

Notice to Bidder

To comply with the ENGINEER ACT, B.E. 2542 FOR THE CONSTRUCTION WORK RELATED TO DESIGN OR CONSTRUCTION SUPERVISION WORK

The Contractors should be aware of the following:

1. The Contractor who is a juristic person is required to obtain a License to Practice the Controlled Engineering Profession issued by the Council of Engineers Thailand.
2. Where the Contractor is a joint venture or consortium, the Contractor shall comply with the following requirements: -
 - 1) In case of a joint venture, the joint venture is required to obtain a License to Practice the Controlled Engineering Profession issued by the Council of Engineers Thailand.
 - 2) In case of a consortium, only the member of the consortium who will be responsible for the Design or Construction Supervision Work is required to obtain a License to Practice the Controlled Engineering Profession issued by the Council of Engineers Thailand.

NOTE : If you have any questions, please contact COUNCIL OF ENGINEERS THAILAND.

Address : 1616/1 Ladprao, Wangthonglang, Bangkok, Thailand 10310

Telephone : 1303

Email : coe@saraban.mail.go.th

ประชาสัมพันธ์ผู้ประกอบการเพื่อทราบ

เพื่อให้การดำเนินงานสำหรับงานจ้างก่อสร้างที่มีลักษณะงานด้านการออกแบบหรือควบคุมงานก่อสร้าง สอดคล้องกับพระราชบัญญัติวิศวกร พ.ศ. 2542 จึงขอแจ้งแนวทางในการดำเนินงาน ดังนี้

1. ผู้รับจ้างที่เป็นนิติบุคคล ต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร
2. ผู้รับจ้างที่ดำเนินการในรูปแบบของ “กิจการร่วมค้า”
 - (1) กรณีที่กิจการร่วมค้าได้จดทะเบียนเป็นนิติบุคคลใหม่ กิจการร่วมค่านั้นต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร
 - (2) กรณีที่กิจการร่วมค้าไม่ได้จดทะเบียนเป็นนิติบุคคลใหม่ เฉพาะนิติบุคคลที่มีหน้าที่เป็นผู้รับผิดชอบงานวิศวกรรมออกแบบหรือควบคุม ต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร

หมายเหตุ หากมีข้อสงสัย โปรดติดต่อ สภาวิศวกร

ที่อยู่ : 1616/1 ถนนลาดพร้าว แขวงวังทองหลาง เขตวังทองหลาง กรุงเทพมหานคร 10310

เบอร์ติดต่อ : 1303

อีเมล : coe@saraban.mail.go.th

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

Please be informed of the online payment for purchase of bidding documents as follows:

- 1) Download the Registration Form and fill out all necessary information by typing. (Complete data is required.)
- 2) 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.

- 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.

Registration Form

Invitation to Bid No. TIWS-S-05
Supply and Construction for
Expansion of 500 kV Bang Saphan 2 Substation and
Improvement of 500 kV Surat Thani 2 Substation (GIS)
Transmission System Improvement Project in Western and
Southern Regions to Enhance System Security
(Pre-Qualification)

Available Duration for Purchasing: December 25, 2023 - January 26, 2024

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

Instructions

- 1) Fill out this Registration Form in English by typing. (Complete data is required.)
- 2) 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.
- 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
Bidder's Letter No. :		TAX ID :
		Dated :
New Bidder's Name		
Address		
		Country :
Name of Contact Person :		Tel.
		Mobile No.
Email Address :		
Contact Information of In-charge Officer		
Name	Chalita Pengnoo	
Email address	chalita.pengnoo@egat.co.th	
Telephone No.	66 2436 0347	
Mobile No.	66954293721	



Invitation to Bid No. TIWS-S-05
Supply and Construction for
Expansion of 500 kV Bang Saphan 2 Substation and
Improvement of 500 kV Surat Thani 2 Substation (GIS)
Transmission System Improvement Project in Western and
Southern Regions 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 : Bang Saphan 2 Substation and Surat Thani 2 Substation (GIS)

Medium Cost (including Value Added Tax and other expenses) : THB 202,000,000.-

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 will be available for online purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from December 25, 2023 to January 26, 2024 at USD 170.- or THB 5,000.- per copy, non-refundable.

Please find more details for online purchasing process at <http://www4.egat.co.th/procurement/biddingeng/> or contact for further information at telephone no. 66 2436 0342 or procurement.tse@egat.co.th

Delivery of Bids

Bids shall be submitted at Bidding Room, 1st Floor, Tor 082 Building during 09:30 hrs. to 10:00 hrs., Bangkok Standard Time, February 29, 2024 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

December 25, 2023

Chattiya C.

(Miss Chattiya Chandhanayingyong)

Chief, International Procurement Department – Transmission Segment



ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
เรื่อง ประกวดราคาจ้าง เลขที่ TIWS-S-05
(Pre-Qualification)

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 500 kV บางสะพาน 2 และจัดซื้อและจ้างก่อสร้างปรับปรุงสถานีไฟฟ้าแรงสูง 500 kV สุราษฎร์ธานี 2 (GIS) สำหรับโครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันตก และภาคใต้เพื่อเสริมความมั่นคงระบบไฟฟ้า โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ.

สถานที่ก่อสร้าง : สถานีไฟฟ้าแรงสูงบางสะพาน 2 และสถานีไฟฟ้าแรงสูงสุราษฎร์ธานี 2 (GIS)

ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) : 202,000,000.- บาท

คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นผู้ประกอบการและพัสดุที่ผ่านการคัดเลือกคุณสมบัติเบื้องต้นตามบัญชีรายชื่อที่ระบุในเอกสารประกวดราคา
2. ต้องเป็นนิติบุคคลผู้มีอาชีพรับจ้างตามประกวดราคาจ้างดังกล่าว และต้องไม่เป็นผู้ทำงานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทำงานตามคำสั่ง กฟผ.
3. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศประกวดราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาครั้งนี้
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. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคา ในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนสิ้นสุดข้อผูกพันกับ กฟผ.

การขายเอกสารประกวดราคา

ผู้สนใจติดต่อซื้อเอกสารประกวดราคา ในราคาชุดละ 5,000.- บาท ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 25 ธันวาคม 2566 ถึงวันที่ 26 มกราคม 2567 ทั้งนี้ สามารถดูรายละเอียดการซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingseng/> หรือสอบถามข้อมูลเพิ่มเติมได้ทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล procurement.tse@egat.co.th

การยื่นขอประกวดราคา

กำหนดยื่นขอประกวดราคา ในวันที่ 29 กุมภาพันธ์ 2567 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 25 ธันวาคม 2566



(นางสาวฉัตรติยา จันทนยิ่งยง)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)
ในการจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

1. ชื่อโครงการ Bid No. TIWS-S-05

การจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 500 kV บางสะพาน 2

และจัดซื้อและจ้างก่อสร้างปรับปรุงสถานีไฟฟ้า 500 kV สุราษฎร์ธานี 2 (GIS)

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันตก และภาคใต้เพื่อเสริมความมั่นคงระบบไฟฟ้า

/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. วงเงินงบประมาณที่ได้รับจัดสรร

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันตก และภาคใต้เพื่อเสริมความมั่นคงระบบไฟฟ้า

งบประมาณ 63,200 ล้านบาท

3. วันที่กำหนดราคากลาง 6 ตุลาคม 2566 (วันที่ ชสพ. อนุมัติ)

ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 202,000,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ

4. แหล่งที่มาของราคากลาง

หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง

5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง

5.1 นายฉัตรชัย เซาวนาธิคม หมพ-ส., กวอ-ส.

5.2 นายภานุวัฒน์ ลิขิตผลผดุง หอต-ส. กวอ-ส.

5.3 นางสาวจารุวรรณ พิพัฒน์มงคลพร หวอ-ส., กวอ-ส.

5.4 นายรุหาญ รุจิรัฐธาร กวป-ส.

5.5 นายศุภกฤษ สุจารีรัตนพงษ์ กวธ-ส.

หมายเหตุ ค่าใช้จ่ายอื่นๆ ได้แก่ ค่าใช้จ่ายที่ กฟผ. ต้องจ่ายตามวิธีการพิจารณาเปรียบเทียบราคาที่กำหนดไว้

ในเอกสารประกวดราคา เช่น อากรขาเข้า เป็นต้น

นางสาวอัสยา ช่างวิทยากร

นางสาวอัสยา ช่างวิทยากร

ทดตส-ท.

25 ธ.ค. 66

MEDIUM COST FOR BID NO. TIWS-S-05

SUMMARY OF BID PRICE

**SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION AND IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY**

Schedule	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			
1	500 KV BANG SAPHAN 2 SUBSTATION	THB	44,819,561.02				
				52,336,510.60	13,557,677.10	78,307.30	17,739,147.78
2	500 KV SURAT THANI 2 SUBSTATION (GIS)	THB	27,880,050.50				
				14,592,363.22	8,736,080.74	78,307.30	7,318,079.47
BID PRICE		THB	72,699,611.52	Baht	Baht	Baht	Baht
				66,928,873.82	22,293,757.84	156,614.60	25,057,227.25
OTHER EXPENSES		THB	1,453,992.23				
VAT		THB	5,190,752.26	Baht	Baht	Baht	Baht
				4,685,021.17	1,560,563.05	10,963.02	1,754,005.91
SUMMARY OF BID PRICE		THB	79,344,356.01	Baht	Baht	Baht	Baht
				71,613,894.99	23,854,320.89	167,577.62	26,811,233.16
TOTAL MEDIUM COST		THB	201,791,382.67				
TOTAL MEDIUM COST		THB	202,000,000.00				

MEDIUM COST FOR BID NO. TIWS-S-05
SCHEDULE 1 : 500 KV BANG SAPHAN 2 SUBSTATION
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	43,253,415.04	49,000,152.60			17,739,147.78
PART 1C : CIVIL WORK				13,557,677.10		
PART 1D : SUPPLY OF SPARE PARTS	THB	1,566,145.98	3,336,358.00		78,307.30	
TOTAL PRICE	THB	44,819,561.02	Baht	Baht	Baht	Baht
			52,336,510.60	13,557,677.10	78,307.30	17,739,147.78

นางสาว อสยา ช่างวิทยาการ

นางสาวออสยา ช่างวิทยาการ

ทจตส-ท.

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นายประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	2,196,000.00	600,000.00	307,560.00
Schedule 1AB5 : Current Transformer and Junction Box	THB	9,450,000.00	1,434,000.00	1,197,240.00
Schedule 1AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	3,384,000.00	726,000.00	452,100.00
Schedule 1AB9 : Power Circuit Breaker	THB	14,140,630.00		2,937,846.56

นางสาวอัสยา ช่างวิทยาการ

นางสาวอัสยา ช่างวิทยาการ

ทดตส-ท.

25 ธ.ค. 66

นายประวิทย์ เลิศโกวิท
 นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	8,438,916.00	1,357,400.00	1,577,396.92
Schedule 1AB12 : AC&DC Distribution Board and Termination Box			132,845.00	14,612.95
Schedule 1AB14 : Substation Steel Structure			1,016,952.16	279,661.84
Schedule 1AB15 : Insulator				461,270.45

นางสาวอัสยา

นางสาวอัสยา ช่างวิทยากร

จดส.ท.

25 ธ.ค. 66

นางประวิทย์

นายประวิทย์ เลิศโกวิทย์

ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง

06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 1AB18 : Low Voltage Cable and Conductor			25,232,364.96	5,782,416.97
Schedule 1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware	THB	1,382,697.36	284,387.40	382,040.26
Schedule 1AB21 : Bus Fitting	THB	2,716,060.97		622,430.64
Schedule 1AB22 : Grounding Material	THB	1,404,499.03	646,689.56	480,016.79

นางสาวอสา

นางสาวอสา ช่างวิทยากร
 หจคส-ท.
 25 ธ.ค. 66

นายประวิทย์

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	140,611.68	403,535.52	124,700.40
Schedule 1AB24 : Control and Protection System			13,411,382.00	1,611,983.00
Schedule 1AB25 : Fault Recording System			3,754,596.00	413,005.00
Schedule 1AB38 : Remote Terminal Unit				148,866.00

นางสาวอัสยา ช่างวิทยากร

นางสาวอัสยา ช่างวิทยากร

จดส-ท.

25 ธ.ค. 66

นายประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 1AB39 : Commissioning				880,000.00
Schedule 1AB40 : Installation of Equipment and Steel Structure Supplied by EGAT				66,000.00
PART 1AB	THB	43,253,415.04	Baht	17,739,147.78
			49,000,152.60	

นางสาวอาสยา ช่างวิทยากร
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 25 ธ.ค. 66


 นายประวิทย์ เลิศโกวิทย์
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1C : CIVIL WORK
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Description	Local Currency (excluding VAT) Baht
	Amount
Schedule 1C1 : Foundation Work	4,102,190.00
Schedule 1C2 : Cable Trench	3,090,827.00
Schedule 1C3 : Building	39,561.00
Schedule 1C4 : Earth Work, Road and Crushed Rock Surfacing	307,200.00
Schedule 1C6 : Drainage System	1,853,354.00
Schedule 1C7 : Special Construction Works	1,598,082.30
Schedule 1C9 : Fire Protection System	2,566,462.80
PART 1C	Baht 13,557,677.10

นางสาวอัสยา ช่างวิทยากร

นางสาวอัสยา ช่างวิทยากร
 หจตส-ท.
 25 ธ.ค. 66

นายประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 1D : SUPPLY OF SPARE PARTS
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount
Schedule 1D22 : Spare Parts for Grounding Material	THB	1,566,145.98		78,307.30
Schedule 1D24 : Spare Parts for Control and Protection System			2,684,902.00	
Schedule 1D25 : Spare Parts for Fault Recording System			651,456.00	
PART 1D	THB	1,566,145.98	Baht 3,336,358.00	Baht 78,307.30

นางสาวอัสยา

นางสาวอัสยา ช่างวิทยากร
 หจตส-ท.
 25 ธ.ค. 66

นายประวิทย์

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
SCHEDULE 2 : 500 KV SURAT THANI 2 SUBSTATION (GIS)
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT	THB	26,313,904.52	14,592,363.22			7,318,079.47
PART 2C : CIVIL WORK				8,736,080.74		
PART 2D : SUPPLY OF SPARE PARTS	THB	1,566,145.98			78,307.30	
TOTAL PRICE	THB	27,880,050.50	Baht	Baht	Baht	Baht
			14,592,363.22	8,736,080.74	78,307.30	7,318,079.47

นางสาว อสยา ช่างวิทยาการ
 นางสาวอัสยา ช่างวิทยาการ
 หจตส-ห.
 25 ธ.ค. 66

นายประวิทย์ เลิศโกวิท
 นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB4 : Surge Arrester	THB	2,196,000.00	600,000.00	307,560.00
Schedule 2AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	3,384,000.00	726,000.00	452,100.00
Schedule 2AB9 : Power Circuit Breaker	THB	14,140,630.00		1,555,469.30
Schedule 2AB10 : Disconnecting Switch	THB	4,219,458.00	678,700.00	538,797.38

นางสาว อาศยา ช่างวิทยากร

นางสาวอาศยา ช่างวิทยากร

หจตส-ท.

