Price	Amount	Unit Price	Amount				
1AB25-1	FAULT RECORDING SYSTEM, 32 ANALOG INPUT, 160 DIGITAL INPUT.	Installed in 500 kV Relay Building#4. Drawing No.TTK-E-1.1, Spec.No.1003, Scope of Work	1	SET				2,841,038.00	2,841,038.00	XXXXX	XXXXX		
1AB25-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB25-1												
			Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	284,103.00	284,103.00		
Total Price for Schedule 1AB25								Baht 2,841,038.00		Baht 284,103.00			


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อาน ช่ออินทร์
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Medium Cost for BID NO. TIEC-S-04

1AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE
SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
						Foreign Supply		Local Supply					
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
						Unit Price	Amount	Unit Price	Amount				
1AB38-1	MODIFICATION TO THE EXISITING REMOTE TERMINAL UNIT SYSTEM	Drawing Nos. TTK-E-1.1, TTK-E-2.1, TTK-E-2.4(1/4), TTK-E-3.1 , See scope of work.											
			Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	3,564.00	3,564.00		
Total Price for Schedule 1AB38									Baht		Baht 3,564.00		


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 01 Sep 2022

๑๓๓ ชัยวัฒน์
 นางสาวอาศยา ช่างวิทยาการ
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Medium Cost for BID NO. TIEC-S-04

1AB39 : Commissioning

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB39-1	Commissioning				XXXXX	XXXXX	XXXXX	XXXXX	969,900.00	969,900.00		
		Lump Sum	Lump Sum									
Total Price for Schedule 1AB39								Baht	Baht	969,900.00		


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อวต. ชื่องาน
 นางสาวอาสยา ปางวิทยาภ
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 14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

1AB40 : Installation of Equipment and Steel Structure Supplied by EGAT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht			
					Foreign Supply		Local Supply		Unit Price	Amount	Unit Price	Amount
					CIF Thai Port		Ex-works Price (excluding VAT) Baht					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB40-1	Dismantlement and then reinstallation of the existing equipment as per bidding drawing				XXXXXX	XXXXXX	XXXXXX	XXXXXX	50,000.00	50,000.00		
		Lump Sum	Lump Sum									
Total Price for Schedule 1AB40							Baht		Baht 50,000.00			



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14 ก.ย. 2565

Medium Cost for BID NO. TIEC-S-04

1C1 : Foundation Work

**SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK
AREA TO ENHANCE SYSTEM SECURITY**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-1	500 kV Take off structure foundation (TS901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /MM3-TS-9-01 01/01	6	Set	1,106,800.00	6,640,800.00
1C1-2	500 kV Disconnecting switch foundation (DS901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	TTK-DS-9-01 01/01	12	Set	283,959.00	3,407,508.00
1C1-3	500 kV Power circuit breaker foundation (CB901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /MM3-CB-9-01 01/01	5	Set	283,435.00	1,417,175.00
1C1-4	500 kV Current transformer foundation (CT901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /MM3-CT-9-01 01/01	9	Set	47,725.00	429,525.00
1C1-5	500 kV CCVT foundation (VT901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /MM3-VT-9-01 01/01	6	Set	87,627.00	525,762.00
1C1-6	500 kV High / Low Bus support structure foundation (BP901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	MM3-BP-9-01 01/01	22	Set	73,189.00	1,610,158.00



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Medium Cost for BID NO. TIEC-S-04

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK
AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-7	500 kV High / Low Bus support structure foundation (BP902) pile type (Dowel bar, Pile cut off and Pile shoe are included)	MM3-BP-9-02 01/01	16	Set	86,997.00	1,391,952.00
1C1-8	500 kV Lightning arrester support structure foundation (LA901) Pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /MM3-SA-9-01 01/01	6	Set	47,725.00	286,350.00
1C1-9	500 kV Shunt reactor foundation (SR901) and oil pit (pile type) (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /TT/KK4-SR-9-01 01/01	2	Set	648,306.00	1,296,612.00
1C1-10	500 kV Neutral reactor foundation (NR901) pile type (Dowel bar, Pile cut off and Pile shoe are included)	Designed by contractor /See Scope of work /NCO-SR-9-01 01/01 (SR2B)	2	Set	234,287.00	468,574.00
1C1-11	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02 01/01	12	Set	2,738.00	32,856.00
1C1-12	Circuit breaker marshalling kiosk foundation (MK) pad type	Designed by contractor /See Scope of work /ABB/PDG-FD-MK-0-01 01/01	5	Set	8,247.00	41,235.00
1C1-13	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05 01/01	1	Set	7,449.00	7,449.00

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Medium Cost for BID NO. TIEC-S-04

1C1 : Foundation Work

**SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK
AREA TO ENHANCE SYSTEM SECURITY**

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
Total Price for Schedule 1C1					Baht	17,555,956.00


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Medium Cost for BID NO. TIEC-S-04

1C2 : Cable Trench

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-02 - 01/02, SD-CE-0-02 - 02/02 See Dwg. TTK-C-3	Lump sum	Lump sum	914,128.00	914,128.00
1C2-2	Cable trench, steel cover included (Type"A")	Designed by contractor	Lump sum	Lump sum	7,983,375.00	7,983,375.00
1C2-3	Cable trench, steel cover included (Type"B")	Designed by contractor	Lump sum	Lump sum	347,060.00	347,060.00
1C2-4	Steel cover for standard cable trench (Type "A")	SD-CE-0-02 - 01/02, SD-CE-0-02 - 02/02 See Dwg. TTK-C-3	Lump sum	Lump sum	1,843,514.00	1,843,514.00
1C2-5	RC cover for cable trench (Existing to be removed)	-	Lump sum	Lump sum	43,010.00	43,010.00
Total Price for Schedule 1C2					Baht	11,131,087.00

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Medium Cost for BID NO. TIEC-S-04

1C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C4-1	RC.Road type " E " section 4 - 4	SD-RD-0-01 01/02 to 02/02	Lump Sum	Lump Sum	1,233,283.00	1,233,283.00
1C4-2	Existing Rc.Road (To be removed)	SD-RD-0-01 01/02 to 02/02	Lump Sum	Lump Sum	27,720.00	27,720.00
1C4-3	Remove crushed rock surfacing	-	Lump Sum	Lump Sum	50,625.00	50,625.00
1C4-4	Relocate crushed rock surfacing	-	Lump Sum	Lump Sum	7,875.00	7,875.00
Total Price for Schedule 1C4					Baht	1,319,503.00


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Medium Cost for BID NO. TIEC-S-04

1C6 : Drainage System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C6-1	Oil separator (Including piles)	SD-OS-0-02 - 01/03 to 03/03	1	Set	1,610,716.00	1,610,716.00
1C6-2	Oil pit with steel grating	Designed by contractor	Lump Sum	Lump Sum	944,010.00	944,010.00
1C6-3	Drainage System	Designed by Contractor See Scope of work See DWG. TTK-C-6 See Breakdown Price	Lump Sum	Lump Sum	4,892,992.00	4,892,992.00
Total Price for Schedule 1C6					Baht 7,447,718.00	



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Medium Cost for BID NO. TIEC-S-04

1C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C7-1	The site office construction for the employers or the supervisors	See "section G:local condition"	1	Set	850,000.00	850,000.00
1C7-2	Seismic integrity test (all bored pile)	-	Lump Sum	Lump Sum	166,200.00	166,200.00
1C7-3	Architectural and Engineering design work	-	Lump sum	Lump sum	806,517.45	806,517.45
1C7-4	Test and commissioning for fire protection system in switchyard	-	Lump sum	Lump sum	100,000.00	100,000.00
1C7-5	Test and commissioning for foam-water spray system (for Transformer / Shunt reactor)	-	2	Set	120,000.00	240,000.00
1C7-6	Fire Protection design work	-	Lump sum	Lump sum	166,462.71	166,462.71
 Total Price for Schedule 1C7					Baht 2,329,180.16	

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 วิศวกร
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Medium Cost for BID NO. TIEC-S-04

1C8 : Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C8-1	Wire mesh fence and gate (Pad type)	SD-CF-0-01 01/02 to 02/02	Lump sum	Lump sum	13,542.00	13,542.00
1C8-2	Wire mesh fence (existing to be removed)	SD-CF-0-01 01/02 to 02/02	Lump sum	Lump sum	1,758.00	1,758.00
1C8-3	Bored hole for soil investigation 12 m depth/hole	-	8	Set	11,106.00	88,848.00
Total Price for Schedule 1C8					Baht 104,148.00	



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Medium Cost for BID NO. TIEC-S-04

1C9 : Fire Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C9-1	Foam house	SD-FH-8-01 01/07 to 07/07	1	Set	987,200.00	987,200.00
1C9-2	Wheel fire extinguisher (2*50 lbs) with cabinet	HS-WR-0-04	1	Set	169,649.00	169,649.00
1C9-3	Bored Pile dia. 0.35 m (dry process)	SD-PL-0-01 - 01/01	Lump sum	Lump sum	108,987.00	108,987.00
1C9-4	Bladder tank proportioning system and components	Designed by Contractor	1	Set	1,283,741.00	1,283,741.00
1C9-5	Fire Protection System for transformer / shunt reactor	Designed by Contractor	2	Set	844,188.00	1,688,376.00
1C9-6	Fire Protection System for switchyard	Designed by Contractor	Lump sum	Lump sum	394,318.00	394,318.00
1C9-7	Fire Protection environmental monitoring system	Designed by Contractor	Lump sum	Lump sum	1,198,345.00	1,198,345.00
					Baht	5,830,616.00
 Total Price for Schedule 1C9						

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Medium Cost for BID NO. TIEC-S-04

1D24 : Spare Parts for Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation (excluding VAT) Baht			
						Foreign Supply		Local Supply					
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
						Unit Price	Amount	Unit Price	Amount				
1D24-1	DISTANCE RELAY (21P1) FOR 500 kV without 79/25	Supply as spare part Drawing No. TTK-E-1.1	1	EA				395,011.00	395,011.00	39,501.00	39,501.00		
1D24-2	DISTANCE RELAY (21P2) FOR 500 kV without 79/25	Supply as spare part Drawing No. TTK-E-1.1	1	EA				395,011.00	395,011.00	39,501.00	39,501.00		
1D24-3	AUTO RECLOSING AND SYNCHRONISM CHECK RELAY (79+25)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				250,487.00	250,487.00	25,048.00	25,048.00		
1D24-4	AC UNDERVOLTAGE RELAY (27VTS,27XM,27SD,27UF,27C)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				157,586.00	157,586.00	15,758.00	15,758.00		
1D24-5	BREAKER FAILURE RELAY (50BF+62BF)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				200,958.00	200,958.00	20,095.00	20,095.00		
1D24-6	REACTOR DIFFERENTIAL RELAY (87R)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				401,594.00	401,594.00	40,159.00	40,159.00		


