

# 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](mailto: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](mailto: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](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](mailto:procurement.tse@egat.co.th) in the CC. before 15.00 hrs. Bangkok Standard Time.
- 4) After the payment has been verified for approximately 3 working days, the in-charge officer will send the link for downloading the bidding documents together with the receipt to the purchaser's email address in the Registration Form.

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# Registration Form

Invitation to Bid No. TIPE-L-05

Supply and Construction of Transmission Lines  
230 kV Pluak Daeng – Ban Khai, 230 kV Pluak Daeng – Rayong 2,  
230 kV Ban Khai – Chanthaburi, and 230 kV Ban Khai – Choeng Noen

Transmission System Improvement Project in Eastern Region to Enhance System Security

Available Duration for Purchasing : July 11, 2024 – August 13, 2024

Price of Bidding Documents : USD 500.- or THB 15,000.-

## 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](mailto:procurement.tse@egat.co.th)) before 15.00 hrs. Bangkok Standard Time.
- 4) The in-charge officer will send the link for downloading the bidding documents together with the receipt to the purchaser's email address in the Registration Form, which will take approximately 3 working days.

For Purchaser			TAX ID :
No.	Receipt No. :	Date :	
Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Local Representative			
Address			
			Tax ID :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
For Procurement Officer		Change of Bidder's Name	TAX ID :
Bidder's Letter No. :			Dated :
New Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
<b>Contact Information of In-charge Officer</b>			
Name	Chalita Pengnoo		
Email address	Chalita.pengnoo@egat.co.th		
Telephone No.	66 2436 0347		
Mobile No.	669 5429 3721		



## Invitation to Bid No. TIPE-L-05

### Supply and Construction of Transmission Lines 230 kV Pluak Daeng – Ban Khai, 230 kV Pluak Daeng – Rayong 2, 230 kV Ban Khai – Chanthaburi and 230 kV Ban Khai – Choeng Noen

#### Transmission System Improvement Project in Eastern Region to Enhance System Security Two-Envelope

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 :

- 230 kV Pluak Daeng – Ban Khai Transmission Line (approx. 36.5 kilometers)
- 230 kV Pluak Daeng – Rayong 2 Transmission Line (approx. 37.1 kilometers)
- 230 kV Ban Khai – Chanthaburi Transmission Line (approx. 0.4 kilometers)
- 230 kV Ban Khai – Choeng Noen Transmission Line (approx. 0.4 kilometers)

#### Medium Cost (including Value Added Tax and other expenses) :

THB 1,514,300,000.- (excluding cost of the Dismantled Equipment to be purchased by Bidder)

#### Eligibility of Bidders

1. 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.
2. The Bidder shall not be a Jointly Interested Bidder with other Bidders as from the date of EGAT's issuance of the Invitation, or shall not be a person who undertakes any action as an "Obstruction of Fair Price Competition" for this Invitation.
3. The Bidder shall not either be EGAT's consultant or involve in EGAT's consultancy company under this Invitation to Bid, or shall not have EGAT's personnel involved in his business as shareholder having voting right that can control his business, director, manager, officer, employee, agent, or consultant except those who are officially ordered by EGAT to act or participate therein.
4. The Bidder shall not be the person who is privileged or protected not to be taken any legal proceedings under Thai Court; Provided that such Bidder's government declares that such special privilege is waived.
5. The Bidder who is a joint venture or consortium shall carry out all the work under such formation from the time of bidding until the fulfillment of the Contract.

#### Availability of Bidding Documents

Bidding Documents are available for online purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from July 11, 2024 to August 13, 2024 at USD 500.- or THB 15,000.- per copy, non-refundable.

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

#### Delivery of Bids

Technical and price proposal shall be submitted at Bidding Room, 1<sup>st</sup> Floor, Tor 082 Building during 09:30 hrs. to 10:00 hrs., Bangkok Standard Time, September 18, 2024 and Technical proposal will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

July 11, 2024

*Chattiya C.*

(Miss Chattiya Chandhanayingyong)

Chief

International Procurement Department - Transmission Segment



ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย  
เรื่อง ประกวดราคาจ้าง เลขที่ TIPE-L-05  
ประกวดราคา 2 ชอง

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดซื้อและจ้างก่อสร้างสายส่งไฟฟ้าแรงสูง 230 kV ปลวกแดง – บ้านค่าย, 230 kV ปลวกแดง – ระยอง 2, 230 kV บ้านค่าย – จันทบุรี และ 230 kV บ้านค่าย – เขิงเนิน สำหรับโครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเพื่อเสริมความมั่นคงระบบไฟฟ้า โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ.

**สถานที่ก่อสร้าง :**

- สายส่งไฟฟ้าแรงสูง 230 kV ปลวกแดง – บ้านค่าย (ระยะทางประมาณ 36.5 กิโลเมตร)
- สายส่งไฟฟ้าแรงสูง 230 kV ปลวกแดง – ระยอง 2 (ระยะทางประมาณ 37.1 กิโลเมตร)
- สายส่งไฟฟ้าแรงสูง 230 kV บ้านค่าย – จันทบุรี (ระยะทางประมาณ 0.4 กิโลเมตร)
- สายส่งไฟฟ้าแรงสูง 230 kV บ้านค่าย – เขิงเนิน (ระยะทางประมาณ 0.4 กิโลเมตร)

**ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) :**

1,514,300,000.- บาท (ไม่รวมราคาอุปกรณ์หรือถอนที่กำหนดให้ผู้เสนอราคาปรับซื้อจาก กฟผ.)

**คุณสมบัติของผู้เสนอราคา**

1. ต้องเป็นนิติบุคคลผู้มีอาชีพรับจ้างตามประกวดราคาจ้างดังกล่าว และต้องไม่เป็นผู้ที่งานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ที่จ้างตามคำสั่ง กฟผ.
2. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศประกวดราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาครั้งนี้
3. ต้องไม่เป็นที่ปรึกษาของ กฟผ. หรือมีส่วนร่วมในบริษัทที่ปรึกษาของ กฟผ. ในงานนี้ หรือต้องไม่มีผู้ปฏิบัติงาน กฟผ. เข้าไปมีส่วนร่วมในกิจการของผู้เสนอราคา ไม่ว่าจะในฐานะผู้ถือหุ้นที่มีสิทธิควบคุมการจัดการ กรรมการ ผู้อำนวยการ ผู้จัดการ พนักงาน ลูกจ้าง ตัวแทน หรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
4. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นนั้น
5. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.



### การขายเอกสารประกวดราคา

ผู้สนใจติดต่อซื้อเอกสารประกวดราคา ในราคาชุดละ 15,000.- บาท ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 11 กรกฎาคม 2567 ถึงวันที่ 13 สิงหาคม 2567 ทั้งนี้ สามารถดูรายละเอียดการซื้อเอกสารประกวดราคาได้ที่ เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/> หรือสอบถามข้อมูลเพิ่มเติมได้ทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th)

### การยื่นซองประกวดราคา

กำหนดยื่นซองข้อเสนอด้านเทคนิคพร้อมซองราคา ในวันที่ 18 กันยายน 2567 เวลา 09:30 น. ถึง 10:00 น. และ เปิดซองข้อเสนอด้านเทคนิคเวลา 10:00 น. ณ ห้องประกวดราคา ชั้น 1 อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 11 กรกฎาคม 2567



(นางสาวฉัตริตยา จันทนยิ่งยง)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)

ในการจัดซื้อจัดจ้างที่มีช่างงานก่อสร้าง

1. ชื่อโครงการ Bid No. TIPE-L-05

การจัดซื้อและจ้างก่อสร้างสายส่ง 230 kV ปลวกแดง – บ้านค่าย, 230 kV ปลวกแดง – ระยอง 2,

230 kV บ้านค่าย – จันทบุรี และ 230 kV บ้านค่าย – เชียงเนิน

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเฉียงเหนือเพื่อเสริมความมั่นคงระบบไฟฟ้า

/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. วงเงินงบประมาณที่ได้รับจัดสรร

โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคตะวันออกเฉียงเหนือเพื่อเสริมความมั่นคงระบบไฟฟ้า

งบประมาณ 21,000 ล้านบาท

3. วันที่กำหนดราคากลาง 17 เมษายน 2567 (วันที่ ชสพ. ทำการแทน รวส. อนุมัติ)

ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 1,514,300,000.00 บาท ราคา/หน่วย ตามเอกสารแนบ

4. แหล่งที่มาของราคากลาง

หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง

5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง

5.1 นายวิฑูรย์ บรรดาศักดิ์ นวส-นร., กวสส-ส.

5.2 นางสาวสิรินยา ต้นสังจา หปส-ส., กวสส-ส.

5.3 นายธกานต์ นิโครวนจำรัส วศ.4 หปส-ส. กวสส-ส.

หมายเหตุ ค่าใช้จ่ายอื่นๆ ได้แก่ ค่าใช้จ่ายที่ กฟผ. ต้องจ่ายตามวิธีการพิจารณาเปรียบเทียบราคาที่กำหนดไว้

ในเอกสารประกวดราคา เช่น อากรขาเข้า เป็นต้น

นางสาวเบญญาลักษณ์ ศรีลัมพ์

หจตส-ท.

11 ก.ค. 2567

**DETAILS OF THE MEDIUM COST FOR BID NO. TIPE-L-05****SCHEDULE 1 : 230 kV PLUAK DAENG - BAN KHAI (36.5 km)**

Description	Total (THB)
1A : PRELIMINARY WORK	5,385,603.24
1B : TOWER FOUNDATIONS	245,329,821.13
1C : TOWERS	700,925,048.22
1D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	47,246,200.00
1E : CONDUCTOR AND OVERHEAD GROUND WIRE	17,819,410.00
1F : LINE ACCESSORIES	11,364,775.00
1G : GROUNDING MATERIALS	1,176,098.00
1H : OPTICAL FIBER AND LINE ACCESSORIES	6,312,956.93
1I : DISMANTLING WORK	17,071,282.57
1J : TEMPORARY DETOUR LINES	183,853,786.29
1N : TEST OF EQUIPMENT	82,241,500.00
1O : SUPPLY OF SERVICE OF VEHICLES	4,189,500.00
1Q : DISMANTLING TEMPORARY DETOUR LINES	8,690,154.56
<b>Total price for Schedule 1 (After 1st adjusted)</b>	<b>1,331,606,135.94</b>

**SCHEDULE 2 : 230 kV PLUAK DAENG - RAYONG 2 (37.1 KM)**

Description	Total (THB)
2A : PRELIMINARY WORK	125,827.50
2B : TOWER FOUNDATIONS	6,100,975.00
2C : TOWERS	10,141,199.74
2D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	30,598,080.00
2E : CONDUCTOR AND OVERHEAD GROUND WIRE	12,880,740.00
2F : LINE ACCESSORIES	9,082,250.00
2G : GROUNDING MATERIALS	39,910.00
2H : OPTICAL FIBER AND LINE ACCESSORIES	6,900,113.80
2I : DISMANTLING WORK	67,260.00
<b>Total price for Schedule 2 (After 1st adjusted)</b>	<b>75,936,356.04</b>



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 ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง  
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**SCHEDULE 3 : 230 kV BAN KHAI - CHANTHABURI (0.4 KM)**

Description	Total (THB)
3C : TOWERS	23,940.00
3D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	528,000.00
3E : CONDUCTOR AND OVERHEAD GROUND WIRE	200,497.50
3F : LINE ACCESSORIES	91,600.00
3H : OPTICAL FIBER AND LINE ACCESSORIES	407,095.30
3I : DISMANTLING WORK	116,132.78
3J : TEMPORARY DETOUR LINES	4,562,686.30
3Q : DISMANTLING TEMPORARY DETOUR LINES	135,608.13
<b>Total price for Schedule 3 (After 1st adjusted)</b>	<b>6,065,560.01</b>

**SCHEDULE 4 : 230 kV BAN KHAI - CHOENG NOEN (0.4 KM)**

Description	Total (THB)
4D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	580,200.00
4E : CONDUCTOR AND OVERHEAD GROUND WIRE	278,372.50
4F : LINE ACCESSORIES	93,550.00
4I : DISMANTLING WORK	59,323.32
4J : TEMPORARY DETOUR LINES	584,020.00
<b>Total price for Schedule 4 (After 1st adjusted)</b>	<b>1,595,465.82</b>

<b>Total price for All Schedule (After 1st adjusted)</b>	<b>1,415,203,517.81</b>
<b>Adjusted Price (Import Duty &amp; Tax + VAT)</b>	<b>99,064,246.25</b>
<b>Total Price for All Schedule (All factor included + Import duty &amp; Tax + VAT)</b>	<b>1,514,267,764.06</b>

<b>MEDIUM COST OF BID NO. TIPE-L-05</b>	<b>1,514,300,000.00</b>
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INVITATION TO BID NO. TIPE-L-05  
 TOTAL PRICE FOR SCHEDULE NO. 1  
 230 KV PLUAK DAENG - BAN KHAI  
 Line Length 36.5 KM.

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINE 230 KV PLUAK DAENG - BAN KHAI  
 TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price (excluding VAT) Baht					
		Amount	Amount					
1A : PRELIMINARY WORK							5,385,603.24	
1B : TOWER FOUNDATIONS			31,175,000.00				214,154,821.13	
1C : TOWERS			618,750,000.00				82,175,048.22	
1D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	THB	21,539,700.00	25,706,500.00					
1E : CONDUCTOR AND OVERHEAD GROUND WIRE			28,000.00				17,791,410.00	
1F : LINE ACCESSORIES			11,175,250.00				189,525.00	
1G : GROUNDING MATERIALS			892,400.00				283,698.00	
1H : OPTICAL FIBER AND LINE ACCESSORIES	THB	3,399,980.00	1,128,220.00				1,784,756.93	
1I : DISMANTLING WORK							17,071,282.57	

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Description	Currency	Supply of Equipment	Supply of Equipment	Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price ( excluding VAT ) Baht					
		Amount	Amount					
IJ : TEMPORARY DETOUR LINES	THB	62,892,740.00	83,184,970.00				37,776,076.29	
IN : TEST OF EQUIPMENT	THB			82,241,500.00				
IO : SUPPLY OF SERVICE OF VEHICLES							4,189,500.00	
IQ : DISMANTLING TEMPORARY DETOUR LINES							8,690,154.56	
<b>TOTAL PRICE</b>	<b>THB</b>	<b>87,832,420.00</b>	<b>Baht 772,040,340.00</b>	<b>82,241,500.00</b>	<b>Baht</b>	<b>Baht</b>	<b>Baht 389,491,875.94</b>	<b>Baht</b>
<b>IZ : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR</b>							<b>Baht</b>	<b>-118,522,400.00</b>

  
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**INVITATION TO BID NO. TIPE-L-05**  
**SCHEDULE NO. 1**  
**1A : PRELIMINARY WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
1A1	Check survey and staking of tower locations (Approximately 36.5 km in transmission line distance)	lump sum	each	1,092,262.50	1,092,262.50
1A2	Sub-soil tests and preliminary measurement of ground resistance and earth resistivity (to be performed at tower locations directed by EGAT)				
1A2.1	Standard penetration tests and preliminary measurement of ground resistance and earth resistivity at the depth and locations as directed by EGAT (Approximately 98 bores)	1470	m	2,793.00	4,105,710.00
1A3	Boundary post along boundary line of right-of-way	198	post	947.63	187,630.74
<b>Total Price for 1A</b>				<b>Baht</b>	<b>5,385,603.24</b>



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**1B : TOWER FOUNDATIONS**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1B1	Foundation for Tower Type QQAV1									
1B1.1	Stub type CS (230-4x1272 QQAV1) and pad foundation type CS	16	tower		XXXXX XXXXX	243,750.00	3,900,000.00	1,786,522.50	28,584,360.00	
1B1.2	Stub type CIII (230-4x1272 QQAV1) and pad foundation type CIII	18	tower		XXXXX XXXXX	243,750.00	4,387,500.00	1,511,811.00	27,212,598.00	
1B1.3	Stub type CIV (230-4x1272 QQAV1) and pad foundation type CIV	16	tower		XXXXX XXXXX	225,000.00	3,600,000.00	925,081.50	14,801,304.00	
1B1.4	Stub type CV (230-4x1272 QQAV1) and pad foundation type CV	14	tower		XXXXX XXXXX	212,500.00	2,975,000.00	742,738.50	10,398,339.00	
1B1.5	Stub angle and pile foundation type CLPI-F (7 or 8 or 9 bored pile), exclusive of cost of bored piles and their installation	7	tower		XXXXX XXXXX	143,750.00	1,006,250.00	925,081.50	6,475,570.50	
1B1.6	Stub angle and pile foundation type CLPI-G (12 or 16 bored pile), exclusive of cost of bored piles and their installation	3	tower		XXXXX XXXXX	143,750.00	431,250.00	1,630,513.50	4,891,540.50	
1B2	Foundation for Tower Type QQB2									
1B2.1	Stub type CS (230-4x1272 QQB2) and pad foundation type CS	2	tower		XXXXX XXXXX	543,750.00	1,087,500.00	3,958,778.25	7,917,556.50	
1B2.2	Stub type CIII (230-4x1272 QQB2) and pad foundation type CIII	2	tower		XXXXX XXXXX	543,750.00	1,087,500.00	3,160,878.00	6,321,756.00	
1B2.3	Stub type CIV (230-4x1272 QQB2) and pad foundation type CIV	2	tower		XXXXX XXXXX	456,250.00	912,500.00	2,719,983.00	5,439,966.00	
1B2.4	Stub type CV (230-4x1272 QQB2) and pad foundation type CV	2	tower		XXXXX XXXXX	456,250.00	912,500.00	1,944,227.25	3,888,454.50	

