

## Notice to Bidder

### Subject : Online Payment for Purchase of Bidding Documents

Due to the outbreak of COVID-19 in Thailand, please be informed of the online payment for purchase of bidding documents as follows:

- 1) Payment shall be made by bank transfer or telegraphic transfer to EGAT's account no. 109-6-01958-2 (swift code : KRTHTHBK), Krung Thai Bank Public Company Limited, Bangkruai Branch, Nonthaburi.

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

- 2) Download the Registration Form and fill out all necessary information by typing. (Complete data is required.)
- 3) Submit the fill-out Registration Form and the proof of payment from 1) to the email address of the in-charge officer and [procurement.tse@egat.co.th](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.

***\*\* Please note that this online payment process is a temporary measure due to the COVID-19 outbreak. The online payment process will be available until further notice from EGAT \*\****

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# Registration Form

Invitation to Bid No. TNRP-L17-OP

Supply and Construction for Replacement of  
Overhead Ground Wire with Composite Overhead  
Ground Wire with Optical Fiber (OPGW)

Telecommunication Network Renovation Project (TNRP) Phase 17

Available Duration for Purchasing : July 7, 2021 - August 5, 2021

Price of Bidding Documents : USD 64.- or THB 2,000.-

## Instructions

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

For Purchaser			TAX ID :
No.	Receipt No. :	Date :	
Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Local Representative			
Address			
			Tax ID :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
For Procurement Officer		Change of Bidder's Name	TAX ID :
Bidder's Letter No. :			Dated :
New Bidder's Name			
Address			
			Country :
Name of Contact Person :		Tel.	Mobile No.
Email Address :			
Contact Information of In-charge Officer			
Name	Mr. Thana Kirdboonsong		
Email address	thana.kir@egat.co.th		
Telephone No.	66 2436 3342		
Mobile No.	668 7116 3690		



**Invitation to Bid No. TNRP-L17-OP**  
**Supply and Construction for Replacement of**  
**Overhead Ground Wire with Composite Overhead**  
**Ground Wire with Optical Fiber (OPGW)**  
**Telecommunication Network Renovation Project (TNRP) Phase 17**

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** :

- 500 kV On Nuch - Nong Chok Transmission Line (approx. 18.45 kilometers)
- 500 kV Sai Noi - Bangkok Noi Transmission Line (approx. 29.76 kilometers)
- 500 kV Sai Noi - Chaeng Watthana Transmission Line (Sai Noi - Rangsit) (approx. 25.10 kilometers)
- 500 kV Sai Noi - Chaeng Watthana Transmission Line (Rangsit - Chaeng Watthana) (approx. 7.69 kilometers)
- 230 kV Nava Nakhon - Wang Noi Transmission Line (approx. 30.63 kilometers)
- 230 kV Lat Phrao - Ratchadaphisek Transmission Line (approx. 6.64 kilometers)
- 230 kV Ratchadaphisek - Bang Kapi Transmission Line (approx. 4.46 kilometers)
- 230 kV Bang Kapi - On Nuch Transmission Line (approx. 8.89 kilometers)
- 230 kV North Bangkok - Bangkok Noi Transmission Line (approx. 18.75 kilometers)
- 230 kV Bangkok Noi - South Thonburi Transmission Line (approx. 7.57 kilometers)
- 230 kV South Thonburi - South Bangkok Transmission Line (approx. 15.95 kilometers)
- 230 kV Chaeng Watthana - North Bangkok Transmission Line (approx. 12.36 kilometers)
- 230 kV Rayong 2 - Ban Khai Junction Transmission Line (approx. 12.38 kilometers)
- 230 kV Bang Pakong - Prachin Buri 2 Transmission Line (approx. 76.12 kilometers)
- 115 kV Bang Pakong - Chon Buri Transmission Line (approx. 25.39 kilometers)
- 115 kV Chon Buri - Si Racha Transmission Line (approx. 21.36 kilometers)
- 115 kV Si Racha - Ao Phai Transmission Line (approx. 4.57 kilometers)

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

THB 83,170,599.67 (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.

*Kamnika Drachalupat*

4. The Bidder shall not be the person who is privileged or protected not to be taken any legal proceedings under Thai Court; Provided that such Bidder's government declares that such special privilege is waived.
5. The Bidder who is a joint venture or consortium shall carry out all the work under such formation from the time of bidding until the fulfillment of the Contract.