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Medium Cost for BID NO. TIEC-S-04

1D24 : Spare Parts for Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation (excluding VAT) Baht			
						Foreign Supply		Local Supply					
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price		Amount	
						Unit Price	Amount	Unit Price	Amount				
1D24-7	NEUTRAL REACTOR DIFFERENTIAL RELAY (87RN)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				401,594.00	401,594.00	40,159.00	40,159.00		
1D24-8	OVERFLUXING RELAY (24K,24L)	Supply as spare part Drawing No. TTK-E-1.1	1	EA				207,534.00	207,534.00	20,753.00	20,753.00		
Total Price for Schedule 1D24								Baht 2,409,775.00		Baht 240,974.00			



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Medium Cost for BID NO. TIEC-S-04

1D25 : Spare Parts for Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation (excluding VAT) Baht			
						Foreign Supply		Local Supply					
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
						Unit Price	Amount	Unit Price	Amount				
1D25-1	ANALOG ISOLATOR CARD	Supply as spare part	1	EA				87,300.00	87,300.00	8,730.00	8,730.00		
1D25-2	POWER SUPPLY	Supply as spare part	1	EA				36,118.00	36,118.00	3,611.00	3,611.00		
1D25-3	ACQUISITION UNIT	Supply as spare part	1	EA				25,669.00	25,669.00	2,566.00	2,566.00		
1D25-4	CPU & MEMORY MODULE 1	Supply as spare part	1	EA				85,581.00	85,581.00	8,558.00	8,558.00		
1D25-5	ANALOG ISOLATOR FOR VOLTAGE	Supply as spare part	1	EA				85,581.00	85,581.00	8,558.00	8,558.00		
1D25-6	ANALOG ISOLATOR FOR CURRENT	Supply as spare part	1	EA				85,581.00	85,581.00	8,558.00	8,558.00		
1D25-7	DIGITAL ISOLATOR MODULE	Supply as spare part	1	EA				83,232.00	83,232.00	8,323.00	8,323.00		
1D25-8	HARD DISK & HARD DISK CONTROLLER	Supply as spare part	1	EA				77,022.00	77,022.00	7,702.00	7,702.00		
1D25-9	TELE- COMMUNICATION BOARD	Supply as spare part	1	EA				25,669.00	25,669.00	2,566.00	2,566.00		
Total Price for Schedule 1D25								Baht 591,753.00		Baht 59,172.00			



นางสุตารัตน์ ไชยพันธุ์
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง

Important Information
for
Invitation to Bid No. TIEC-S-04

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 A-4. Eligibility of Bidders: Technical Requirements

The Bidder shall be named in EGAT Accepted Bidders List for Supply and Construction of Substations attached at the end of Section A. Invitation to Bid.

Some of the Equipment to be proposed by the Bidder shall be only those specified in EGAT Accepted List for such Equipment as attached at the end of Section A. Invitation to Bid. The Bidder shall carefully study Article A-4. Eligibility of Bidders: Technical Requirements and make sure to propose Equipment correctly.

Article E-16. Inspection and Tests

Terms and conditions regarding inspection and tests have been revised.

Article F-8. Drawings and Documents to be Furnished by the Contractor

Terms and conditions regarding EGAT's document management system in item a. have been added. The number of copies of the drawings and documents in Print and CD-ROM has been revised and Item c. Reproducible Drawings has been deleted.

Details in Drawings and Documents Required for Each Particular Equipment at the end of section F have been revised.

Article F-15. Liquidated Damages for Late Completion and Late Delivery

The total amount of liquidated damages shall not exceed ten (10) per cent of the total Contract Price, thereafter EGAT shall have the right, at its sole discretion, to terminate the Contract.

Article G-5. Safety of Personnel and Third Parties and Prevention of Accidents

Safety terms and conditions have been revised. The Contractor shall observe and comply with the revised terms and conditions including Table 1. Safety Criteria and Conditions, Table 2. Contractor's Safety Information, and Table 3. Contractor Safety Evaluation Checklist which have been added at the end of Section G.

DATA SHEET

for

Invitation to Bid No. TIEC-S-04

This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Bidding Documents.

1. Article B-3. Bid Security

The amount of bid security shall be USD 368,570.- or THB 12,400,000.-.

2. Article B-4. Validity of Bids

The validity of the bid shall be for two hundred and ten (210) Days from the date specified for opening of bid.

3. Maintenance Guarantee Period

- For all Work except 500 kV System

The Contractor shall guarantee the proper functioning of the Work 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 500 kV System

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

4. Defective Equipment to be replaced with the whole new set

Not Applicable

ELECTRICITY GENERATING AUTHORITY OF THAILAND

Nonthaburi
Thailand

INVITATION TO BID NO. TIEC-S-04

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 kV THA TAKO SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for supply and construction for Expansion of 500 kV Tha Tako Substation under Transmission System Improvement Project in Northeastern, Lower Northern, Central Regions and Bangkok Area to Enhance System Security as described herein in accordance with terms, conditions and Specifications described in these Bidding Documents.

Work Description

The supply and construction for Expansion of 500 kV Tha Tako Substation will be on a supply and construction basis, the Contractor shall be responsible for complete supply, installation, construction and also engineering design work to the standard specified and best modern practice. The substations to be constructed and the scope of work under this Invitation are described in Section H. Scope of Work.

Eligibility of Bidders: General Requirements

- I. 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 well-established and maintain a permanent place of business.

- c. The Bidder shall not be, or supply the Equipment, from the country under the state of Civil War.
- d. The Bidder shall be a juristic person who manufactures or provides such material or services, as the case may be, and 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. The Bidder shall not be a Jointly Interested Bidder with other Bidders as from the date of EGAT's issuance of the 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.
- f. The Bidder shall not either be EGAT's consultant or involving 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 for the ones who are officially ordered by EGAT to act or participate therein.
- g. 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.
- h. In case of a joint venture or consortium, the Bidder shall carry out all the work under such formation from the time of bidding until the fulfillment of the Contract.
- i. ***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.

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

- a. The Bidder shall have adequate fund to meet financial obligations incidental to this Contract.
- b. The Bidder shall supply documentary evidence established in accordance with Article B-8. Information to be Submitted with Bid to demonstrate adequately that he is eligible to bid and is qualified to perform the Contract if

his bid is accepted. Bidder should also demonstrate his capacity to perform the Work either with or without the use of subcontractor.

Eligibility of Bidders: Technical Requirements

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

- a. Being well-established and maintaining a permanent place of business.

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.

If 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 pending claim of the Bidder.

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

- b. The Bidder shall be named in EGAT Accepted Bidders List for Supply and Construction of Substations attached at the end of Section A. Invitation to Bid.

- c. The Bidder shall propose Equipment manufactured by the qualified manufacturers who shall fulfill the following requirements:

1. Regularly manufacturing of Equipment of the type and similar ratings proposed.
2. Being well-established and maintaining a permanent place of business.
3. The manufacturer shall have the experience records that meet the requirements set forth herein.

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

4. 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 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, provided that each item of the equipment to be supplied under this bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records as described in Item I.c.6 below.

Otherwise, it shall not be acceptable and shall be sufficient grounds for rejection.

For the avoidance of doubt, it is not allowed to combine the experience records of the previous companies or business units in order to meet the experience requirements.

5. For Equipment, having the same ratings as specified in EGAT Accepted List at the end of Section A. Invitation to Bid, shall have the following qualifications:

5.1 These Equipment shall be named in the EGAT Accepted List.

5.2 Having a past design test record of the Equipment as proposed, if specified in EGAT's specification. Such past design test record shall conform to the test specified in EGAT's specification (if required).

6. For Equipment not having the same ratings as specified in EGAT Accepted List at the end of Section A. Invitation to Bid:

6.1 For 500 kV Ratings of Gas-Insulated Switchgear (GIS) or Gas-Insulated Bus (GIB). These Equipment shall be manufactured by the qualified manufacturers who shall fulfill the following requirements:

6.1.1 Having one of the following qualifications:

6.1.1.1 Proposing the Equipment of the type and ratings which has already been accepted by EGAT.

OR

6.1.1.2 Having supply record of Equipment of the type proposed (type of enclosure, interrupter of circuit breaker, rated filling gas pressure) at the maximum system voltage of 420 kV or above, 3000 A or above, 50 kA or above, with successful operation/use of at least five (5) consecutive years in overseas country (not his own country) and at least three (3) substations of which total GIS bays shall not be less than twelve (12).

In case that supply record of Equipment of the type and ratings proposed fulfills the requirement, the manufacturer may propose a newly developed/modified type of such Equipment with successful operation/use of at least three (3) substations of which total GIS bays shall not be less than twelve (12) and for minimum one (1) year in overseas country (not

his own country). The detailed information of the development/modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgment whether or not to consider/accept the proposed developed/modified type.

Supply records of the higher rating Equipment shall not be considered if the Bidder does not propose such higher rating Equipment in his bid.

6.1.2 Having a past design test record of the equipment as proposed, if specified in EGAT's specification. Such past design test record shall conform to the test specified in EGAT's specification.

6.2. For 500 kV Ratings of following Equipment: Power Circuit Breaker, Instrument Transformer, Surge Arrester and Disconnecting Switch. These Equipment shall be manufactured by the qualified manufacturers who shall fulfill the following requirements:

6.2.1 Having one of the following qualifications:

6.2.1.1 Proposing the Equipment of the type and ratings which has already been accepted by EGAT.

OR

6.2.1.2 Having a supply record of Equipment of the type proposed at the maximum system voltage of 420 kV or above, 3000 A or above, 50 kA or above, with successful operation/use of at least five (5) three phase sets and for minimum five (5) consecutive years in an overseas country (not his own country).

In case that the supply record of Equipment of the type and ratings proposed fulfills the requirement, the manufacturer may propose a newly developed or modified type of such Equipment with successful operation/use of at least five (5) three phase sets and of minimum one (1) year in overseas country (not his own country). The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgment whether or not to consider or accept the proposed developed or modified type.

Supply records of the higher rating Equipment shall not be considered if the Bidder does not propose such higher rating Equipment in his bid.