25 ธ.ค. 66

นาย ประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB12 : AC&DC Distribution Board and Termination Box			139,317.00	25,324.87
Schedule 2AB14 : Substation Steel Structure			92,170.60	25,346.92
Schedule 2AB15 : Insulator				59,408.58
Schedule 2AB18 : Low Voltage Cable and Conductor			11,694,830.40	2,680,065.30

นางสาว อวสา

นางสาวอวสา ขำวิทยาการ
 หจตส-ท.
 25 ธ.ค. 66

นาย ประวิทย์

นายประวิทย์ เลิศโกวิทย์
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB19 : Switchyard Lighting Fixtures			54,023.20	14,856.38
Schedule 2AB20 : Aluminum Tube, Connector and Miscellaneous Hardware	THB	289,396.80		66,320.10
Schedule 2AB21 : Bus Fitting	THB	1,014,709.85		232,537.67
Schedule 2AB22 : Grounding Material	THB	996,964.67	338,798.98	312,747.66

นางสาวอัสยา ช่างวิทยากร

นางสาวอัสยา ช่างวิทยากร
 หจตส-ท.
 25 ธ.ค. 66

นายประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB23 : Substation Miscellaneous	THB	72,745.20	268,523.04	78,207.31
Schedule 2AB24 : Control and Protection System				655,198.00
Schedule 2AB25 : Fault Recording System				55,456.00
Schedule 2AB38 : Remote Terminal Unit				74,434.00

นางสาว อสยา ช่างวิทยาการ

นางสาวออสยา ช่างวิทยาการ

หจตส-ท.

25 ธ.ค. 66

นาย ประวิทย์ เลิศโกวิทย์

นายประวิทย์ เลิศโกวิทย์
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 2AB39 : Commissioning				184,250.00
PART 2AB	THB	26,313,904.52	Baht	Baht
			14,592,363.22	7,318,079.47

นางสาวอภิสรา ช่างวิทย์

นางสาวอภิสรา ช่างวิทย์
 หจตส-ท.
 25 ธ.ค. 66



นายประวิทย์ เลิศโกวิท
 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
 06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05
PART 2C : CIVIL WORK
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Description	Local Currency (excluding VAT) Baht
	Amount
Schedule 2C1 : Foundation Work	2,612,912.00
Schedule 2C2 : Cable Trench	1,895,208.00
Schedule 2C4 : Earth Work, Road and Crushed Rock Surfacing	319,590.00
Schedule 2C6 : Drainage System	1,249,477.00
Schedule 2C7 : Special Construction Works	597,938.14
Schedule 2C9 : Fire Protection System	2,060,955.60
PART 2C	Baht 8,736,080.74

นางสาวอัสยา ช่างวิทยากร

นางสาวอัสยา ช่างวิทยากร

หจตส-ท.

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นายประวิทย์ เลิศโกวิทย์

นายประวิทย์ เลิศโกวิทย์
ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง

06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05

PART 2D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Local Transportation (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount
Schedule 2D22 : Spare Parts for Grounding Material	THB	1,566,145.98		78,307.30
PART 2D	THB	1,566,145.98	Baht	Baht 78,307.30

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht					
					CIF Thai Port									
					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	366,000.00	2,196,000.00			XXXXX	XXXXX				
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		THB			100,000.00	600,000.00	XXXXX	XXXXX				
1AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB4-1 thru 1AB4-2			THB	XXXXX	XXXXX	XXXXX	XXXXX	307,560.00	307,560.00				
		Lump sum	Lump sum											
Total Price for Schedule 1AB4				THB	2,196,000.00		Baht		600,000.00		Baht		307,560.00	

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MEDIUM COST FOR BID NO. TIWS-S-05
1AB5 : Current Transformer and Junction Box
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB5-1	525 kV CT, 1550 kV BIL, 1500/2000/4000:1//1//1//1//1A, 50 kA, oil filled as per Rating and Features RF CT9AFC	6		THB	1,575,000.00	9,450,000.00			XXXXXX	XXXXXX		
1AB5-2	Steel Supporting Structure for CT9AFC (for Item 1AB5-1) H=9.00 m. as per Dwg. No. ST-CT-9-01 and SD-AB-0-01	6		THB			239,000.00	1,434,000.00	XXXXXX	XXXXXX		
1AB5-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB5-1 thru 1AB5-2			THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	1,197,240.00	1,197,240.00		
		Lump sum	Lump sum									
Total Price for Schedule 1AB5				THB	9,450,000.00		Baht		Baht			
							1,434,000.00		1,197,240.00			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
					Unit Price	Amount	Unit Price	Amount				
1AB6-1	525 kV CCVT, 1550 kV BIL, 287500:115/63.9&115/63.9&115/63.9 V with carrier accessories, oil filled as per Ratings and Features RF PD9W11	6		THB	564,000.00	3,384,000.00			XXXXX	XXXXX		
1AB6-2	Steel Supporting Structure for PD9W11 (for Item 1AB6-1) H=9.00 m. as per Dwg. No. ST-VT-9-01 and SD-AB-0-01	6		THB			106,000.00	636,000.00	XXXXX	XXXXX		
1AB6-3	Junction Box type PT7 (for Item 1AB6-1) as per Dwg. No. TP-E-18.1-3/4, TP-E-18.4 and TP-E-18.5	2		THB			45,000.00	90,000.00	XXXXX	XXXXX		
1AB6-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB6-1 thru 1AB6-3			THB								
		Lump sum	Lump sum	THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	452,100.00	452,100.00		
Total Price for Schedule 1AB6				THB	3,384,000.00		Baht		Baht			
							726,000.00		452,100.00			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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)	2			supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX		
1AB9-2	550 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB995R(IEC) (for 525 kV 110 Mvar Y-connected five-limbed core type shunt reactor with 125.4 kV 1.287 Mvar neutral reactor with earthed neutral)	2		THB	5,410,968.00	10,821,936.00			XXXXX	XXXXX		
1AB9-3	Circuit breaker marshalling KIOSK for Item No. 1AB9-1	2			supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX		
1AB9-4	Circuit breaker marshalling KIOSK for Item No. 1AB9-2	2		THB	564,985.00	1,129,970.00			XXXXX	XXXXX		
1AB9-5	Steel Supporting Structure for CB9952(IEC)* for Item No. 1AB9-1	2			supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX		
1AB9-6	Steel Supporting Structure for CB995R(IEC)* for Item No. 1AB9-2	2		THB	164,204.00	328,408.00			XXXXX	XXXXX		
1AB9-7	Swing Rack Cabinet as per dwg. no. TP-E-10.1 completed with two Controlled Switching Device (CSD) and Control Cable link between Power Circuit Breaker and CSD (include to CT/ VT) for Item No. 1AB9-2	1		THB	1,860,316.00	1,860,316.00			XXXXX	XXXXX		

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB9-8	Cost of Local Transportation, Construction and Installation for Item No. 1AB9-1 thru 1AB9-7											
		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	2,937,846.56	2,937,846.56		
Total Price for Schedule 1AB9				THB	14,140,630.00		Baht			2,937,846.56		

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

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					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	2,109,729.00	8,438,916.00			XXXXX	XXXXX		
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)	2			supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX		
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					339,350.00	1,357,400.00	XXXXX	XXXXX		
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)	2			supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX		
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	1,577,396.92	1,577,396.92		
Total Price for Schedule 1AB10				THB	8,438,916.00		Baht		Baht			
							1,357,400.00		1,577,396.92			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	Common cubicle for maintenance type 2 as per Dwg. No. SE-CCM-0-01	1					94,799.00	94,799.00	XXXXX	XXXXX		
1AB12-2	Outdoor Receptacle Box type ORB2 as per Dwg. No. SE-ORB-0-01	1					38,046.00	38,046.00	XXXXX	XXXXX		
1AB12-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB12-1 thru 1AB12-2		Lumpsum	Lumpsum	XXXXX	XXXXX	XXXXX	XXXXX	14,612.95	14,612.95		
Total Price for Schedule 1AB12							Baht 132,845.00		Baht 14,612.95			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 bus pole structure (BP901) as per Dwg. No. ST-BP-9-01	9						94,404.72	849,642.48	XXXXX	XXXXX	
1AB14-2	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	12						12,523.18	150,278.16	XXXXX	XXXXX	
1AB14-3	Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03	2						8,515.76	17,031.52	XXXXX	XXXXX	
1AB14-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB14-1 thru 1AB14-3	Lump sum	Lump sum					XXXXX	XXXXX	XXXXX	XXXXX	
							Baht	1,016,952.16	Baht	279,661.84		
Total Price for Schedule 1AB14												

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB15 : Insulator

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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.	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	461,270.45	461,270.45		
Total Price for Schedule 1AB15								Baht	Baht	461,270.45		

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					1,157,508.00	1,157,508.00	XXXXX	XXXXX	
1AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum					18,993,876.00	18,993,876.00	XXXXX	XXXXX	
1AB18-3	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum					2,663,760.00	2,663,760.00	XXXXX	XXXXX	
1AB18-4	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum					1,727,193.60	1,727,193.60	XXXXX	XXXXX	
1AB18-5	Overhead ground wire as per Specification attached	Lump sum	Lump sum					20,787.36	20,787.36	XXXXX	XXXXX	
1AB18-6	Aluminum conductor as per Specification attached	Lump sum	Lump sum					669,240.00	669,240.00	XXXXX	XXXXX	
1AB18-7	Cost of Local Transportation, Construction and Installation for Item No. 1AB18-1 thru 1AB18-6	Lump sum	Lump sum					XXXXXX	XXXXXX	XXXXXX	XXXXXX	
Total Price for Schedule 1AB18								Baht 25,232,364.96		Baht 5,782,416.97		

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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				255,994.20	255,994.20	XXXXX	XXXXX		
1AB20-2	500 kV Compression connector as per Specification attached	Lump sum	Lump sum	THB	691,511.04	691,511.04			XXXXX	XXXXX		
1AB20-3	500 kV Miscellaneous hardware as per Specification attached	Lump sum	Lump sum	THB	691,186.32	691,186.32			XXXXX	XXXXX		
1AB20-4	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				28,393.20	28,393.20	XXXXX	XXXXX		
1AB20-5	Cost of Local Transportation, Construction and Installation for Item No. 1AB20-1 thru 1AB20-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	382,040.26	382,040.26		
Total Price for Schedule 1AB20				THB	1,382,697.36		Baht	284,387.40		Baht 382,040.26		

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB21-1	500 kV Bus fitting as per Specification attached	Lump sum	Lump sum	THB	2,332,779.45	2,332,779.45			XXXXX	XXXXX		
1AB21-2	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	383,281.52	383,281.52			XXXXX	XXXXX		
1AB21-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB21-1 thru 1AB21-2	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	622,430.64	622,430.64		
Total Price for Schedule 1AB21				THB	2,716,060.97		Baht		Baht 622,430.64			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB22 : Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	33,806.88	33,806.88			XXXXX	XXXXX		
1AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum				646,689.56	646,689.56	XXXXX	XXXXX		
1AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	537,160.82	537,160.82			XXXXX	XXXXX		
1AB22-4	Disconnecting switch safety Mats as per Specification attached	18		THB	12,063.93	217,150.74			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	616,380.59	616,380.59			XXXXX	XXXXX		
1AB22-6	Cost of Local Transportation, Construction and Installation for Item No. 1AB22-1 thru 1AB22-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	480,016.79	480,016.79		
Total Price for Schedule 1AB22				THB	1,404,499.03		Baht		Baht			
							646,689.56		480,016.79			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
1AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				143,557.92	143,557.92	XXXXX	XXXXX		
1AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	140,611.68	140,611.68			XXXXX	XXXXX		
1AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum				125,971.20	125,971.20	XXXXX	XXXXX		
1AB23-4	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				134,006.40	134,006.40	XXXXX	XXXXX		
1AB23-5	Cost of Local Transportation, Construction and Installation for Item No. 1AB23-1 thru 1AB23-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	124,700.40	124,700.40		
Total Price for Schedule 1AB23				THB	140,611.68		Baht		Baht			
							403,535.52		124,700.40			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Unit Price	Amount	Unit Price	Amount
						CIF Thai Port		Ex-works Price (excluding VAT) Baht					
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB24-1	500 kV LINE PROTECTION (21P, 79, 51S)	Panel Nos. 217R, 220R Specification No. 1005 Dwg.Nos. BSP2-E-1.1, BSP2-E-2.1, BSP2-E-3.2 and TP-E-10.1 Installed at Relay Room No.2	2	EA				1,713,117.00	3,426,234.00	XXXXX	XXXXX		
1AB24-2	500 kV LINE PROTECTION (21P, 24L, 2-BF)	Panel Nos. 218R, 221R Specification No. 1005 Dwg.Nos.BSP2-E-1.1, BSP2-E-2.1, BSP2-E-3.2 and TP-E-10.1 (Relay Room No.2 Building)	2	EA				1,998,778.00	3,997,556.00	XXXXX	XXXXX		
1AB24-3	500 kV SHUNT REACTOR PROTECTION	Panel Nos. 219R, 222R Specification No. 1005 Dwg.Nos.BSP2-E-1.1, BSP2-E-2.1, BSP2-E-3.2 and TP-E-10.1 (Relay Room No.2 Building)	2	EA				2,563,526.00	5,127,052.00	XXXXX	XXXXX		
1AB24-4	500 kV TRIP CIRCUIT SUPERVISION (2-BKR)	Panel Nos. 223R Specification No. 1005 Dwg.Nos.BSP2-E-1.1, BSP2-E-2.1, BSP2-E-3.2 and TP-E-10.1 (Relay Room No.2 Building)	1	EA				405,056.00	405,056.00	XXXXX	XXXXX		
1AB24-5	MARSHALLING PANEL FOR FRS	Panel Nos. MP-FRS Specification No. 1005 Drawing Nos. BSP2-E-1.1 and TP-E-10.3 (Relay Room No.2 Building)	1	EA				455,484.00	455,484.00	XXXXX	XXXXX		