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1B2.5	Stub angle and pile foundation type CLPI-F (7 or 8 or 9 bored pile), exclusive of cost of bored piles and their installation	1	tower		XXXXX	XXXXXX	312,500.00	312,500.00	1,017,450.00	1,017,450.00
1B3	Foundation for Tower Type QQC2									
1B3.1	Stub type CIII (230-4x1272 QQC2) and pad foundation type CIII	1	tower		XXXXX	XXXXXX	637,500.00	637,500.00	3,687,458.25	3,687,458.25
1B3.2	Stub type CIV (230-4x1272 QQC2) and pad foundation type CIV	1	tower		XXXXX	XXXXXX	531,250.00	531,250.00	3,173,646.00	3,173,646.00
1B3.3	Stub type CV (230-4x1272 QQC2) and pad foundation type CV	1	tower		XXXXX	XXXXXX	531,250.00	531,250.00	2,268,913.50	2,268,913.50
1B3.4	Stub angle and pile foundation type CLPI-F (7 or 8 or 9 pile cluster), exclusive of cost of bored piles and their installation	1	tower		XXXXX	XXXXXX	362,500.00	362,500.00	1,064,133.00	1,064,133.00
1B4	Foundation for Tower Type QQD2									
1B4.1	Stub type CS (230-4x1272 QQD2) and pad foundation type CS	1	tower		XXXXX	XXXXXX	906,250.00	906,250.00	6,598,163.25	6,598,163.25
1B4.2	Stub type CIII (230-4x1272 QQD2) and pad foundation type CIII	2	tower		XXXXX	XXXXXX	906,250.00	1,812,500.00	5,267,897.25	10,535,794.50
1B4.3	Stub type CIV (230-4x1272 QQD2) and pad foundation type CIV	2	tower		XXXXX	XXXXXX	756,250.00	1,512,500.00	4,533,637.50	9,067,275.00
1B4.4	Stub type CV (230-4x1272 QQD2) and pad foundation type CV	2	tower		XXXXX	XXXXXX	756,250.00	1,512,500.00	3,240,578.25	6,481,156.50
1B4.5	Stub angle and pile foundation type CLPI-G (12 or 16 bored pile), exclusive of cost of bored piles and their installation	1	tower		XXXXX	XXXXXX	518,750.00	518,750.00	2,033,204.25	2,033,204.25

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
1B4.6	Stub angle and pile foundation type CLPI-H (20 or 25 bored pile), exclusive of cost of bored piles and their installation	1	tower		XXXXX	XXXXX	518,750.00	518,750.00	3,166,863.00	3,166,863.00
1B5	Foundation for Tower Type QQDE(90)									
1B5.1	Stub type CIII (230-4x1272 QQDE(90)) and pad foundation type CIII	1	tower		XXXXX	XXXXX	962,500.00	962,500.00	6,598,163.25	6,598,163.25
1B5.2	Stub type CV (230-4x1272 QQDE(90)) and pad foundation type CV	1	tower		XXXXX	XXXXX	756,250.00	756,250.00	3,857,831.25	3,857,831.25
1B6	Concrete piles									
1B6.1	Furnishing and installation of cast-in-place concrete pile 50 cm. diameter (bored piles) with seismic test	10200	m		XXXXX	XXXXX	XXXXX	XXXXX	3,790.50	38,663,100.00
1B7	Additional foundation work									
1B7.1	Additional earth excavation and backfilling including dewatering	1	cubic meter		XXXXX	XXXXX	XXXXX	XXXXX	748.13	748.13
1B7.2	Additional reinforced concrete work including forms	1	cubic meter		XXXXX	XXXXX	XXXXX	XXXXX	9,476.25	9,476.25
<b>Total Price for 1B</b>							<b>Baht</b>		<b>Baht</b>	
									<b>31,175,000.00</b>	
									<b>214,154,821.13</b>	

  
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1C : TOWERS

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1C1	Tower type QQAV1									
1C1.1	Basic body (230-4x1272 QQAV1)	74	body		XXXXX XXXXX	4,062,500.00	300,625,000.00	538,151.25	39,823,192.50	
1C1.2	Body extension 7.0 m (230-4x1272 QQAV1)	73	body		XXXXX XXXXX	937,500.00	68,437,500.00	124,188.75	9,065,778.75	
1C1.3	Leg extension 1.0 m (230-4x1272 QQAV1)	4	leg		XXXXX XXXXX	39,062.50	156,250.00	5,174.53	20,698.12	
1C1.4	Leg extension 4.0 m (230-4x1272 QQAV1)	288	leg		XXXXX XXXXX	85,937.50	24,750,000.00	11,383.97	3,278,583.36	
1C1.5	Leg extension 9.0 m (230-4x1272 QQAV1)	4	leg		XXXXX XXXXX	168,750.00	675,000.00	22,353.98	89,415.92	
1C2	Tower type QQB2									
1C2.1	Basic body (230-4x1272 QQB2)	9	body		XXXXX XXXXX	6,250,000.00	56,250,000.00	827,925.00	7,451,325.00	
1C2.2	Body extension 7.0 m (230-4x1272 QQB2)	8	body		XXXXX XXXXX	1,437,500.00	11,500,000.00	190,422.75	1,523,382.00	
1C2.3	Leg extension 4.0 m (230-4x1272 QQB2)	32	leg		XXXXX XXXXX	132,812.50	4,250,000.00	17,593.41	562,989.12	
1C2.4	Leg extension 9.0 m (230-4x1272 QQB2)	4	leg		XXXXX XXXXX	259,375.00	1,037,500.00	34,358.89	137,435.56	
1C3	Tower type QQC2									
1C3.1	Basic body (230-4x1272 QQC2)	4	body		XXXXX XXXXX	6,937,500.00	27,750,000.00	918,996.75	3,675,987.00	
1C3.2	Body extension 7.0 m (230-4x1272 QQC2)	4	body		XXXXX XXXXX	1,562,500.00	6,250,000.00	206,981.25	827,925.00	


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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1C3.3	Leg extension 4.0 m (230-4x1272 QQC2)	16	leg		XXXXX	XXXXXX	146,875.00	2,350,000.00	19,456.24	311,299.84
1C4	Tower type QQD2									
1C4.1	Basic body (230-4x1272 QQD2)	9	body		XXXXX	XXXXXX	8,250,000.00	74,250,000.00	1,092,861.00	9,835,749.00
1C4.2	Body extension 7.0 m (230-4x1272 QQD2)	8	body		XXXXX	XXXXXX	1,500,000.00	12,000,000.00	198,702.00	1,589,616.00
1C4.3	Leg extension 4.0 m (230-4x1272 QQD2)	32	leg		XXXXX	XXXXXX	232,812.50	7,450,000.00	30,840.21	986,886.72
1C4.4	Leg extension 9.0 m (230-4x1272 QQD2)	4	leg		XXXXX	XXXXXX	393,750.00	1,575,000.00	52,159.28	208,637.12
1C5	Tower type QQDE(90)									
1C5.1	Basic body (230-4x1272 QQDE(90))	2	body		XXXXX	XXXXXX	8,937,500.00	17,875,000.00	1,183,932.75	2,367,865.50
1C5.2	Leg extension 3.0 m (230-4x1272 QQDE(90))	8	leg		XXXXX	XXXXXX	195,312.50	1,562,500.00	25,872.66	206,981.28
1C6	Tower signs									
1C6.1	Circuit name signs	4	set		XXXXX	XXXXXX			5,486.25	21,945.00
1C6.2	Aerial patrol signs	37	set		XXXXX	XXXXXX			2,493.75	92,268.75
1C6.3	Phasing signs (3 pieces per set)	10	set		XXXXX	XXXXXX			6,483.75	64,837.50
1C6.4	Danger signs	10	set		XXXXX	XXXXXX			2,992.50	29,925.00


  
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					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1C7	Additional tower work									
1C7.1	Additional galvanized steel work	0.1	ton		XXXXX	XXXXXX	62,500.00	6,250.00	8,279.25	827.93
1C7.2	Additional paint with two coats of bituminous paint	1	sq. meter		XXXXX	XXXXXX			1,496.25	1,496.25
<b>Total Price for 1C</b>							<b>Baht 618,750,000.00</b>		<b>Baht 82,175,048.22</b>	



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**ID : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D1	V string suspension insulator assemblies with armor rods for four-bundled 1272 MCM ACSR/GA conductor, 16300 kg ultimate strength, coupling type K (without insulator and arcing horn)	444	set		XXXXX	XXXXXX	33,000.00	14,652,000.00	included in stringing work	included in stringing work
1D2	Bypass string suspension insulator assemblies with armor rods for four-bundled 1272 MCM ACSR/GA conductor, 16300 kg ultimate strength, coupling type K (without insulator and arcing horn)	48	set		XXXXX	XXXXXX	21,000.00	1,008,000.00	included in stringing work	included in stringing work
1D3	Single string tension insulator assemblies for four-bundled 1272 MCM ACSR/GA conductor, 22700 kg ultimate strength, coupling type K (without insulator and arcing horn)	20	set		XXXXX	XXXXXX	28,000.00	560,000.00	included in stringing work	included in stringing work
1D4	Double string tension insulator assemblies for four-bundled 1272 MCM ACSR/GA conductor, 45400 kg ultimate strength, coupling type K (without insulator and arcing horn)	276	set		XXXXX	XXXXXX	32,700.00	9,025,200.00	included in stringing work	included in stringing work
1D5	Single string tension inverted insulator assemblies for four-bundled 1272 MCM ACSR/GA conductor, 22700 kg ultimate strength, coupling type K (without insulator and arcing horn)	16	set		XXXXX	XXXXXX	28,000.00	448,000.00	included in stringing work	included in stringing work
1D6	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength	12	set		XXXXX	XXXXXX	700.00	8,400.00	included in stringing work	included in stringing work

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					Foreign Supply		Local Supply				
					CIF Thai Port		Ex-works Price (excluding VAT) Baht				
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
1D7	Porcelain or glass insulator ANSI CLASS 52-8 (36,000 lbs) with corrosion proof type pin	13351	disc	THB	900.00	12,015,900.00			included in stringing work	included in stringing work	
1D8	Porcelain or glass insulator ANSI CLASS 52-11 (50,000 lbs) with corrosion proof type pin	8580	disc	THB	1,110.00	9,523,800.00			included in stringing work	included in stringing work	
1D9	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength to be employed for the installation with insulators supplied under Item 1D7 on take-off structures	7	set		XXXXXX	XXXXXX	700.00	4,900.00	included in stringing work	included in stringing work	
<b>Total Price for 1D</b>				THB	<b>21,539,700.00</b>		Baht	<b>25,706,500.00</b>		Baht	

  
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**1E : CONDUCTOR AND OVERHEAD GROUND WIRE**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1E1	1272 MCM ACSR/GA Conductor									
1E1.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 1E1.2, and 1E1.3 (to be supplied by EGAT, see Article F-3, approx. 36.5 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXX	included in stringing work	included in stringing work
1E1.2	Stringing of conductor by controlled tension method, double circuit, 3 phase, four-bundled conductor per phase, measured based on horizontal distance of line route from the upper circuits of the new Tower No.99 type QQDE(90) at Ban Khai substation to the existing deadend Tower No.0/1 type DQDE at Pluak Daeng substation	36.3	km		XXXXX	XXXXX	XXXXX	XXXXX	468,825.00	17,018,347.50
1E1.3	Installation of conductor, double circuit, 3 phase, four-bundled conductor per phase, between the existing deadend Tower No.0/1 type DQDE and take-off structure at Pluak Daeng Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	349,125.00	349,125.00
1E1.4	Installation of conductor, double circuit, 3 phase, four-bundled conductor per phase, between the existing deadend Tower No.99 type QQDE(90) and take-off structure at Ban Khai Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	349,125.00	349,125.00

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation		
					Foreign Supply		Local Supply		( excluding VAT ) Baht		
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht				
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
1E2	3/8" nominal diameter, high strength galvanized steel overhead ground wire, Class A coating										
1E2.1	3/8" High strength galvanized steel wire, furnishing for Item 1E2.2 and 1E2.3 based on linear length (Linear length = No. of overhead ground wire x horizontal distance of line route + 1.5%)	1	km					28,000.00	28,000.00	included in stringing work	
1E2.2	Stringing of one overhead ground wire by running line method, measured based on horizontal distance of line route from the new Tower No.0/2 type QQDE(90) to the existing deadend Tower No.0/1 type DQDE at Pluak Daeng Substation, approximately 0.1 km. in transmission line distance	lump sum	each		XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	24,937.50	
1E2.3	Installation of three overhead ground wires between the existing deadend Tower No.0/1 type DQDE and take-off structure at Pluak Daeng Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	24,937.50	
1E2.4	Installation of three overhead ground wires between the existing deadend Tower No.99 type QQDE(90) and take-off structure at Ban Khai Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	24,937.50	
<b>Total Price for 1E</b>								<b>Baht</b>	<b>28,000.00</b>	<b>Baht</b>	<b>17,791,410.00</b>

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**1F : LINE ACCESSORIES**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1F1	Tension sleeve for 1272 MCM ACSR/GA conductor	780	set		XXXXX	XXXXX	1,400.00	1,092,000.00	included in stringing work	included in stringing work
1F2	Spacer damper for four-bundled 1272 MCM ACSR/GA conductor (for double circuit, approx. 36.5 km in transmission line distance)	lump sum	each		XXXXX	XXXXX	8,760,000.00	8,760,000.00	included in stringing work	included in stringing work
1F3	Rigid type spacer for two-bundled 1272 MCM ACSR/GA conductor	300	set		XXXXX	XXXXX	600.00	180,000.00	included in stringing work	included in stringing work
1F4	Rigid type spacer for four-bundled 1272 MCM ACSR/GA conductor	600	set		XXXXX	XXXXX	1,900.00	1,140,000.00	included in stringing work	included in stringing work
1F5	Vibration damper for 3/8" high strength galvanized steel overhead ground wire	5	set		XXXXX	XXXXX	650.00	3,250.00	included in stringing work	included in stringing work
1F6	Field test of spacer damper for four-bundled 1272 MCM ACSR/GA conductor as per Specifications No.TL-03	1	test		XXXXX	XXXXX	XXXXX	XXXXXX	189,525.00	189,525.00
<b>Total Price for 1F</b>							<b>Baht 11,175,250.00</b>		<b>Baht 189,525.00</b>	

  
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**1G : GROUNDING MATERIALS**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation			
					Foreign Supply		Local Supply		( excluding VAT ) Baht			
					CIF Thai Port		Ex-works Price					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
1G1	1.6 cm. nominal diameter x 3.0 m. (5/8" diameter x 10') copper-covered steel single length sectional ground rod with ground rod clamp, ground connecting wire and stub angle connector	392	set					1,200.00	470,400.00	199.50	78,204.00	
1G2	1.6 cm. nominal diameter x 1.8 m. (5/8" diameter x 6') copper-covered steel sectional ground rod with coupling	40	set					800.00	32,000.00	199.50	7,980.00	
1G3	Connector set (No.4 AWG annealed copper ground connecting wire 0.6 m. long with stub angle connector)	120	set					300.00	36,000.00	99.75	11,970.00	
1G4	Counterpoise No.2 AWG solid copper-clad steel wire 30% conductivity	1800	m					180.00	324,000.00	89.78	161,604.00	
1G5	Heavy duty exothermic or compression type connector	120	set					250.00	30,000.00	199.50	23,940.00	
<b>Total Price for 1G</b>									<b>Baht</b>	<b>892,400.00</b>	<b>Baht</b>	<b>283,698.00</b>

  
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**1H : OPTICAL FIBER AND LINE ACCESSORIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
1H1	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
1H1.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	3,399,980.00	3,399,980.00	1,128,220.00	1,128,220.00	Included in Item 1H1.2	Included in Item 1H1.2
1H1.2	Stringing by controlled tension method, one OPGW measured based on horizontal distance of line route from 230kV Ban Khai substation to Pluak Daeng substation CCT.1 ( PDG direction to BKI )	36.5	kilometer		XXXXX	XXXXX	XXXXX	XXXXX	48,897.45	1,784,756.93
1H2	Joint boxes for optical fiber cable									
1H2.1	2-way joint box with accessories for two OPGW cables (including splicing work)	lump sum	set							
1H2.2	Splicing work Connecting OPGW cable and optical fiber cable at PDG take-off structure (BKI S/S)	1	job		XXXXXX	XXXXXX	XXXXXX	XXXXXX		
1H2.3	Splicing work Connecting OPGW cable and optical fiber cable at BKI take-off structure (PDG S/S)	1	job		XXXXXX	XXXXXX	XXXXXX	XXXXXX		
1H3	Hardware assembly for OPGW									
1H3.1	Tension assembly for OPGW with accessories (grounded type)	lump sum	set							
1H3.2	Suspension assembly for OPGW with accessories (grounded type)	lump sum	set							
1H4	Line accessories									
1H4.1	Vibration damper assembly for OPGW with accessories	lump sum	set							
1H4.2	Parallel groove clamps	lump sum	each							
1H4.3	Grounding clamps	lump sum	each							

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					Foreign Supply		Local Supply				
					CIF Thai Port		Ex-works Price (excluding VAT) Baht				
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
1H4.4	1-wire cleat with accessories for OPGW down-lead to joint box	lump sum	each								
1H4.5	2-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each								
1H4.6	6-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each								
1H4.7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin to be used at take-off structure	2	each								
1H4.8	3/8" High strength galvanized steel wire for grounding OPGW to towers	lump sum	meter								
1H5	Field testing for optical fiber for item 1H1	lump sum	job		XXXXX	XXXXX	XXXXX	XXXXX			
<b>Total Price for 1H</b>				<b>THB</b>	<b>3,399,980.00</b>		<b>Baht</b>	<b>1,128,220.00</b>		<b>Baht</b>	<b>1,784,756.93</b>