6.2.2 Having a past design test record of the Equipment as proposed, if specified in EGAT's specification. Such past design test record shall conform to the test specified in EGAT's specification.

6.3 For 500 kV Control and Protection System, having the following qualifications:

6.3.1 Being local manufacturer.

6.3.2 Having one of the following qualifications:

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

OR

6.3.2.2 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.

OR

6.3.2.3 Being listed in EGAT ACCEPTED MANUFACTURER LIST FOR CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER) 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.

- a. The Bidder shall have sufficient capacity to carry out the work.
- b. 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. In case the Bidder is a joint venture/consortium, either member of the joint venture/consortium 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.

- c. The Bidder himself or his subcontractors, at the time of submitting this proposal, shall not carry excessive work nor be in a default position with respect to work with EGAT. Unsatisfactory past performance on Contract awarded by EGAT may be a sufficient reason of being disqualified.
- d. The Bidder shall propose Equipment from manufacturers who fulfill the requirements below. If there is any deficiency, EGAT reserves the right to require the Bidder to propose new manufacturer or new type/model of Equipment without any additional cost to EGAT.
 1. Regularly manufacturing of Equipment of the type and similar ratings proposed.
 2. Being well-established and maintaining a permanent place of business
 3. The manufacturer shall have the experience records that meet the requirements set forth herein.

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

4. 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 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, provided that each item of the equipment to be supplied under this bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records as described in Item II.d.6 below.

For the avoidance of doubt, it is not allowed to combine the experience records of the previous companies or business units in order to meet the experience requirements.

5. For Equipment, having the same ratings as specified in EGAT Accepted List at the end of Section A. Invitation to Bid, shall have the following qualifications:
 - 5.1 These Equipment shall be named in the EGAT Accepted List.
 - 5.2 Having a past design test record of the Equipment as proposed, if specified in EGAT's specification. Such past design test record shall conform to the test specified in EGAT's specification (if required).
6. For Equipment not having the same ratings as specified in EGAT Accepted List at the end of Section A. Invitation to Bid:

- 6.1 For 33, 22 and 11 kV ratings of following equipment: Metal-Clad SF₆ Gas Insulated Switchgear, Power Circuit Breaker, Instrument Transformer, Disconnecting Switch and Surge Arrester:

Having one of the following qualifications

- 6.1.1 Proposing the Equipment of the type and ratings which has already been accepted by EGAT.

OR

- 6.1.2 Having a supply record of Equipment of the type and ratings proposed with successful operation/use of at least three (3) consecutive years in an overseas country (not his own country) and at least three (3) three phase sets. The ratings and features of Equipment shall be the same or similar rating as EGAT specifies.

In case that the supply record of Equipment of the type and ratings proposed fulfilled the requirement, the manufacturer may propose a newly developed or modified type of such Equipment with successful operation/use of at least one (1) year in overseas country (not his own country) and at least three (3) three phase sets. The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgment whether or not to consider or accept the proposed developed or modified type. EGAT, however, reserves the right and will make its own judgment whether or not to consider/accept the proposed developed or modified type.

Supply records of the higher rating Equipment shall not be accepted if the Bidder does not propose such higher rating Equipment in his bid.

- 6.2 For Distribution Transformer, Power Fuse, AC&DC Distribution Board and Lighting Relay Panel (LRP), Load Center Unit Substation (LCUS), Junction Box, Battery Charger, Substation Steel Structure, 33 kV and below Cable Terminations, XLPE Power Cable, Power Cable, Control Cable and Switchboard Wire, Lighting Cable, Copper Ground Wire, Overhead Ground Wire, Aluminum Conductor, Optical Fiber Cable, Switchyard Lighting Fixtures, Aluminum Tube, Compression Connector and Miscellaneous Hardware, Bus Fittings, Ground Rod, Thermite Welding Material, Grounding Hardware, Conduit and Conduit Fittings:

6.2.1 Being local manufacturer for the following Equipment:

Distribution Transformer, AC&DC Distribution Board and Lighting Relay Panel (LRP), Load Center Unit Substation (LCUS), Junction Box, Battery Charger, Substation Steel Structure, 115 kV and below XLPE Power Cable, Power Cable, Control Cable and Switchboard Wire, Lighting Cable, Copper Ground Wire, Overhead Ground Wire, Aluminum Conductor, Single mode optical fiber cable, Switchyard Lighting Fixtures, Aluminum Tube, 230 kV and below Compression Connector and Miscellaneous Hardware, Thermite Welding Material and Conduit.

6.2.2 Having been granted a licence for producing standard product by Thai Industrial Standard Institute (TISI), Ministry of Industry:

60 kV through 115 kV XLPE Power Cable, Lighting cable and Aluminum conductor.

6.2.3 Having one of the following qualifications:

6.2.3.1 Having supply record of Equipment of the type and similar ratings proposed with successful operation/use for at least one (1) year.

OR

6.2.3.2 Having a letter of acceptance for manufacturing and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein (For the local manufacturer).

6.3 For Insulator:

Having one of the following qualifications:

6.3.1 Having supply record with successful operation/use for at least three (3) consecutive years in overseas country (not his own country) and for following equipment:

6.3.1.1 Suspension Insulator, at least 10,000 units having the similar ANSI class as proposed.

6.3.1.2 Station Post Insulator, having the similar ANSI technical reference number as proposed.

OR

6.3.2 Having a letter of acceptance for manufacturing and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein (For the local manufacturer).

6.4 For Stationary Battery:

Having one of the following qualifications:

- 6.4.1 Having supply record of Equipment of the type and similar ratings proposed with successful operation/use in substations/switchyards of at least three (3) consecutive years and at least three (3) sets.

In case that the supply record of Equipment of the type and similar ratings proposed fulfilled the requirements, the manufacturer may propose a newly developed or modified type of such Equipment with successful operation/use of at least one (1) year. The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgement whether or not to consider or accept the proposed developed or modified type.

OR

- 6.4.2 Having a letter of acceptance for manufacturing and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein (For the local manufacturer).

6.5 For above 33kV through 500 kV Outdoor Type Cable Termination and Cable Termination for GIS:

Having one of the following qualifications:

- 6.5.1 Proposing the Equipment of the type and ratings which have ever been accepted by EGAT.

OR

- 6.5.2 Having a supply record of Equipment of the type and ratings proposed with successful operation/use for at least three (3) consecutive years in an overseas country (not his own country) and at least five (5) three phase sets. The ratings and features of Equipment shall be the same or similar rating as EGAT specifies.

In case that the supply record of Equipment of the type and ratings proposed fulfilled the requirement, the manufacturer may propose a newly developed or modified type of such Equipment with successful operation/use for at least one (1) year in overseas country (not his own country) and at least five (5) three phase sets. The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its

own judgment whether or not to consider or accept the proposed developed or modified type.

Supply records of the higher rating Equipment shall not be accepted if the Bidder does not propose such higher rating Equipment in his bid.

6.6 Proposing the protective relays from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications. Type/Model of the main protective relays proposed shall be as specified in EGAT ACCEPTED MAIN RELAY LIST NO.1 and NO.2 attached at the end of Section A. Invitation to Bid.

6.7 For Fault Recording System:

6.7.1 Having one of the following qualifications:

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

OR

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

6.7.1.2.1 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.

OR

6.7.1.2.2 Being listed in EGAT ACCEPTED MANUFACTURER LIST FOR CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER) attached at the end of Section A. Invitation to Bid.

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.

- 6.7.2 Proposing the Fault Recording System (FRS) from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR FAULT RECORDING SYSTEM attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications. Type/model of FRS proposed shall be as specified in EGAT ACCEPTED FAULT RECORDING SYSTEM LIST attached at the end of Section A. Invitation to Bid.
- 6.8 Being local manufacturer for steel supporting structure of Instrument Transformer, Surge Arrester and Disconnecting Switch.
- 6.9 For Closed-circuit television (CCTV) system and equipment:
- 6.9.1 Proposed camera and Network Video Recorder (NVR) manufacturer shall have a representative or a branch office of manufacturer in Thailand for at least ten (10) years.
- 6.9.2 Proposed brand of IP cameras shall have a supply record of IP cameras for at least five hundred (500) IP cameras per contract with successful operation/use for at least three (3) years in Thailand.
- 6.9.3 The bidder or subcontractor shall have one of the following qualifications:
- 6.9.3.1 Having experiences in installation and cabling of outdoor-type IP cameras for at least fifty (50) cameras per contract with successful operation/use for at least three (3) years in Thailand.
- OR
- 6.9.3.2 Having experiences in optical fiber cabling in substation switchyards for at least five (5) substations per contract with successful operation/use for at least three (3) years in Thailand.
- 6.9.4 Being local manufacturer for the following Equipment: CCTV Rack cabinet, Monitoring desk, CCTV pole, 12-core ADSS optical fiber

- e. Proposing the manufacturer who has no just or proper claims pending against Equipment of the same type/model to be proposed under this bid.

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

- f. Proposing reputable subcontractors, for the portion of the work to be subcontracted, having adequate technical knowledge, ability and capacity to perform such work and having at least three years experience in the performance of similar work and of equal magnitude to the work to be subcontracted. If any proposed subcontractor(s) is (are) not qualified in the opinion of EGAT, the Bidder is required to select other subcontractor(s) at his own cost to the satisfaction of EGAT.

Definitions:

Year(s) of operation/use: The period of operation Completion date or Commissioning date or Taking over date or Operation date or Put in service date stated in End User Certificate or the sufficient documentary evidence before bid opening.