MEDIUM COST FOR BID NO. TIWS-S-05

1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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			
						CIF Thai Port							
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB24-6	MODIFICATION THE EXISTING CONTROL AND PROTECTION SYSTEM	Scope of Work, Drawing Nos. BSP2-E-1.1, BSP2-E-2.1, BSP2-E-3.2	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	68,406.00	68,406.00		
1AB24-7	Cost of Local Transportation, Construction and Installation for Item No. 1AB24-1 thru 1AB24-5	Scope of Work	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	1,543,577.00	1,543,577.00		
Total Price for Schedule 1AB24								Baht		Baht			
								13,411,382.00		1,611,983.00			

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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				
1AB25-1	FAULT RECORDING SYSTEM, 48 ANALOG INPUT, 240 DIGITAL INPUT.	Specification No. 1003 Dwg.Nos.BSP2-E-1.1, and TP-E-10.2 (Relay Room No.2 Building)	1	SET				3,754,596.00	3,754,596.00	XXXXX	XXXXX		
1AB25-2	Cost of Local Transportation, Construction and Installayion for Item No.4AB25-1	See Scope of Work.	Lump sum	Lump sum			XXXXX	XXXXX	XXXXX	XXXXX	413,005.00	413,005.00	
Total Price for Schedule 1AB25								Baht 3,754,596.00		Baht 413,005.00			

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MEDIUM COST FOR BID NO. TIWS-S-05
1AB25 (Option) : Optional Item for Fault Recording System
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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				

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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			
						CIF Thai Port							
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB38-1	MODIFY TO THE EXISTING EGAT REMOTE TERMINAL UNIT SYSTEM	Scope of Work	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	148,866.00	148,866.00		
Total Price for Schedule 1AB38									Baht	Baht	148,866.00		

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MEDIUM COST FOR BID NO. TIWS-S-05

1AB39 : Commissioning

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	880,000.00	880,000.00		
Total Price for Schedule 1AB39							Baht		Baht 880,000.00			

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MEDIUM COST FOR BID NO. TIWS-S-05

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

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1AB40-1	Dismantlement	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXXX	XXXXXX	66,000.00	66,000.00		
Total Price for Schedule 1AB40								Baht	Baht	66,000.00		

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MEDIUM COST FOR BID NO. TIWS-S-05

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 Power circuit breaker foundation (CB901) pad type	Design by Contractor, ABB/PDG-FD-CB-9-01, See Scope of work	4	set	107,009.00	428,036.00
1C1-2	500 kV Disconnecting switch foundation (DS901) pad type	Design by Contractor, ABB/PDG-FD-DS-9-01, See Scope of work	6	set	180,863.00	1,085,178.00
1C1-3	500 kV Current transformer foundation (CT901) pad type	Design by Contractor, ABB/PDG-FD-CT-9-01, See Scope of work	6	set	31,432.00	188,592.00
1C1-4	500 kV Coupling Capacitor Voltage Transformer Structure Foundation (VT901) pad type	Design by Contractor, ABB/PDG-FD-VT-9-01, See Scope of work	6	set	30,257.00	181,542.00
1C1-5	500 kV Bus pole structure foundation (BP901) pad type	Design by Contractor, ABB/PDG-FD-BP-9-01, See Scope of work	6	set	40,004.00	240,024.00
1C1-6	500 kV Lightning arrester support structure foundation (LA901) Pad type	Design by Contractor, ABB/PDG-FD-SA-9-01, See Scope of work	6	set	30,257.00	181,542.00
1C1-7	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02 01/01	12	set	2,962.00	35,544.00

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MEDIUM COST FOR BID NO. TIWS-S-05

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-8	Circuit breaker marshalling kiosk foundation (MK) pad type	Design by Contractor, ABB/PDG-FD-MK-0-01, See Scope of work	4	set	9,969.00	39,876.00
1C1-9	500 kV Shunt reactor foundation (SR901) and oil pit (pad type)	Design by Contractor, ABB/PDG-FD-SR-9-01, See Scope of work	2	set	790,457.00	1,580,914.00
1C1-10	500 kV Neutral reactor foundation (NR901) pad type	Design by Contractor, ABB/PDG-FD-NR-9-01, See Scope of work	2	set	19,744.00	39,488.00
1C1-11	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05 01/01	2	set	7,986.00	15,972.00
1C1-12	500 kV Bus pole support structure foundation (F-BP21) pad type (Existing to be removed)	876.BS2.C108 01/02	12	set	2,263.00	27,156.00
1C1-13	500 kV Disconnecting switch foundation (F-DS2) pad type (Existing to be removed)	876.BS2.C102 01/02	6	set	9,721.00	58,326.00
Total Price for Schedule 1C1					Baht 4,102,190.00	

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MEDIUM COST FOR BID NO. TIWS-S-05

1C2 : Cable Trench

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 - 02/02	Lump Sum	Lump Sum	1,028,600.00	1,028,600.00
1C2-2	Cable trench type "3A" including PC cover	876.BS2.C304 01/01, 876.BS2.C305 01/02, 876.BS2.C306 01/02	Lump Sum	Lump Sum	2,062,227.00	2,062,227.00
Total Price for Schedule 1C2					Baht	3,090,827.00

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MEDIUM COST FOR BID NO. TIWS-S-05

1C3 : Building

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-1	Modify Raised Floor in 500kV Relay Building No.2	Designed by Contractor, See Dwg. No. BSP2-S-6, See Scope of work	Lump Sum	Lump Sum	39,561.00	39,561.00
Total Price for Schedule 1C3					Baht	39,561.00

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MEDIUM COST FOR BID NO. TIWS-S-05
1C4 : Earth Work, Road and Crushed Rock Surfacing
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C4-1	Transformer loading	SD-RD-0-03 01/01	Lump Sum	Lump Sum	247,800.00	247,800.00
1C4-2	Relocate crushed rock surfacing		Lump Sum	Lump Sum	59,400.00	59,400.00
Total Price for Schedule 1C4					Baht	307,200.00

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MEDIUM COST FOR BID NO. TIWS-S-05

1C6 : Drainage System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C6-1	Drainage System	Designed by Contractor, See Dwg. No. BSP2-C-6, See Scope of work	Lump Sum	Lump Sum	1,853,354.00	1,853,354.00
Total Price for Schedule 1C6					Baht	1,853,354.00

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MEDIUM COST FOR BID NO. TIWS-S-05

1C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C7-1	64 sq.m Site office	See Scope of work	1	set	850,000.00	850,000.00
1C7-2	Test and commissioning for foam-water spray system (for Transformer / Shunt reactor)		2	set	144,000.00	288,000.00
1C7-3	Fire Protection design work		Lump Sum	Lump Sum	51,329.26	51,329.26
1C7-4	Architectural and Civil engineering design work		Lump Sum	Lump Sum	288,753.04	288,753.04
1C7-5	Plate bearing test		6	set	20,000.00	120,000.00
Total Price for Schedule 1C7					Baht 1,598,082.30	

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MEDIUM COST FOR BID NO. TIWS-S-05

1C9 : Fire Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C9-1	Fire Protection System for transformer / shunt reactor	Designed by Contractor	2	set	847,631.40	1,695,262.80
1C9-2	Fire Protection environmental monitoring system	Designed by Contractor	Lump Sum	Lump Sum	871,200.00	871,200.00
Total Price for Schedule 1C9					Baht	2,566,462.80

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MEDIUM COST FOR BID NO. TIWS-S-05

1D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	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				
1D22-1	500 kV grounding tool equipment, portable ground attachment rod and clamp (for three phase connections) as per Specification attached	2	set	THB	783,072.99	1,566,145.98			XXXXX	XXXXX		
1D22-2	Cost of Local Transportation for Item No. 1D22-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	78,307.30	78,307.30		
Total Price for Schedule 1D22				THB	1,566,145.98		Baht		Baht 78,307.30			

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MEDIUM COST FOR BID NO. TIWS-S-05

1D24 : Spare Parts for Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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. Same type as 21P supplied in item No. 1AB24-1. Specification No. 1005	1	EA				434,868.00	434,868.00	XXXXX	XXXXX		
1D24-2	DISTANCE RELAY (21P1) FOR 500 kV without 79/25	Supply as Spare part. Same type as 21S supplied in item No. 1AB24-2 Specification No. 1005	1	EA				434,868.00	434,868.00	XXXXX	XXXXX		
1D24-3	AUTO RECLOSING RELAY (79)	Supply as Spare part Specification No. 1005	1	EA				275,761.00	275,761.00	XXXXX	XXXXX		
1D24-4	OVERFLUXING RELAY (24K,24L)	Supply as Spare part Specification No. 1005	1	EA				228,473.00	228,473.00	XXXXX	XXXXX		
1D24-5	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG,51/51G,51S/51SG,51C/51CG)	Supply as Spare part Specification No. 1005	1	EA				205,469.00	205,469.00	XXXXX	XXXXX		
1D24-6	BREAKER FAILURE RELAY (50BF+62BF)	Supply as Spare part Specification No. 1005	1	EA				221,233.00	221,233.00	XXXXX	XXXXX		
1D24-7	REACTOR DIFFERENTIAL RELAY (87R)	Supply as Spare part Specification No. 1005	1	EA				442,115.00	442,115.00	XXXXX	XXXXX		


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MEDIUM COST FOR BID NO. TIWS-S-05

1D24 : Spare Parts for Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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				
1D24-8	NEUTRAL REACTOR DIFFERENTIAL RELAY (87RN)	Supply as Spare part Specification No. 1005	1	EA				442,115.00	442,115.00	XXXXX	XXXXX		
Total Price for Schedule 1D24								Baht 2,684,902.00		Baht			

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MEDIUM COST FOR BID NO. TIWS-S-05
1D25 : Spare Parts for Fault Recording System
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 500 KV BANG SAPHAN 2 SUBSTATION
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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 loose part	1	EA				96,107.00	96,107.00	XXXXXX	XXXXXX		
1D25-2	POWER SUPPLY	Supply as loose part	1	EA				39,761.00	39,761.00	XXXXXX	XXXXXX		
1D25-3	ACQUISITION UNIT	Supply as loose part	1	EA				28,259.00	28,259.00	XXXXXX	XXXXXX		
1D25-4	CPU & MEMORY MODULE 1	Supply as loose part	1	EA				94,216.00	94,216.00	XXXXXX	XXXXXX		
1D25-5	ANALOG ISOLATOR FOR VOLTAGE	Supply as loose part	1	EA				94,216.00	94,216.00	XXXXXX	XXXXXX		
1D25-6	ANALOG ISOLATOR FOR CURRENT	Supply as loose part	1	EA				94,216.00	94,216.00	XXXXXX	XXXXXX		
1D25-7	DIGITAL ISOLATOR MODULE	Supply as loose part	1	EA				91,629.00	91,629.00	XXXXXX	XXXXXX		
1D25-8	HARD DISK & HARD DISK CONTROLLER	Supply as loose part	1	EA				84,793.00	84,793.00	XXXXXX	XXXXXX		
1D25-9	TELE- COMMUNICATION BOARD	Supply as loose part	1	EA				28,259.00	28,259.00	XXXXXX	XXXXXX		
Total Price for Schedule 1D25								Baht 651,456.00		Baht			

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
					Unit Price	Amount	Unit Price	Amount				
2AB4-1	396 kV Surge Arrester completed with corona ring, grading ring as per Ratings and Features RF SA9Y11	6		THB	366,000.00	2,196,000.00			XXXXXX	XXXXXX		
2AB4-2	Steel Supporting Structure for SA9Y11(for Item No. 2AB4-1), H=9.00 m as per Dwg. No. ST-LA-9-01 and SD-AB-0-01	6		THB			100,000.00	600,000.00	XXXXXX	XXXXXX		
2AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB4-1 thru 2AB4-2			THB	XXXXXX	XXXXXX	XXXXXX	XXXXXX	307,560.00	307,560.00		
Total Price for Schedule 2AB4												
				THB	2,196,000.00		Baht		Baht			
							600,000.00		307,560.00			

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MEDIUM COST FOR BID NO. TIWS-S-05

**2AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)**

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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			
2AB6-1	525 kV CCVT, 1550 kV BIL, 287500:115/63.9&115/63.9&115/63.9 V with carrier accessories, oil filled as per Ratings and Features RF PD9W11	6		THB	564,000.00	3,384,000.00			XXXXX	XXXXX			
2AB6-2	Steel Supporting Structure for PD9W11 (for Item 2AB6-1) H=9.00 m. as per Dwg. No. ST-VT-9-01 and SD-AB-0-01	6		THB			106,000.00	636,000.00	XXXXX	XXXXX			
2AB6-3	Junction Box type PT7 (for Item 2AB6-1) as per Dwg. No. TP-E-18.1-3/4, TP-E-18.4 and TP-E-18.5	2		THB			45,000.00	90,000.00	XXXXX	XXXXX			
2AB6-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB6-1 thru 2AB6-3			THB	XXXXX	XXXXX	XXXXX	XXXXX	452,100.00	452,100.00			
		Lump sum	Lump sum										
Total Price for Schedule 2AB6				THB	3,384,000.00		Baht		726,000.00		Baht		452,100.00