  
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**II : DISMANTLING WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
111	Dismantling of the existing 230 kV Pluak Daeng - Ban Khai Transmission Line which is double circuit, twin-bundled conductor per phase from Str. No. 0/1 type DQDE at Pluak Daeng substation to Str. No. 36/2 type DQDE at Ban Khai substation, approx. 36.5 km in transmission line distance.	lump sum	each	17,071,282.57	17,071,282.57
<b>Total Price for 11</b>				<b>Baht</b>	<b>17,071,282.57</b>

  
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**1J : TEMPORARY DETOUR LINES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ1	Check survey and staking of structure location (approx. 36.5 kilometer in transmission line distance)	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	1,092,262.50	1,092,262.50
IJ2	Concrete Structure Type TWA-230 (230-2x1272) as per Drawing No.C11-217									
IJ2.1	18 m. Prestressed concrete structure	607	structure		XXXXX	XXXXX	24,200.00	14,689,400.00	5,985.00	3,632,895.00
IJ2.2	Prestressed concrete stub 4 m. (single stub)	577	structure		XXXXX	XXXXX	5,380.00	3,104,260.00	399.00	230,223.00
IJ2.3	Prestressed concrete stub 6 m. (single stub)	30	structure		XXXXX	XXXXX	8,070.00	242,100.00	399.00	11,970.00
IJ2.4	Pole extension assemblies	607	structure		XXXXX	XXXXX	6,200.00	3,763,400.00	897.75	544,934.25
IJ2.5	Grounding assemblies	607	structure		XXXXX	XXXXX	2,500.00	1,517,500.00	798.00	484,386.00
IJ3	Concrete Structure Type TWD-230 (230-2x1272) as per Drawing No.C11-218									
IJ3.1	18 m. Prestressed concrete structure	5	structure		XXXXX	XXXXX	24,200.00	121,000.00	5,985.00	29,925.00
IJ3.2	Prestressed concrete stub 4 m. (double stub)	4	structure		XXXXX	XXXXX	10,760.00	43,040.00	798.00	3,192.00
IJ3.3	Prestressed concrete stub 6 m. (double stub)	1	structure		XXXXX	XXXXX	16,140.00	16,140.00	798.00	798.00
IJ3.4	Pole extension assemblies	5	structure		XXXXX	XXXXX	6,200.00	31,000.00	897.75	4,488.75
IJ3.5	Grounding assemblies	5	structure		XXXXX	XXXXX	2,500.00	12,500.00	798.00	3,990.00
IJ3.6	Guying assemblies	5	structure		XXXXX	XXXXX	24,000.00	120,000.00	997.50	4,987.50

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					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ4	Concrete structure type TWDE-230 (230-2x1272) as per Drawing No.C11-219									
IJ4.1	18 m. Prestressed concrete structure	53	structure		XXXXX XXXXX	24,200.00	1,282,600.00	5,985.00	317,205.00	
IJ4.2	Prestressed concrete stub 4 m. (double stub)	48	structure		XXXXX XXXXX	10,760.00	516,480.00	798.00	38,304.00	
IJ4.3	Prestressed concrete stub 6 m. (double stub)	5	structure		XXXXX XXXXX	16,140.00	80,700.00	798.00	3,990.00	
IJ4.4	Pole extension assemblies	53	structure		XXXXX XXXXX	6,200.00	328,600.00	897.75	47,580.75	
IJ4.5	Grounding assemblies	53	structure		XXXXX XXXXX	2,500.00	132,500.00	798.00	42,294.00	
IJ4.6	Guying assemblies	53	structure		XXXXX XXXXX	24,000.00	1,272,000.00	997.50	52,867.50	
IJ5	Concrete structure type CWA-230 (230-2x1272) as per Drawing No.C11-220									
IJ5.1	18 m. Prestressed concrete structure	28	structure		XXXXX XXXXX	24,200.00	677,600.00	5,985.00	167,580.00	
IJ5.2	Prestressed concrete stub 4 m. (double stub)	25	structure		XXXXX XXXXX	10,760.00	269,000.00	798.00	19,950.00	
IJ5.3	Prestressed concrete stub 6 m. (double stub)	3	structure		XXXXX XXXXX	16,140.00	48,420.00	798.00	2,394.00	
IJ5.4	Pole extension assemblies	28	structure		XXXXX XXXXX	6,200.00	173,600.00	897.75	25,137.00	
IJ5.5	Grounding assemblies	28	structure		XXXXX XXXXX	2,500.00	70,000.00	798.00	22,344.00	
IJ5.6	Guying assemblies	28	structure		XXXXX XXXXX	24,000.00	672,000.00	997.50	27,930.00	
IJ6	Foundation for Lattice Steel Structure									
IJ6.1	Foundation type CIV for lattice steel structure type WSA (14.0 m) including stub as per Drawing No. C23-217	12	structure		XXXXX XXXXX	21,250.00	255,000.00	104,378.40	1,252,540.80	

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ6.2	Foundation type CIV for lattice steel structure type WSA (16.0 m) including stub as per Drawing No. C23-218	23	structure		XXXXX	XXXXXX	21,250.00	488,750.00	131,181.23	3,017,168.29
IJ6.3	Foundation type CIV for lattice steel structure type WSA (18.0 m) including stub as per Drawing No. C23-218	13	structure		XXXXX	XXXXXX	21,250.00	276,250.00	131,181.23	1,705,355.99
IJ6.4	Foundation type CIV for lattice steel structure type WSA (20.0 m) including stub as per Drawing No. C23-218	5	structure		XXXXX	XXXXXX	25,630.00	128,150.00	131,181.23	655,906.15
IJ6.5	Foundation type CIV for lattice steel structure type WSA (22.0 m) including stub as per Drawing No. C23-219	2	structure		XXXXX	XXXXXX	25,630.00	51,260.00	170,971.50	341,943.00
IJ6.6	Foundation type CIV for lattice steel structure type WSA (23.0 m) including stub as per Drawing No. C23-219	1	structure		XXXXX	XXXXXX	25,630.00	25,630.00	170,971.50	170,971.50
IJ6.7	Foundation type CIV for lattice steel structure type WSA (27.0 m) including stub as per Drawing No. C23-219	1	structure		XXXXX	XXXXXX	29,690.00	29,690.00	170,971.50	170,971.50
IJ6.8	Foundation type CIV for lattice steel structure type WSD (14.0 m) including stub as per Drawing No. C23-220	2	structure		XXXXX	XXXXXX	67,500.00	135,000.00	268,796.33	537,592.66
IJ6.9	Foundation type CIV for lattice steel structure type WSD (16.0 m) including stub as per Drawing No. C23-220	2	structure		XXXXX	XXXXXX	65,000.00	130,000.00	268,796.33	537,592.66
IJ6.10	Foundation type CIV for lattice steel structure type WSDE (10.5 m) including stub as per Drawing No. C23-220	19	structure		XXXXX	XXXXXX	48,750.00	926,250.00	268,796.33	5,107,130.27

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ6.11	Foundation type CIV for lattice steel structure type WSDE (14.0 m) including stub as per Drawing No. C23-220	10	structure		XXXXX	XXXXXX	67,500.00	675,000.00	268,796.33	2,687,963.30
IJ6.12	Foundation type CIV for lattice steel structure type WSDE (16.0 m) including stub as per Drawing No. C23-220	7	structure		XXXXX	XXXXXX	65,000.00	455,000.00	268,796.33	1,881,574.31
IJ6.13	Foundation type CIV for lattice steel structure type WSDE (18.0 m) including stub as per Drawing No. C23-221	1	structure		XXXXX	XXXXXX	65,000.00	65,000.00	316,456.88	316,456.88
IJ6.14	Foundation type CIV for lattice steel structure type WSDE (22.0 m) including stub as per Drawing No. C23-221	1	structure		XXXXX	XXXXXX	76,880.00	76,880.00	316,456.88	316,456.88
IJ6.15	Foundation type CIV for lattice steel structure type CWBE (39.0 m) including stub as per Drawing No. C25-025	2	structure		XXXXX	XXXXXX	35,940.00	71,880.00	508,725.00	1,017,450.00
IJ7	Lattice Structure type WSA as per Drawing No. C03-020									
IJ7.1	Tower Type WSA +14.0 m. (230-2x1272)	12	structure		XXXXX	XXXXXX	212,500.00	2,550,000.00	28,149.45	337,793.40
IJ7.2	Tower Type WSA +16.0 m. (230-2x1272)	23	structure		XXXXX	XXXXXX	215,630.00	4,959,490.00	28,563.41	656,958.43
IJ7.3	Tower Type WSA +18.0 m. (230-2x1272)	13	structure		XXXXX	XXXXXX	228,130.00	2,965,690.00	30,219.26	392,850.38
IJ7.4	Tower Type WSA +20.0 m. (230-2x1272)	5	structure		XXXXX	XXXXXX	250,000.00	1,250,000.00	33,117.00	165,585.00

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					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ7.5	Tower Type WSA +22.0 m. (230-2x1272)	2	structure		XXXXX	XXXXXX	267,190.00	534,380.00	35,393.79	70,787.58
IJ7.6	Tower Type WSA +23.0 m. (230-2x1272)	1	structure		XXXXX	XXXXXX	275,000.00	275,000.00	36,428.70	36,428.70
IJ7.7	Tower Type WSA +27.0 m. (230-2x1272)	1	structure		XXXXX	XXXXXX	328,130.00	328,130.00	43,466.06	43,466.06
IJ8	Lattice Structure type WSD as per Drawing No. C03-021									
IJ8.1	Tower Type WSD +14.0 m. (230-2x1272)	2	structure		XXXXX	XXXXXX	268,750.00	537,500.00	35,600.78	71,201.56
IJ8.2	Tower Type WSD +16.0 m. (230-2x1272)	2	structure		XXXXX	XXXXXX	296,880.00	593,760.00	39,326.44	78,652.88
IJ9	Lattice Structure type WSDE as per Drawing No. C03-021									
IJ9.1	Tower Type WSDE +10.5 m. (230-2x1272)	2	structure		XXXXX	XXXXXX	211,560.00	423,120.00	28,025.26	56,050.52
IJ9.2	Tower Type WSDE +14.0 m. (230-2x1272)	19	structure		XXXXX	XXXXXX	268,750.00	5,106,250.00	35,600.78	676,414.82
IJ9.3	Tower Type WSDE +16.0 m. (230-2x1272)	10	structure		XXXXX	XXXXXX	296,880.00	2,968,800.00	39,326.44	393,264.40
IJ9.4	Tower Type WSDE +18.0 m. (230-2x1272)	7	structure		XXXXX	XXXXXX	331,250.00	2,318,750.00	43,880.03	307,160.21
IJ9.5	Tower Type WSDE +22.0 m. (230-2x1272)	1	structure		XXXXX	XXXXXX	428,130.00	428,130.00	56,712.86	56,712.86

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					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
IJ10	Lattice Structure type CWBE as per Drawing No. C03-094									
IJ10.1	Tower Type CWBE +39.0 m. (230-2x1272)	2	structure		XXXXX	XXXXX	812,500.00	1,625,000.00	107,630.25	215,260.50
IJ11	Insulator and Hardware assemblies									
IJ11.1	Horizontal vee insulator string with hardware assemblies for two-bundled 1272 MCM ACSR/GA conductor as per Drawing No. E11-139	171	set	THB	40,000.00	6,840,000.00	6,000.00	1,026,000.00	included in stringing work	included in stringing work
IJ11.2	Composite line post insulator with hardware assemblies for two-bundled 1272 MCM ACSR/GA conductor as per Drawing No. C11-132	1902	set	THB	20,000.00	38,040,000.00	6,000.00	11,412,000.00	included in stringing work	included in stringing work
IJ11.3	Bypass composite line post insulator with hardware assemblies for two-bundled 1272 MCM ACSR/GA conductor as per Drawing No. E11-132	447	set	THB	20,000.00	8,940,000.00	6,000.00	2,682,000.00	included in stringing work	included in stringing work
IJ11.4	Composite suspension insulator as per Drawing No.E11-133	630	set	THB	9,000.00	5,670,000.00			included in stringing work	included in stringing work
IJ11.5	Single string tension insulator assemblies for 1272 MCM ACSR/GA conductor, 12000 kg ultimate strenght, coupling type J (without insulator and arcing horn)	630	set		XXXXX	XXXXX	10,000.00	6,300,000.00	included in stringing work	included in stringing work



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					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1J11.6	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength to be employed for the installation with insulators supplied under Item 1J11.7 on take-off structures	4	set		XXXXX	XXXXX	700.00	2,800.00	included in stringing work	included in stringing work
1J11.7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin	4	disc	THB	690.00	2,760.00			included in stringing work	included in stringing work
1J12	1272 MCM ACSR/GA conductor									
1J12.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 1J12.2 (to be supplied by EGAT, see Article F-3, approx. 36.5 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXX	included in stringing work	included in stringing work
1J12.2	Stringing of conductor by controlled tension method, single circuit, 3 phase, twin-bundled per phase, measured based on horizontal distance of line route from take-off structure at Pluak Daeng Substation to take-off structure at Ban Kahi Substation to be 230 kV Pluak daeng - Ban Khai Temporary Detour Line	36.5	km		XXXXX	XXXXX	XXXXX	XXXXX	151,620.00	5,534,130.00
1J13	Line Accessories									
1J13.1	Tension sleeve for 1272 MCM ACSR/GA conductor	222	set		XXXXX	XXXXX	1,400.00	310,800.00	included in stringing work	included in stringing work
1J14	Grounding assemblies									
1J14.1	Grounding assemblies for Tower Type WSA as per Drawing No. C11-204	57	structure		XXXXX	XXXXX	2,000.00	114,000.00	698.25	39,800.25

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					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1J14.2	Grounding assemblies for Tower Type WSD as per Drawing No. C11-180	4	structure		XXXXX	XXXXXX	2,000.00	8,000.00	698.25	2,793.00
1J14.3	Grounding assemblies for Tower Type WSDE as per Drawing No. C11-180	39	structure		XXXXX	XXXXXX	2,000.00	78,000.00	698.25	27,231.75
1J14.4	Grounding assemblies for Tower Type CWBE as per Drawing No. C11-231	2	structure		XXXXX	XXXXXX	2,000.00	4,000.00	698.25	1,396.50
1J15	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
1J15.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	3,399,980.00	3,399,980.00	1,184,790.00	1,184,790.00	Included in Item 1J1.2	Included in Item 1J1.2
1J15.2	Stringing by controlled tension method, one detour line for OPGW measured based on horizontal distance of line route from 230kV Ban Khai substation to Pluak Daeng substation	36.5	kilometer		XXXXX	XXXXXX	XXXXXX	XXXXXX	51,341.33	1,873,958.55
1J16	Non-metallic optical fiber cable									
1J16.1	36 Cores Non-metallic Optical Fiber Cable from joint box at Pluak Daeng take-off structure to fiber frame termination cabinet at Ban Khai control building (BKI S/S)	300	meter				450.00	135,000.00	Included in Item 1J2.2	Included in Item 1J2.2
1J16.2	Laying of optical fiber cable with accessories for item 1J16.1, 1J16.4, 1J16.5	300	meter		XXXXX	XXXXXX	XXXXXX	XXXXXX	448.88	134,664.00
1J16.3	Splicing work Connecting optical fiber cable and pigtails for item 1J16.1	1	job		XXXXX	XXXXXX	XXXXXX	XXXXXX		

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					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1J16.4	Rigid Steel Conduit from take-off structure to cable trench for item 1J16.1	lump sum	meter						Included in Item 1J2.2	Included in Item 1J2.2
1J16.5	EFLEX and/or HDPE Conduit for item 1J2.1 in cable trench for item 1J16.1	lump sum	meter						Included in Item 1J2.2	Included in Item 1J2.2
1J16.6	Fiber frame termination cabinet with cable tray (BKI Control building-1)	1	set							
1J16.7	36 Pigtails (1.5 meters) (BKI Control building-1)	1	set							
1J17	Non-metallic optical fiber cable									
1J17.1	36 Cores Non-metallic Optical Fiber Cable from joint box at Ban Khai take-off structure to fiber frame termination cabinet at Pluak Daeng control building (PDG S/S)	150	meter			600.00	90,000.00		Included in Item 1J3.2	Included in Item 1J3.2
1J17.2	Laying of optical fiber cable with accessories for item 1J17.1, 1J17.4, 1J17.5	150	meter		XXXXX	XXXXXX	XXXXXX	XXXXXX	498.75	74,812.50
1J17.3	Splicing work Connecting optical fiber cable and pigtails for item 1J17.1	1	job		XXXXXX	XXXXXX	XXXXXX	XXXXXX		
1J17.4	Rigid Steel Conduit from take-off structure to cable trench for item 1J17.1	lump sum	meter						Included in Item 1J3.2	Included in Item 1J3.2
1J17.5	EFLEX and/or HDPE Conduit for item 1J17.1 in cable trench for item 1J17.1	lump sum	meter						Included in Item 1J3.2	Included in Item 1J3.2
1J17.6	Fiber frame termination cabinet with cable tray (PDG Control building-1)	1	set							

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					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1J17.7	36 Pigtails (1.5 meters) (PDG Control building-1)	1	set							
1J18	Joint boxes for optical fiber cable									
1J18.1	2-Way Joint Boxes with Accessories for OPGW and 36 Cores Non-metallic Optical Fiber Cable (including splicing work)	lump sum	set							
1J18.2	2-Way Joint Boxes with Accessories for OPGW and 36 Cores Non-metallic Optical Fiber Cable at Pluak Daeng take-off structure (including splicing work between optical fiber cable and OPGW) (BKI S/S)	1	set							
1J18.3	2-Way Joint Boxes with Accessories for OPGW and 36 Cores Non-metallic Optical Fiber Cable at Ban Khai take-off structure (including splicing work between optical fiber cable and OPGW) (PDG S/S)	1	set							
1J19	Hardware assembly for OPGW									
1J19.1	Tension assembly for OPGW and accessories for OPGW (Grounded)	lump sum	set							
1J19.2	Suspension assembly for OPGW and accessories for OPGW (Grounded)	lump sum	set							
1J20	Line accessories									
1J20.1	Vibration damper assembly for OPGW with accessories	lump sum	set							