EGAT Accepted Bidders List for Supply and Construction of Substations

No.	Bidder / Country	Acceptance for		
		500 kV	230 kV	115&69 kV
1	Hitachi Energy (Thailand) Limited / Thailand	YES	YES	YES
2	Grid Solutions SAS / France	YES	YES	YES
3	Hitachi Ltd. / Japan	YES	YES	YES
4	Hyosung Heavy Industries Corporation / Korea	YES	YES	YES
5	KEC International Limited / India	YES	YES	YES
6	Mitsubishi Corporation / Japan	YES	YES	YES
7	Mitsubishi Electric Corporation / Japan	YES	YES	YES
8	Precise System and Project Co., Ltd. / Thailand	YES	YES	YES
9	SEPCOIII Electric Power Construction Corporation / China	YES	YES	YES
10	Siemens Energy Limited / Thailand	YES	YES	YES
11	Sri U-Thong Limited / Thailand	YES	YES	YES
12	TEDA Company Limited / Thailand	YES	YES	YES
13	Joint Venture of Sinohydro and SEPCOIII (Sinohydro (Thailand) Company Limited / Thailand and SEPCOIII Electric Power Construction Corporation / China)	YES	YES	YES
14	Consortium of Grid Solutions (Thailand) Ltd. and Grid Solutions SAS (Grid Solutions (Thailand) Ltd. / Thailand and Grid Solutions SAS / France)	YES	YES	YES
15	Consortium of Larsen & Toubro Limited and Sri U-Thong Limited (Larsen & Toubro Limited / India and Sri U-Thong Limited / Thailand)	YES	YES	YES
16	Consortium of Loxley Public Co., Ltd. and Sri U-Thong Limited (Loxley Public Co., Ltd. / Thailand and Sri U-Thong Limited / Thailand)	YES	YES	YES
17	Consortium of Sinohydro and SEPCOIII (Sinohydro (Thailand) Company Limited / Thailand and SEPCOIII Electric Power Construction Corporation / China)	YES	YES	YES
18	SBV Consortium (Sumitomo Corporation / Japan, Black & Veatch (Thailand) Limited / Thailand and Italian-Thai Development / Thailand)	YES	YES	YES
19	The Consortium of Mitsubishi Corporation and DEMCO Public Company Limited (Mitsubishi Corporation / Japan and DEMCO Public Company Limited / Thailand)	YES	YES	YES
20	The Consortium of Precise System and Project Co., Ltd. and Hitachi Ltd. (Precise System and Project Co., Ltd. / Thailand and Hitachi Ltd. / Japan)	YES	YES	YES
21	The Consortium of Mitsubishi Corporation and PWH (Thailand) Company Limited (Mitsubishi Corporation / Japan and PWH (Thailand) Company Limited / Thailand)	YES	YES	YES
22	Consortium of Larsen & Toubro Limited and Mitsubishi Corporation (Larsen & Toubro Limited / India and Mitsubishi Corporation / Japan)	YES	YES	YES
23	Sri U-Thong & LPS CONSORTIUM (Sri U-Thong Limited / Thailand and LOXLEY POWER SYSTEMS COMPANY LIMITED / Thailand)	YES	YES	YES
24	The Consortium of DEMCO Public Company Limited, KINDEN Corporation and Sri U-Thong Limited. (DEMCO Public Company Limited / Thailand, KINDEN Corporation / Japan and Sri U-Thong Limited / Thailand)	YES	YES	YES
25	Hyundai Engineering & Construction Co., Ltd. / Korea		YES	YES
26	Larsen & Toubro Limited / India		YES	YES
27	Kalpataru Power Transmission Limited / India		YES	YES
28	PWH (THAILAND) CO., LTD. / Thailand		YES	YES
29	DEMCO Public Company Limited / Thailand		YES	YES
30	Italthai Engineering Co., Ltd. / Thailand		YES	YES

เอกสารควบคุม
 รับรองสำเนาโดย ทพอ.ช.กฤษ-ส.อวส.
 ก่อนนำไปใช้งาน
 ต้องตรวจสอบ Revision คำสุด
 ฝ่ายวิศวกรรมระบบส่ง กฟผ.
 31 Mar 2022

EGAT Accepted Bidders List for Supply and Construction of Substations

No.	Bidder / Country	Acceptance for		
		500 kV	230 kV	115&69 kV
31	Sieyuan Electric Co., Ltd. / China		YES	YES
32	Black & Veatch (Thailand) Ltd. / Thailand		YES	YES
33	PESTECH Sdn. Bhd. / Malaysia		YES	YES
34	Shandong Taikai Power Engineering Co., Ltd. / China		YES	YES
35	SC-ST-BYP JOINT VENTURE COMPANY LIMITED / Thailand		YES	YES
36	China CAMC Engineering CO., LTD. / China		YES	YES
37	Kinden Corporation - Kinden (Thailand) Co., Ltd. Joint Venture (Kinden Corporation / Japan and Kinden (Thailand) Co., Ltd. / Thailand)		YES	YES
38	The Joint Venture of SRI and PWH (Sri U-Thong Limited / Thailand and PWH (Thailand) Company Limited / Thailand)		YES	YES
39	The Consortium of Kinden Corporation and Perfect Engineering Service Public Co., Ltd. (Kinden Corporation / Japan and Perfect Engineering Service Public Co., Ltd. / Thailand)		YES	YES
40	The Consortium of SCL-STC and ITE (Sinohydro Corporation Limited / China, Sinohydro (Thailand) Company Limited / Thailand and Italthai Engineering Co., Ltd. / Thailand)		YES	YES
41	The Consortium of Siemens Energy Limited and Sinkarnchang Company Limited (Siemens Energy Limited / Thailand and Sinkarnchang Company Limited / Thailand)		YES	YES
42	The Consortium of Siemens Energy Limited and Standard Performance Company Limited (Siemens Energy Limited / Thailand and Standard Performance Company Limited / Thailand)		YES	YES
43	JOINT VENTURE OF SCL, STC AND XD (Sinohydro Corporation Limited / China, Sinohydro (Thailand) Co., Ltd. / Thailand and Xian Electric Engineering Co., Ltd. / China)		YES	YES
44	JOINT VENTURE OF SINOHYDRO CORPORATION LIMITED AND SINOHYDRO (THAILAND) CO., LTD. (Sinohydro Corporation Limited / China and Sinohydro (Thailand) Co., Ltd. / Thailand)		YES	YES
45	LOXLEY & LPS CONSORTIUM (LOXLEY PUBLIC COMPANY LIMITED / Thailand and LOXLEY POWER SYSTEMS COMPANY LIMITED / Thailand)		YES	YES
46	The consortium of DEMCO Public Company limited and KINDEN Corporation (DEMCO Public Company Limited / Thailand and KINDEN Corporation / Japan)		YES	YES
47	The Consortium of Shanghai Electric Group Company Limited & Future Electrical Control Company Limited (Shanghai Electric Group Company Limited / China and Future Electrical Control Company Limited / Thailand)		YES	YES
48	Consortium of ITE - NCPE (Italthai Engineering Co., Ltd./ Thailand and North China Power Engineering Co., Ltd. of China Power Engineering Consulting Group / China)		YES	YES
49	The Consortium of DEMCO Public Company Limited, KINDEN Corporation and Hyundai Electric & Energy Systems Company Limited (DEMCO Public Company Limited / Thailand and KINDEN Corporation / Japan and Hyundai Electric & Energy Systems Company Limited / Korea)		YES	YES
50	Grid Solutions (Thailand) Limited / Thailand		YES	YES
51	CGGC-PG Joint Venture / China		YES	YES
52	Consortium of Pinggao Group Co., Ltd. and Italthai Engineering Co., Ltd. (Pinggao Group Co., Ltd. / China and Italthai Engineering Co., Ltd. / Thailand)		YES	YES
53	Hyundai Heavy Industries Co., Ltd. / Korea			YES

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EGAT Accepted Bidders List for Supply and Construction of Substations

No.	Bidder / Country	Acceptance for		
		500 kV	230 kV	115&69 kV
54	LOXLEY POWER SYSTEMS COMPANY LIMITED / Thailand			YES
55	Future Electrical Control Company Limited / Thailand			YES
56	NARI Group Corporation / China			YES
57	Consortium ITE and HHI (Italthai Engineering Co., Ltd. / Thailand and Hyundai Heavy Industries Company Limited / Korea)			YES
58	The Consortium of Demco Public Co., Ltd. Perfect Engineering Service Public Co., Ltd. And Demco Power Co., Ltd. (Demco Public Company Limited / Thailand, Perfect Engineering Service Public Co., Ltd. / Thailand and Demco Power Co., Ltd. / Thailand)			YES
59	The Consortium of A2 Technologies Vietnam Co., Ltd. and A2 Technologies Co., Ltd. (Thailand) (A2 Technologies Vietnam Co., Ltd. / Vietnam and A2 Technologies Co., Ltd. (Thailand) / Thailand)			YES

Note

Additionally, any bidders in the EGAT Accepted Bidders List for Supply and Construction of Substations of the same voltage level are allowed to form a new consortium or joint venture with other bidders in the accepted list. All parties of the new consortium or joint venture shall be accepted at the voltage level of the proposal.

Bid No. TEC-504

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EGAT Accepted Surge Arrester List

Description	Manufacturer / Country	Type / Model
396 kV SA (Porcelain)	Toshiba Hamakawasaki Factory / Japan	RVLQB-396HY
	Hubbell Power Systems Inc. / USA	VN/215516-9141
	ABB Power Grids Sweden AB / Sweden	EXLIM P396-GH550
	Tridelta Meidensha GmbH / Germany	SB 396/20.4-I
192 kV SA (Porcelain)	Toshiba Hamakawasaki Factory / Japan	RVLQC-192VY
	Siemens Aktiengesellschaft / Germany	3EP4 192-2PE42-1XX1-Z
	Hubbell Power Systems Inc. / USA	MVN192BB152AA
	ABB Power Grids Sweden AB / Sweden	EXLIM Q192-EH245
	Tridelta Meidensha GmbH / Germany	SB 192/10.3-0
108 kV SA (Porcelain)	Toshiba Hamakawasaki Factory / Japan	RVLQC-108VY
	Siemens Aktiengesellschaft / Germany	3EP4 108-2PE31-1XA1-Z
	Hubbell Power Systems Inc. / USA	MVN108BB088AA
	ABB Power Grids Sweden AB / Sweden	EXLIM Q108-EH123
	Tridelta Meidensha GmbH / Germany	SB 108/10.3-0

Bid No. TEC-504

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EGAT Accepted Coupling Capacitor Voltage Transformer List

Description	Manufacturer / Country	Type/Model
500 kV CCVT	ELECTROTECHNICAL ARTECHE HER MANOS, S.L. / Spain	DFK-525
	GE GRID SOLUTIONS (U.S.) ALSTOM GRID LLC / U.S.A.	OTCF 550
	TRENCH / Canada	TEIRF 500 A
	NISSIN ELECTRIC CO., LTD. / Japan	IM550
230 kV CCVT	ABB AB SVERIGE / Sweden	CPB 245
	GE GRID SOLUTIONS (U.S.) ALSTOM GRID LLC / U.S.A.	OTCF 245
	ELECTROTECHNICAL ARTECHE HER MANOS, S.L. / Spain	DFK-245
	NISSIN ELECTRIC (WUXI) CO., LTD. / China	WVL230-5H
	TRENCH ITALIA S.R.L. CAIRO MONTENOTTE / Italy	TCVT 245
	EMEK ELEKTRIK ENDUSTRISI A.S. / Turkey	KGT-245
115 kV CCVT	ABB AB SVERIGE / Sweden	CPB 123
	GE GRID SOLUTIONS (U.S.) ALSTOM GRID LLC / U.S.A.	OTCF 123
	ELECTROTECNICA ARTECHE HERMANOS, S.L. / Spain	DDB-123
	EMEK ELEKTRIK ENDUSTRISI A.S. / Turkey	KGT-125
	NISSIN ELECTRIC (WUXI) CO., LTD. / China	WVL115-10H
	TRENCH ITALIA S.R.L. CAIRO MONTENOTTE / Italy	TCVT 123