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB9-1	550 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB995R(IEC) (for 525 kV 165 Mvar Y-connected five-limbed core type shunt reactor with 125.4 kV 1.287 Mvar neutral reactor with earthed neutral)	2		THB	5,410,968.00	10,821,936.00			XXXXX	XXXXX		
2AB9-2	Circuit breaker marshalling KIOSK for Item No. 2AB9-1	2		THB	564,985.00	1,129,970.00			XXXXX	XXXXX		
2AB9-3	Steel Supporting Structure for CB995R(IEC)* for Item No. 2AB9-1	2		THB	164,204.00	328,408.00			XXXXX	XXXXX		
2AB9-4	Swing Rack Cabinet as per dwg. no. TP-E-10.1 completed with two Controlled Switching Device (CSD) and Control Cable link between Power Circuit Breaker and CSD (include to CT/ VT) for Item No. 2AB9-1	1		THB	1,860,316.00	1,860,316.00			XXXXX	XXXXX		
2AB9-5	Cost of Local Transportation, Construction and Installation for Item No. 2AB9-1 thru 2AB9-4		Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,555,469.30	1,555,469.30		
				THB	14,140,630.00		Baht		Baht			
Total Price for Schedule 2AB9									1,555,469.30			

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

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB10-1	550 kV 4000 A air switch with grounding blade (high creepage) motor operated as per Ratings and Features RF DS99KI(IEC) (phase spacing = 7.50 m)	2		THB	2,109,729.00	4,219,458.00			XXXXX	XXXXX		
2AB10-2	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. 2AB22-5) on the opposite side of grounding blade)	2					339,350.00	678,700.00	XXXXX	XXXXX		
2AB10-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB10-1 thru 2AB10-2											
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	538,797.38	538,797.38		
Total Price for Schedule 2AB10				THB	4,219,458.00		Baht	678,700.00		Baht	538,797.38	

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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			
2AB12-1	Termination Box type TB1 as per Dwg No. LT-TB-0-01	2						3,236.00	6,472.00	XXXXX	XXXXX		
2AB12-2	Common cubicle for maintenance type 2 as per Dwg. No. SE-CCM-0-01	1						94,799.00	94,799.00	XXXXX	XXXXX		
2AB12-3	Outdoor Receptacle Box type ORB2 as per Dwg. No. SE-ORB-0-01	1						38,046.00	38,046.00	XXXXX	XXXXX		
2AB12-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB12-1 thru 2AB12-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	15,324.87	15,324.87		
2AB12-5	Modify LCUS Panel for Installation of Circuit Breaker for CCM Circuit (Including supply and replace the circuit breaker in LCUS Panel) as per dwg. No. SRT2-L-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	10,000.00	10,000.00		
Total Price for Schedule 2AB12										Baht	139,317.00	Baht	25,324.87

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
					Unit Price	Amount	Unit Price	Amount				
2AB14-1	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	6					12,523.18	75,139.08	XXXXX	XXXXX		
2AB14-2	Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03	2					8,515.76	17,031.52	XXXXX	XXXXX		
2AB14-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB14-1 thru 2AB14-2											
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	25,346.92	25,346.92		
Total Price for Schedule 2AB14							Baht	92,170.60	Baht	25,346.92		

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB15 : Insulator

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
2AB15-1	Suspension insulator fog type (17" minimum leakage distance and 36,000 lb minimum combined M&E strength) as per Specification attached.											
		Lump sum	Lump sum		supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXXX	XXXXXX		
2AB15-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB15-1											
		Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	59,408.58	59,408.58		
Total Price for Schedule 2AB15									Baht 59,408.58			

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB18-1	750 V power cable as per Specification attached	Lump sum	Lump sum				381,876.00	381,876.00	XXXXX	XXXXX		
2AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				8,208,684.00	8,208,684.00	XXXXX	XXXXX		
2AB18-3	750 V lighting cable (THW) as per Specification attached	Lump sum	Lump sum				2,956.80	2,956.80	XXXXX	XXXXX		
2AB18-4	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum				1,783,188.00	1,783,188.00	XXXXX	XXXXX		
2AB18-5	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				842,925.60	842,925.60	XXXXX	XXXXX		
2AB18-6	Aluminum conductor as per Specification attached	Lump sum	Lump sum				475,200.00	475,200.00	XXXXX	XXXXX		
2AB18-7	Cost of Local Transportation, Construction and Installation for Item No. 2AB18-1 thru 2AB18-6	Lump sum	Lump sum			XXXXX	XXXXX	XXXXX	XXXXX	2,680,065.30	2,680,065.30	
Total Price for Schedule 2AB18							Baht 11,694,830.40		Baht 2,680,065.30			

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB19-1	Flood lighting fixture, LED lamp, 10000 lumen, wide-beam, complete with control gear as per Specification attached	4						13,505.80	54,023.20	XXXXX	XXXXX	
2AB19-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB19-1	Lump sum			XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	14,856.38	14,856.38	
Total Price for Schedule 2AB19								Baht	54,023.20	Baht	14,856.38	

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		Ex-works Price (excluding VAT) Baht			
					CIF Thai Port							
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
2AB20-1	500 kV Compression connector as per Specification attached	Lump sum	Lump sum	THB	189,588.96	189,588.96			XXXXX	XXXXX		
2AB20-2	500 kV Miscellaneous hardware as per Specification attached	Lump sum	Lump sum	THB	99,807.84	99,807.84			XXXXX	XXXXX		
2AB20-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB20-1 thru 2AB20-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	66,320.10	66,320.10		
				THB	289,396.80		Baht		Baht			
Total Price for Schedule 2AB20									66,320.10			

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
					Unit Price	Amount	Unit Price	Amount				
2AB21-1	500 kV Bus fitting as per Specification attached	Lump sum	Lump sum	THB	923,980.22	923,980.22			XXXXX	XXXXX		
2AB21-2	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	90,729.63	90,729.63			XXXXX	XXXXX		
2AB21-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB21-1 thru 2AB21-2	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	232,537.67	232,537.67		
				THB	1,014,709.85		Baht		Baht			
Total Price for Schedule 2AB21									232,537.67			

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB22 : Grounding Material

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB22-1	Ground rod as per Specification attached	Lump sum	Lump sum	THB	21,875.04	21,875.04			XXXXX	XXXXX		
2AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum				338,798.98	338,798.98	XXXXX	XXXXX		
2AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	213,941.88	213,941.88			XXXXX	XXXXX		
2AB22-4	Disconnecting switch safety Mats as per Specification attached	12		THB	12,063.93	144,767.16			XXXXX	XXXXX		
2AB22-5	500 kV maintenance grounding connector and guide, bus connector, earthing and short-circuiting cable as per Specification attached	Lump sum	Lump sum	THB	616,380.59	616,380.59			XXXXX	XXXXX		
2AB22-6	Cost of Local Transportation, Construction and Installation for Item No. 2AB22-1 thru 2AB22-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	312,747.66	312,747.66		
Total Price for Schedule 2AB22				THB	996,964.67		Baht	338,798.98		Baht	312,747.66	

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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		
2AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				78,529.44	78,529.44	XXXXX	XXXXX		
2AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	72,745.20	72,745.20			XXXXX	XXXXX		
2AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum				55,987.20	55,987.20	XXXXX	XXXXX		
2AB23-4	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				134,006.40	134,006.40	XXXXX	XXXXX		
2AB23-5	Cost of Local Transportation, Construction and Installation for Item No. 2AB23-1 thru 2AB23-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	78,207.31	78,207.31		
Total Price for Schedule 2AB23				THB		72,745.20	Baht	268,523.04	Baht	78,207.31		

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

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		
2AB24-1	DESIGN, WIRE, INTERFACE SHUNT REACTOR TO CONTROL AND PROTECTION SYSTEM	Scope of Work, Drawing Nos. SRT2-E-1.1, SRT2-E-2.1, SRT2-E-3.1	Lump Sum	Lump Sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	512,704.00	512,704.00		
2AB24-2	MODIFICATION THE EXISTING CONTROL AND PROTECTION SYSTEM	Scope of Work, Drawing Nos. SRT2-E-1.1, SRT2-E-2.1, SRT2-E-3.1	Lump Sum	Lump Sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	142,494.00	142,494.00		
Total Price for Schedule 2AB24									Baht	Baht	655,198.00		

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	Unit Price	Amount						
2AB25-1	MODIFY TO THE EXISTING FAULT RECORDING SYSTEM	Scope of Work.	Lump Sum	Lump Sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	55,456.00	55,456.00				
Total Price for Schedule 2AB25								Baht		Baht 55,456.00					

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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	Unit Price	Amount						
2AB38-1	MODIFY TO THE EXISTING EGAT REMOTE TERMINAL UNIT SYSTEM	Scope of Work, Drawing Nos. SRT2-E-1.1				XXXXXX	XXXXXX	XXXXXX	XXXXXX	74,434.00	74,434.00				
Total Price for Schedule 2AB38									Baht 74,434.00						

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MEDIUM COST FOR BID NO. TIWS-S-05

2AB39 : Commissioning

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS 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					
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		Unit Price	Amount	Unit Price	Amount
					Unit Price	Amount	Unit Price	Amount				
2AB39-1	Commissioning	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	184,250.00	184,250.00		
Total Price for Schedule 2AB39							Baht		Baht	184,250.00		

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MEDIUM COST FOR BID NO. TIWS-S-05

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C1-1	500 kV Power circuit breaker foundation (CB901) pad type	Design by Contractor, ABB/PDG-FD-CB-9-01, See Scope of work	2	set	107,009.00	214,018.00
2C1-2	500 kV Disconnecting switch foundation (DS901) pad type	Design by Contractor, ABB/PDG-FD-DS-9-01, See Scope of work	2	set	180,863.00	361,726.00
2C1-3	500 kV Coupling Capacitor Voltage Transformer Structure Foundation (VT901) pad type	Design by Contractor, ABB/PDG-FD-VT-9-01, See Scope of work	6	set	30,257.00	181,542.00
2C1-4	500 kV Lightning arrester support structure foundation (LA901) Pad type	Design by Contractor, ABB/PDG-FD-SA-9-01, See Scope of work	6	set	30,257.00	181,542.00
2C1-5	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02 01/01	6	set	2,962.00	17,772.00
2C1-6	Circuit breaker marshalling kiosk foundation (MK) pad type	Design by Contractor, ABB/PDG-FD-MK-0-01, See Scope of work	2	set	9,969.00	19,938.00

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MEDIUM COST FOR BID NO. TIWS-S-05

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C1-7	500 kV Shunt reactor foundation (SR901) and oil pit (pad type)	Design by Contractor, ABB/PDG-FD-SR-9-01, See Scope of work	2	set	790,457.00	1,580,914.00
2C1-8	500 kV Neutral reactor foundation (NR901) pad type	Design by Contractor, ABB/PDG-FD-NR-9-01, See Scope of work	2	set	19,744.00	39,488.00
2C1-9	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05 01/01	2	set	7,986.00	15,972.00
Total Price for Schedule 2C1					Baht 2,612,912.00	

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MEDIUM COST FOR BID NO. TIWS-S-05

2C2 : Cable Trench

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-02 01/02 - 02/02	Lump Sum	Lump Sum	1,895,208.00	1,895,208.00
Total Price for Schedule 2C2					Baht	1,895,208.00

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MEDIUM COST FOR BID NO. TIWS-S-05
2C4 : Earth Work, Road and Crushed Rock Surfacing
SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C4-1	Transformer loading	SD-RD-0-03 01/01	Lump Sum	Lump Sum	260,190.00	260,190.00
2C4-2	Relocate crushed rock surfacing		Lump Sum	Lump Sum	59,400.00	59,400.00
Total Price for Schedule 2C4					Baht 319,590.00	

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MEDIUM COST FOR BID NO. TIWS-S-05

2C6 : Drainage System

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C6-1	Drainage System	Designed by Contractor, See Dwg. No. SRT2-C-6, See Scope of work	Lump Sum	Lump Sum	1,249,477.00	1,249,477.00
Total Price for Schedule 2C6					Baht	1,249,477.00

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MEDIUM COST FOR BID NO. TIWS-S-05

2C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C7-1	Test and commissioning for foam-water spray system (for Transformer / Shunt reactor)		2	set	144,000.00	288,000.00
2C7-2	Fire Protection design work		Lump Sum	Lump Sum	41,219.11	41,219.11
2C7-3	Architectural and Civil engineering design work		Lump Sum	Lump Sum	188,719.03	188,719.03
2C7-4	Plate bearing test		4	set	20,000.00	80,000.00
Total Price for Schedule 2C7					Baht	597,938.14

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MEDIUM COST FOR BID NO. TIWS-S-05

2C9 : Fire Protection System

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C9-1	Fire Protection System for transformer / shunt reactor	Designed by Contractor	2	set	687,277.80	1,374,555.60
2C9-2	Fire Protection environmental monitoring system	Designed by Contractor	Lump Sum	Lump Sum	686,400.00	686,400.00
Total Price for Schedule 2C9					Baht	2,060,955.60

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ทดตส-ท.

25 ธ.ค. 66

นาย ประวิทย์ เลิศโกวิท

นายประวิทย์ เลิศโกวิท
ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
06 Oct 2023

MEDIUM COST FOR BID NO. TIWS-S-05

2D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION FOR IMPROVEMENT OF 500 KV SURAT THANI 2 SUBSTATION (GIS)

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

Item No.	Description	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				
2D22-1	500 kV grounding tool equipment, portable ground attachment rod and clamp (for three phase connections) as per Specification attached	2	set	THB	783,072.99	1,566,145.98			XXXXXX	XXXXXX		
2D22-2	Cost of Local Transportation for Item No. 2D22-1	Lump sum	Lump sum		XXXXXX	XXXXXX	XXXXXX	XXXXXX	78,307.30	78,307.30		
Total Price for Schedule 2D22				THB	1,566,145.98		Baht		Baht 78,307.30			

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นางสาวอัสยา ช่างวิทยากร

ทดตส-ท.

25 ธ.ค. 66

นายประวิทย์

นายประวิทย์ เลิศโกวิทย์
ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
06 Oct 2023

Important Information
for
Invitation to Bid No. TIWS-S-05

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:

Additional Regulation

Information to be submitted with Bid as required in Item 3.2 has been revised.