  
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					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1J20.2	Parallel groove clamps	lump sum	each							
1J20.3	Grounding clamps	lump sum	each							
1J20.4	1-wire cleat without insulator for OPGW down-lead to joint box (Ground)	lump sum	each							
1J20.5	2-wire cleats without insulator for OPGW down-lead to joint box (Ground)	lump sum	each							
1J20.6	6-wire cleats without insulator for OPGW down-lead to joint box (Ground)	lump sum	each							
1J20.7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin to be used at take-off structure	2	each							
1J20.8	3/8" High strength galvanized steel wire for grounding OPGW to towers	lump sum	meter							
1J21	Field testing for optical fiber for item 1J15	lump sum	job		XXXXX	XXXXX	XXXXX	XXXXX		
<b>Total Price for 1J</b>										
				<b>THB</b>	<b>62,892,740.00</b>		<b>Baht</b>		<b>83,184,970.00</b>	
								<b>Baht</b>		<b>37,776,076.29</b>

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**10 : SUPPLY OF SERVICE OF VEHICLES**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation ( excluding VAT ) Baht	
				Unit Price	Amount
101	Services of four-wheel-driven vehicle (for Specifications and requirements of Vehicles, refer to Article G-6. Housing and Other Facilities.)	84	car-month	49,875.00	4,189,500.00
<b>Total Price for 10</b>				<b>Baht</b>	<b>4,189,500.00</b>



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1N : TEST OF EQUIPMENT

Item No.	Description	Estimated Qty.	Unit	Currency	Foreign Currency		Local Currency (excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount
					1N1	Steep front wave impulse test on insulator ANSI Class 52-5 (18,000 lbs), as per Specification No. TL-01 (Rev. 2)	1	test
1N2	Steep front wave impulse test on insulator ANSI Class 52-8 (36,000 lbs), as per Specification No. TL-01 (Rev. 2)	1	test	THB	151,000.00	151,000.00		
1N3	Steep front wave impulse test on insulator ANSI Class 52-11 (50,000 lbs), as per Specification No. TL-01 (Rev. 2)	1	test	THB	151,000.00	151,000.00		
1N4	Laboratory test of spacer damper for two-bundled 1272 MCM ACSR/GA Conductor as per Specification No. TL-03 (Rev.0)	1	test	THB	151,000.00	151,000.00		
1N5	Laboratory test of spacer damper for four-bundled 1272 MCM ACSR/GA Conductor as per Specification No. TL-03 (Rev.0)	1	test	THB	151,000.00	151,000.00		
1N6	Tower test of QQAV1 (8 Load case and Destruction test)	1	test	THB	16,537,500.00	16,537,500.00		
1N7	Tower test of QQC2 (8 Load case and Destruction test)	1	test	THB	28,297,500.00	28,297,500.00		
1N8	Tower test of QQDE(90) (8 Load case and Destruction test)	1	test	THB	36,651,500.00	36,651,500.00		
<b>Total Price for 1N</b>				<b>THB</b>	<b>82,241,500.00</b>		<b>Baht</b>	

  
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**1Q : DISMANTLING TEMPORARY DETOUR LINES**


Item No.	Description	Estimated Qty.	Unit	Currency	Local Transportation, Construction and Installation (excluding VAT) Baht	
					Unit Price	Amount
1Q1	Dismantling of the existing 230 kV Pluak Daeng - Ban Khai Temporary Detour Line which is single circuit, twin-bundled conductor per phase from take-of structure at Pluak Daeng substation to take-off structure at Ban Khai substation, approx. 36.5 km in transmission line distance.	lump sum	each		8,690,154.56	8,690,154.56
<b>Total Price for 1Q</b>						<b>8,690,154.56</b>

  
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**1Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR**

Item No.	Description	Estimated Qty.	Unit	Purchase Price Offered for Dismantled Equipment ( including VAT ) Baht	
				Unit Price	Amount
1Z1	Dismantling equipment of the existing 230 kV Pluak Daeng - Ban Khai Transmission Line which is double circuit, twin-bundled conductor per phase from Str. No. 0/1 type DQDE at Pluak Daeng substation to Str. No. 36/2 type DQDE at Ban Khai substation, approx. 36.5 km in transmission line distance.				
1Z2	Dismantling equipment of the existing 230 kV Pluak Daeng - Ban Khai Temporary Detour Line which is single circuit, twin-bundled conductor per phase from take-of structure at Pluak Daeng substation to take-off structure at Ban Khai substation, approx. 36.5 km in transmission line distance.				
<b>Total Price for 1Z</b>				<b>Baht</b>	<b>118,522,400.00</b>

  
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INVITATION TO BID NO. TIPE-L-05  
 TOTAL PRICE FOR SCHEDULE NO. 2  
 230 KV PLUAK DAENG - RAYONG 2  
 Line Length 37.1 KM.

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINE 230 KV PLUAK DAENG - RAYONG 2  
 TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price (excluding VAT) Baht					
		Amount	Amount					
2A : PRELIMINARY WORK							125,827.50	
2B : TOWER FOUNDATIONS			635,625.00				5,465,350.00	
2C : TOWERS			8,954,500.00				1,186,699.74	
2D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	THB	17,661,480.00	12,936,600.00					
2E : CONDUCTOR AND OVERHEAD GROUND WIRE			28,000.00				12,852,740.00	
2F : LINE ACCESSORIES			8,920,750.00				161,500.00	
2G : GROUNDING MATERIALS			30,600.00				9,310.00	

  
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Description	Currency	Supply of Equipment	Supply of Equipment	Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price ( excluding VAT ) Baht					
		Amount	Amount					
2H : OPTICAL FIBER AND LINE ACCESSORIES	THB	3,502,444.50	1,403,349.50				1,994,319.80	
2I : DISMANTLING WORK							67,260.00	
<b>TOTAL PRICE</b>	<b>THB</b>	<b>21,163,924.50</b>	<b>Baht 32,909,424.50</b>		<b>Baht</b>	<b>Baht</b>	<b>Baht 21,863,007.04</b>	<b>Baht</b>
2Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR							<b>Baht</b>	<b>-602,900.00</b>

  
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**INVITATION TO BID NO. TIPE-L-05  
SCHEDULE NO. 2  
2A : PRELIMINARY WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
2A1	Check survey and staking of tower locations (Approximately 0.1 km in transmission line distance)	lump sum	each	2,850.00	2,850.00
2A2	Clearing right-of-way of 20 meters on each side of center line of the transmission line at Pluak Daeng substation (Approximately 0.1 km in transmission line distance)	lump sum	each	2,375.00	2,375.00
2A3	Sub-soil tests and preliminary measurement of ground resistance and earth resistivity (to be performed at tower locations directed by EGAT)				
2A3.1	Standard penetration tests and preliminary measurement of ground resistance and earth resistivity at the depth and locations as directed by EGAT (Approximately 3 bores)	45	m	2,660.00	119,700.00
2A4	Boundary post along boundary line of right-of-way	1	post	902.50	902.50
<b>Total Price for 2A</b>				<b>Baht</b>	<b>125,827.50</b>



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**2B : TOWER FOUNDATIONS**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2B1	Foundation for Tower Type WDE									
2B1.1	Stub type CIII (230-2x1272 WDE) and pad foundation type CIII	1	tower		XXXXXX	XXXXXX	121,250.00	121,250.00	703,950.00	703,950.00
2B2	Foundation for Tower Type QWDE90									
2B2.1	Stub type CIII (230-2x1272 QWDE90) and pad foundation type CIII	1	tower		XXXXXX	XXXXXX	258,125.00	258,125.00	2,565,950.00	2,565,950.00
2B3	Foundation for Tower Type QWDE									
2B3.1	Stub type CIII (230-2x1272 QWDE) and pad foundation type CIII	1	tower		XXXXXX	XXXXXX	256,250.00	256,250.00	2,195,450.00	2,195,450.00
<b>Total Price for 2B</b>							<b>Baht</b>		<b>Baht</b>	
							<b>635,625.00</b>		<b>5,465,350.00</b>	


  
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**2C : TOWERS**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2C1	Tower Type WDE									
2C1.1	Basic body (230-2x1272 WDE)	1	body		XXXXX	XXXXX	1,093,750.00	1,093,750.00	137,987.50	137,987.50
2C1.2	Leg extension 4.0 m (230-2x1272 WDE)	4	leg		XXXXX	XXXXX	38,375.00	153,500.00	4,841.39	19,365.56
2C2	Tower Type QWDE90									
2C2.1	Basic body (230-2x1272 QWDE90)	1	body		XXXXX	XXXXX	3,762,500.00	3,762,500.00	474,677.00	474,677.00
2C2.2	Leg extension 1.0 m (230-2x1272 QWDE90)	4	leg		XXXXX	XXXXX	45,562.50	182,250.00	5,748.17	22,992.68
2C3	Tower Type QWDE									
2C3.1	Basic body (230-2x1272 QWDE)	1	body		XXXXX	XXXXX	3,212,500.00	3,212,500.00	405,289.00	405,289.00
2C3.2	Leg extension 6.0 m (230-2x1272 QWDE)	4	leg		XXXXX	XXXXX	137,500.00	550,000.00	17,347.00	69,388.00
2C4	Tower Signs									
2C4.1	Phasing signs (3 pieces per set)	5	set		XXXXX	XXXXX	included in installation work	included in installation work	6,175.00	30,875.00
2C4.2	Circuit name signs	5	piece		XXXXX	XXXXX	included in installation work	included in installation work	5,225.00	26,125.00
<b>Total Price for 2C</b>							<b>Baht</b>	<b>8,954,500.00</b>	<b>Baht</b>	<b>1,186,699.74</b>

  
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2D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2D1	V string suspension insulator assemblies with armor rods for two-bundled 1272 MCM ACSR/GA conductor, 13000 kg ultimate strength, coupling type J (without insulator and arcing horn)	444	set		XXXXX	XXXXX	15,000.00	6,660,000.00	included in stringing work	included in stringing work
2D2	Bypass string suspension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 12000 kg ultimate strength, coupling type J (without insulator and arcing horn)	66	set		XXXXX	XXXXX	9,000.00	594,000.00	included in stringing work	included in stringing work
2D3	Single string tension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 13000 kg ultimate strength, coupling type J (without insulator and arcing horn)	40	set		XXXXX	XXXXX	14,000.00	560,000.00	included in stringing work	included in stringing work
2D4	Double string tension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 26000 kg ultimate strength, coupling type K (without insulator and arcing horn)	294	set		XXXXX	XXXXX	17,000.00	4,998,000.00	included in stringing work	included in stringing work
2D5	Single string tension inverted insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 13000 kg ultimate strength, coupling type J (without insulator and arcing horn)	8	set		XXXXX	XXXXX	14,000.00	112,000.00	included in stringing work	included in stringing work
2D6	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength	14	set		XXXXX	XXXXX	700.00	9,800.00	included in stringing work	included in stringing work

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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		
2D7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin	14092	disc	THB	690.00	9,723,480.00					included in stringing work	included in stringing work
2D8	Porcelain or glass insulator ANSI CLASS 52-8 (36,000 lbs) with corrosion proof type pin	8820	disc	THB	900.00	7,938,000.00					included in stringing work	included in stringing work
2D9	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength to be employed for the installation with insulators supplied under Item 1D7 on take-off structures	4	set		XXXXXX	XXXXXX	700.00	2,800.00			included in stringing work	included in stringing work
<b>Total Price for 2D</b>												
				<b>THB</b>	<b>17,661,480.00</b>		<b>Baht</b>		<b>12,936,600.00</b>		<b>Baht</b>	


  
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**2E : CONDUCTOR AND OVERHEAD GROUND WIRE**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2E1	1272 MCM ACSR/GA Conductor									
2E1.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 2E1.2, 2E1.3 and 2E1.4 (to be supplied by EGAT, see Article F-3, approx. 37.1 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXX	included in stringing work	included in stringing work
2E1.2	Stringing of conductor by controlled tension method, double circuit, 3 phase, twin-bundled conductor per phase, measured based on horizontal distance of line route from the upper circuits of the existing Tower No.12/2 type QWC2 to the new deadend tower No.1A type QWDE(90) at Plauk Daeng substation (including connecting loop upper circuit at Tower No. 12/2, as per drawing No.T04-002)									
		36.8	km		XXXXX	XXXXX	XXXXX	XXXXX	336,300.00	12,375,840.00
2E1.3	Installation of conductor, double circuit, 3 phase, twin-bundled conductor per phase, between the new deadend Tower No.0/1A type QWDE(90) and take-off structure at Pluak Daeng Substation, approx. 0.1 km. in transmission line distance									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	190,950.00	190,950.00
2E1.4	Installation of conductor, double circuit, 3 phase, twin-bundled conductor per phase, between the 230 kV Rayong 2 circuit No.1 of the existing Tower No.12/3 type QWDE and take-off structure at Ban Khai Substation, approx. 0.1 km. in transmission line distance									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	190,950.00	190,950.00

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2E2	3/8" nominal diameter, high strength galvanized steel overhead ground wire, Class A coating									
2E2.1	3/8" High strength galvanized steel wire, furnishing for Item 2E2.2, 2E2.3, 2E2.4 and 2E2.5 based on linear length (Linear length = No. of overhead ground wire x horizontal distance of line route + 1.5%)	1	km				28,000.00	28,000.00	included in stringing work	included in stringing work
2E2.2	Stringing of one overhead ground wire by running line method, measured based on horizontal distance of line route from the new Tower No.0/1A type QWDE to the new tower No.36/2 type QQDE(90) at Ban Khai Substation, approximately 0.25 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	23,750.00	23,750.00
2E2.3	Stringing of one overhead ground wire by running line method method, measured based on horizontal distance of line route from the new Tower No.0/2 type QQDE(90) to the new deadend tower No.0/1A type QWDE(90) at Pluak Daeng Substation, approximately 0.25 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	23,750.00	23,750.00

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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	
2E2.4	Installation of three overhead ground wires between the new deadend tower No.0/1A type QWDE(90) and take-off structure at Pluak Daeng Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	23,750.00	23,750.00	
2E2.5	Installation of three overhead ground wires between the new existing Tower No.12/3 type QWDE and take-off structure at Ban Khai Substation, approx. 0.1 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	23,750.00	23,750.00	
<b>Total Price for 2E</b>								<b>Baht</b>	<b>28,000.00</b>	<b>Baht</b>	<b>12,852,740.00</b>

  
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**2F : LINE ACCESSORIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2F1	Tension sleeve for 1272 MCM ACSR/GA conductor	396	set		XXXXXX	XXXXXX	1,400.00	554,400.00	included in stringing work	included in stringing work
2F2	Spacer damper for two-bundled 1272 MCM ACSR/GA conductor (for double circuit, approx. 37.1 km in transmission line distance)	lump sum	each		XXXXXX	XXXXXX	8,162,000.00	8,162,000.00	included in stringing work	included in stringing work
2F3	Rigid type spacer for two-bundled 1272 MCM ACSR/GA conductor	333	set		XXXXXX	XXXXXX	600.00	199,800.00	included in stringing work	included in stringing work
2F4	Vibration damper for 3/8" high strength galvanized steel overhead ground wire	7	set		XXXXXX	XXXXXX	650.00	4,550.00	included in stringing work	included in stringing work
2F5	Field test of spacer damper for two-bundled 1272 MCM ACSR/GA conductor as per Specifications No.TL-03	1	test		XXXXXX	XXXXXX	XXXXXX	XXXXXX	161,500.00	161,500.00
<b>Total Price for 2F</b>							<b>Baht</b>	<b>8,920,750.00</b>	<b>Baht</b>	<b>161,500.00</b>


  
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**2G : GROUNDING MATERIALS**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation			
					Foreign Supply		Local Supply		( excluding VAT ) Baht			
					CIF Thai Port		Ex-works Price					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
2G1	1.6 cm. nominal diameter x 3.0 m. (5/8" diameter x 10') copper-covered steel single length sectional ground rod with ground rod clamp, ground connecting wire and stub angle connector	12	set					1,200.00	14,400.00	190.00	2,280.00	
2G2	1.6 cm. nominal diameter x 1.8 m. (5/8" diameter x 6') copper-covered steel sectional ground rod with coupling	4	set					800.00	3,200.00	190.00	760.00	
2G3	Connector set (No.4 AWG annealed copper ground connecting wire 0.6 m. long with stub angle connector)	4	set					300.00	1,200.00	95.00	380.00	
2G4	Counterpoise No.2 AWG solid copper-clad steel wire 30% conductivity	60	m					180.00	10,800.00	85.50	5,130.00	
2G5	Heavy duty exothermic or compression type connector	4	set					250.00	1,000.00	190.00	760.00	
<b>Total Price for 2G</b>									<b>Baht</b>	<b>30,600.00</b>	<b>Baht</b>	<b>9,310.00</b>

  
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2H : OPTICAL FIBER AND LINE ACCESSORIES

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
2H1	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
2H1.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	48,795.00	48,795.00	44,160.00	44,160.00	Included in Item 2H1.2	Included in Item 2H1.2
2H1.2	Stringing by controlled tension method, one OPGW measured based on horizontal distance of line route 230kV RY2 - PDG from Tower No. 2 to Rayong 2 T.O.S. (PDG S/S) CCT.2 ( PDG direction to RY2 )	0.5	kilometer		XXXXX	XXXXX	XXXXX	XXXXX	137,978.00	68,989.00
2H2	Joint boxes for optical fiber cable									
2H2.1	2-way joint box with accessories for two OPGW cables at Tower No. 2 (including splicing work) (PDG S/S)	1	set							
2H2.2	2-way joint box with accessories for OPGW cable and 36 cores non-metallic optical fiber cable at Rayong 2 T.O.S. (including splicing work between optical fiber cable and OPGW) (PDG S/S)	1	set							
2H3	Hardware assembly for OPGW									
2H3.1	Tension assembly for OPGW with accessories (grounded type)	lump sum	set							
2H4	Line accessories									
2H4.1	Vibration damper assembly for OPGW with accessories	lump sum	set							
2H4.2	Parallel groove clamps	lump sum	each							
2H4.3	Grounding clamps	lump sum	each							
2H4.4	1-wire cleat with accessories for OPGW down-lead to joint box	lump sum	each							