#### Availability of Bidding Documents

Bidding Documents in CD-ROM will be available for examination of Bidder's Qualifications and purchase during 08:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from July 7, 2021 to August 5, 2021 at USD 64.- or THB 2,000.- per copy, non-refundable, at the following address :

International Procurement Department – Transmission Segment  
*(Room No. 301, 3<sup>rd</sup> Floor, Tor 082 Building)*  
Procurement and Inventory Management Division  
Electricity Generating Authority of Thailand  
Bangkruai, Nonthaburi 11130, Thailand  
Telephone no. 66 2436 0342  
E-mail : [procurement.tse@egat.co.th](mailto:procurement.tse@egat.co.th)

Please find more details and download Registration Form for purchasing Bidding Documents at <http://www4.egat.co.th/fprocurement/biddingeng/>.

Payment can be made by a certified cheque or money order payable to EGAT or by a telegraphic transfer to EGAT's current account no. 109-6-01958-2 (swift code : KRTHTHBK), Krung Thai Bank Public Company Limited, Bangkruai Branch, Nonthaburi. All bank charges and fees incurred by the payment of bidding documents shall be under the buyer's responsibility.

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

#### Delivery of Bids

Bids shall be submitted at *Bidding Room, 1<sup>st</sup> Floor, Tor 082 Building* during 09:30 hrs. to 10:00 hrs., Bangkok Standard Time, August 25, 2021 and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

June 30, 2021

*Kannika Dhachalapat*

(Mrs. Kannika Dhachalapat)

Chief, International Procurement Department –  
Transmission Segment



## ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เรื่อง ประกวดราคาจ้าง เลขที่ TNRP-L17-OP

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดหาและจ้างก่อสร้างเปลี่ยนสาย Overhead Ground Wire เป็น Composite Overhead Ground Wire with Optical Fiber (OPGW) สำหรับโครงการปรับปรุงโครงข่ายโทรคมนาคมระยะที่ 17 โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ.

### สถานที่ก่อสร้าง :

- จากสายส่งไฟฟ้าแรงสูง 500 kV อ่อนนุช ถึง หนองจอก (ระยะทางประมาณ 18.45 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 500 kV ไทรน้อย ถึง บางกอกน้อย (ระยะทางประมาณ 29.76 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 500 kV ไทรน้อย ถึง แจ้จวนนะ (ไทรน้อย ถึง รังสิต) (ระยะทางประมาณ 25.10 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 500 kV ไทรน้อย ถึง แจ้จวนนะ (รังสิต ถึง แจ้จวนนะ) (ระยะทางประมาณ 7.69 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV นวนคร ถึง วังน้อย (ระยะทางประมาณ 30.63 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV ลาดพร้าว ถึง รัชดาภิเษก (ระยะทางประมาณ 6.64 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV รัชดาภิเษก ถึง บางกะปิ (ระยะทางประมาณ 4.46 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV บางกะปิ ถึง อ่อนนุช (ระยะทางประมาณ 8.89 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV พระนครเหนือ ถึง บางกอกน้อย (ระยะทางประมาณ 18.75 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV บางกอกน้อย ถึง ธนบุรีใต้ (ระยะทางประมาณ 7.57 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV ธนบุรีใต้ ถึง พระนครใต้ (ระยะทางประมาณ 15.95 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV แจ้จวนนะ ถึง พระนครเหนือ (ระยะทางประมาณ 12.36 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV ระยอง 2 ถึง จุดตัดบ้านค่าย (ระยะทางประมาณ 12.38 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 230 kV บางปะกง ถึง ปราจีนบุรี 2 (ระยะทางประมาณ 76.12 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 115 kV บางปะกง ถึง ชลบุรี (ระยะทางประมาณ 25.39 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 115 kV ชลบุรี ถึง ศรีราชา (ระยะทางประมาณ 21.36 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง 115 kV ศรีราชา ถึง อ่าวไผ่ (ระยะทางประมาณ 4.57 กิโลเมตร)

### ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) :

83,170,599.67 บาท (ไม่รวมราคาอุปกรณ์หรือลอนที่กำหนดให้ผู้เสนอราคาซื้อจาก กฟผ.)

### คุณสมบัติของผู้เสนอราคา

1. ต้องเป็นนิติบุคคลผู้มีอาชีพรับจ้างตามประกวดราคาจ้างดังกล่าว และต้องไม่เป็นผู้ที่ทำงานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทำงานตามคำสั่ง กฟผ.
2. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกับผู้เสนอการรายอื่น ณ วันประกาศประกวดราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาครั้งนี้

กนกทิพย์ อธิคุณ

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) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคา ในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนถึงสิ้นสุดข้อผูกพันกับ กฟผ.

#### การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 2,000.- บาท ได้ที่ แผนกจัดจ้างต่างประเทศสายงานระบบส่ง (ห้อง 301 ชั้น 3 อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082) กองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง ฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 7 กรกฎาคม 2564 ถึงวันที่ 5 สิงหาคม 2564 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล procurement.tse@egat.co.th ทั้งนี้ สามารถ download แบบฟอร์มลงทะเบียนผู้ซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ <http://www4.egat.co.th/fprocurement/biddingeng/>

#### การยื่นซองประกวดราคา

กำหนดยื่นซองประกวดราคา ในวันที่ 25 สิงหาคม 2564 เวลา 09:30 น. ถึง 10:00 น. และเปิดซองประกวดราคา เวลา 10:00 น. ณ ห้องประกวดราคา ชั้น 1 อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชียงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 30 มิถุนายน 2564

**กรรณิกา ธวัชคุ้ม**  
(นางกรรณิกา ธวัชคุ้ม)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง (ราคาอ้างอิง)

ในการจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

1. ชื่อโครงการ ประกวตราค่าเลขที่ TNRP-L17-OP  
งานจัดหาและจ้างก่อสร้างเปลี่ยนสาย Overhead Ground Wire เป็น Composite Overhead Ground Wire with Optical Fiber (OPGW)  
โครงการปรับปรุงโครงข่ายโทรคมนาคมระยะที่ 17  
/หน่วยงานเจ้าของโครงการ ฝ่ายระบบสื่อสาร การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
2. วงเงินงบประมาณที่ได้รับจัดสรร  
แผนงานระยะยาว งานปรับปรุงระบบสื่อสาร กฟผ. พ.ศ. 2560 – 2564 (ICS2)  
งบประมาณรวมภาษีมูลค่าเพิ่ม 85.36 ล้านบาท
3. วันที่กำหนดราคากลาง 1 มิถุนายน 2564 (วันที่ อรส. อนุมัติ)  
ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 83,170,599.67 บาท ราคา/หน่วย ตามเอกสารแนบ
4. แหล่งที่มาของราคากลาง หลักเกณฑ์การคำนวณราคากลางเพื่อจัดซื้อจัดจ้างอุปกรณ์สื่อสาร
5. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง
  - 5.1. นางสาวเอกอุฬาร เทวารุฑ์ กวส-ส., อรส.
  - 5.2. นางสาววันดี รอดสำอางค์ หวอส-ส., กวส-ส., อรส.
  - 5.3. นางสาวพนิดา คงเมือง วศ.6, หวอส-ส., กวส-ส., อรส.หมายเหตุ ค่าใช้จ่ายอื่นๆ ได้แก่ ค่าใช้จ่ายที่ กฟผ. ต้องจ่ายตามวิธีการพิจารณาเปรียบเทียบราคาที่กำหนดไว้ในเอกสารประกวดราคา เช่น อกรักษาเข้า เป็นต้น

Orn

นางสาวอัสยา ช่างวิทยาการ

ทดตส-น.

33 มิ.ย. 2564

Detail of the medium price for Bid No. TNRP-L17-OP

Schedule 1	Description	Total (Baht)
1I	Dismantling work	197,154.00
1O	Supply of service of vehicles (12 car-month)	854,880.00
1P	Supply of spare equipment (EGAT Nong Chok store)	1,467,932.96
1Q	500 KV ON NUCH - NONG CHOK TRANSMISSION LINE	5,358,783.07
1R	500 KV SAI NOI - BANGKOK NOI TRANSMISSION LINE	7,379,413.67
1S	500 KV SAI NOI - CHAENG WATTHANA TRANSMISSION LINE (SAI NOI - RANGSIT S	6,288,906.04
1T	500 KV SAI NOI - CHAENG WATTHANA TRANSMISSION LINE (RANGSIT - CHAENG	2,156,521.97
<b>Total For Schedule 1</b>		<b>23,703,591.71</b>
1Z	Dismantled equipment to be purchased by the contractor	-115,344.00