The following paragraph in Remarks Item 4. of page 11 of Additional Regulation has been deleted :-

“In case that any Major Shareholder(s) of the Bidder is (are) juristic person(s), and such juristic person(s) has (have) Major Shareholder(s) who is (are) juristic person(s), the Bidder shall submit the list of the Major Shareholder(s)/ the Names of Manager/ Managing Partner/ Managing Director/ Executive/ Person Who Is Authorized to Manage the Business/ Partner/ Partner with Unlimited Liability/ of such juristic person(s) as per page 10-11 of this Additional Regulation. The requirement of submission of list of the Major Shareholder(s)/ the Names of Manager/ Managing Partner/ Managing Director/ Executive/ Person Who Is Authorized to Manage the Business/ Partner/ Partner with Unlimited Liability/ of such juristic person(s) shall apply to 2 tiers of Major Shareholder(s) who is(are) juristic person(s).”

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 B-3. Bid Security

Terms and conditions regarding the forms of bid security have been revised.

Article E-15. Performance Security and Specimen of Performance Security

Terms and conditions regarding the forms and the amount of performance security have been revised.

Article E-16. Inspection and Tests

Terms and conditions regarding inspection and tests have been revised.

Article E-35. Advance Payment Security

Terms and conditions regarding the forms of advance payment security 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 F-18. Maintenance Guarantee and Article F-19. Maintenance Security

In case all obligations on the part of the Contractor for the work under separated guarantee period under the Contract have been fulfilled, the Contractor is entitled to request EGAT to return the maintenance security guaranteed for such work regardless of the non-issuance of the Final Acceptance Certificate.

Article F-19. Maintenance Security and Specimen of Maintenance Guarantee

Terms and conditions regarding the forms and the amount of maintenance security have been revised.

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. TIWS-S-05

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

Article B-3. Bid Security

The amount of bid security shall be USD 320,830.- or THB 11,399,000.-.

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.

Article F-15. Liquidated Damages for Late Completion and Late Delivery, item a. For Complete Construction of Substation,

If the Contractor fails to meet any of the completion dates for Schedule 1 : 500 kV Bang Saphan 2 Substation or Schedule 2 : 500 kV Surat Thani 2 Substation (GIS), the liquidated damages shall be at the rate of one-tenth of one (0.10) per cent of the total Contract Price for Schedule 1 : 500 kV Bang Saphan 2 Substation and Schedule 2 : 500 kV Surat Thani 2 Substation (GIS) for each Day of delay. This sum is payable regardless of the actual loss and/or damages incurred.

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.

Defective Equipment to be replaced with the whole new set

Not Applicable

Anti-Corruption Compliance Checklist
(Consortium)

Bidders shall provide written anti-corruption policies and guidelines with respect to procurement and supplies pursuant to the Notification of the Anti-Corruption Co-Operation Committee Concerning Minimum Standards of the Anti-Corruption Policies and Guidelines in Relation to Procurement and Supplies Required to be Implemented by the Business Operator, in accordance with Section 19 of the Government Procurement and Supplies Management Act B.E. 2560 (A.D. 2017). This checklist shall be submitted with Bids.

Project :

State Agency: Electricity Generating Authority of Thailand

Member No. ... of the consortium:

.....

Item	Yes	No	Reference (Please specify Article)
1. Bidders have any written anti-corruption policies and guidelines which have been communicated to all levels of employees.			
2. Bidders impose penalty or regulations against corruption.			
3. Bidders have accessible channels or systems to report any suspicions or queries related to corruption.			
4. Bidders have internal personnel or unit explicitly responsible for the prevention of corruption.			

We hereby confirm that all above statements are true and correct.

Signed

(Name of Bidder)

(Authorized person)

Stamp company seal (if any)

Anti-Corruption Compliance Checklist
(Individual Company / Joint Venture)

Bidders shall provide written anti-corruption policies and guidelines with respect to procurement and supplies pursuant to the Notification of the Anti-Corruption Co-Operation Committee Concerning Minimum Standards of the Anti-Corruption Policies and Guidelines in Relation to Procurement and Supplies Required to be Implemented by the Business Operator, in accordance with Section 19 of the Government Procurement and Supplies Management Act B.E. 2560 (A.D. 2017). This checklist shall be submitted with Bids.

Project :

State Agency: Electricity Generating Authority of Thailand

Bidder Name :

Item	Yes	No	Reference (Please specify Article)
1. Bidders have any written anti-corruption policies and guidelines which have been communicated to all levels of employees.			
2. Bidders impose penalty or regulations against corruption.			
3. Bidders have accessible channels or systems to report any suspicions or queries related to corruption.			
4. Bidders have internal personnel or unit explicitly responsible for the prevention of corruption.			

We hereby confirm that all above statements are true and correct.

Signed

(Name of Bidder)

(Authorized person)

Stamp company seal (if any)

ELECTRICITY GENERATING AUTHORITY OF THAILAND

Nonthaburi
Thailand

INVITATION TO BID NO. TIWS-S-05
SUPPLY AND CONSTRUCTION FOR
EXPANSION OF 500 kV BANG SAPHAN 2 SUBSTATION AND
IMPROVEMENT OF 500 kV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN
AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

A-1. Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for supply and construction for Expansion of 500 kV Bang Saphan 2 Substation and Improvement of 500 kV Surat Thani 2 Substation (GIS) under Transmission System Improvement Project in Western and Southern Regions to Enhance System Security as described herein in accordance with terms, conditions and Specifications described in these Bidding Documents.

A-2. Work Description

The supply and construction for Expansion of 500 kV Bang Saphan 2 Substation and Improvement of 500 kV Surat Thani 2 Substation (GIS) 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.

A-3. 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 must have purchased the bidding documents from EGAT. For a joint venture or a consortium, only one (1) member of the joint venture or consortium is required to purchase the bidding documents. In case the Bidder's name is not exactly the same as the purchaser's name, the purchaser shall notify EGAT of the name of the Bidder in writing prior to the bid opening time.***
- 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.

A-4. 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 Panel, having the following qualifications:
 - 6.3.1 Being local manufacturer.
 - 6.3.2 Having one of the following qualifications:
 - 6.3.2.1 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
 - 6.3.2.2 Being listed in EGAT ACCEPTED MANUFACTURER LIST FOR CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER) attached at the end of Section A. Invitation to Bid.

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 license 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 protective relays proposed shall be as specified in EGAT ACCEPTED

MULTIFUNCTION RELAY LIST 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.

A-5. Joint Venture or Consortium

In the event that the successful Bidder is a joint venture or a consortium formed of two or more companies, EGAT requires that the parties to the joint venture or the consortium accept joint and several liability for all obligations under the Contract.

A-6. Preparation and Delivery of Bids

Bids shall be prepared in accordance with the Instructions to Bidders contained in the Bidding Documents in one (1) original and three (3) hard copies, in English, on the bid forms included for this purpose and shall be accompanied with a bid security as required under the Article pertaining to Bid Security in Section B: Instructions to Bidders. The bid security in accordance with Article B-3. Bid Security shall be submitted in a separate sealed envelope.

The envelope of the bids will be marked in capital letters in the lower left-hand corner as follows :

INVITATION TO BID NO. TIWS-S-05
SUPPLY AND CONSTRUCTION FOR
EXPANSION OF 500 kV BANG SAPHAN 2 SUBSTATION AND
IMPROVEMENT OF 500 kV SURAT THANI 2 SUBSTATION (GIS)
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN WESTERN
AND SOUTHERN REGIONS TO ENHANCE SYSTEM SECURITY

and shall be addressed and delivered to :

International Procurement Department - Transmission Segment
Procurement and Inventory Management Division
Electricity Generating Authority of Thailand
Bangkruai, Nonthaburi 11130
Thailand

on or before 10:00 a.m., Bangkok Standard Time, see Tentative Schedule

If the envelope(s) is not sealed, marked and addressed as required above, EGAT will assume no responsibility for the bid misplacement or premature opening.

Bids will be opened publicly at ***Bidding Room, 1st floor, Tor 082 Building*** and at the time specified above.

Bids received after the time stipulated above shall be rejected and returned unopened.

A-7. Availability of Bidding Documents

The Bidding Documents in CD-ROM are available for examination and can be obtained from EGAT at the hereunder address upon payment to EGAT, non-refundable, in the amount of USD 170.- or Baht 5,000.-; these prices include the value added tax.

International Procurement Department - Transmission Segment Procurement
and Inventory Management Division
Electricity Generating Authority of Thailand
Bangkruai, Nonthaburi 11130
Thailand

Note : At the time of bidding, EGAT's Specifications and all Drawings need not be submitted, although they are considered as part of the Bidding Documents.

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 Co., Ltd. / P.R.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 Co., Ltd. / P.R.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 Co., Ltd. / P.R. 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	J.R.W. Utility - Siemens Energy Consortium (J.R.W. Utility Public Company Limited / Thailand and Siemens Energy Limited / Thailand)	YES	YES	YES
26	SIEMENS ENERGY & LPS CONSORTIUM (Siemens Energy Limited / Thailand and LOXLEY Power Systems Company Limited / Thailand)	YES	YES	YES
27	CONSORTIUM OF HYOSUNG HEAVY INDUSTRIES CORPORATION & FUTURE ELECTRICAL CONTROL COMPANY LIMITED (HYOSUNG HEAVY INDUSTRIES CORPORATION / Korea and FUTURE ELECTRICAL CONTROL COMPANY LIMITED / Thailand)	YES	YES	YES

เอกสารควบคุม

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ฝ่ายวิศวกรรมระบบส่ง กฟผ.

EGAT Accepted Bidders List for Supply and Construction of Substations

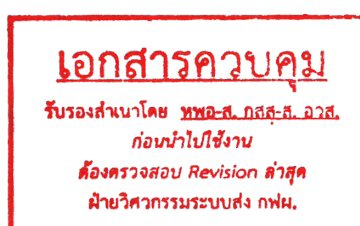
No.	Bidder / Country	Acceptance for		
		500 kV	230 kV	115&69 kV
28	Joint Venture of SEPCOIII-BYP (SEPCOIII Electric Power Construction Co., Ltd. / P.R. China and Benyapha Power Line Co., Ltd. / Thailand)	YES	YES	YES
29	Consortium of KEC International Limited and Mega Consultants Company Limited (KEC International Limited / India and Mega Consultants Company Limited / Thailand)	YES	YES	YES
30	Consortium of KEC International Limited and GreenTech Solution Co., Ltd. (KEC International Limited / India and GreenTech Solution Co., Ltd. / Thailand)	YES	YES	YES
31	Consortium of KEC International Limited and CS Power and Project Company Limited (KEC International Limited / Indai and CS Power and Project Company Limited / Thailand)	YES	YES	YES
32	Hyundai Engineering & Construction Co., Ltd. / Korea		YES	YES
33	Larsen & Toubro Limited / India		YES	YES
34	Kalpataru Power Transmission Limited / India		YES	YES
35	PWH (THAILAND) CO., LTD. / Thailand		YES	YES
36	DEMCO Public Company Limited / Thailand		YES	YES
37	Italthai Engineering Co., Ltd. / Thailand		YES	YES
38	Sieyuan Electric Co., Ltd. / China		YES	YES
39	Black & Veatch (Thailand) Ltd. / Thailand		YES	YES
40	PESTECH Sdn. Bhd. / Malaysia		YES	YES
41	Shandong Taikai Power Engineering Co., Ltd. / China		YES	YES
42	SC-ST-BYP JOINT VENTURE COMPANY LIMITED / Thailand		YES	YES
43	China CAMC Engineering CO., LTD. / China		YES	YES
44	Kinden Corporation - Kinden (Thailand) Co., Ltd. Joint Venture (Kinden Corporation / Japan and Kinden (Thailand) Co., Ltd. / Thailand)		YES	YES
45	The Joint Venture of SRI and PWH (Sri U-Thong Limited / Thailand and PWH (Thailand) Company Limited / Thailand)		YES	YES
46	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
47	The Consortium of SCL-STC and ITE (Sinohydro Corporation Limited / China, Sinohydro (Thailand) Company Limited / Thailand and Italthai Engineering Co., Ltd. / Thailand)		YES	YES
48	The Consortium of Siemens Energy Limited and Sinkarnchang Company Limited (Siemens Energy Limited / Thailand and Sinkarnchang Company Limited / Thailand)		YES	YES
49	The Consortium of Siemens Energy Limited and Standard Performance Company Limited (Siemens Energy Limited / Thailand and Standard Performance Company Limited / Thailand)		YES	YES
50	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
51	JOINT VENTURE OF SINOHYDRO CORPORATION LIMITED AND SINOHYDRO (THAILAND) CO., LTD. (Sinohydro Corporation Limited / China and Sinohydro (Thailand) Co., Ltd. / Thailand)		YES	YES
52	LOXLEY & LPS CONSORTIUM (LOXLEY PUBLIC COMPANY LIMITED / Thailand and LOXLEY POWER SYSTEMS COMPANY LIMITED / Thailand)		YES	YES
53	The consortium of DEMCO Public Company limited and KINDEN Corporation (DEMCO Public Company Limited / Thailand and KINDEN Corporation / Japan)		YES	YES
54	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
55	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

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 ฝ่ายวิศวกรรมระบบส่ง กฟผ.