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
2H4.5	2-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H4.6	6-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H4.7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin to be used at take-off structure	1	each							
2H4.8	3/8" High strength galvanized steel wire for grounding OPGW to towers	lump sum	meter							
2H5	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
2H5.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	3,399,975.00	3,399,975.00	1,128,215.00	1,128,215.00	Included in Item 2H5.2	Included in Item 2H5.2
2H5.2	Stringing by controlled tension method, one OPGW measured based on horizontal distance of line route 230kV RY2 - PDG from Tower No. 99 (BK1 S/S) to Tower No. 2 (PDG S/S) CCT.2 ( PDG direction to RY2 )	36.5	kilometer		XXXXXX	XXXXXX	XXXXXX	XXXXXX	46,569.00	1,699,768.50
2H6	Joint boxes for optical fiber cable									
2H6.1	2-way joint box with accessories for two OPGW cables (including splicing work)	lump sum	set							
2H6.2	2-way joint box with accessories for two OPGW cables at Tower No. 99 (BK1 S/S) (including splicing work)	1	set							
2H7	Hardware assembly for OPGW									
2H7.1	Tension assembly for OPGW with accessories (grounded type)	lump sum	set							

*2hmc*  
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*Dr. G. G.*  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
2H7.2	Suspension assembly for OPGW with accessories (grounded type)	lump sum	set							
2H8	Line accessories									
2H8.1	Vibration damper assembly for OPGW with accessories	lump sum	set							
2H8.2	Parallel groove clamps	lump sum	each							
2H8.3	Grounding clamps	lump sum	each							
2H8.4	1-wire cleat with accessories for OPGW down-lead to joint box	lump sum	each							
2H8.5	2-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H8.6	6-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H8.7	3/8" High strength galvanized steel wire for grounding OPGW to towers	lump sum	meter							
2H9	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
2H9.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	53,674.50	53,674.50	48,576.00	48,576.00	Included in Item 2H9.2	Included in Item 2H9.2
2H9.2	Stringing by controlled tension method, one OPGW measured based on horizontal distance of line route 230kV RY2 - PDG from Existing Tower No. 12/2 to New Tower No. 99 (BKI S/S) CCT.2 ( PDG direction to RY2 )	0.55	kilometer		XXXXX	XXXXX	XXXXX	XXXXX	75,886.00	41,737.30
2H10	Joint boxes for optical fiber cable									
2H10.1	2-way joint box with accessories for two OPGW cables at Tower No. 12/2 (BKI S/S) (including splicing work)	1	set							

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price ( excluding VAT ) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
2H11	Hardware assembly for OPGW									
2H11.1	Tension assembly for OPGW with accessories (grounded type)	lump sum	set							
2H12	Line accessories									
2H12.1	Vibration damper assembly for OPGW with accessories	lump sum	set							
2H12.2	Parallel groove clamps	lump sum	each							
2H12.3	Grounding clamps	lump sum	each							
2H12.4	1-wire cleat with accessories for OPGW down-lead to joint box	lump sum	each							
2H12.5	2-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H12.6	6-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each							
2H12.7	3/8" High strength galvanized steel wire 3/8 for grounding OPGW to towers	lump sum	meter							
2H13	Non-metallic optical fiber cable									
2H13.1	36 Cores Non-metallic Optical Fiber Cable from joint box at Rayong 2 take-off structure (PDG S/S) to fiber frame termination cabinet at Pluak Daeng control building	450	meter			405.33	182,398.50	included in item 2H13.2	included in item 2H13.2	
2H13.2	Laying of optical fiber cable with accessories for item 2H13.1, 2H13.3 and 2H13.4	450	meter		XXXXXX	XXXXXX	XXXXXX	XXXXXX	408.50	183,825.00
2H13.3	Rigid Steel Conduit from take-off structure to cable trench for item 2H13.1	lump sum	meter					included in item 2H13.2	included in item 2H13.2	
2H13.4	EFLEX and/or HDPE Conduit with Hot-dip galvanized steel clamp for item 2H13.1	lump sum	meter					included in item 2H13.2	included in item 2H13.2	

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
2H13.5	Fiber frame termination cabinet with cable tray (PDG Control building-1)	1	set							
2H13.6	36 Pigtails (1.5 meters) (PDG Control building-1)	1	set							
2H14	Field testing for optical fiber for OPGW PDG - RY2	lump sum	job		XXXXX	XXXXX	XXXXX	XXXXX		
<b>Total Price for 2H</b>						<b>3,502,444.50</b>	<b>Baht</b>	<b>1,403,349.50</b>	<b>Baht</b>	<b>1,994,319.80</b>

  
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**2I : DISMANTLING WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
211	Dismantling of the existing 230 kV Rayong 2 - Ban Khai Circuit No.1 Transmission Line which is single circuit, twin-bundled conductor per phase between Str. No. 12/3 type QWDE and take-off structure at Ban Khai substation, approx. 0.1 km in transmission line distance.	lump sum	each	13,452.00	13,452.00
212	Dismantling of the existing 230 kV Rayong 2 - Ban Khai transmission line which is double circuit, twin-bundled conductor per phase from upper circuit of tower No.12/2 type QWC2 to the existing deadend tower No.12/3 type QWDE at Ban Khai substation, approx. 0.4 km. in transmission line.	lump sum	each	53,808.00	53,808.00
<b>Total Price for 2I</b>				<b>Baht 67,260.00</b>	

  
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**2Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR**

Item No.	Description	Estimated Qty.	Unit	Purchase Price Offered for Dismantled Equipment ( including VAT ) Baht	
				Unit Price	Amount
2Z1	Dismantling equipment of the existing 230 kV Rayong 2 - Ban Khai Circuit No.1 Transmission Line which is double circuit, twin-bundled conductor per phase between Str. No. 12/3 type QWDE and take-off structure at Ban Khai substation, approx. 0.1 km in transmission line distance.				
2Z2	Dismantling equipment of the existing 230 kV Rayong 2 - Ban Khai transmission line which is double circuit, twin-bundled conductor per phase from upper circuit of tower No.12/2 type QWC2 to the existing deadend tower No.12/3 type QWDE at Ban Khai substation, approx. 0.4 km. in transmission line.				
<b>Total Price for 2Z</b>				<b>Baht</b>	<b>602,900.00</b>



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INVITATION TO BID NO. TIPE-L-05  
TOTAL PRICE FOR SCHEDULE NO. 3  
230 KV BAN KHAI - CHANTHABURI  
Line Length 0.4 KM.

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SUPPLY AND CONSTRUCTION OF TRANSMISSION LINE 230 KV BAN KHAI - CHANTHABURI  
TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price ( excluding VAT ) Baht					
		Amount	Amount					
3C : TOWERS							23,940.00	
3D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	THB	324,000.00	204,000.00					
3E : CONDUCTOR AND OVERHEAD GROUND WIRE							200,497.50	
3F : LINE ACCESSORIES			91,600.00					
3H : OPTICAL FIBER AND LINE ACCESSORIES	THB	40,990.00	172,090.00				194,015.30	
3I : DISMANTLING WORK							116,132.78	
3J : TEMPORARY DETOUR LINES	THB	691,380.00	2,237,910.00				1,633,396.30	
3Q : DISMANTLING TEMPORARY DETOUR LINES							135,608.13	
<b>TOTAL PRICE</b>	<b>THB</b>	<b>1,056,370.00</b>	<b>Baht</b> <b>2,705,600.00</b>		<b>Baht</b>	<b>Baht</b>	<b>Baht</b> <b>2,303,590.01</b>	<b>Baht</b>
3Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR							<b>Baht</b>	<b>-656,800.00</b>

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**3C : TOWERS**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3C1	Tower Signs									
3C1.1	Phasing signs (3 pieces per set)	2	set		XXXXX	XXXXXX	included in installation work	included in installation work	6,483.75	12,967.50
3C1.2	Circuit name signs	2	set		XXXXX	XXXXXX	included in installation work	included in installation work	5,486.25	10,972.50
<b>Total Price for 3C</b>							<b>Baht</b>		<b>Baht</b>	<b>23,940.00</b>

  
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**3D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3D1	Double string tension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 26000 kg ultimate strength, coupling type K (without insulator and arcing horn)	10	set		XXXXX	XXXXXX	17,000.00	170,000.00	included in stringing work	included in stringing work
3D2	Double string tension inverted insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 26000 kg ultimate strength, coupling type K (without insulator and arcing horn)	2	set		XXXXXX	XXXXXX	17,000.00	34,000.00	included in stringing work	included in stringing work
3D3	Porcelain or glass insulator ANSI CLASS 52-8 (36,000 lbs) with corrosion proof type pin	360	disc	THB	900.00	324,000.00			included in stringing work	included in stringing work
<b>Total Price for 3D</b>				<b>THB</b>		<b>324,000.00</b>	<b>Baht</b>	<b>204,000.00</b>	<b>Baht</b>	

  
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**3E : CONDUCTOR AND OVERHEAD GROUND WIRE**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3E1	1272 MCM ACSR/GA Conductor									
3E1.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 3E1.2, and 3E1.3 (to be supplied by EGAT, see Article F-3, approx. 0.4 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXX	included in stringing work	included in stringing work
3E1.2	Stringing of conductor by controlled tension method, single circuit, 3 phase, twin-bundled conductor per phase, measured based on horizontal distance of line route from the existing Tower No.0/2 type WC2 to the new deadend tower No.0/1A type QWDE at Ban Khai substation, approximately 0.4 km. in transmission line distance (including connecting loop at tower No.0/2 as per drawing No.T04-002)									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	100,248.75	100,248.75
3E1.3	Installation of conductor, single circuit, 3 phase, twin-bundled conductor per phase, between the new deadend tower No.0/1A type QWDE and take-off structure at Ban Khai Substation, approx. 0.4 km. in transmission line distance									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	100,248.75	100,248.75
<b>Total Price for 3E</b>							<b>Baht</b>		<b>Baht</b>	
									<b>200,497.50</b>	

  
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**3F : LINE ACCESSORIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3F1	Spacer damper for two-bundled 1272 MCM ACSR/GA conductor (for single circuit, approx. 0.4 km in transmission line distance)	lump sum	each		XXXXX	XXXXXX	88,000.00	88,000.00	included in stringing work	included in stringing work
3F2	Rigid type spacer for two-bundled 1272 MCM ACSR/GA conductor	6	set		XXXXX	XXXXXX	600.00	3,600.00	included in stringing work	included in stringing work
<b>Total Price for 3F</b>							<b>Baht</b>	<b>91,600.00</b>	<b>Baht</b>	


  
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**3H : OPTICAL FIBER AND LINE ACCESSORIES**


Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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
3H1	Composite overhead ground wire with 36 core optical fibers (OPGW) (referred section F-4.3)									
3H1.1	11.4mm dia. Composite Overhead Ground Wire with Optical Fiber (OPGW)	lump sum	kilometer	THB	40,990.00	40,990.00	37,090.00	37,090.00	Included in Item 3H1.2	Included in Item 3H1.2
3H1.2	Stringing by controlled tension method, one OPGW measured based on horizontal distance of line route 230kV CNO - BKI from Tower No. 0/2 to CHOENG NOEN T.O.S. (BKI S/S) CCT.2 ( BKI direction to CNO )	0.42	kilometer		XXXXX	XXXXX	XXXXX	XXXXX	144,876.90	60,848.30
3H2	Joint boxes for optical fiber cable									
3H2.1	2-way joint box with accessories for two OPGW cables at Tower No. 0/2 (including splicing work) (BKI S/S)	1	set							
3H2.2	2-way joint box with accessories for OPGW cable and 36 cores non-metallic optical fiber cable at Choeng Noen T.O.S. (including splicing work between optical fiber cable and OPGW) (BKI S/S)	1	set							
3H3	Hardware assembly for OPGW									
3H3.1	Tension assembly for OPGW with accessories (grounded type)	lump sum	set							
3H4	Line accessories									
3H4.1	Vibration damper assembly for OPGW with accessories	lump sum	set							
3H4.2	Parallel groove clamps	lump sum	each							
3H4.3	Grounding clamps	lump sum	each							
3H4.4	1-wire cleat with accessories for OPGW down-lead to joint box	lump sum	each							

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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	
3H4.5	2-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each								
3H4.6	6-wire cleats with accessories for OPGW down-lead to joint box	lump sum	each								
3H4.7	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin to be used at take-off structure	1	each								
3H4.8	3/8" High strength galvanized steel wire for grounding OPGW to towers	lump sum	meter								
3H5	Non-metallic optical fiber cable										
3H5.1	36 core optical fiber cable from joint box at Choeng Noen take-off structure to fiber frame termination cabinet at Ban Khai control building (BKI S/S)	300	meter			450.00	135,000.00	Included in Item 3H5.2	Included in Item 3H5.2		
3H5.2	Laying of optical fiber cable with accessories for item 3H5.1, 3H5.4, 3H5.5	300	meter		XXXXX	XXXXX	XXXXX	XXXXX	443.89	133,167.00	
3H5.3	Splicing work Connecting optical fiber cable and pigtails for item 3H5.1	1	job		XXXXX	XXXXX	XXXXX	XXXXX			
3H5.4	Rigid Steel Conduit from take-off structure to cable trench for item 3H5.1	lump sum	meter						Included in Item 3H5.2	Included in Item 3H5.2	
3H5.5	EFLEX and/or HDPE Conduit with hot dip galvanized steel clamp for item 3H5.1	lump sum	meter						Included in Item 3H5.2	Included in Item 3H5.2	
3H5.6	Fiber frame termination cabinet with cable tray (BKI Control building-1)	1	set								
3H5.7	36 Pigtails (1.5 meters) (BKI Control building-1)	1	set								
3H6	Field testing for optical fiber for OPGW BKI - CNO	lump sum	job		XXXXXX	XXXXXX	XXXXXX	XXXXXX			
<b>Total Price for 3H</b>				<b>THB</b>	<b>40,990.00</b>		<b>Baht</b>	<b>172,090.00</b>		<b>Baht</b>	<b>194,015.30</b>

  
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**3I : DISMANTLING WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
311	Dismantling of the existing double circuit, twin-bundled conductor per phase from Str. No. 0/2 type WC2 to Str. No. 0/1 type QWDE to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.	lump sum	each	116,132.78	116,132.78
<b>Total Price for 3I</b>				<b>Baht</b>	<b>116,132.78</b>

  
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3J : TEMPORARY DETOUR LINES

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3J1	Check survey and staking of structure location (approx. 0.4 kilometer in transmission line distance)	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	11,970.00	11,970.00
3J2	Foundation for Lattice Steel Structure									
3J2.1	Foundation type CIV for lattice steel structure type WSD (18.0 m) including stub as per Drawing No. C23-221	1	structure		XXXXX	XXXXX	65,000.00	65,000.00	316,456.88	316,456.88
3J2.2	Foundation type CIV for lattice steel structure type WSDE (18.0 m) including stub as per Drawing No. C23-221	1	structure		XXXXX	XXXXX	65,000.00	65,000.00	316,456.88	316,456.88
3J2.3	Foundation type CIV for lattice steel structure type WSDE (22.0 m) including stub as per Drawing No. C23-221	2	structure		XXXXX	XXXXX	76,875.00	153,750.00	316,456.88	632,913.76
3J3	Lattice Structure type WSD as per Drawing No. C03-021									
3J3.1	Tower Type WSD +18.0 m. (230-2x1272)	1	structure		XXXXX	XXXXX	331,250.00	331,250.00	43,880.03	43,880.03
3J4	Lattice Structure type WSDE as per Drawing No. C03-021									
3J4.1	Tower Type WSDE +18.0 m. (230-2x1272)	1	structure		XXXXX	XXXXX	331,250.00	331,250.00	43,880.03	43,880.03
3J4.2	Tower Type WSDE +22.0 m. (230-2x1272)	2	structure		XXXXX	XXXXX	428,130.00	856,260.00	56,712.86	113,425.72
3J5	Insulator and Hardware assemblies									
3J5.1	Bypass composite line post insulator with hardware assemblies for 1272 MCM ACSR/GA conductor as per Drawing No. E11-132	21	set	THB	20,000.00	420,000.00	6,000.00	126,000.00	included in stringing work	included in stringing work

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3J5.2	Composite suspension insulator as per Drawing No.E11-133	30	set	THB	9,000.00	270,000.00			included in stringing work	included in stringing work
3J5.3	Single string tension insulator assemblies for 1272 MCM ACSR/GA conductor, 12000 kg ultimate strength, coupling type B (without insulator and arcing horn)	30	set		XXXXXX	XXXXXX	10,000.00	300,000.00	included in stringing work	included in stringing work
3J5.4	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin	2	disc	THB	690.00	1,380.00			included in stringing work	included in stringing work
3J5.5	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength to be employed for the installation with insulators supplied under Item 3J5.4 on take-off structures	2	set		XXXXXX	XXXXXX	700.00	1,400.00	included in stringing work	included in stringing work
3J6	1272 MCM ACSR/GA conductor									
3J6.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 3J6.2 (to be supplied by EGAT, see Article F-3, approx. 0.4 km in transmission line distance)		km		XXXXXX	XXXXXX	XXXXXX	XXXXXX	included in stringing work	included in stringing work
3J6.2	Stringing of conductor by controlled tension method, single circuit, 3 phase, single conductor per phase, measured based on horizontal distance of line route from tower type WC2 to take-off structure at Ban Khai Substation to be 230 kV Ban Khai - Chanthaburi Temporary Detour Line		each		XXXXXX	XXXXXX	XXXXXX	XXXXXX	151,620.00	151,620.00

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		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			
3J7	Grounding assemblies												
3J7.1	Grounding assemblies for Tower Type WSD as per Drawing No. C11-180	1	structure		XXXXX	XXXXX	2,000.00	2,000.00	698.25	698.25			
3J7.2	Grounding assemblies for Tower Type WSDE as per Drawing No. C11-180	3	structure		XXXXX	XXXXX	2,000.00	6,000.00	698.25	2,094.75			
<b>Total Price for 3J</b>				<b>THB</b>			<b>691,380.00</b>	<b>Baht</b>			<b>2,237,910.00</b>	<b>Baht</b>	<b>1,633,396.30</b>

  
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**3Q : DISMANTLING TEMPORARY DETOUR LINES**

Item No.	Description	Estimated Qty.	Unit	Currency	Local Transportation, Construction and Installation (excluding VAT) Baht	
					Unit Price	Amount
3Q1	Dismantling of the 230 kV Ban Khai CCT No.2 to Chanthaburi CCT. No.2 temporary detour line, single circuit, single conductor per phase from Str. No. 0/2 type WC2 to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.	lump sum	each		135,608.13	135,608.13
<b>Total Price for 3Q</b>						<b>135,608.13</b>

  
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**3Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR**

**IMPORTANT :**

Dismantled Equipment to be purchased by the Contractor is shown in Attachment No.2 : List of Equipment to be Dismantled by the Contractor.