Schedule 2	Description	Total (Baht)
2I	Dismantling work	277,816.76
2P	Supply of spare equipment (EGAT Nong Chok store)	866,181.36
2Q	230 KV NAVA NAKHON - WANG NOI TRANSMISSION LINE	5,474,833.30
2R	230 KV LAT PHRAO - RATCHADAPHISEK TRANSMISSION LINE	1,799,713.05
2S	230 KV RATCHADAPHISEK - BANG KAPI TRANSMISSION LINE	1,894,768.43
2T	230 KV BANG KAPI - ON NUCH TRANSMISSION LINE	4,392,341.56
2U	230 KV NORTH BANGKOK - BANGKOK NOI TRANSMISSION LINE	4,069,721.11
2V	230 KV BANGKOK NOI - SOUTH THON BURI TRANSMISSION LINE	2,174,868.90
2W	230 KV SOUTH THON BURI - SOUTH BANGKOK TRANSMISSION LINE	3,653,262.60
2X	230 KV CHAENG WATTHANA - NORTH BANGKOK TRANSMISSION LINE	2,995,521.16
<b>Total For Schedule 2</b>		<b>27,599,028.23</b>
2Z	Dismantled equipment to be purchased by the contractor	-162,535.36

Schedule 3	Description	Total (Baht)
3I	Dismantling work	340,321.88
3P	Supply of spare equipment (EGAT Nong Chok store)	786,621.36
3O	Supply of service of vehicles (12 car-month)	854,880.00
3Q	230 KV RAYONG 2 - BAN KHAI JUNCTION TRANSMISSION LINE	2,690,133.00
3R	230 KV BANG PAKONG - PRACHIN BURI 2 TRANSMISSION LINE	11,964,754.41
3S	230 KV BANG PAKONG - CHON BURI TRANSMISSION LINE	4,637,088.98
3T	115 KV CHON BURI - SI RACHA TRANSMISSION LINE	3,662,198.05
3U	115 KV SI RACHA - AO PHAI TRANSMISSION LINE	1,490,914.78
<b>Total For Schedule 3</b>		<b>26,426,912.46</b>
3Z	DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR	-199,103.68

<b>Summary Price (Schedule 1,2 and 3)</b>	<b>77,729,532.40</b>
VAT	5,441,067.27
<b>Total Price (Schedule 1,2 and 3)</b>	<b>83,170,599.67</b>
<b>Total DISMANTLED EQUIPMENT TO BE PURCHASED BY THE CONTRACTOR</b>	<b>-476,983.04</b>

Oran  
นางสาวอาศยา ช่างวิทยากร  
ทจตส-ท.  
30 มี.ย. 2564



**Important Information**  
**for**  
**Invitation to Bid No. TNRP-L17-OP**

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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:

**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. TNRP-L17-OP

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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 B-3. Bid Security

The amount of bid security shall be USD 135,880.- or THB 4,268,000.-.

2. Article B-4. Validity of Bids

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

3. 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.

# **ELECTRICITY GENERATING AUTHORITY OF THAILAND**

Nonthaburi  
Thailand

## **INVITATION TO BID NO. TNRP-L17-OP SUPPLY AND CONSTRUCTION FOR REPLACEMENT OF OVERHEAD GROUND WIRE WITH COMPOSITE OVERHEAD GROUND WIRE WITH OPTICAL FIBER (OPGW)**

### **TELECOMMUNICATION NETWORK RENOVATION PROJECT (TNRP) PHASE 17**

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#### **Invitation**

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for Supply and Construction for Replacement of Overhead Ground Wire with Composite Overhead Ground Wire with Optical Fiber (OPGW) under Telecommunication Network Renovation Project (TNRP) Phase 17 in accordance with the Terms and Conditions, Technical Specifications and Drawings described in these Bidding Documents.

#### **Work Description**

The scope of work under this Invitation is composed of three (3) Schedules as described below:

Schedule 1: Supply and Construction for Replacement of Overhead Ground Wire with Composite Overhead Ground Wire with Optical Fiber (OPGW) for the 500 kV Transmission Lines in the central region of Thailand as follows:

- 500 kV On Nuch – Nong Chok Transmission Line, having a distance of 18.45 kilometers in length
- 500 kV Sai Noi – Bangkok Noi Transmission Line, having a distance of 29.76 kilometers in length
- 500 kV Sai Noi – Chaeng Watthana Transmission Line (Sai Noi – Rangsit), having a distance of 25.10 kilometers in length
- 500 kV Sai Noi – Chaeng Watthana Transmission Line (Rangsit – Chaeng Watthana), having a distance of 7.69 kilometers in length