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EGAT Accepted Power Circuit Breaker List

Description	Manufacturer / Country	Type/Model	1&3 pole	3 pole	Type of Mechanism
550 kV, 4,000 A, 50 kA GCB (Class C1)	Siemens / Germany	3AP2FI-550kV	Yes	Yes	FA5 (Spring)
	ABB / Sweden	HPL550B2	Yes	Yes	BLG1002A (Spring)
	GE / France	GL317	Yes	Yes	FK3-4 (Spring)
245 kV, 4,000 A, 50 kA GCB (Class C1)	ABB / Sweden	LTB245E1	Yes	Yes	BLK222 (Spring)
				Yes	BLG1002A (Spring)
	GE / France	GL314	Yes	Yes	FK3-1 (Spring)
	Siemens / Germany	3AP1FI-245	Yes	Yes	FA2 (Spring)
		3AP1FG-245		Yes	FA4 (Spring)
	Sieyuan / China	LW58-252	Yes	Yes	SRCT36E (Spring)
			Yes	SSCT33 (Spring)	
123 kV, 3,150 A, 40 kA GCB (Class C1)	ABB / Sweden	LTB145D1/B		Yes	BLK222 (Spring)
	ABB / China	LTB145D1/B		Yes	BLK222 (Spring)
	GE / Germany	GL312F1/4031P		Yes	FK3-1 (Spring)
	Siemens / Germany	3AP1FG-123		Yes	FA2 (Spring)
	Siemens / India	3AP1FG-145kV		Yes	FA2 (Spring)
	Sieyuan / China	LW36-145		Yes	SRCT36E (Spring)

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EGAT Accepted Disconnecting Switch List

Description	Manufacturer / Country	Type/Model
550 kV, 4,000 A air switch	Coelme / Italy	STC
	GE / Italy	S3CD550/4000
	Hapam / Netherlands	SSBIII-525
550 kV, 4,000 A, air switch with grounding blade	Coelme / Italy	STC-E
	GE / Italy	S3CDT550/4000
	Hapam / Netherlands	SSBIII-AM-525
245 kV, 4,000 A, air switch	Coelme / Italy	TCB
	GE / Italy	S3CD245/4000
	Hapam / Netherlands	SSBIII-245
245 kV, 4,000 A, air switch with grounding blade	Coelme / Italy	TCB-E
	GE / Italy	S3CDT245/4000
	Hapam / Netherlands	SSBIII-AM-245
245 kV, 3,150 A air switch	Coelme / Italy	TCB
	Hapam / Netherlands	SSBIII-245
	GE / Italy	S3C245/3150
245 kV, 3,150 A air switch with grounding blade	Coelme / Italy	TCB-E
	Coelme / Italy	TCB-E Special
	Hapam / Netherlands	SSBIII-AM-245
	GE / Italy	S3CT245/3150

Bid NO. 11-2554

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EGAT Accepted Disconnecting Switch List

Description	Manufacturer / Country	Type/Model
123 kV, 3,150 A air switch	Coelme / Italy	TCB
	GE / Italy	S3C123/3150
	Hapam / Netherlands	SSBIII-123
123 kV, 3,150 A air switch with grounding blade	Coelme / Italy	TCB-E
	GE / Italy	S3CT123/3150
	Hapam / Netherlands	SSBIII-AM-123
123 kV, 2,000 A air switch	Coelme / Italy	TCB
	GE / Italy	S3C123/2000
	Hapam / Netherlands	SSBIII-123
123 kV, 2,000 A air switch with grounding blade	Coelme / Italy	TCB-E Special
	GE / Italy	S3CT123/2000
	Hapam / Netherlands	SSBIII-AM-123

Bid No. T-504

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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	✓	✓	✓	
		SEL-411L (*)	✓	✓	✓	
	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 (*)	✓	✓	✓	
		SEL-411L (*)	✓	✓	✓	
	Siemens	7SA522 (**)	✓	✓	✓	
		7SA6 series (**)	✓	✓	✓	
7SA87 (*)		✓	✓	✓		

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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	
Distance Protection	Schneider Electric	P443 (*)	✓	✓	✓	
	Ingeteam	EF-ZT (*)	✓	✓	✓	
	NR Electric	PCS-902 (*)	✓	✓	✓	
	Toshiba	GRZ200 (*)		✓	✓	
	ZIV	ZLV		✓	✓	
Transformer Differential Protection	ABB	RET670 (*)	✓	✓	✓	
		RET650 (**)	✓	✓	✓	3-restraints
	GE	P64x	✓	✓	✓	
		T35		✓	✓	
		T60		✓	✓	
	SEL	SEL-387		✓	✓	4-restraints
		SEL-487E (*)	✓	✓	✓	
		SEL-587			✓	2-restraints
		SEL-787 (**)			✓	4-restraints
	Siemens	Duobias (**)		✓	✓	
		7UT6 (**)	✓	✓	✓	5-restraints
		7UT82 (*)	✓	✓	✓	2-restraints
		7UT86 (*)	✓	✓	✓	3-restraints
	Schneider Electric	P645 (*)	✓	✓	✓	
	Ingeteam	EF-TD (*)	✓	✓	✓	3-restraints
	NR Electric	PCS-978 (*)	✓	✓	✓	
	Toshiba	GRT200 (*)	✓	✓	✓	
ZIV	IDV	✓	✓	✓		
Mitsubishi	MRD-HA (**)			✓	3-restraints	

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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	
High Impedance	ABB	REB650 (**)	✓	✓	✓	
Busbar Protection	SEL	SEL-587Z	✓	✓	✓	
Low Impedance Busbar Protection	ABB	REB670 (*)	✓	✓	✓	
		REB500	✓	✓	✓	
	GE	P746	✓	✓	✓	
		P740	✓	✓	✓	
		P747	✓	✓	✓	
		B90	✓	✓	✓	
		B30	✓	✓	✓	Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.
	SEL	SEL-487B (*)	✓	✓	✓	
	Siemens	7SS52 (**)	✓	✓	✓	
		7SS60	✓	✓	✓	Only for breaker and a half, double bus double breaker or main and transfer bus arrangement.
		7SS85 (*)	✓	✓	✓	
	Schneider Electric	P746 (*)	✓	✓	✓	
		P740 (**)	✓	✓	✓	
	Toshiba	GRB200 (*)	✓	✓	✓	
	Mitsubishi	MBP-H1A (**)		✓	✓	In case of double bus single breaker arrangement, maximum 8 feeders with 1 bus coupler and 2 bus sections are allowed.

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EGAT ACCEPTED MAIN RELAY LIST No.1

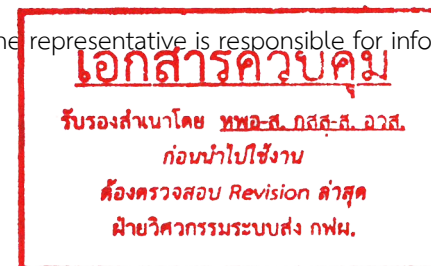
Description	Manufacturer	Accepted Type	Accepted Voltage Level			Notes
			500 kV	230 kV	115&69 kV	
Breaker Failure Protection	ABB	REQ650 (**)			✓	
	GE	P141			✓	Only for 3-phase breaker failure function.
		P14Nx	✓	✓	✓	
		C60		✓	✓	
		F60		✓	✓	
	SEL	SEL-501			✓	Only for 3-phase breaker failure function.
	Siemens	7VK6 series (**)	✓	✓	✓	
		7SJ82 (*)			✓	Only for 3-phase breaker failure function.
	Schneider Electric	P821		✓	✓	Only firmware version 1.F is accepted.
	Ingeteam	EF-ZT (*)	✓	✓	✓	
	NR Electric	PCS-9611 (*)			✓	Only for 3-phase breaker failure function.
	Toshiba	GRD200 (*)	✓	✓	✓	
ZIV	IRL			✓	Only for 3-phase breaker failure function.	

Remarks

- (*) Applicable to IEC 61850 for both station bus and process bus with the certification issued by the third party laboratory and specifying that the said relay conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".
- (**) Applicable to IEC 61850 only for station bus with the certification issued by the third party laboratory and specifying that the said relay conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".

Notes

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



EGAT ACCEPTED MAIN RELAY LIST No.2

Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Directional Overcurrent Relay	ABB	REQ650 (**)	✓	✓	✓	✓	
	GE	P14Dx	✓	✓	✓	✓	
		P841	✓	✓	✓	✓	
		P143	✓	✓	✓	✓	
	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-451 (*)	✓	✓	✓	✓	
		SEL-751 (**)	✓	✓	✓	✓	
	Siemens	7SJ62 (**)	✓	✓	✓	✓	
		7SJ85 (*)	✓	✓	✓	✓	
		7SJ82 (*)	✓	✓	✓	✓	
	Schneider Electric	P141 (**)	✓	✓	✓	✓	
		P143 (**)	✓	✓	✓	✓	
	Ingeteam	EF-MD (*)	✓	✓	✓	✓	
		DA-PT (**)	✓	✓	✓	✓	
	NR Electric	PCS-9611 (*)				✓	None of line fault locator. Only use with feeder.
	Toshiba	GRE140	✓	✓	✓	✓	
GRD200 (*)		✓	✓	✓	✓		
ZIV	IRV		✓	✓	✓		
Overcurrent Relay	ABB	REQ650 (**)	✓	✓	✓	✓	
	GE	P141	✓	✓	✓	✓	
		P14Dx	✓	✓	✓	✓	
		P14Nx	✓	✓	✓	✓	
		P841	✓	✓	✓	✓	
		F60	✓	✓	✓	✓	