Item No.	Description	Estimated Qty.	Unit	Purchase Price Offered for Dismantled Equipment ( including VAT ) Baht	
				Unit Price	Amount
3Z1	Dismantling equipment of the existing double circuit, twin-bundled conductor per phase from Str. No. 0/2 type WC2 to Str. No. 0/1A type WDE to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.				
3Z2	Dismantling equipment of the 230 kV Ban Khai CCT No.2 to Chanthaburi CCT. No.2 temporary detour line, single circuit, single conductor per phase from Str. No. 0/2 type WC2 to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.				
<b>Total Price for 3Z</b>				<b>Baht</b>	<b>656,800.00</b>

  
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INVITATION TO BID NO. TIPE-L-05  
 TOTAL PRICE FOR SCHEDULE NO. 4  
 230 KV BAN KHAI - CHOENG NOEN  
 Line Length 0.4 KM.

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINE 230 KV BAN KHAI - CHOENG NOEN  
 TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

Description	Currency	Supply of Equipment		Foreign Currency	Local Currency	Local Transportation	Local Transportation, Construction and Installation	Purchase Price Offered for Dismantled Equipment
		Foreign Supply	Local Supply					
		CIF Thai Port	Ex-works Price (excluding VAT)					
		Amount	Amount					
4D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	THB	369,900.00	210,300.00					
4E : CONDUCTOR AND OVERHEAD GROUND WIRE			28,000.00				250,372.50	
4F : LINE ACCESSORIES			93,550.00					
4I : DISMANTLING WORK							59,323.32	
4J : TEMPORARY DETOUR LINES	THB	124,200.00	308,200.00				151,620.00	
<b>TOTAL PRICE</b>	<b>THB</b>	<b>494,100.00</b>	<b>Baht 640,050.00</b>		<b>Baht</b>	<b>Baht</b>	<b>Baht 461,315.82</b>	<b>Baht</b>
4Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR							<b>Baht</b>	<b>-244,500.00</b>

  
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**4D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
4D1	Double string tension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 26000 kg ultimate strength, coupling type K (without insulator and arcing horn)	10	set		XXXXX	XXXXX	17,000.00	170,000.00	included in stringing work	included in stringing work
4D2	Double string tension inverted insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 26000 kg ultimate strength, coupling type K (without insulator and arcing horn)	2	set		XXXXX	XXXXX	17,000.00	34,000.00	included in stringing work	included in stringing work
4D3	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength	6	set		XXXXX	XXXXX	700.00	4,200.00	included in stringing work	included in stringing work
4D4	Porcelain or glass insulator ANSI CLASS 52-8 (36,000 lbs) with corrosion proof type pin	411	disc	THB	900.00	369,900.00			included in stringing work	included in stringing work
4D5	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength to be employed for the installation with insulators supplied under Item 4D4 on take-off structures	3	set		XXXXX	XXXXX	700.00	2,100.00	included in stringing work	included in stringing work
<b>Total Price for 4D</b>				<b>THB</b>		<b>369,900.00</b>	<b>Baht</b>	<b>210,300.00</b>	<b>Baht</b>	

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**4E : CONDUCTOR AND OVERHEAD GROUND WIRE**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
4E1	1272 MCM ACSR/GA Conductor									
4E1.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 4E1.2, and 4E1.3 (to be supplied by EGAT, see Article F-3, approx. 0.4 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXX	included in stringing work	included in stringing work
4E1.2	Stringing of conductor by controlled tension method, single circuit, 3 phase, twin-bundled conductor per phase, measured based on horizontal distance of line route from the existing Tower No.0/2 type WC2 to the new deadend tower No.0/1A type QWDE at Ban Khai substation, approximately 0.4 km. in transmission line distance (including connecting loop circuit at tower No.0/2 as per drawing No.T04-002)									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	100,248.75	100,248.75
4E1.3	Installation of conductor, single circuit, 3 phase, double-bundled conductor per phase, between new deadend tower No.0/1A type QWDE and take-off structure at Ban Khai Substation, approx. 0.4 km. in transmission line distance									
		lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	100,248.75	100,248.75

  
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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation			
					Foreign Supply		Local Supply		( excluding VAT ) Baht			
					CIF Thai Port		Ex-works Price					
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount		
4E2	3/8" nominal diameter, high strength galvanized steel overhead ground wire, Class A coating											
4E2.1	3/8" High strength galvanized steel wire, furnishing for Item 4E2.2 and 4E2.3 based on linear length (Linear length = No. of overhead ground wire x horizontal distance of line route + 1.5%)	1	km				28,000.00	28,000.00	included in stringing work	included in stringing work		
4E2.2	Stringing of one overhead ground wire by running line method, measured based on horizontal distance of line route from the existing Tower No.0/2 type WC2 the new deadend tower No.0/1A type QWDE at Ban Khai substation, approximately 0.4 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	24,937.50	24,937.50		
4E2.3	Installation of three overhead ground wires between the new deadend tower No.0/1A type QWDE and take-off structure at Ban Khai Substation, approx. 0.4 km. in transmission line distance	lump sum	each		XXXXX	XXXXX	XXXXX	XXXXX	24,937.50	24,937.50		
<b>Total Price for 4E</b>							<b>Baht</b>		<b>28,000.00</b>	<b>Baht</b>		<b>250,372.50</b>

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**4F : LINE ACCESSORIES**

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
4F1	Spacer damper for two-bundled 1272 MCM ACSR/GA conductor (for single circuit, approx. 0.4 km in transmission line distance)	lump sum	each				88,000.00	88,000.00	included in stringing work	included in stringing work
4F2	Rigid type spacer for two-bundled 1272 MCM ACSR/GA conductor	6	set				600.00	3,600.00	included in stringing work	included in stringing work
4F3	Vibration damper for 3/8" high strength galvanized steel overhead ground wire	3	set				650.00	1,950.00	included in stringing work	included in stringing work
<b>Total Price for 4F</b>							<b>Baht 93,550.00</b>		<b>Baht</b>	

  
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**4I : DISMANTLING WORK**

Item No.	Description	Estimated Qty.	Unit	Local Transportation, Construction and Installation (excluding VAT) Baht	
				Unit Price	Amount
4I1	Dismantling of the existing 230 kV Ban Khai CCT No.1 to Choeng Noen CCT. No.1 temporary detour line, single circuit, twin-bundled conductor per phase from tower type WC2 to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.	lump sum	each	59,323.32	59,323.32
<b>Total Price for 4I</b>				<b>Baht 59,323.32</b>	

  
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4J : TEMPORARY DETOUR LINES

Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation	
					Foreign Supply		Local Supply		( excluding VAT ) Baht	
					CIF Thai Port		Ex-works Price			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
4J1	Insulator and Hardware assemblies									
4J1.1	Single string tension insulator assemblies for two-bundled 1272 MCM ACSR/GA conductor, 13000 kg ultimate strength, coupling type J (without insulator and arcing horn)	12			XXXXX	XXXXX	14,000.00	168,000.00	included in stringing work	included in stringing work
4J1.2	Overhead ground wire tension assemblies for 3/8" high strength, galvanized steel overhead ground wire, 5000 kg ultimate strength	4			XXXXX	XXXXX	700.00	2,800.00	included in stringing work	included in stringing work
4J1.3	Porcelain or glass insulator ANSI CLASS 52-5 (25,000 lbs) with corrosion proof type pin	180		THB	690.00	124,200.00			included in stringing work	included in stringing work
4J2	1272 MCM ACSR/GA conductor									
4J2.1	1272 MCM ACSR/GA Conductor, furnishing conductor for Item 4J2.2 (to be supplied by EGAT, see Article F-3, approx. 0.4 km in transmission line distance)		km		XXXXX	XXXXX	XXXXX	XXXXXX	included in stringing work	included in stringing work
4J2.2	Stringing of conductor by controlled tension method, single circuit, 3 phase, double conductor per phase, measured based on horizontal distance of line route from the existing tower No.12/3 type WC2 to take-off structure at Ban Khai Substation to be 230 kV Choeng Noen Circuit No.1 - Ban Khai Temporary Detour Line (approx. 0.4 km. in transmission line distance)									
		lump sum	each		XXXXX	XXXXXX	XXXXXX	XXXXXX	151,620.00	151,620.00

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Item No.	Description	Estimated Qty.	Unit	Currency	Supply of Equipment		Supply of Equipment		Local Transportation, Construction and Installation		
					Foreign Supply		Local Supply		(excluding VAT) Baht		
					CIF Thai Port		Ex-works Price				
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	
4J3	Line Accessories										
4J3.1	Spacer damper for two-bundled 1272 MCM ACSR/GA conductor (for single circuit, approx. 0.4 km in transmission line distance)	3	set		XXXXX	XXXXX	44,000.00	132,000.00	included in stringing work	included in stringing work	
4J3.2	Rigid type spacer for two-bundled 1272 MCM ACSR/GA conductor	9	set		XXXXX	XXXXX	600.00	5,400.00	included in stringing work	included in stringing work	
<b>Total Price for 4J</b>							<b>124,200.00</b>	<b>Baht</b>	<b>308,200.00</b>	<b>Baht</b>	<b>151,620.00</b>

  
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**4Z : DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR**

Item No.	Description	Estimated Qty.	Unit	Purchase Price Offered for Dismantled Equipment ( including VAT ) Baht	
				Unit Price	Amount
4Z1	Dismantling equipment of the existing 230 kV Ban Khai CCT No.1 to Choeng Noen CCT. No.1 temporary detour line, single circuit, twin-bundled conductor per phase from tower type WC2 to take-off structure at Ban Khai substation area, approx. 0.4 km in transmission line distance.				
<b>Total Price for 4Z</b>				<b>Baht</b>	<b>244,500.00</b>



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**Important Information**  
**for**  
**Invitation to Bid No. TIPE-L-05**

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The purpose of this section is to inform the Bidders to **carefully study** the details of the revised terms and conditions in the bidding documents. The following provisions have been **recently revised** as stated hereunder:

**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-3. Eligibility of Bidders: General Requirements and Article B-8. Information to be Submitted with Bid**

Bidders shall provide written anti-corruption policies and guidelines as specified in Data Sheet.

**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-36. Advance Payment Security**

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

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

Terms and conditions regarding EGAT's document management system in item d. have been added and the number of copies of the drawings and documents in Print and CD-ROM has been revised.

**Article F-10. Payment**

After each payment is made, the Contractor or beneficiary shall issue and submit the receipt to EGAT as detailed in the paragraph added at the end of this article.

**Article F-12. 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-17. Maintenance Guarantee and Article F-18. 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-18. Maintenance Security and Specimen of Maintenance Guarantee**

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

**Article G-3. Safety Program**

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. TIPE-L-05

### (Two-Envelope)

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

1. Article A-3. Eligibility of Bidders: General Requirements

The following requirement shall be added to item I.:

***“j. Bidders shall provide written anti-corruption policies and guidelines with respect to procurement and supplies according 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, Section 19 of the Government Procurement and Supplies Management Act B.E. 2560 (A.D. 2017).”***

2. Article B-3. Bid Security

The amount of bid security shall be USD 2,384,670.- or THB 85,750,000.-.

3. Article B-4. Validity of Bids

The validity of the bid shall be for three hundred (300) Days from the date specified for opening of technical proposals.

4. Article B-8. Information to be Submitted with Bid

The following document shall be added to Article B-8. Information to be Submitted with Bid:

***y. Bidder’s anti-corruption policies and guidelines in relation to procurement and supplies together with the completely filled out Anti-Corruption Compliance Checklist as provided.***

5. Article B-12. Evaluation and Comparison of Bids

Evaluation and comparison of Bids shall be as specified in Article B-12. Evaluation and Comparison of Bids.

**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)

**SECTION A**  
**INVITATION TO BID**

# ELECTRICITY GENERATING AUTHORITY OF THAILAND

Nonthaburi  
Thailand

## INVITATION TO BID NO. TIPE-L-05

### SUPPLY AND CONSTRUCTION OF TRANSMISSION LINES 230 kV PLUAK DAENG – BAN KHAI, 230 kV PLUAK DAENG – RAYONG 2, 230 kV BAN KHAI – CHANTHABURI, AND 230 kV BAN KHAI – CHOENG NOEN

### TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

(TWO-ENVELOPE)

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#### A-1. Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for Supply and Construction of Transmission Lines 230 kV Pluak Daeng - Ban Khai, 230 kV Pluak Daeng – Rayong 2, 230 kV Ban Khai – Chanthaburi, and 230 kV Ban Khai – Choeng Noen under Transmission System Improvement Project in Eastern Region to Enhance System Security in accordance with the Terms and Conditions, Technical Specifications and Drawings described in these Bidding Documents.

#### A-2. Work Description

The scope of Work under this Invitation is supply and construction of 230 kV transmission lines located in the eastern region of Thailand. The Work is composed of four (4) Schedules as described below :

##### Schedule 1: Supply and Construction of 230 kV Pluak Daeng – Ban Khai Transmission Line

The Work for this Schedule is supply and construction of 230 kV transmission line which is 50 Hz, 3 phase, quad-bundled conductor per phase, double circuit at upper circuits of four circuit self-supporting lattice steel towers extending from Pluak Daeng substation to Ban Khai substation, having a distance of approximately 36.5 kilometers on the existing right-of-way with 20 meters in width on each side of the center line of the transmission line.

The scope of Work for this Schedule shall also include supply and construction of 230 kV temporary detour line which is 50 Hz, 3 phase, twin-bundled conductor per phase, single circuit on lattice steel towers with a distance of approximately 36.5 kilometers. The temporary detour line shall be constructed

as indicated in the Specifications No. TL-05 (Rev. 1) : Construction of Temporary Detour Line.

It shall also be noted that the dismantling work of the above – mentioned temporary detour line shall be conducted.

The dismantling Work of the existing 230 kV Pluak Daeng – Ban Khai Transmission Line at Pluak Daeng Substation which is quad-bundled conductor per phase, double circuit strung with 1272 MCM ACSR/GA conductor, having a distance of approximately 36.5 kilometers shall also be performed under this Schedule.

Schedule 2: Supply and Construction of 230 kV Pluak Daeng – Rayong 2 Transmission Line

The Work for this Schedule is supply and construction of 230 kV transmission line which is 50 Hz, 3 phase, twin-bundled conductor per phase, double circuit at lower circuits of four circuit self-supporting lattice steel extending from Pluak Daeng Substation, having a distance of approximately 0.1 kilometer on the new right-of-way with 20 meters as well as 37.10 kilometers on the existing right-of-way with 20 meters in width on each side of the center line of the transmission line.

Schedule 3: Supply and Construction of 230 kV Ban Khai – Chanthaburi Transmission Line

The Work for this Schedule is supply and construction of 230 kV transmission line which is 50 Hz, 3 phase, twin-bundled conductor per phase, on single circuit of double circuit self-supporting lattice steel towers at Ban Khai Substation (Line No.2), having a distance of approximately 0.42 kilometer on the existing right-of-way with 20 meters in width on each side of the center line of the transmission line.

The scope of Work for this Schedule shall also include supply and construction of 230 kV temporary detour line which is 50 Hz, 3 phase, twin-bundled conductor per phase, single circuit on lattice steel towers at Ban Khai Substation with a distance of approximately 0.4 kilometer. The temporary detour line shall be constructed as indicated in the Specifications No. TL-05 (Rev. 1) : Construction of Temporary Detour Line.

The dismantling Work of the existing 230 kV Ban Khai – Chanthaburi Transmission Line at Ban Khai Substation which is twin-bundled conductor per phase, single circuit strung with 1272 MCM ACSR/GA conductor, having a distance of approximately 0.4 kilometer as well as the deadend tower shall also be performed under this Schedule.

Schedule 4: Supply and Construction of 230 kV Ban Khai – Choeng Noen Transmission Line

The Work for this Schedule is supply and construction of 230 kV transmission line which is 50 Hz, 3 phase, twin-bundled conductor per phase, on single circuit of double circuit self-supporting lattice steel towers at Ban Khai Substation (Line No.1), having a distance of approximately 0.4 kilometer on

the existing right-of-way with 20 meters in width on each side of the center line of the transmission line.