EGAT Accepted Bidders List for Supply and Construction of Substations

No.	Bidder / Country	Acceptance for		
		500 kV	230 kV	115&69 kV
56	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
57	Grid Solutions (Thailand) Limited / Thailand		YES	YES
58	CGGC-PG Joint Venture / China		YES	YES
59	Consortium of Pinggao Group Co., Ltd. and Italthai Engineering Co., Ltd. (Pinggao Group Co., Ltd. / China and Italthai Engineering Co., Ltd. / Thailand)		YES	YES
60	Consortium of Linxon India Private Limited and Linxon (Thailand) Limited (Linxon India Private Limited / India and Linxon (Thailand) Limited / Thailand)		YES	YES
61	NARI GROUP CORPORATION / P.R. China		YES	YES
62	Joint Venture of STC-BYP (Sinohydro (Thailand) Co., Ltd. / Thailand and Benyapha Power Line Co., Ltd. / Thailand)		YES	YES
63	SINOHYDRO (THAILAND) CO., LTD. / Thailand		YES	YES
64	The Consortium of Kalpataru Power Transmission Limited and TSPG Company Limited (KPTL-TSPG Consortium) (Kalpataru Power Transmission Limited / India and TSPG Company Limited / Thailand)		YES	YES
65	Consortium of NARI GROUP CORPORATION and NARI (THAILAND) Co., Ltd. (NARI GROUP CORPORATION / P.R. China and NARI (THAILAND) Co., Ltd. / Thailand)		YES	YES
66	Consortium of Secco H.V. and Nari Group Corporation (Secco H.V. Co., Ltd. / Thailand and Nari Group Corporation / P.R. China)		YES	YES
67	The consortium of Grid Solutions (Thailand) Ltd. and J.R.W. Utility PLC. (Grid Solutions (Thailand) Limited / Thailand and J.R.W. Utility Public Company Limited / Thailand)		YES	YES
68	CONSORTIUM OF LARSEN & TOUBRO LIMITED AND EPCC ENGINEERING CO., LTD. (LARSEN & TOUBRO LIMITED / India and EPCC ENGINEERING CO., LTD. / Thailand)		YES	YES
69	CONSORTIUM OF LARSEN & TOUBRO LIMITED AND PPPO COMPANY LIMITED (LARSEN & TOUBRO LIMITED / India and PPPO COMPANY LIMITED / Thailand)		YES	YES
70	The Consortium of Shanghai Electric Group Company Limited & Yipintsoi Energy Company Limited (Shanghai Electric Group Company Limited / P.R. China and Yipintsoi Energy Company Limited / Thailand)		YES	YES
71	The Consortium of Transrail Lighting Limited, Shyama Power India Limited and CS Power and Project Company Limited (Transrail Lighting Limited / India and Shyama Power India Limited / India and CS Power and Project Company Limited / Thailand)		YES	YES
72	Hyundai Heavy Industries Co., Ltd. / Korea			YES
73	LOXLEY POWER SYSTEMS COMPANY LIMITED / Thailand			YES
74	Future Electrical Control Company Limited / Thailand			YES
75	NARI Group Corporation / China			YES
76	Consortium ITE and HHI (Italthai Engineering Co., Ltd. / Thailand and Hyundai Heavy Industries Company Limited / Korea)			YES
77	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



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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
78	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
79	Gunkul Power Development Company Limited / Thailand			YES
80	Secco H.V. Co., Ltd. / Thailand			YES
81	Larch & Laurel Co., Ltd. / Thailand			YES

Note

- 1 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.
- 2 The Bidders listed in EGAT Accepted Bidders List for Supply and Construction of Substations are in accordance with the requirements set forth in the Eligibility of Bidder No. EB-PQ-SUB-01. In bid evaluation, EGAT will not be bound to accept the bidder in EGAT Accepted Bidders List for Supply and Construction of Substations. EGAT reserves the right to accept the bidder considering the conformity of the bid requirements.

Bid No. TMS-S-05

เอกสารควบคุม
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 ฝ่ายวิศวกรรมระบบส่ง กฟผ.

1 พฤศจิกายน 2566

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
	Hitachi Energy 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 192-2PE32
	Hubbell Power Systems Inc. / USA	MVN192BB152AA
	Hitachi Energy 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
	Hubbell Power Systems Inc. / USA	MVN108BB088AA
	Hitachi Energy Sweden AB / Sweden	EXLIM Q108-EH123
	Tridelta Meidensha GmbH / Germany	SB 108/10.3-0

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ฝ่ายวิศวกรรมระบบส่ง กฟผ.

24 Jul 2023



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	HITACHI ENERGY SWEDEN AB / 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	HITACHI ENERGY SWEDEN AB / 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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24 Jul 2023



EGAT Accepted Power Circuit Breaker List

Description	Manufacturer / Country	Equipment Rating			Type/Model	1&3 pole	3 pole	Type of Mechanism
		kV	A	kA				
550 kV, 4,000 A, 50 kA GCB (Class C1)	Hitachi Energy Sweden AB / Sweden	550	4000	63	HPL550B2	Yes	Yes	BLG1002A (Spring)
	GRID SOLUTIONS SAS / France	550	4000	50	GL317	Yes	Yes	FK3-4 (Spring)
	Siemens Energy High Voltage Circuit Breaker Co., Ltd. Hangzhou / China	550	5000	63	3AP2FI-550kV	Yes	Yes	FA5 (Spring)
245 kV, 4,000 A, 50 kA GCB (Class C1)	Hitachi Energy Sweden AB / Sweden	245	4000	50	LTB245E1	Yes	Yes	BLK222 (Spring)
							Yes	BLG1002A (Spring)
	GRID SOLUTIONS SAS / France	245	4000	50	GL314	Yes	Yes	FK3-1 (Spring)
							Yes	FK3-4 (Spring)
	Jiangsu Rugao High Voltage Electric Apparatus Co. Ltd. / China	245	4000	50	LW58-252	Yes	Yes	SRCT36E (Spring)
							Yes	SSCT33 (Spring)
	Siemens Energy High Voltage Circuit Breaker Co., Ltd. Hangzhou / China	245	4000	50	3AP1FI-245kV	Yes	Yes	FA2 (Spring)
		245	4000	50	3AP1FG-245kV		Yes	FA4 (Spring)
123 kV, 3,150 A, 40 kA GCB (Class C1)	Hitachi Energy Sweden AB / Sweden	145	3150	40	LTB145D1/B		Yes	BLK222 (Spring)
	ABB High Voltage Switchgear Co., Ltd. / China	145	3150	40	LTB145D1/B		Yes	BLK222 (Spring)
	GE GRID GMBH / Germany	145	3150	40	GL312F1/4031P		Yes	FK3-1 (Spring)
	Siemens Limited / India	145	3150	40	3AP1FG-145kV		Yes	FA2 (Spring)
	Jiangsu Rugao High Voltage Electric Apparatus Co. Ltd. / China	145	4000	40	LW36-145		Yes	SRCT36E (Spring)
	Siemens High Voltage Circuit Breaker Co., Ltd. Hangzhou / China	145	3150	40	3AP1FG-145kV		Yes	FA2 (Spring)

Note. The Equipment listed in EGAT Accepted Power Circuit Breaker List are in accordance with the requirements set forth in the Eligibility of Equipment No. EB-PQ-CB-01. In bid evaluation, EGAT will not be bound to accepted the equipment in EGAT Accepted Power Circuit Breaker List. EGAT reserves the right to accept the equipment considering the conformity of the bid requirements.

Bid No.

เอกสารควบคุม
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 ก่อนนำไปใช้งาน
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 ฝ่ายวิศวกรรมระบบส่ง กฟผ.

1 พฤศจิกายน 2566

EGAT Accepted Disconnecting Switch List

Description	Manufacturer / Country	Type/Model	Type of Mechanism
550 kV, 4,000 A air switch (Main blade: Motor operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	STC	CD101
	Grid Solution S.p.A. / Italy	S3CD550/4000	CMM
	Hapam B.V. / The Netherlands	SSBIII-550	MT150
550 kV, 4,000 A, air switch with grounding blade (Main blade: Motor operated, Grounding blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	STC-E	CD201
	Grid Solution S.p.A. / Italy	S3CDT550/4000	CMM for DS and ES
	Hapam B.V. / The Netherlands	SSBIII-AM-550	MT150 for DS and HAC for ES
245 kV, 4,000 A, air switch (Main blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB	CM110
	Grid Solutions / Italy	S3CD245/4000	CML
	Hapam B.V. / The Netherlands	SSBIII-245	HAC
245 kV, 4,000 A, air switch with grounding blade (Main blade: Manually operated, Grounding blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB-E	CM210
	Grid Solution S.p.A. / Italy	S3CDT245/4000	CML for DS and ES
	Hapam B.V. / The Netherlands	SSBIII-AM-245	HAC for DS and ES
245 kV, 3,150 A air switch (Main blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB	CM110
	Hapam B.V. / The Netherlands	SSBIII-245	HAC
	Grid Solution S.p.A. / Italy	S3C245/3150	CML
245 kV, 3,150 A air switch with grounding blade (Main blade: Manually operated, Grounding blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB-E	CM210
	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB-E Special	CM210
	Hapam B.V. / The Netherlands	SSBIII-AM-245	HAC for DS and ES
	Grid Solution S.p.A. / Italy	S3CT245/3150	CML for DS and ES

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ฝ่ายวิศวกรรมระบบส่ง กฟผ.



EGAT Accepted Disconnecting Switch List

Description	Manufacturer / Country	Type/Model	Type of Mechanism
123 kV, 3,150 A air switch (Main blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB	CM110
	Grid Solution S.p.A. / Italy	S3C123/3150	CML
	Hapam B.V. / The Netherlands	SSBIII-123	HAC
123 kV, 3,150 A air switch with grounding blade (Main blade: Manually operated, Grounding blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB-E	CM210
	Grid Solution S.p.A. / Italy	S3CT123/3150	CML for DS and ES
	Hapam B.V. / The Netherlands	SSBIII-AM-123	HAC for DS and ES
123 kV, 2,000 A air switch (Main blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB	CM110
	Grid Solution S.p.A. / Italy	S3C123/2000	CML
	Hapam B.V. / The Netherlands	SSBIII-123	HAC
123 kV, 2,000 A air switch with grounding blade (Main blade: Manually operated, Grounding blade: Manually operated)	Coelme Costruzioni Elettromeccaniche SpA / Italy	TCB-E Special	CM210
	Grid Solution S.p.A. / Italy	S3CT123/2000	CML for DS and ES
	Hapam B.V. / The Netherlands	SSBIII-AM-123	HAC for DS and ES

Bid No.

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 ฝ่ายวิศวกรรมระบบส่ง กฟผ.



24 Jul 2023

EGAT ACCEPTED FAULT RECORDING SYSTEM LIST

Accepted Type	Manufacturer
IDM+	Qualitrol
M871	GE
7KE85 (*)	Siemens
TESLA 4000 (*)	ERL Phase
TR 2100	Rochester (RIS)
TR 3000 (**)	

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.



เอกสารควบคุม

รับรองสำเนาโดย ทพอ-ส.กส.ส. อวส.

ก่อนนำไปใช้งาน

ต้องตรวจสอบ Revision ล่าสุด

ฝ่ายวิศวกรรมระบบส่ง กฟผ.

24 Jul 2023

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
	Sifang / China

Bid No. TMS-05

เอกสารควบคุม
 รับรองสำเนาโดย ทพอ-ส. กสส-ส. อวส.
 ก่อนนำไปใช้งาน
 ต้องตรวจสอบ Revision ล่าสุด
 ฝ่ายวิศวกรรมระบบส่ง กฟผ.

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. TMS-S-05

เอกสารควบคุม
รับรองสำเนาโดย ทพอ.ส.กส.ส.ลวส.
ก่อนนำไปใช้งาน
ต้องตรวจสอบ Revision คำสุด
ท้ายวิศวกรรมระบบส่ง กฟผ.

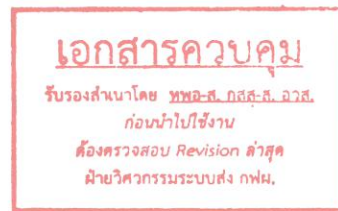
24 Jul 2023

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 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 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.



24 Jul 2023

SCOPE OF WORK

H-1. General

<u>No.</u>	<u>Substation</u>	<u>Page</u>
1.	500 KV BANG SAPHAN 2 SUBSTATION	
	- GENERAL	H1-1
	- ELECTRICAL PART	H1A-1
	- CONTROL AND PROTECTION PART	H1B-1
	- COMMUNICATION PART (NONE)	-
	- CIVIL AND ARCHITECTURAL PART	H1D-1
2.	500 KV SURAT THANI 2 SUBSTATION (GIS)	
	- GENERAL	H2-1
	- ELECTRICAL PART	H2A-1
	- CONTROL AND PROTECTION PART	H2B-1
	- COMMUNICATION PART (NONE)	-
	- CIVIL AND ARCHITECTURAL PART	H2D-1

1. 500 KV BANG SAPHAN 2 SUBSTATION

GENERAL

Bang Saphan 2 Substation is located at Tambon Chai Kasem, Amphur Bang Saphan, Prachuap Khiri Khan Province.

The existing 500 kV switchyard at Bang Saphan 2 Substation is Air Insulated Substation type, with breaker and a half bus scheme arrangement.

The work for this contract are additional two (2) feeders 500 kV Line No.3 & No.4 from Bang Saphan 2 to Surat Thani 2 and complete installation of 500 kV Shunt reactors & Neutral reactors including their switching equipment.

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. 500 kV Bang Saphan 2 Substation

- 1.1 Design, Supply and Installation of equipment required for a complete additional two (2) feeders 500 kV Line No.3 & No.4 from Bang Saphan 2 to Surat Thani 2.
- 1.2 Design, supply, and installation of miscellaneous hardware, required equipment and related accessories which comprises all necessary equipment for:
 - The connection from 500 kV AIS substation to the 500 kV Shunt reactor 110 MVar of feeders 500 kV Line No.3 & No.4 from Bang Saphan 2 to Surat Thani 2 (Bay No.4 & No.3 respectively).
 - The connection from 500 kV AIS substation to 500 kV overhead lines.
 - The connection of 500 kV overhead lines to the 110 MVar, 500 kV shunt reactors and their neutral reactors.
 - Design, Supply and complete Installation of the required equipment and accessories for 110 MVar, 500 kV shunt reactors and 1.287 MVar, 125.4 kV neutral reactors of 500 kV Line No.3 & No.4 to Surat Thani 2. (The shunt reactors and neutral reactors are supplied by EGAT.)
 - The connection of 500 kV system including the low voltage system which are related in these works to provide the complete system operation.
- 1.3 Modify the existing interlock between the busbar disconnecting switches and the busbar earthing switches to complete with the additional disconnecting switches including marshalling kiosk if required by EGAT.
- 1.4 Design supply and installation of the local control switchboards (Marshalling Kiosks) for 500 kV system.