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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	GE	F650	✓	✓	✓	✓	
		SR350	✓	✓	✓	✓	
		P143	✓	✓	✓	✓	
	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-451 (*)	✓	✓	✓	✓	
		SEL-551	✓	✓	✓	✓	
		SEL-751 (**)	✓	✓	✓	✓	
		SEL-751A	✓	✓	✓	✓	
	Siemens	7SJ61 (**)	✓	✓	✓	✓	
		7SJ62 (**)	✓	✓	✓	✓	
		7SJ85 (*)	✓	✓	✓	✓	
		7SJ82 (*)	✓	✓	✓	✓	
	Schneider Electric	P120	✓	✓	✓	✓	
		P122	✓	✓	✓	✓	
		P141 (**)	✓	✓	✓	✓	
		P143 (**)	✓	✓	✓	✓	
	Ingeteam	EF-MD (*)	✓	✓	✓	✓	
		DA-PT (**)	✓	✓	✓	✓	
	NR Electric	PCS-9611 (*)			✓	✓	Only for three-pole tripping.
	Toshiba	GRE140	✓	✓	✓	✓	
GRD200 (*)		✓	✓	✓	✓		
ZIV	IRV		✓	✓	✓		
	IRL	✓	✓	✓	✓		

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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	ABB	REQ650 (**)	✓	✓	✓		Only product version 2.1 is accepted.
	GE	P841	✓	✓	✓		
		F60	✓	✓	✓		
		F650	✓	✓	✓		
	SEL	SEL-351A	✓	✓	✓		
		SEL-451 (*)	✓	✓	✓		
		SEL-751 (**)	✓	✓	✓		
		SEL-751A	✓	✓	✓		
	Siemens	7VK61 (**)	✓	✓	✓		
		7SJ85 (*)	✓	✓	✓		
		7SJ82 (*)	✓	✓	✓		
	Ingeteam	EF-MD (*)	✓	✓	✓		
		DA-PT (**)	✓	✓	✓		
	NR Electric	PCS-9611 (*)	✓	✓	✓		
Toshiba	GRD200 (*)	✓	✓	✓			
Auto Reclosing Relay	ABB	REQ650 (**)	✓	✓	✓		
	GE	P841	✓	✓	✓		
		F60			✓		Only for three-pole reclose
		F650			✓		Only for three-pole reclose
		DRS			✓		Only for three-pole reclose

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31 Mar 2022

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	
Auto Reclosing Relay	SEL	SEL-351A			✓		Only for three-pole reclose
		SEL-451 (*)			✓		Only for three-pole reclose
		SEL-751 (**)			✓		Only for three-pole reclose
	Siemens	7VK61 (**)	✓	✓	✓		
		7SJ82 (*)			✓		Only for three-pole reclose
	Ingeteam	EF-ZT (*)	✓	✓	✓		
	NR Electric	PCS-9611 (*)			✓		Only for three-pole reclose
Toshiba	GRD200 (*)	✓	✓	✓			
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 (*)	✓	✓	✓	✓	
		DA-PT (**)	✓	✓	✓	✓	
	NR Electric	PCS-9611 (*)	✓	✓	✓	✓	
	ZIV	IRL	✓	✓	✓	✓	
Under/Overvoltage Relay	GE	MIV		✓	✓	✓	
		P94V	✓	✓	✓	✓	None of VT input (open delta connection) for 59N.

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EGAT ACCEPTED MAIN RELAY LIST No.2

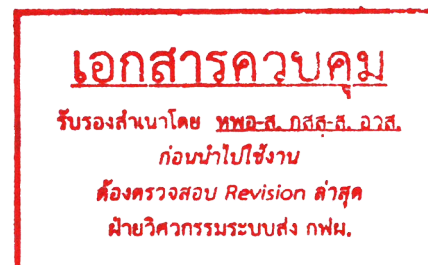
Description	Manufacturer	Accepted Type	Accepted Voltage Level				Notes
			500 kV	230 kV	115&69 kV	33&22 kV	
Under/Overvoltage Relay	SEL	SEL-351A	✓	✓	✓	✓	
		SEL-751 (**)	✓	✓	✓	✓	
		SEL-751A	✓	✓	✓	✓	
	Siemens	7SJ62 (**)	✓	✓	✓	✓	
		7SJ85 (*)	✓	✓	✓	✓	
		7SJ82 (*)	✓	✓	✓	✓	
	Schneider Electric	P141 (**)	✓	✓	✓	✓	
		P143 (**)	✓	✓	✓	✓	
	Ingeteam	EF-MD (*)	✓	✓	✓	✓	
		DA-PT (**)	✓	✓	✓	✓	
	NR Electric	PCS-9611 (*)		✓	✓	✓	Only for C-bank protection.
	Toshiba	GRD200 (*)	✓	✓	✓	✓	
ZIV	IRV	✓	✓	✓	✓		

Remarks

- (*) Applicable to IEC 61850 for both station bus and process bus with the certification issued by the third party laboratory and specifying that the said relay conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".
- (**) Applicable to IEC 61850 only for station bus with the certification issued by the third party laboratory and specifying that the said relay conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".

Notes

- The procedures for being listed in EGAT ACCEPTED MAIN RELAY LIST are specified in the EGAT's Pre-Qualification (PQ) process, of which the details can be provided by Transmission System Engineering Division on request.
- 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.
- The relays shall be configured to comply with all EGAT's required functions.



EGAT ACCEPTED FAULT RECORDING SYSTEM LIST

Accepted Type	Manufacturer
IDM+	Qualitrol
M871	GE
7KE85 (*)	Siemens
TESLA 4000 (*)	ERL Phase
TR 2100	Rochester (RIS)

Remarks

- (*) Applicable to IEC 61850 for both station bus and process bus with the certification issued by the third party laboratory and specifying that the said FRS conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".
- (**) Applicable to IEC 61850 only for station bus with the certification issued by the third party laboratory and specifying that the said FRS conforms to "IEC 61850 edition 2 parts 6, 7-1, 7-2, 7-3, 7-4, and 8-1".

Notes

1. The procedures for being listed in EGAT ACCEPTED FAULT RECORDING SYSTEM LIST are specified in the EGAT's Pre-Qualification (PQ) process, of which the details can be provided by Transmission System Engineering Division on request.
2. If any types of FRS 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.

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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, UK
	Toshiba / Japan, Vietnam
	Schneider Electric / France, UK
	ZIV / Spain
	INGETEAM / Spain
	NR Electric / China
	Mitsubishi / Japan
	Protecta / Hungary
	Arcteq / Finland

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31 Mar 2022

EGAT ACCEPTED MANUFACTURER LIST FOR FAULT RECORDING SYSTEM

Description	Manufacturer / Country
Fault Recording System	Qualitrol / UK
	Siemens / Germany
	Rochester / USA
	GE / USA
	ERL Phase / Canada

Bid No. TEC-S-04

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31 Mar 2022

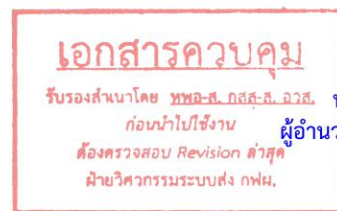
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EGAT ACCEPTED MANUFACTURER LIST FOR
CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER)

Description	Manufacturer	Designed by
500 kV Control and Protection Panel	Hitachi Energy (Thailand) Limited	Hitachi Energy (Thailand) Limited
	Precise System and Project Co., Ltd.	Precise System and Project Co., Ltd.
	U-tah Industry Limited Partnership	U-tah Industry Limited Partnership
	SCI Electric Public Company Limited	Siemens Energy Limited
230 kV and below Control and Protection Panel	Hitachi Energy (Thailand) Limited	Hitachi Energy (Thailand) Limited
	C&T Metal Products Co., Ltd.	Easun Reyrolle Limited, India
	Precise System and Project Co., Ltd.	Precise System and Project Co., Ltd.
	U-tah Industry Limited Partnership	U-tah Industry Limited Partnership
	SCI Electric Public Company Limited	SCI Electric Public Company Limited
	Timpano Electrical Co., Ltd.	Timpano Electrical Co., Ltd.
	Mantra Switchgear Co., Ltd.	Siemens Energy Limited

Notes

- The procedures for being listed in EGAT ACCEPTED MANUFACTURER LIST FOR CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER) can be provided by Transmission System Planning and Project Division on request.
- The control and protection panel shall be manufactured and designed by the manufacturer/company written in the same row.



นางสุดารัตน์ ไชยพันธุ์
ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
22 Dec 2021

31 Mar 2022

SCOPE OF WORK

H-1. General

<u>No.</u>	<u>Substation</u>	<u>Page</u>
1.	500 KV THA TAKO SUBSTATION	
	- GENERAL	H1-1
	- ELECTRICAL PART	H1A-1
	- CONTROL AND PROTECTION PART	H1B-1
	- COMMUNICATION PART (NONE)	-
	- CIVIL AND ARCHITECTURAL PART	H1D-1

1. 500 KV THA TAKO SUBSTATION

GENERAL

Tha Tako substation is located at Tambon Hua Thanon, Tha Tako District, Nakhon Sawan Province. The existing Tha Tako substation consists of 500 kV, 230 kV conventional substation (AIS) with Breaker & A Half scheme and 115 kV conventional substation (AIS) with Main & Transfer scheme.

Due to the continuing rise in power demand, it is found that the parts of existing transmission facilities may encounter the operating conditions under the limitation and low reliability; therefore, system expansion/reinforcement are required to extend the transmission capabilities. The extension of the Tha Tako Substation project will provide sufficient transferring capacity to meet the steadily increasing demand for the northern and central region.

The Scope of work comprises as follows:

The existing 500 kV switchyard at Tha Tako substation is outdoor conventional type, with breaker and a half switching arrangement. It shall be extended as outlined in the drawings to accommodate new 500 kV transmission lines as follows:

- The 500 kV Line No.1 to Sam Khok substation with 55 MVar, 500 kV Shunt Reactor and 0.99 MVar, 110 kV Neutral Reactor.

- The 500kV Line No.2 to Sam Khok substation with 55 MVar, 500 kV Shunt Reactor and 0.99 MVar, 110 kV Neutral Reactor.

The Contractor shall furnish a complete supply of equipment, materials and installation work etc., which is necessary to complete construction substation on a supply and construction basis, in accordance with the Contract Documents. The design work shall include, but not limited to, technical calculation, preparation of drawings, bill of materials for installation and construction work. For accomplishment of complete operational substation, Scope of Contractor's work shall include connection to all public utilities i.e. electrical power, water and drainage. Testing and commissioning of all equipment required to make the substation function properly.