The scope of Work for this Schedule shall also include supply and construction of 230 kV temporary detour line which is 50 Hz, 3 phase, twin-bundled conductor per phase, single circuit on lattice steel towers at Ban Khai Substation with a distance of approximately 0.4 kilometer. The temporary detour line shall be constructed as indicated in the Specifications No. TL-05 (Rev. 1) : Construction of Temporary Detour Line.

The dismantling Work of the existing 230 kV Ban Khai – Choeng Noen Transmission Line at Ban Khai Substation which is twin-bundled conductor per phase, single circuit strung with 1272 MCM ACSR/GA conductor, having a distance of approximately 0.42 kilometer, as well as the the deadend tower shall also be performed under this Schedule.

The conductors to be employed will be 1272 MCM ACSR/GA supplied by EGAT. Two types of overhead ground wires will be employed; one of which is 3/8 inch nominal diameter, high strength galvanized steel overhead ground wire and the other is composite overhead ground wire with 36-core optical fiber. Both types of overhead ground wires shall be supplied by the Contractor.

It shall also be noted that all dismantling Work shall be conducted in accordance with the requirements in Specifications No. TL-07 (Rev.3) : Dismantling Work. List of dismantled Equipment to be purchased by the Contractor is shown in Attachment No. 2 : List of Equipment to be Dismantled by the Contractor. Conditions regarding the purchase of the dismantled Equipment are stipulated in Attachment No. 3 : Requirements for Dismantling Work and Conditions of Sale of Dismantled Equipment.

The Contractor shall also be responsible for the design of any other necessary parts for completion of the Work, including the manufacture, supply, testing, construction and installation of the various components of the transmission line. The portion of design and detailing which are provided by EGAT is not under the Contractor's design responsibility.

Services required to complete the Work are shown in the Bid Price Schedules and included in these Bidding Documents.

### **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 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 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 proceedings under Thai Court; provided that such Bidder's government declares that such special privilege is waived.
- h. In case of being a joint venture or a 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 funds 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. Himself, or either firm of the joint venture/consortium, having a record of experience in executing at least one (1) turnkey contract as contractor (not as subcontractor) in overseas country (not his own country) or with EGAT on the construction and installation of transmission line having voltage level of 220 kV or higher.

Experience record of the Bidder or either firm of the joint venture/consortium, including experience record derived from being a firm of other joint venture or consortium in previous project(s) is acceptable.

- b. Himself, or either firm of the joint venture/consortium or the combination thereof, having excellent reputation and adequate technical knowledge and record(s) of experience on the construction of transmission line having voltage level of 220 kV or higher with a multi but not less than four-bundled conductor using a simultaneous stringing method. The record(s) shall be of such transmission lines having accumulative circuit distance not less than 50 kilometers or not less than the Work specified under this Invitation.

However, for local firm or the joint venture/consortium of local firms, an experience of his or either firm of the joint venture/consortium in construction of twin-bundled conductor transmission line at a voltage level of 220 kV or higher is eligible to the requirement under this item; provided that he shall propose a subcontractor or a personnel who has technical knowledge and practical experience in four-bundled conductor stringing to perform or supervise performing of such work.

The record of the construction experience as required above shall be of the Work executed by the Bidder no longer than ten (10) years before the date specified for opening of this Bid.

- c. Himself, or either firm of the joint venture/consortium or his subcontractor or the combination thereof, having excellent reputation and adequate technical knowledge and having at least three years experience in the construction of transmission line having accumulative distance of overhead ground wire with optical fiber not less than 20 kilometers in length. This eligibility will not be applicable if such Equipment is not required under this Invitation.

With respect to item b. and c., experience record of the Bidder or either firm of the joint venture/consortium, including experience record derived from being a firm of other joint venture or consortium in previous project(s) is acceptable, provided that there is a letter from the project owner certifying that the Works as described in b. and c. above were performed by the Bidder or either firm of the joint venture/consortium of this project.

However, reference records of either the parent or affiliated companies of the Bidder or of either firm of the joint venture/consortium shall not be acceptable. 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.

- d. Proposing towers, conductor, insulators for conductor, hardware assemblies and line accessories for conductor, rigid spacers and spacer dampers for conductor, and composite overhead ground wire with optical fiber (OPGW) manufactured by regular manufacturers of excellent reputation having significant technical knowledge and at least three (3) years experience in the design, manufacture and testing of such Equipment, having manufacturing capacity available to perform the Work properly and expeditiously within the time specified, and having satisfactory past experience, with additional requirements as follows:
- 1) Tower manufacturer being an eligible local firm having set up a plant for fabrication of steel towers in Thailand
  - 2) Hardware assemblies and line accessories for conductor manufacturer being an eligible local firm having set up a plant in Thailand
  - 3) Rigid spacer and spacer damper for conductor manufacturer being an eligible local firm having set up a plant in Thailand
  - 4) Insulator for conductor manufacturer having a record of three (3) consecutive years of successful operation/use of at least 100,000 units of insulator ANSI Class 52-8 or similar and at least 20,000 units of insulator ANSI Class 52-11 or similar in transmission line(s) operated in the transmission network electric utility in overseas country (not his own country) at a voltage level of 220 kV or higher during the last ten years
  - 5) Composite overhead ground wire with optical fiber (OPGW) manufacturer having a record of at least three (3) consecutive years of successful operation/use of the same or similar type as those required under this Invitation in the transmission line having accumulated distance of not less than 20 kilometers

However, the Bidder may propose any qualified local manufacturer who does not have experience in design, manufacture and testing as well as a record of successful operation/use of his Equipment as specified above but has obtained special permission from EGAT for manufacture and/or fabrication of the specific Equipment within the scope specified in the letter of permission issued by EGAT, or propose any local manufacturer who is in the list of Eligible Local Manufacturer Accepted by EGAT as shown herein at the end of this Section.

In the event that the Bidder proposes the Equipment of the manufacturer who, at the time of bidding, fails to meet with requirements of any contract(s) with EGAT regarding major defects or malfunctioning of such Equipment, and such failure has not yet satisfactorily been proved to and/or settled with EGAT, EGAT reserves the right to reject his Bid.

The eligibility will not be applicable for any Equipment which is not required under this Invitation.

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

- a. Having sufficient capacity to carry out the Work.
- b. Proposing overhead ground wire, hardware assemblies and line accessories for overhead ground wire and for OPGW, grounding materials, fiber optic transmission system Equipment, and other Equipment manufactured by regular manufacturers of excellent reputation having significant technical knowledge and at least three (3) years experience in the design, manufacture and testing of such Equipment, having manufacturing capacity available to perform the Work properly and expeditiously within the time specified, and having satisfactory past experience, with additional requirements as follows:
  - Manufacturers for overhead ground wire (galvanized steel wire strand), hardware assemblies and line accessories for overhead ground wire and for OPGW, and non-metallic optical fiber cable (OFC) being an eligible local firm having set up a plant in Thailand

However, the Bidder may propose any qualified local manufacturer who does not have experience in design, manufacture and testing as well as a record of successful operation/use of his Equipment as specified above but has obtained special permission from EGAT for manufacture and/or fabrication of the specific Equipment within the scope specified in the letter of permission issued by EGAT, or propose any local manufacturer who is in the list of Eligible Local Manufacturer Accepted by EGAT as shown herein at the end of this Section.

In the event that the Bidder proposes the Equipment of the manufacturer who, at the time of bidding, fails to meet with requirements of any contract(s) with EGAT regarding major defects or malfunctioning of such Equipment, and such failure has not yet satisfactorily been proved to and/or settled with EGAT, EGAT reserves the right to reject his Bid.

The eligibility will not be applicable for any Equipment which is not required under this Invitation.

- c. Proposing reputable subcontractors, for the portion of the Work to be subcontracted, having adequate technical knowledge, ability and capacity and practical experience to perform such work. 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.
- d. Having no just or proper claims pending against him with respect to breach in the performance of Contract on other similar works awarded by EGAT. If 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.
- e. Himself or his subcontractors, at the time of submitting this proposal, not carrying excessive work or not being 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.

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

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

The original and each copy of the proposal shall be placed in two (2) separate sealed envelopes:

Envelope I which shall contain a sealed technical proposal, and  
Envelope II which shall contain a sealed price proposal.

## Envelope I

Technical proposal will be placed in separate sealed envelope marked in capital letters in the lower left-hand corner as follows:

### INVITATION TO BID NO. TIPE-L-05

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINES 230 kV PLUAK DAENG – BAN KHAI, 230 kV PLUAK DAENG – RAYONG 2, 230 kV BAN KHAI – CHANTHABURI, AND 230 kV BAN KHAI – CHOENG NOEN TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

### TECHNICAL PROPOSAL

The Envelope for the technical proposal shall contain the following :

- a. the completed Proposal Data Forms of the proposed proposal(s);
- b. reference documents pertaining to Bidder's qualification and experience under Article A-3. Eligibility of Bidders: General Requirements, A-4. Eligibility of Bidders: Technical Requirements, and Article B-8. Information to be submitted with Bid;
- c. delivery date guaranteed by Bidders;
- d. any minor deviations on Technical Specifications;
- e. any other technical information and drawings the Bidder deems to be adequate to explain his bid;
- f. Confirmation Form of not being a Jointly Interested Bidder with other Bidders and not being a person who undertakes any actions as an Obstruction of Fair Price Competition, and Registration/Non-registration with the Revenue Department as a VAT registrant.

If the Bidder has registered as a VAT registrant, he shall submit EGAT evidence of VAT registration. On the contrary, if the Bidder is not registered as a VAT registrant, he shall inform EGAT whether he will register as a VAT registrant or not.

In case the Bidder is a consortium, each member of the consortium shall fill in the Confirmation Form provided for consortium Bidders.

- g. Filled-in Documentary List and documents required according to Additional Regulation.

Strictly no prices or reference to price shall be made in the documentation contained in this Envelope. Violation of this requirement will be reason for rejection of the bid.

## Envelope II

Price proposal will be placed in separate sealed envelope marked in capital letters in the lower left-hand corner as follows:

### INVITATION TO BID NO. TIPE-L-05

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINES 230 kV PLUAK DAENG – BAN KHAI, 230 kV PLUAK DAENG – RAYONG 2, 230 kV BAN KHAI – CHANTHABURI, AND 230 kV BAN KHAI – CHOENG NOEN TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN EASTERN REGION TO ENHANCE SYSTEM SECURITY

### PRICE PROPOSAL

The Envelope for the price proposal shall contain the following :

- a. price schedules according to Section C;
- b. price schedules data CD in Microsoft Excel format
- c. Discount Form

The bid security in accordance with Article B-3. Bid Security shall be submitted in a separate envelope.

The original and three (3) hard copies of the technical proposal and the price proposal 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.

Technical proposals will be opened publicly at ***Bidding Room, 1<sup>st</sup> floor, Tor 082 Building*** and at the time specified above.

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

The technical proposals will be reviewed to determine their responsiveness to the Specifications and requirements.

The price proposals of the responsive technical proposals will be opened publicly at the place and time which will be specified at a later date, which will not be later than 150 Days after the technical proposal opening.

**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 500.- or Baht 15,000.- ; 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.



## **ELIGIBLE LOCAL MANUFACTURERS ACCEPTED BY EGAT**

The following local manufacturers are eligible for proposing each specific equipment for this Invitation; provided that the scope of their offerings shall be within that specified in the Certificate of Acceptance issued by EGAT.

### **1) STEEL TOWERS**

#### **Ajikawa & SCI Metal Tech Co., Ltd.**

49/1 Moo 9, Marppong  
Phantong  
Chonburi 20160  
Tel : 038 451 473-6  
Fax : 038 451 478

#### **Siam Steel Tower Co., Ltd.**

9/10 Moo 10 Tambol Koke-Yae  
Amphur Nong Khae  
Saraburi 18230, Thailand  
Tel : (662) 705-8755-63  
Fax : (662) 705-8765

#### **Thai-Scandic Steel Company Limited**

7 I-5 Road, Maptaphut Industrial Estate  
Amphur Muang  
Rayong 21150  
Tel : (66-38) 683070  
Fax : (66-38) 683065

#### **Sky Tower Public Company Limited**

247 Romklao Road  
Saensaeb  
Minburi, Bangkok 10510  
Thailand  
Tel : 662-543-9020-8  
Fax : 662-915-2114, 915-2714, 543-9029

#### **Demco Power Company Limited**

59 Moo 1, Suanphrikhai  
Muangpathumthani  
Pathumthani 12000  
Tel : 0 2959 5811 Ext.1612  
Fax : 0 2959 5915

**เอกสารควบคุม**

รับรองสำเนาโดย ทพอ-ส.ภสส-ส.อวส.

ก่อนนำไปใช้งาน

ต้องตรวจสอบ Revision ล่าสุด

ฝ่ายวิศวกรรมระบบส่ง กฟผ.

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2) **HARDWARE ASSEMBLIES AND LINE ACCESSORIES FOR CONDUCTOR, OVERHEAD GROUND WIRE AND OPGW**

**Preformed Line Products (Thailand ) Ltd.**

296 Moo 4, Lardkrabang Industrial Estate  
EPZ 3 Chalongkrung Road  
Lumpratew, Lardkrabang  
Bangkok 10520  
Tel : 0 2739 4026  
Fax : 0 2326 0564

- (For 1. Hardware assemblies and line accessories (except damper) for single, twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines  
2. Hardware assemblies and line accessories (except damper) for overhead ground wire and OPGW  
3. Vibration dampers for conductor, overhead ground wire and OPGW  
4. Spacer dampers and rigid spacers for twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines)

**MacLean - Dulhunty Power (Thailand) Ltd.**

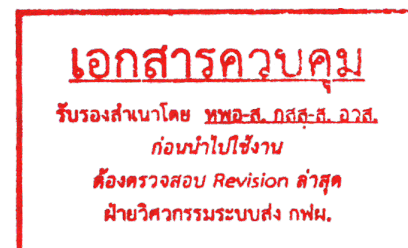
3/2 Moo 7 Suwintawong Road  
Tambon Klounguangphang  
Amphur Muang Chachoengsao  
Chachoengsao 24000  
Tel : 038 845 675  
Fax : 038 845 674

- (For 1. Hardware assemblies and line accessories (except damper) for single, twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines  
2. Hardware assemblies and line accessories (except damper) for overhead ground wire and OPGW  
3. Vibration dampers for conductor, overhead ground wire and OPGW  
4. Spacer dampers and rigid spacers for twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines)

**Mosdorfer (Thailand) Co., Ltd.**

10/96 The Trendy Building, 6<sup>th</sup> floor  
Soi Sukhumvit 13 (Sangjan)  
Klong Toey Nuea, Wattana  
Bangkok 10110  
Tel : 02 182 8351  
Fax : 02 182 8350

- (For 1. Hardware assemblies and line accessories (except damper) for single, twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines  
2. Hardware assemblies and line accessories (except damper) for overhead ground wire and OPGW



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3. Vibration dampers for conductor, overhead ground wire and OPGW
4. Spacer dampers and rigid spacers for twin-bundled and quad-bundled conductor for 115 kV, 230 kV and 500 kV transmission lines)

It shall be noted that the spacer damper for quad-bundled conductor for 500 kV transmission line is allowed to be initially supplied to only one contract. Any further contracts shall be allowed after the said Equipment under the first contract has been certified by a certification issued by EGAT for its successful operation in EGAT's transmission line for an appropriate period of time.