2. Grounding system

- 2.1 Design, supply, and installation of the grounding system of the following:
 - 500 kV system (including all equipment, structures and miscellaneous hardware) associated with the work for additional 500 kV line No.3 & No.4 from Bang Saphan 2 to Surat Thani 2.
 - Low voltage system.
 - Control and protection panels.

The grounding conductor for the substation grounding system shall be of the 4/0 AWG bare copper wire type.

- 2.2 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.
- 2.3 The contractor shall design, supply and install the conductor size 2 x 4/0 AWG bare copper wire type connect from ground grid to steel structure and equipment.
- 2.4 Design, supply and installation of miscellaneous hardware required for the grounding equipment and miscellaneous hardware for the 500 kV shunt reactors and their neutral reactors.

3. Lightning protection

- 3.1 Design, supply, and installation of the substation lightning protection system completed 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 Substation.shall be used in 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 to provide the complete system operation. The low voltage system shall mainly consist of as follows:
 - substation lighting system (if necessary)
 - common cubicle for maintenance (CCM)
 - outdoor receptacle box (ORB2)
 - cables
 - other equipment (if necessary)and all related equipment for the complete operation
- 4.2 Design, supply and installation of equipment required for a complete 400/230 V power supply system.
- 4.3 The voltage drop from LCUS to ORB2 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 (if necessary).
- 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 AC boards to the load shall not exceed 2%. The voltage drop study shall be submitted to EGAT for approval.

6. Other work

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 Modification of the existing 500 kV take-off structures for the installation of 500 kV insulators, and all related equipment and miscellaneous hardware, if required.

6.5 Design, supply and installation of all hardware for suspension and post insulator assembly.

6.6 Installation of suspension and post insulators.

6.7 Modification to Junction box supporting structure (JB003) for the installation of Common cubicle for maintenance (CCM) and Outdoor receptacle box (ORB2).

6.8 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.

- 6.9 Supply and installation of cabling from the control cubicles of the 500 kV Shunt reactors and their Neutral reactors to the associated equipment.
- 6.10 Design supply and installation of sub-cable trenches for the equipment (such as circuit breaker marshalling kiosk, circuit breaker centralizing cubicles (CC-CB), common cubicle for maintenance (CCM), outdoor receptacle box (ORB2) and necessary equipment).

The contractor shall show all sub-cable trenches for the equipment in the drawings for construction and those sub-cable trenches cannot be an additional work.

- 6.11 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.

All removed equipment shall be stored at Bang Saphan 2 substation.

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

CONTROL AND PROTECTION PART

Work included in this Contract

1. Relay Room No.2

- 1.1 Design, supply, installation, wiring, test and commissioning of the complete control and protection system which comprises of at least the following equipment:
 - Swing rack type protective relay switchboards.
 - Shunt reactor systems panel.
 - Marshalling panels for the fault recording system.
 - Fault Recording System.
 - OFC interfacing panel.
 - Cable and accessories as well as connection of cables among all the boards and the associated equipment in order to complete the function of the control and protection system.

- 1.2 Design, Modification, installation, wiring, test and commissioning of the complete control and protection system which comprises the following equipment such as:
 - Marshalling panels for the control system.
 - Marshalling panels for the remote terminal unit.
 - Interposing relay panel.
 - Design control circuit of breakers bay no.3 & no.4 (90322, 90422, 90312A, 90422B)
 - Modification of the Existing 50BF-933 circuit, Removal of the Existing 50BF-931 circuit at Panel No. 210R and other related panels.
 - Modification of the Existing 50BF-941 circuit, Removal of the Existing 50BF-943 circuit at Panel No. 215R and other related panels.
 - Removal of the Existing Auto Re-closer (79-931), at Panel No. 208R.
 - Removal of the Existing Auto Re-closer (79-943), at Panel No. 210R.
 - Modify control circuit breakers (Bay.no.3 & 4).
 - Modify Line protection of other Line that share same bay (bay no.3 & 4).
 - Design W&VAR-TDR, V-TDR for Line no.3 & no.4 to Surat Thani 2 in Interposing panel (IP-R21).
 - Interface the new equipment to GPS & Ethernet Switch systems.
 - Cables and accessories as well as connection of cables among all of the boards and the associated equipment in order to complete the function of the control and protection system.

- 1.3 Design, modification of the schematic drawing, configuration of database and wiring diagrams of the additional inputs for the existing EGAT CCS/RTU. The test and commissioning of the completed EGAT CCS/RTU shall be performed by the Contractor. The configuration shall be under EGAT's supervision.
- 1.4 Design, modification, wiring, configuration, calibration, test and commissioning of the existing fault recording systems. The modified input is about 20 digital inputs. The existing FRS is "BEN 5000* relay building no. 2.
- 1.5 Design, supply, installation, wiring, test and commissioning of Optical Fiber Cables of Remote Terminal Unit (RTU) that connect from 19" rack cabinet at the existing control room to new relay building no. 2.
- 1.6 The Contractor shall be responsible for providing complete schematic and wiring diagrams of the control and protection system.
- 1.7 The existing drawing shall be modification by the contractor and submitted to EGAT for Approval. The final drawing shall be submitted as ACAD files.
- 1.8 Removal of the unused existing cables, which shall be neatly reeled and the removed panels shall be kept in a suitable place recommended by EGAT.
- 1.9 The Contractor shall provide the draftsmen working at site during the commissioning stage in order to be in charge of writing the As-built Drawings of Control and Protection System.

2. 500 kV Control Room

- 2.1 Design, modification of the schematic drawing, installation and configuration of the application software, database, Control function and display for the 500 kV EGAT Computerized Control System (CCS) whereas the application software is supplied by EGAT. The installation shall be under EGAT's supervision.

Work included in this Contract

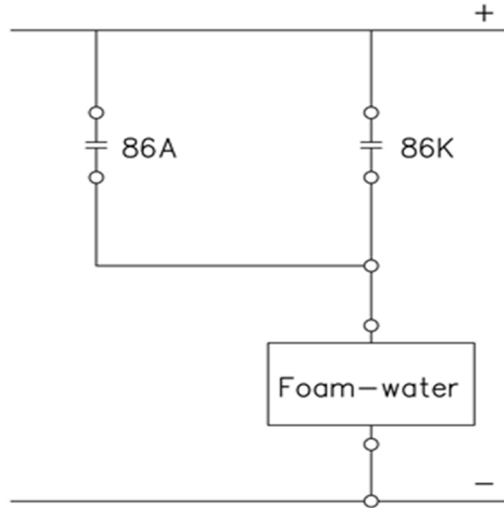
1. Supply of Remote Terminal Units (RTUs), Master Station Unit and Application software.

CIVIL AND ARCHITECTURAL PART

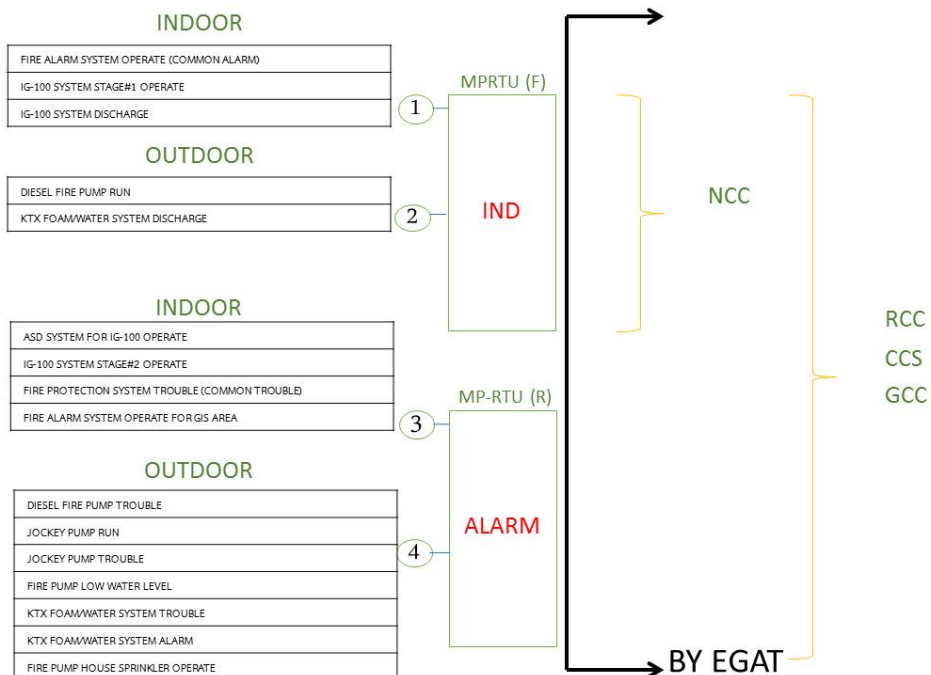
Work included in this Contract.

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.
 - 1.2.8 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.
 - 1.3 There shall be one graphic annunciator which displays alarm, discharge and trouble signals of fire alarm system of other buildings, (fire pump houses, transformers, shunt reactors) at the building where control room locates.
 - 1.4 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.
 - 1.5 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;



1.6 For fire protection system monitoring system, contractor shall be responsible for procuring and installing a system comprising of monitoring and automatic alarm equipment; and for connecting the system to EGAT SCADA using Protocol Modbus or other Protocols that EGAT supports via TCP/IP port RJ45. When detectors detect smoke or heat, or equipment abnormality occurs, or fire protection system operates, the monitoring system will send alarm signals and record the even location, event date, start time, end time, and other necessary information. The event log must be appropriate for analyzing the cause of the event. The signals shall be verifiable and sent through (CCS) RTU and EGAT SCADA to NCC (National Control Center). The equipment shall be installed in control building or other location specified by EGAT. 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;



- 1.7 There shall be only one subcontractor engaging in design, supply and installation of Fire Protection System for Buildings and Switchyard.
- 1.8 There shall be safety signs for fire extinguisher, manual release station and fire alarm device.
- 1.9 Contractor shall warranty the fire protection system for one full year starting the date after contract final completion. Fire protection system shall be inspected and maintained for 2 years, not less than 4 times per year and not less than manufacturers' recommendation, at contractor's cost and expense.
- 1.10 Notwithstanding the expiration of any warranty period described in this contract, the warranty period for any fire protection system or equipment and maintenance period shall be extended by a period equal to the sum of any periods during the warranty period when such system or equipment cannot be used for the purposes for which they were intended or the delays in maintenance, starting from the date EGAT has given contractor notice.
- 1.11 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.
- 1.12 Fire detection devices in substation shall be as table below.

Protected Area	Detector
1. Control, Relay and Telecommunication Rooms, Thyristor valve room	ASD and SD
2. Under-Raised Floor	ASD and SD
3. Feeder Sections and Switchgear areas	ASD and SD
4. Electrical Room	ASD and SD
5. Battery room	
5.1 Battery room Vented Type	HD
5.2 Battery room Dry Type	HD
6. GIS Area	OBSD
7. Inert Gas Room	SD
8. Other Room such as Shops, Office, Warehouse and Pantry	HD or SD
9. Emergency Diesel generator room or Emergency Generator Set House	HD
10. Transformer, Shunt Reactor	LHD
11. Cable Spreading Rooms and Cable Tunnels	<ul style="list-style-type: none"> ▪ SD when environmental condition is acceptable.

	<ul style="list-style-type: none"> ▪ LHD when environmental condition is out of range for SD ▪ ASD in high risk area and required early response.
12. Main Cable Trench of GIS Area	LHD

Abbreviations

1. Heat detector, HD
2. Addressable Spot-Type Photoelectric Smoke detector, SD
3. Linear Heat Detector, LHD
4. Aspirated smoke detectors, ASD
5. Optical beam smoke detector, OBSD

1.13 Pipe coating system shall conform to ASME A13.1 standard and ANSI-A13.1

1.14 Underground water piping shall have indicator sign.

1.15 For Fire protection system design shall be conformed to NFPA 101 (Life Safety Code).

1.16 All junction boxes or electrical equipment in rooms on ground floor shall be 1.2 m higher from room floor elevation.

1.17 All firestops for penetrations shall be pre-formed block firestop / pillow firestop / sleeve firestop / pathway firestop, being able to be removed and reinstalled conveniently. Foam and sealant firestops shall not be used.

CIVIL WORK

1 Design and construction of

- 1.1 Steel structure and foundations for Specified equipment and the others not shown in "For Construction drawings" and / or EGAT's specification.
- 1.2 Road and drainage system.
- 1.3 Drainage system for cable trench.
- 1.4 Modified existing floor and raise floor of 500kV Relay building No.2 to install equipment control panel see layout in Dwg. No. BSP2-S-6 02/03.
- 1.5 Shunt reactor foundation with oil containing pit and steel grating, black steel spiral-seam pipes (TIS 427-2531) with protection method according to AWWA C217, C205.

2 Construction of

- 2.1 Steel support structure foundation.
- 2.2 Equipment support structure foundation with sub-trench (if required).
- 2.3 Cable trench.

- 2.4 Crushed rock surfacing.
 - 2.5 Transformer loading.
 - 2.6 Details sump, curb inlet, curb and pipe laying.
 - 2.7 Site office.
- 3 All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
 - 4 All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.
 - 5 Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.
 - 6 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.
 - 7 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.
 - 8 The Contract price shall be adjusted (added or reduced) in case that the soil investigation results to be used for the design works is different from the layout and standard drawings.
 - 9 Dynamic load test (DLT) according to ASTM D4945-89 shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
 - 10 Seismic load test (sonic integrity test) according to ASTM D5882-96 shall be applied to all bored piles (if bored pile type is required).
 - 11 Plate bearing test according to ASTM D1194-94 shall be submitted to EGAT for approval (if pad type foundation 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.

2. 500 KV SURAT THANI 2 SUBSTATION (GIS)

GENERAL

Surat Thani 2 Substation is located at Tambon Khao Hua Khwai, Amphur Phunphin, Surat Thani Province.

The existing 500 kV switchyard at Surat Thani 2 Substation is Gas Insulated Substation type, with breaker and a half bus scheme arrangement.