Besides, all detailed engineering design work, calculations, drawing preparation, submission of backup data, test reports instruction books (and), etc. shall be included.

- 1) As stated elsewhere in this Bidding Documents, the drawings included in the Bidding Documents except drawing mark "For Construction" are for bidding purposes only and shall not be used for execution of the work.
- 2) The submitted drawings which are incomplete/unacceptable, or are the bidding document copies with minor modifications shall be returned unmarked to the Contractor.
- 3) The drawings shall be furnished which provide all details required for thoroughly described equipment as well as installation methods and

requirements. However, EGAT retains the right to request additional details if those furnished are perceived inadequate.

- 4) Calculations, backup data and documentation are required for all parts of the design. The furnished data shall verify completely that design is adequate for application purpose.

ELECTRICAL PART

Work included in this Contract.

The Work included in this Contract to be performed by the Contractor shall be as specified in the Contract Documents and as follows:

1. Conventional Substation (For 500 kV Tha Tako Substation)

- 1.1 Design, supply, and installation of equipment required for a complete 500 kV Conventional Substation.
- 1.2 Design, supply, and installation of the required equipment and related accessories for
 - additional 500 kV line No.1 to Sam Khok added in the new bay (Bay No.1A) and
 - additional 500 kV line No.2 to Sam Khok added in Bay No.1 (which is combined with the bay of 500/230-22 kV transformer KT3A)
- 1.3 Design, supply, and installation of the required equipment and related accessories for two (2) 55 MVar, 500 kV Shunt Reactors and two (2) 0.99 MVar, 110 kV Neutral Reactors. (The 500 kV Shunt Reactors and 110 kV Neutral Reactors are supplied by EGAT.)
- 1.4 Modify the existing interlock between the busbar disconnecting switches and the busbar earthing switches to complete with the additional disconnecting switches including marshalling kiosk.
- 1.5 Design, supply, and installation of the local control switchboards (Marshalling Kiosks) for 500 kV system.
- 1.6 Design and modify the existing local control switchboards (Marshalling Kiosks) and supply the equipment and accessories for modification to provide the complete system operation, if required.
- 1.7 Design, supply, and installation of miscellaneous hardware required for the following:
 - The connection of 500 kV system including the low voltage system which are related in these works to provide the complete system operation.
 - The connection of 500 kV overhead lines to the 55 MVar, 525 kV Shunt Reactors and their Neutral Reactors.

2. Grounding system

- 2.1 Design, supply, modification, and installation of the grounding system of the 500 kV system and low voltage system.

The grounding conductor for the substation grounding system shall be of the 4/0 AWG bare copper wire type.
- 2.2 Design, supply, modification, and installation of the grounding equipment and miscellaneous hardware for the 500 kV system and associated equipment.

- 2.3 The fault current division factor (S_f) value = 1 shall be used for determining the RMS symmetrical grid current.
- 2.4 The 50 kA fault current and fault clearing time (T_f) of 0.5 second shall be used for determining the size of grounding conductors for the substation grounding system. However, the 4/0 AWG bare copper wires shall be used for ground grid and for grounding conductor of all equipment.
- 2.5 The contractor shall design, modify, supply, and install the grounding system of 500 kV Tha Tako substation as specified in bidding document drawings. The contractor shall design, supply, and install the conductor size 4/0 AWG bare copper wire type and a mesh size shall not exceed 30m.x30m. as per bidding document drawings (drawing no. TTK-S-5-01/01).
- 2.6 The contractor shall evaluate the price of ground grid based on the specified design for price reference as show on bidding document drawing (drawing no. TTK-S-5-01/01). The number of ground rod shall be 30 pieces.
- 2.7 The contractor shall design, supply, and install the conductor size 2x4/0 AWG bare copper wire type connect from ground grid to steel structure and equipment.
- 2.8 Design, supply, and installation of miscellaneous hardware required for the grounding equipment and miscellaneous hardware for the 525 kV Shunt Reactors and their Neutral Reactors.

3. Lightning protection system

- 3.1 Design, supply, and installation of the substation lightning protection system complete with all related equipment. The Contractor shall design the lightning protection system for the protection of all substation equipment which is under the protective zone. To meet EGAT's design criteria for the lightning protection system and to enhance the stability of lightning protection system, the Basic Insulation Level voltage (BIL) of
 - 1550 kV for 500 kV Substationshall be used for the calculation instead of Critical Flashover voltage (CFO).
- 3.2 Lightning protection system shall be designed to meet IEC, NEMA and E.I.T. standards or internationally-accepted standards.

4. Power Supply System

- 4.1 Design, supply, and installation of the low voltage system complete with integral accessories (including the power cables, and all related equipment) to provide the complete system operation.

The low voltage system shall mainly consist of as follows:

- substation lighting system.
- outdoor receptacle box (ORB3)
- AC&DC distribution boards

- other panels/cabinets/boards
 - other equipment (if required)
- 4.2 Design, supply, and installation of equipment required for a complete 400/230 V power supply system.
- 4.3 The contractor shall modify the terminal and replace the circuit breaker of LCUS (if required). The voltage drop from LCUS to AC distribution board shall not exceed 3%.
- 4.4 The contractor shall modify the terminal and replace the circuit breaker of LCUS (if required). The voltage drop from LCUS to ORB3 shall not exceed 3%.

5. Facility system

5.1 Outdoor facility system:

- Design, supply, and installation of a substation lighting system complete with all integral accessories to provide a complete system operation. The lighting system shall mainly consist of equipment lighting, raceways, and wiring cables for lighting circuits.
- The lamps for outdoor facility lighting system shall be LED type with all integral accessories, e.g. lamp holders, fixtures, reflectors, and etc. The Contractor shall provide drawings that show details for installation.

5.2 Indoor facility system:

- Design, supply, and installation of the facility system which mainly consists of power supply, grounding system, fire alarm and protection system in the control building and relay building.

All cable wiring systems shall conform to NEC and IEC standards or accepted international standards.

- 5.3 All steel accessories e.g. lip-channel, conduit, conduit fittings, conduit accessories, box and cover shall be hot dip galvanized.
- 5.4 The size of low voltage cable shall be sufficient to keep the voltage drop at the load point less than 5% at rated load current.
- 5.5 The voltage drop from the safety switch to the AC boards and from the AC boards to the load shall not exceed 3% and 2% respectively.

6. Other works

- 6.1 Design, supply, and installation of the necessary equipment and miscellaneous hardware for cable wiring to the existing control building and relay building.
- 6.2 Design, supply, and Installation of the identification plates of all equipment and other necessary plates.

- 6.3 The sag and tension of phase wires and overhead ground wires shall be calculated and designed according to internationally-accepted standards by the Contractor and the said calculation shall be submitted to EGAT for approval.
- 6.4 The removal of the equipment in the existing conventional substation. Details of removal are shown on the bidding document drawings.
- All removed equipment from removal and replacement shall be carefully packed by the Contractor and returned to EGAT.
- The Contractor shall transport all removed equipment from Tha Tako substation to Kao Liao warehouse. The distance of transportation is approximately 45 km.
- Kao Liao warehouse's Address: 123 Moo 12, Bangmoung Sub-district, Mueang District, Nakhon Sawan Province.
- 6.5 Modification of the existing and new 500 kV take-off structures for the installation of 500 kV insulators, and all related equipment and miscellaneous hardware, if required.
- 6.6 Design, supply, and installation of all hardware for suspension and post insulator assembly.
- 6.7 Installation of suspension and post insulators.
- 6.8 Modification to Junction box supporting structure (JB003) for the installation of Outdoor receptacle box (ORB3).
- 6.9 The contractor shall design, supply and installation of the connection between the earth terminal of surge arrester and surge counter (including the cables, insulators, and miscellaneous hardware) to provide a complete function.

7. Testing and commissioning

- 7.1 Testing and commissioning of all equipment required to make the substation function properly.

Work not included in this Contract

The Work not included in this Contract shall be as shown on the drawings and as follows:

1. Supply and installation of the 525 kV Shunt Reactors and their Neutral Reactors, except cabling from the control cubicle of the Shunt Reactors to the associated equipment.
2. The stringing work for the connection between the 500 kV substation take-off structures and the dead-end towers of the transmission lines.
3. Supply the station post and suspension insulators for 500 kV.

CONTROL AND PROTECTION PART

Work included in this Contract

1. Design, supply, installation, test, and commissioning of complete control and protection system which comprises at least the following equipment:
 - Swing rack type switchboard panel.
 - Marshalling panel for the tele-protection interface.
 - Marshalling panel for the control system (Supplied By EGAT).
 - Fault Recording System and marshalling panel for fault recording system (Supplied By EGAT).
 - Cables and accessories as well as connection of cables among all of the boards, primary equipment and the associated equipment in order to complete the function of the control and protection system.
 - Loose equipment as specified in the price schedules.
2. The Contractor shall be responsible for providing complete schematic and wiring diagrams of the control and protection systems.
3. The Contractor shall provide the draftman working at site during the commissioning stage in order to be in charge of writing the As-built Drawings of Control and Protection System.
4. Design, modification, wiring, test and commissioning of the existing control and protection system which comprises of at least the following equipment:
 - Modify 50BF-913 circuit to 50BF-912 circuit and related panel.
 - Modify control circuit of breakers (diameter no.1).
 - Modify CT input of protection at Transformer protection KT3A to 230 kV Substation.
 - Modify Trip circuit supervision Panel 411R.
 - Modify 500 kV Synchronizing Panel S9-1 and S9-2.
5. Design of the schematic and wiring diagrams of the additional and replacement inputs to the existing Computerized Control System (CCS), including test and commissioning of the completed CCS.
6. Any modification and interfacing works to the existing primary equipment, metering, control and protection panels, including supply of related accessory equipment which is required for incorporating the new equipment. The modified existing drawings shall be performed by the Contractor and submitted to EGAT for approval. The final drawings shall be submitted as ACAD files.
7. Removal of the unused existing cables. The removed cables shall be neatly reeled and kept in a suitable place recommended by EGAT.