### 3) **OVERHEAD GROUND WIRE**

#### **Thai Wire Products Public Company Limited**

99/2 MOO 8 ZEER STREET BUILDING 7TH FL  
Phahonyothin Road, Lamlookka  
Pathum Thani 12130  
Tel : 0 2992 6863-7  
Fax : 0 2992 6870-1

#### **USHA Siam Steel Industries Public Company Limited**

209/1 K-Tower-B. 22<sup>nd</sup> Floor  
Unit 3/1 Sukhumvit 21 Road (Asok)  
Bangkok 10110  
Tel : 0 2261 7361-4  
Fax : 0 2640 8227

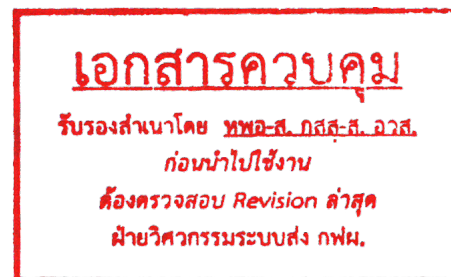
#### **Charoong Thai Wire & Cable Public Company Limited**

589/71 Central City Tower  
Floor 12A, Bangna -Trad Road  
Bangna, Bangna District  
Bangkok 10260  
Tel : 0 2745 6118  
Fax : 0 2745 6131-32

### 4) **GROUNDING MATERIALS**

#### **K.M.L. Technology Co., Ltd.**

100/3 Thasabansongkrow Road  
Ladyao, Jatujak  
Bangkok 10900  
Tel : 0 2954 3455  
Fax : 0 2591 7891



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**G.K. Assembly Co., Ltd.**

110/9-10 Moo 2  
Maha Sawat, Bang Kruai District  
Nonthaburi 11130  
Tel : 0 2985 2250-3  
Fax. 0 2985 1910

5) **CONDUCTOR**

**Bangkok Cable Co., Ltd.**

187/1 Rajdamri Road  
Lumpinee, Pathumwan  
Bangkok 10330  
Tel : 0 2254 4550-6  
Fax : 0 2253 5973, 0 2253 6028, 0 2254 3859

**Charoong Thai Wire & Cable Public Company Limited**

589/71 Central City Tower  
Floor 12A, Bangna -Trad Road  
Bangna, Bangna District  
Bangkok 10260  
Tel : 0 2745 6118  
Fax : 0 2745 6131-32

**Phelps Dodge International (Thailand) Limited**

16<sup>th</sup> Floor, Maneeya Center Building  
518/5 Ploenchit Road  
Lumpinee, Pathumwan  
Bangkok 10330  
Tel : 0 2652 0588, 0 2680 5862  
Fax : 0 2680 5896

**Thai-Yazaki Electric Wire Co., Ltd.**

27<sup>th</sup> Floor, Two Pacific Place Building  
142 Sukhumvit Road  
Klongtoey District  
Bangkok 10110  
Tel : 0 2653 2550, 0 2463 0058 Ext. 342  
Fax : 0 2463 6364, 0 2463 6354-5

**Venine Cable Electric Wire Company Limited**

88/8-9 Moo 2 Ladbualuang-Maitra Rd.  
Ladbualuang, Ladbualuang  
Ayutthaya 13230  
Tel : 0 3528 0493  
Fax : 0 3528 0494

**เอกสารควบคุม**

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

25 ธันวาคม 2566

**Fuhrer Wire and Cable Co., Ltd.**

70 Moo 2, Bankao-Panthong Road  
Panthong  
Chonburi 20160  
Tel : 0 3845 2906-7  
Fax : 0 3845 2899  
(For manufacturing of Transmission Line Conductor up to 230 kV)

6) **NON-METALLIC OPTICAL FIBER CABLE (OFC)**

**Thai China Fiber Optics Co., Ltd.**

488 Soi Ratchadapisek 26,  
Samsennog, Huaykwang,  
Bangkok 10310  
Tel : 0 2975 9901  
Fax : 0 2975 9925

**Thai Fiber Optics Co., Ltd.**

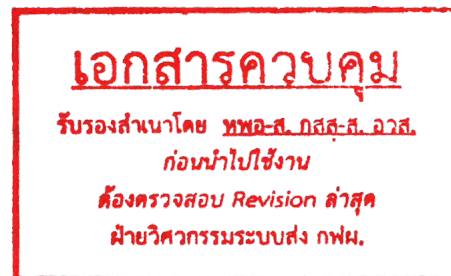
233 Moo 6, Soi Watchangrueng,  
Suksawat Road,  
Naiklongbangplakot, Phrasamutchedi,  
Samutprakarn 10290  
Tel : 0 2817 5590-3  
Fax : 0 2817 5311

**HBC Telecom Co., Ltd.**

187/1 Rajadamri Road,  
Lumpinee, Pathumwan  
Bangkok 10330  
Tel : 0 2650 5002 To 3 Ext.111,112  
Fax : 0 2651 9261

**Siam Fiber Optics Co., Ltd.**

Floor 12 A, Central City Tower  
589/71 Bangna-Trad Road, Km.3  
Bangna, Bangna,  
Bangkok 10260  
Tel : 0 2745 6118-30  
Fax : 0 2745 6575



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7) **CROSS-LINKED POLYETHYLENE (XLPE) CABLE**

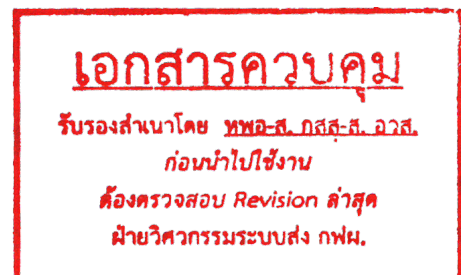
**Phelps Dodge International (Thailand) Limited**

16th Floor, Maneeya Center Building  
518/5 Ploenchit Road  
Lumpinee, Pathumwan  
Bangkok 10330  
Tel : 0 2652 0588, 0 2680 5862  
Fax : 0 2680 5896

(For 230 kV Underground Transmission Line with XLPE Cable)

It shall be noted that the 230 kV XLPE Cable is allowed to be supplied to only one contract at the first stage. Any further contracts shall be allowed after the said Equipment under the first contract is certified by a certification letter issued by EGAT that it has been provided at least one (1) year successful operation in EGAT system.

Bid No. TIPE-L-05



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**SECTION H**  
**ATTACHMENTS**

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**ATTACHMENTS**

- Attachment No. 1 : List of Equipment to be Furnished by EGAT
- Attachment No. 2 : List of Equipment to be Dismantled by the Contractor
- Attachment No. 3 : Requirements for Dismantling Work and Conditions of Sale of Dismantled Equipment



**ATTACHMENT NO. 1**

**LIST OF EQUIPMENT TO BE FURNISHED BY EGAT**

The Equipment listed herein shall be furnished by EGAT in Bangkok and/or its vicinity, at the point to be designated by EGAT as soon as possible after confirmation of Letter of Award of Contract. Any Equipment not listed herein but required for construction for completion of the Work shall be furnished by the Contractor at his own expenses.

<b><u>Item</u></b>	<b><u>Description</u></b>	<b><u>Estimated Quantity</u></b>
1.	1272 MCM ACSR/GA Conductor as per Schedule 1E Item 1E1.1	889.2 km
2.	1272 MCM ACSR/GA Conductor as per Schedule 1J Item 1J12.1	222.3 km
3.	1272 MCM ACSR/GA Conductor as per Schedule 2E Item 2E1.1	452.58 km
4.	1272 MCM ACSR/GA Conductor as per Schedule 3E Item 3E1.1	3.42 km
5.	1272 MCM ACSR/GA Conductor as per Schedule 3J Item 3J6.1	2.28 km
6.	1272 MCM ACSR/GA Conductor as per Schedule 4E Item 4E1.1	3.42 km
7.	1272 MCM ACSR/GA Conductor as per Schedule 4J Item 4J2.1	3.42 km

- Note :**
1. The estimated quantity of conductor shown above is an approximate amount. The actual quantity of conductor to be furnished by EGAT will be in accordance with the actual horizontal distance of the section to be installed after checking survey and staking have been performed, Plus a Fixed extra of 1.5 percent to cover sag, terrain irregularities and wastage.
  2. The conductor furnished will have characteristics as specified in Specifications No. C-2 (Revision 6)

## ATTACHMENT NO. 2

### LIST OF EQUIPMENT TO BE DISMANTLED BY THE CONTRACTOR

The following are the Equipment to be dismantled under this Contract. Types and quantities shown are approximate and provided as primary information. The Bidder shall be deemed to have carefully examined the exact quantities for his quotation of dismantling services.

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>Part 1 :</b>	<b><u>The existing 230 kV Pluak Daeng – Ban Khai Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>1.1</b>	<b>Steel Tower</b>	
	Tower Type DQA1	
	Basic body	74 bodies
	Body extension 7.0 m.	74 bodies
	Leg extension +5.0 m.	1 leg
	Leg extension +7.0 m.	5 legs
	Leg extension +9.0 m.	290 legs
	 Tower type DQB2	
	Basic body	9 bodies
	Body extension 7.0 m.	9 bodies
	Leg extension +7.0 m.	4 legs
	Leg extension +9.0 m.	32 legs
	 Tower type DQD2	
	Basic body	13 bodies
	Body extension 7.0 m.	13 bodies
	Leg extension +7.0 m.	4 legs
	Leg extension +9.0 m.	48 legs
	 Tower type DQDE (Str. No. 36/2)	
	Basic body	1 body
	Leg extension +3.0 m.	4 legs
<b>1.2</b>	<b>Hardware Assemblies</b>	
	Single string suspension insulator assemblies	324 sets
	Double string suspension insulator assemblies	120 sets
	Bypass string suspension insulator assemblies	36 sets
	Single string tension insulator assemblies	24 sets
	Double string tension insulator assemblies	276 sets
	Overhead ground wire suspension assemblies	74 sets
	Overhead ground wire tension assemblies	58 sets
	OPGW suspension assemblies	74 sets
	OPGW tension assemblies	50 sets

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>1.3</b>	<b>Line Accessories</b>	
	Two bundle rigid spacer	288 sets
	Four bundle rigid spacer	570 sets
	Spacer damper	2,988 sets
	Vibration damper for overhead ground wire	97 sets
	Vibration damper for OPGW	328 sets
<b>1.4</b>	<b>Insulator</b>	
	Insulator ANSI Class 52-8 (36,000 lbs)	8,400 discs
	Insulator ANSI Class 52-11 (50,000 lbs)	8,640 discs
<b>1.5</b>	<b>1272 MCM ACSR/GA Conductor</b>	875.76 km
<b>1.6</b>	<b>3/8 " high strength galvanized steel overhead ground wire</b>	36.49 km
<b>1.7</b>	<b>Composite overhead ground wire with 36-core optical fiber</b>	36.49 km
<b>Part 2 :</b>	<b><u>The existing 230 kV Temporary Detour Line from Str. No. 0/1 at Pluak Daeng to Str. No. 23/4 at Bankhai</u></b>	
	(The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>2.1</b>	<b>Tower</b>	
	Lattice Structure Type WSA	
	Tower Type WSA + 14.00 m. (230_2x1272)	12 towers
	Tower Type WSA + 16.00 m. (230_2x1272)	23 towers
	Tower Type WSA + 18.00 m. (230_2x1272)	13 towers
	Tower Type WSA + 20.00 m. (230_2x1272)	5 towers
	Tower Type WSA + 22.00 m. (230_2x1272)	2 towers
	Tower Type WSA + 23.00 m. (230_2x1272)	1 tower
	Tower Type WSA + 27.00 m. (230_2x1272)	1 tower
	Lattice Structure Type WSD	
	Tower Type WSD + 14.00 m. (230_2x1272)	2 towers
	Tower Type WSD + 16.00 m. (230_2x1272)	2 towers
	Lattice Structure Type WSDE	
	Tower Type WSDE + 10.50 m. (230_2x1272)	2 towers
	Tower Type WSDE + 14.00 m. (230_2x1272)	19 towers
	Tower Type WSDE + 16.00 m. (230_2x1272)	10 towers
	Tower Type WSDE + 18.00 m. (230_2x1272)	7 towers
	Tower Type WSDE + 22.00 m. (230_2x1272)	1 tower

<b><u>Item</u></b>	<b><u>Description</u></b>	<b><u>Estimated Quantity</u></b>
	Structure Type CWBE Tower Type CWBE + 39.50 m. (230_2x1272)	2 towers
	Concrete Structure Type TWDE Concrete Structure Type TWDE + 10.5 m.	53 structures
	Concrete Structure Type TWD Concrete Structure Type TWD + 10.5 m.	5 structures
	Concrete Structure Type TWA Concrete Structure Type TWA + 10.0 m.	607 structures
	Concrete Structure Type CWA Concrete Structure Type CWA + 13.5 m.	28 structures
<b>2.2</b>	<b>Hardware Assemblies</b>	
	Horizontal Vee Insulator String	174 sets
	Composite Line Post Insulator	1,911 sets
	By-Pass Composite Line Post Insulator	432 sets
	Composite Suspension Insulator	606 sets
	OPGW suspension assemblies	695 sets
	Overhead ground wire tension assemblies	4 sets
	OPGW tension assemblies	202 sets
<b>2.3</b>	<b>Insulator</b>	
	Insulator ANSI Class 52-5 (25,000 lbs)	4 discs
<b>2.4</b>	<b>1272 MCM ACSR/GA Conductor</b>	218.94 km
<b>2.5</b>	<b>Composite overhead ground wire with 36-core optical fiber</b>	36.5 km
<b>Part 3 :</b>	<b><u>The existing 230 kV Rayong 2 – Ban Khai (Upper Circuit) Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>3.1</b>	<b>Hardware Assemblies</b>	
	Bypass string suspension insulator assemblies	3 sets
	Single string tension insulator assemblies	3 sets
	Double string tension insulator assemblies	12 sets
	Single inverted string tension insulator assemblies	3 sets
<b>3.2</b>	<b>Line Accessories</b>	
	Two bundle rigid spacer	18 sets
	Spacer damper	15 sets
<b>3.3</b>	<b>Insulator</b>	
	Insulator ANSI Class 52-5 (25,000 lbs)	150 discs
	Insulator ANSI Class 52-8 (36,000 lbs)	384 discs

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
3.4	<b>1272 MCM ACSR/GA Conductor</b>	4.8 km
<b>Part 4 :</b>	<b><u>The existing 230 kV Rayong 2 – Ban Khai (Circuit No. 1) Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>4.1</b>	<b>Hardware Assemblies</b>	
	Single string tension insulator assemblies	3 sets
	Single inverted string tension insulator assemblies	3 sets
<b>4.2</b>	<b>Line Accessories</b>	
	Spacer damper	15 sets
<b>4.3</b>	<b>Insulator</b>	
	Insulator ANSI Class 52-5 (25,000 lbs)	150 discs
<b>4.4</b>	<b>1272 MCM ACSR/GA Conductor</b>	1.2 km
<b>Part 5 :</b>	<b><u>The existing 230 kV Ban Khai – Choeng Noen/Chanthaburi Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>5.1</b>	<b>Steel Tower</b>	
	<b>Tower type WDE</b>	
	Basic body	1 body
	Leg extension +2.0 m.	4 legs
<b>5.2</b>	<b>Hardware Assemblies</b>	
	Double string tension insulator assemblies	20 sets
	Double inverted string tension insulator assemblies	4 sets
	Overhead ground wire tension assemblies	6 sets
	OPGW tension assemblies	4 sets
<b>5.3</b>	<b>Line Accessories</b>	
	Rigid spacer	12 sets
	Spacer damper	18 sets
<b>5.4</b>	<b>Insulator</b>	
	Insulator ANSI Class 52-8 (36,000 lbs)	768 discs
<b>5.5</b>	<b>1272 MCM ACSR/GA Conductor</b>	4.8 km
<b>5.6</b>	<b>3/8 ” high strength galvanized steel overhead ground wire</b>	0.4 km
<b>5.7</b>	<b>Composite overhead ground wire with 36-core optical fiber</b>	0.4 km

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>Part 6 :</b>	<b><u>The existing 230 kV Ban Khai CCT. No.1 to Choeng Noen CCT. No. 1 Temporary Detour Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>6.1</b>	<b>Hardware Assemblies</b> Single string tension insulator assemblies Overhead ground wire tension assemblies	3 sets 12 sets
<b>6.2</b>	<b>Line Accessories</b> Two bundle rigid spacer Spacer damper	18 sets 15 sets
<b>6.3</b>	<b>Insulator</b> Insulator ANSI Class 52-5 (25,000 lbs)	150 discs
<b>6.4</b>	<b>1272 MCM ACSR/GA Conductor</b>	2.52 km
<b>Part 7 :</b>	<b><u>The existing 230 kV Temporary Detour Line from Str. No. 0/2 to T.O.S. at Ban Khai Substation</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
<b>7.1</b>	<b>Lattice Structure Type WSD</b> Tower type WSD + 18.00 m. (230 2x1272)	1 tower
	<b>Lattice Structure Type WSDE</b> Tower type WSDE + 18.00 m. (230 2x1272) Tower type WSDE + 22.00 m. (230 2x1272)	1 tower 2 towers
<b>7.2</b>	<b>Hardware Assemblies</b> By-pass composite line post insulator Composite suspension insulator OPGW tension assemblies	21 sets 30 sets 10 sets
<b>7.3</b>	<b>1272 MCM ACSR/GA Conductor</b>	0.42 km
<b>7.4</b>	<b>Composite overhead ground wire with optical fiber</b>	0.42 km

### ATTACHMENT NO. 3

## REQUIREMENTS FOR DISMANTLING WORK AND CONDITIONS OF SALE OF DISMANTLED EQUIPMENT

The requirements for Dismantling Work and Conditions of Sale of Dismantled Equipment shall apply to this Invitation to Bid.

### 1. Scope of Dismantling Work

The scope of dismantling work shall be as listed in the Price Schedule, which covers the provisions of dismantling and a portion of dismantled Equipment returned to EGAT and dismantling with conditions for the Contractor to purchase the dismantled Equipment, as the case may be, and shall be in accordance with Specifications No. TL-07 (Rev. 3) Dismantling Work.

### 2. Responsibility of Contractor

The Contractor shall be deemed to have carefully inspected and examined all of the conditions and circumstances of the Equipment as appearing in the existing transmission line to be dismantled under this Contract. EGAT will not be responsible for any defect, imperfection or fault of such Equipment.

For dismantled Equipment to be purchased by the Contractor, the Contractor shall, not later than fifteen (15) Days before the day of de-energizing for the dismantling work, pay the value added tax collectible on the payment for the dismantled Equipment to be sold to the Contractor to EGAT. Upon payment of the value added tax by the Contractor to EGAT, EGAT will issue a tax invoice to the Contractor. Ownership of the Equipment to be dismantled shall be transferred to the Contractor when the transmission line is de-energized for the dismantling work.

In the event that the Contractor shall return a portion of the dismantled Equipment to EGAT, the ownership of the dismantled Equipment is the property of EGAT, but this shall not be construed as relieving the Contractor from the sole responsibility as provided under this Contract for the care, protection, and maintenance of the Equipment. The Contractor shall be responsible for any loss or damages of the Equipment until acceptance has been made by EGAT. The submission of the dismantled Equipment to EGAT shall be performed upon completion of each dismantling portion as scheduled.

### 3. Payment

Ninety (90) per cent of the amount and the adjusted amount due, if any, for the dismantling work will be paid by EGAT to the Contractor after the date of completion of the dismantling work and in case of the returned dismantled Equipment to EGAT after the dismantled Equipment has been delivered at the site(s) specified and acceptance has been made by EGAT.

In case the scope of the Contract requires the Contractor to purchase any item of dismantled Equipment, payment for cost of dismantled Equipment shall be made by the Contractor as scheduled in the Contract Documents regardless of the actual dismantling to be incurred. In case no schedule is set forth, payment shall be made as soon as possible but not later than two (2) Months after completion of each portion of dismantling work. In case no payment is made within the aforementioned period, EGAT reserves the right to claim directly from the Contractor or from the Performance Security or the Maintenance Security, as the case may be, or deduct or set off from any and all money due to the Contractor under this Contract for the amount together with interest at the rate of Minimum Overdraft Rate (MOR) plus two (2) per cent calculated from the due date up to the date the payment is made in full.