The work for this contract are additional two (2) feeders 500 kV Line No.3 & No.4 from Surat Thani 2 to Bang Saphan 2 and complete installation of 500 kV Shunt reactors & Neutral reactors including their switching equipment.

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. 500 kV Surat Thani 2 Substation

- 1.1 Design, Supply and Installation of equipment required for a complete additional two (2) feeders 500 kV Line No.3 & No.4 from Surat Thani 2 to Bang Saphan 2.
- 1.2 Design, supply, and installation of miscellaneous hardware, required equipment and related accessories which comprises all necessary equipment for:
 - The connection from 500 kV GIS air bushings to the 500 kV Shunt reactor 110 MVar of feeders 500 kV Line No.3 & No.4 from Surat Thani 2 to Bang Saphan 2 (Bay No.6 & No.7 respectively).
 - The connection from 500 kV GIS air bushings to 500 kV overhead lines.
 - The connection of 500 kV overhead lines to the 165 MVar, 500 kV shunt reactors and their neutral reactors.
 - Design, Supply and complete Installation of the required equipment and accessories for 165 MVar, 500 kV shunt reactors and 1.287 MVar, 125.4 kV neutral reactors of 500 kV Line No.3 & No.4 to Bang Saphan 2. (The shunt reactors and neutral reactors are supplied by EGAT.)
 - The connection of 500 kV system including the low voltage system which are related in these works to provide the complete system operation.
- 1.3 Modify the existing interlock between the busbar disconnecting switches and the busbar earthing switches to complete with the additional disconnecting switches including marshalling kiosk if required by EGAT.
- 1.4 Design supply and installation of the local control switchboards (Marshalling Kiosks) for 500 kV system.

2. Grounding system

- 2.1 Design, supply, and installation of the grounding system of the following:
 - 500 kV system (including all equipment, structures and miscellaneous hardware) associated with the work for additional 500 kV line No.3 & No.4 from Surat Thani 2 to Bang Saphan 2.
 - Low voltage system.
 - Control and protection panels.

The grounding conductor for the substation grounding system shall be of the 4/0 AWG bare copper wire type.

- 2.2 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.
- 2.3 The contractor shall design, supply and install the conductor size 2 x 4/0 AWG bare copper wire type connect from ground grid to steel structure and equipment.
- 2.4 Design, supply and installation of miscellaneous hardware required for the grounding equipment and miscellaneous hardware for the 500 kV shunt reactors and their neutral reactors.

3. Lightning protection

- 3.1 Design, supply, and installation of the substation lightning protection system completed 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 Substation.shall be used in 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 to provide the complete system operation. The low voltage system shall mainly consist of as follows:
 - substation lighting system
 - common cubicle for maintenance (CCM)
 - outdoor receptacle box (ORB2)
 - circuit breaker in LCUS panel
 - cables
 - other equipment (if necessary)and all related equipment for the complete operation
- 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 branch circuit breaker of LCUS, if the rating of circuit breaker is not suitable with the connected load.

4.4 The voltage drop from LCUS to ORB2 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 500 kV GIS building, relay room and control room (if necessary).
- 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 AC boards to the load shall not exceed 2%. The voltage drop study shall be submitted to EGAT for approval.

6. Other work

6.1 Design, supply and installation of the necessary equipment and miscellaneous hardware for cable wiring to the existing 500 kV GIS building, relay room and control room.

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 Modification of the existing 500 kV take-off structures for the installation of 500 kV insulators, and all related equipment and miscellaneous hardware, if required.

6.5 Design, supply and installation of all hardware for suspension and post insulator assembly.

6.6 Installation of suspension and post insulators.

6.7 Modification to Junction box supporting structure (JB003) for the installation of

Common cubicle for maintenance (CCM) and Outdoor receptacle box (ORB2).

- 6.8 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.
- 6.9 Supply and installation of cabling from the control cubicles of the 500 kV Shunt reactors and their Neutral reactors to the associated equipment.
- 6.10 Design supply and installation of sub-cable trenches for the equipment (such as circuit breaker marshalling kiosk, circuit breaker centralizing cubicles (CC-CB), common cubicle for maintenance (CCM), outdoor receptacle box (ORB2) and necessary equipment).

The contractor shall show all sub-cable trenches for the equipment in the drawings for construction and those sub-cable trenches cannot be an additional work.

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. The stringing work for the connection between the 500 kV substation take-off structures and the dead-end towers of the transmission lines.
2. Supply the suspension insulators for 500 kV.
3. Supply and installation of the 500 kV shunt reactors and their neutral reactors, except cabling from the control cubicle of the shunt reactors to the associated equipment.

CONTROL AND PROTECTION PART

Work included in this Contract

1. 500 kV GIS Control Building

- 1.1 Design, modification, wiring, test and commissioning of the complete control and protection system which comprises of at least the following equipment:
 - Control and Protection System of 500 kV Line No.3 and 4 to Bang Saphan 2
 - Interface PT VU6B and PT VU7A to the related control and protection panels.
 - Interface Shunt reactor systems for SR7A and SR8A
 - OFC interfacing panel
 - Synchronizing panel
 - Interface control protection systems.
 - Interface the equipment to GPS & Ethernet Switch systems.
 - Cables and accessories as well as connection of cables among all of the boards and the associated equipment in order to complete the function of the control and protection system.
- 1.2 Design, modification of the schematic drawing, installation and configuration of the application software, database, control function and display for the 500 kV EGAT Computerized Control System (CCS) whereas the application software is supplied by EGAT. The installation shall be under EGAT's supervision.
- 1.3 Design, modification, wiring, configuration, calibration, test and commissioning of the existing fault recording systems. The modified input is about 20 digital inputs. The existing FRS is "IDM+" model of Qualitrol.
- 1.4 Design, modification of the schematic drawing, configuration of database and wiring diagrams of the additional inputs for the existing 500 kV EGAT CCS/RTU. The test and commissioning of the completed EGAT CCS/RTU shall be performed by the Contractor. The configuration shall be under EGAT's supervision.
- 1.5 The Contractor shall be responsible for providing complete schematic and wiring diagrams of the control and protection system.
- 1.6 The existing drawings shall be modified by the Contractor and submitted to EGAT for approval. The final drawings shall be submitted as ACAD files.
- 1.7 The Contractor shall provide the draftsmen working at site during the commissioning stage in order to be in charge of writing the As-built Drawings of Control and Protection System.

Work included in this Contract

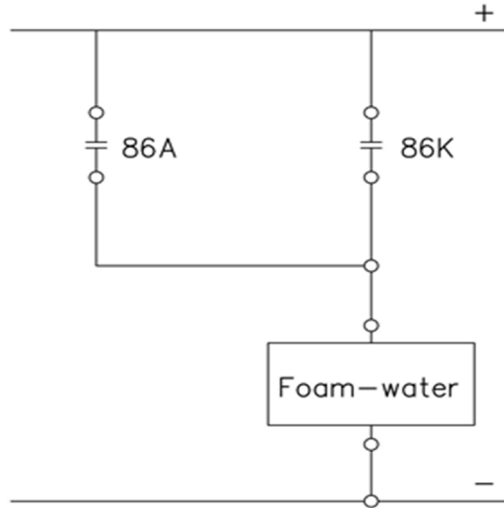
1. Supply of Remote Terminal Units (RTUs), Master Station Unit and Application software.

CIVIL AND ARCHITECTURAL PART

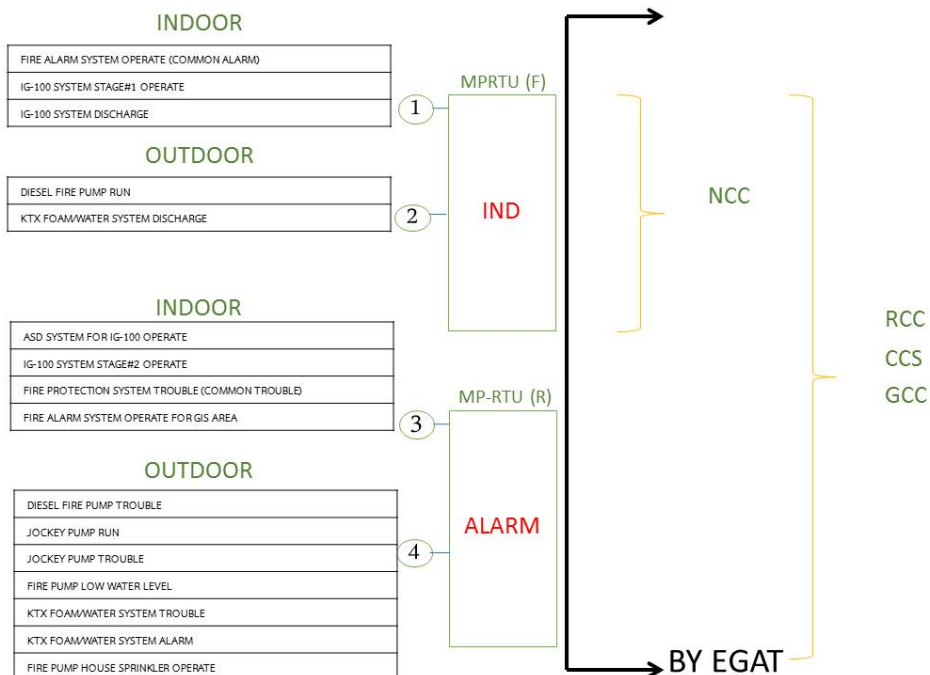
Work included in this Contract.

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.
 - 1.2.8 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.
 - 1.3 There shall be one graphic annunciator which displays alarm, discharge and trouble signals of fire alarm system of other buildings, (fire pump houses, transformers, shunt reactors) at the building where control room locates.
 - 1.4 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.
 - 1.5 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;



1.6 For fire protection system monitoring system, contractor shall be responsible for procuring and installing a system comprising of monitoring and automatic alarm equipment; and for connecting the system to EGAT SCADA using Protocol Modbus or other Protocols that EGAT supports via TCP/IP port RJ45. When detectors detect smoke or heat, or equipment abnormality occurs, or fire protection system operates, the monitoring system will send alarm signals and record the even location, event date, start time, end time, and other necessary information. The event log must be appropriate for analyzing the cause of the event. The signals shall be verifiable and sent through (CCS) RTU and EGAT SCADA to NCC (National Control Center). The equipment shall be installed in control building or other location specified by EGAT. 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;



- 1.7 There shall be only one subcontractor engaging in design, supply and installation of Fire Protection System for Buildings and Switchyard.
- 1.8 There shall be safety signs for fire extinguisher, manual release station and fire alarm device.
- 1.9 Contractor shall warranty the fire protection system for one full year starting the date after contract final completion. Fire protection system shall be inspected and maintained for 2 years, not less than 4 times per year and not less than manufacturers' recommendation, at contractor's cost and expense.
- 1.10 Notwithstanding the expiration of any warranty period described in this contract, the warranty period for any fire protection system or equipment and maintenance period shall be extended by a period equal to the sum of any periods during the warranty period when such system or equipment cannot be used for the purposes for which they were intended or the delays in maintenance, starting from the date EGAT has given contractor notice.
- 1.11 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.
- 1.12 Fire detection devices in substation shall be as table below.

Protected Area	Detector
1. Control, Relay and Telecommunication Rooms, Thyristor valve room	ASD and SD
2. Under-Raised Floor	ASD and SD
3. Feeder Sections and Switchgear areas	ASD and SD
4. Electrical Room	ASD and SD
5. Battery room	
5.1 Battery room Vented Type	HD
5.2 Battery room Dry Type	HD
6. GIS Area	OBSD
7. Inert Gas Room	SD
8. Other Room such as Shops, Office, Warehouse and Pantry	HD or SD
9. Emergency Diesel generator room or Emergency Generator Set House	HD
10. Transformer, Shunt Reactor	LHD
11. Cable Spreading Rooms and Cable Tunnels	<ul style="list-style-type: none"> ▪ SD when environmental condition is acceptable.

	<ul style="list-style-type: none"> ▪ LHD when environmental condition is out of range for SD ▪ ASD in high risk area and required early response.
12. Main Cable Trench of GIS Area	LHD

Abbreviations

1. Heat detector, HD
2. Addressable Spot-Type Photoelectric Smoke detector, SD
3. Linear Heat Detector, LHD
4. Aspirated smoke detectors, ASD
5. Optical beam smoke detector, OBSD

1.13 Pipe coating system shall conform to ASME A13.1 standard and ANSI-A13.1

1.14 Underground water piping shall have indicator sign.

1.15 For Fire protection system design shall be conformed to NFPA 101 (Life Safety Code).

1.16 All junction boxes or electrical equipment in rooms on ground floor shall be 1.2 m higher from room floor elevation.

1.17 All firestops for penetrations shall be pre-formed block firestop / pillow firestop / sleeve firestop / pathway firestop, being able to be removed and reinstalled conveniently. Foam and sealant firestops shall not be used.

CIVIL WORK

1 Design and construction of

- 1.1 Steel structure and foundations for Specified equipment and the others not shown in “For Construction drawings” and / or EGAT’s specification.
- 1.2 Drainage system for cable trench.
- 1.3 Shunt reactor foundation with oil containing pit and steel grating, black steel spiral-seam pipes (TIS 427-2531) with protection method according to AWWA C217, C205.

2 Construction of

- 2.1 Equipment support structure foundation with sub-trench (if required).
- 2.2 Cable trench.
- 2.3 Crushed rock surfacing.
- 2.4 Transformer loading.
- 2.5 Details sump, curb inlet, curb and pipe laying.

- 3 All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
- 4 All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.
- 5 Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.
- 6 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.
- 7 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.
- 8 The Contract price shall be adjusted (added or reduced) in case that the soil investigation results to be used for the design works is different from the layout and standard drawings.
- 9 Dynamic load test (DLT) according to ASTM D4945-89 shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
- 10 Seismic load test (sonic integrity test) according to ASTM D5882-96 shall be applied to all bored piles (if bored pile type is required).
- 11 Plate bearing test according to ASTM D1194-94 shall be submitted to EGAT for approval (if pad type foundation 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.