CIVIL AND ARCHITECTURAL PART

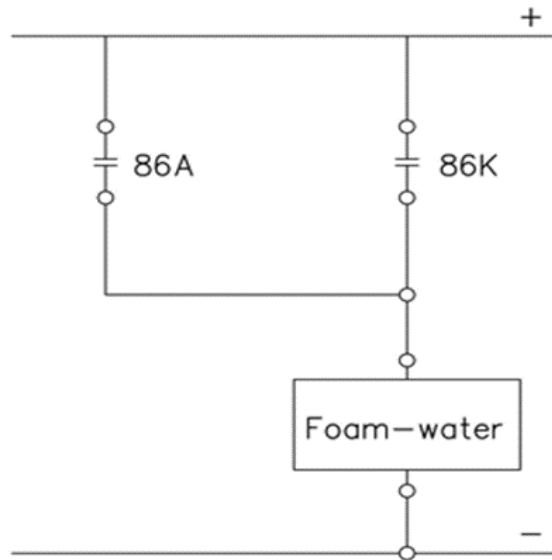
Work included in this Contract.

The Work included in this Contract to be performed by the Contractor shall be as specified in the Contract Documents and as follows:

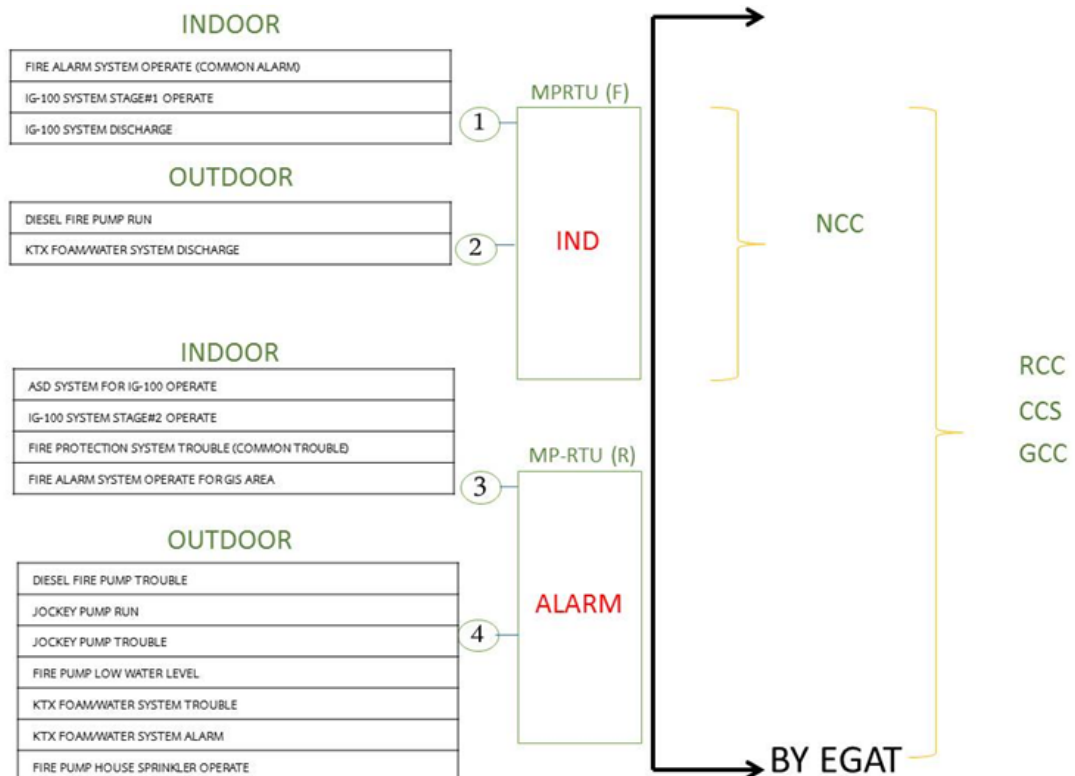
Water Supply and Fire Protection System

1. Design and construction of
 - 1.1 Fire protection system for the switchyard to meet the requirement as specified in IEEE Guide for Substation Fire Protection: IEEE Std 979, all requirements of NFPA 850.
 - 1.2 Fire protection system for the Transformer /Shunt Reactor: The Foam-water spray system shall comply with the following;
 - 1.2.1 Foam-water spray system: NFPA 13, NFPA16 & NFPA 850
 - 1.2.2 Bladder tank vessel construction standards: Carbon steel to ASME code section VIII for unfired pressure vessel.
 - 1.2.3 Nozzles: NFPA 16 and as per Manufacturer's Recommendation
 - 1.2.4 Detection system: Air Expansion Linear Heat Detection System (LHB)
 - 1.2.5 Equipment for system: FM approved, UL Listings, Vds
 - 1.2.6 Foam-water spray system provided for Transformer/ Shunt Reactor shall be designed for a density of 10.2 litre/min-sq.m. over the exposed surface at the Transformer/ Shunt Reactor.
 - 1.2.7 There shall be one linear heat detector box for each transformer / shunt reactor.
 - 1.3 There shall be one control panel for fire detection and foam/water spray system which controls all foam/water spray system of all protected transformers. Fire Pump System. (conforming to NFPA 14, 20, 22, 24, 72).
 - 1.4 Foam water spray system for shunt reactors shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected devices, shown and recorded at control room in Control Building. The installation practice shall be in accordance with the latest edition of NFPA 72.
 - 1.5 There shall be one graphic annunciator which displays alarm, discharge, and trouble signals of fire alarm system of other buildings, (shunt reactors) at the building where control room locates.
 - 1.6 Fire protection system circuits for buildings and switchyards: notification appliance circuits, and signaling line circuits, shall be class A circuit. Initiating device circuits can be class B circuit.
 - 1.7 For Control System Logic as shown on specification 3001-13.4 item 4.1 shall be changed to the new detail as following;

(4.1) In case of fire, heat detector and the tubular expansion detector first give alarm. If rate of rise/fixed temp in heat detector/tubular expansion detector sense fire condition, there shall be alarm in control room and the detected transformer and/Shunt Reactor shall be tripped before applying Foam-Water spray as the condition shown in the diagram below;



1.8 Signals of indoor fire protection system of each room and signals of outdoor fire protection system of each transformer / shunt reactor shall be sent to local CCS, GCC, RCC, and NCC as following details;



- 1.9 There shall be only one subcontractor engaging in design, supply and installation of Fire Protection System for Buildings and Switchyard.
 - 1.10 There shall be one dry chemical portable fire extinguisher for foam house.
 - 1.11 For portable fire extinguisher as shown on specification 3001- 10.13.3 shall be changed to the new details as followings:
 - The fire extinguishers shall be conformed to latest TIS standards. The portable and mobile fire extinguishers shall be carbon dioxide (CO₂) conforming to TIS 881 and/or dry chemical conforming to TIS 332, capacity 10 lbs/set. The fitting accessories shall be provided.
 - The portable fire extinguishers shall be installed according to the latest NFPA 10.
 - 1.12 There shall be safety signs for fire extinguisher, manual release station and fire alarm device.
 - 1.13 Fire protection system work shall be inspected and maintained for 2 years, not less than 4 times per year and not less than manufacturers' recommendation
 - 1.14 Consumable materials for fire protection system, for example, filters, liquids, and seals shall be provided according to manufacturer's instructions for a period of two years.
 - 1.15 Pipe coating system shall conform to ASME A13.1 standard and ANSI-A13.1
 - 1.16 Underground water piping shall have indicator sign.
 - 1.17 For Fire protection system design shall be conformed to NFPA 101 (Life Safety Code).
2. Construction of
 - 2.1 Foam house.
 - 2.2 Cabinets with 2x50 lbs wheel fire extinguisher.

Civil Work

3. Design and Construction of
 - 3.1 Steel structure and foundations for Specified equipment and the others not shown in "For Construction drawings" and / or EGAT's specification.
 - 3.1.1 500 kV Take-off foundation.
 - 3.1.2 500 kV Power circuit breaker foundation.
 - 3.1.3 500 kV Current transformer support structure foundation.
 - 3.1.4 500 kV CCVT support structure foundation.
 - 3.1.5 500 kV Lightning arrester foundation.
 - 3.1.6 500 kV Shunt reactor foundation with oil containing pit.
 - 3.1.7 500 kV Neutral reactor foundation.
 - 3.1.8 Circuit breaker marshalling kiosk foundation.

- 3.2 Road and drainage system.
- 3.3 Drainage system for cable trench.
- 3.4 Oil containing pit with steel grating and black steel spiral-seam pipes (TIS 427-2531) with protection method according to AWWA C217, C205.
- 3.5 Cable trench type “A” 2.00 m width.
- 3.6 Cable trench type “B” 2.00 m width.
- 3.7 Steel cover cable trench type “A” (Changed from existing concrete cover) 0.60 m width.
4. Construction of
 - 4.1 Steel support structure foundation.
 - 4.2 Equipment support structure foundation with sub-trench (if required).
 - 4.3 RC Road.
 - 4.4 Cable trench.
 - 4.5 Crushed rock surfacing.
 - 4.6 Gate and wire mesh fence.
 - 4.7 Lamp post for fence and access road lighting LED type foundation.
 - 4.8 Details sump, curb inlet, curb and pipe laying.
 - 4.9 Oil separator (volume of oil 62cu.m.). The contractor shall make an Oil separator design calculation in accordance with “IEEE STD-979-1994 (R2004)” (IEEE Guide for Substation Fire Protection), “IEEE STD-980-1994 (R2001)” (IEEE Guide for containment and control of oil spills in substation) and “Wastewater Quality Standard” of Pollution Control Department, Ministry of Natural Resources and Environment.
 - 4.10 Site office.
5. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
6. All design, construction and testing shall be in accordance with Specification No.3001 : Civil and Architectural Work.
7. Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.
8. EGAT’s Soil Investigation Report (attached to the contract) is a document that can be a reference for bidding, however, the review of the soil investigation report shall be under responsibility of the Contractor and the warranty of work shall remain following all obligations as specified in the Contract.
9. In case of soil layer is soft clay, consolidation test shall be performed from clay of one bored hole only. The position shall be submitted to EGAT for approval.
10. All foundations shall be as specified in layout drawing. Except the result of soil investigation shows that the specified foundations are not appropriate, the Contractor shall design the proposed foundations.

11. Seismic load test (sonic integrity test) according to ASTM D5882-96 shall be applied to all bored piles (if bored pile type is required).
12. The Contractor shall remove all debris from construction material and other works in order to make the site clean and be in the condition acceptable to EGAT.
13. According to the Contract Document Section G-3: Contractor's Office and Other Construction Facilities; the detail in paragraph 3 shall be changed as follows: the Contractor shall provide for EGAT an office container at the site during construction with a minimum space of 36 sq.m. for office area, 24 sq.m. for conference room which shall both be air-conditioned and 4 sq.m. for toilet. The facilities as shown on the section G-3 are required for 2 sets.