Schedule 2: Supply and Construction for Replacement of Overhead Ground Wire with Composite Overhead Ground Wire with Optical Fiber (OPGW) for the 230 kV Transmission Lines in the central region of Thailand as follows:

- 230 kV Nava Nakhon – Wang Noi Transmission Line, having a distance of 30.63 kilometers in length
- 230 kV Lat Phrao – Ratchadaphisek Transmission Line, having a distance of 6.64 kilometers in length

- 230 kV Ratchadaphisek – Bang Kapi Transmission Line, having a distance of 4.46 kilometers in length
- 230 kV Bang Kapi – On Nuch Transmission Line, Route No. 1 and Route No. 2, each having a distance of 8.89 kilometers in length
- 230 kV North Bangkok – Bangkok Noi Transmission Line, having a distance of 18.75 kilometers in length
- 230 kV Bangkok Noi – South Thonburi Transmission Line, having a distance of 7.57 kilometers in length
- 230 kV South Thonburi – South Bangkok Transmission Line, having a distance of 15.95 kilometers in length
- 230 kV Chaeng Watthana - North Bangkok Transmission Line, having a distance of 12.36 kilometers in length

Schedule 3: Supply and Construction for Replacement of Overhead Ground Wire with Composite Overhead Ground Wire with Optical Fiber (OPGW) for the 230 kV and 115 kV Transmission Lines in the eastern region of Thailand as follows:

- 230 kV Rayong 2 – Ban Khai Junction Transmission Line, having a distance of 12.38 kilometers in length
- 230 kV Bang Pakong – Prachin Buri 2 Transmission Line, having a distance of 76.12 kilometers in length
- 115 kV Bang Pakong – Chon Buri Transmission Line, having a distance of 25.39 kilometers in length
- 115 kV Chon Buri – Si Racha Transmission Line, having a distance of 21.36 kilometers in length
- 115 kV Si Racha – Ao Phai Transmission Line, having a distance of 4.57 kilometers in length

For replacement of overhead ground wire with composite overhead ground wire with optical fiber (OPGW), the Contractor shall perform dismantling of the existing overhead ground wire, including its hardware and line accessories, prior to stringing of OPGW.

To allow the Contractor to perform the Work under this Contract, EGAT will de-energize a circuit of each line during day time (6:00 a.m. to 5:00 p.m.) in the period as specified in the de-energizing plan attached with Attachment No. 1: Additional Conditions for Overhead Ground Wire Replacement Work. The Contractor shall then perform the Work under the condition that one circuit conductor under the to-be-replaced overhead ground wire is de-energized and the other circuit conductor is energized. The Contractor shall therefore take all precautions to protect workmen from any danger which may occur and to prevent and be responsible for any damages during performing such work, which shall be in accordance with Specifications No. TL-06 (Rev.0): Stringing of Conductor, Overhead Ground Wire and OPGW Parallel to Live Line.

Regarding this, the Bidders shall, for bidding, submit the detailed work procedure, which will include methods of stringing of OPGW and dismantling of existing overhead ground wires and their accessories under the conditions mentioned above, safety program for performing the Work, personnel required for performing the Work, and list of tools and Equipment to be employed with his bid for EGAT's consideration.

Furthermore, the Bidders shall note that the drawings of towers attached in these Bidding Documents are for reference only. Examination of the existing towers and modification of their overhead ground wire cross-arms for stringing of OPGW, if necessary, shall be under the responsibility of the Contractor.

It shall be noted that the dismantling Work of the existing overhead ground wires including hardware assemblies and line accessories 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.

### **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 shall be a purchaser of the bidding documents from EGAT. For a joint venture or consortium, only one (1) member of the joint venture or consortium is required to purchase the bidding documents.*

*In the case where the Bidder is not the purchaser of the bidding documents, the purchaser shall notify EGAT of the name of the Bidder in writing prior to the bid opening.*

- II. All Bidders should preferably meet the following requirements; failure to so comply may constitute sufficient ground for rejection.
  - a. The Bidder shall have adequate 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.

### **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 turnkey contract as contractor (not as subcontractor) in overseas country (not his own country) or with

EGAT either on the replacement of overhead ground wire with composite overhead ground wire with optical fiber (OPGW) on the transmission line or on supply and construction of transmission line with composite overhead ground wire with optical fiber (OPGW). The voltage level of transmission line for the said Work shown on such record shall be as follows:

- 1) 110 kV or higher for supply and construction for replacement of overhead ground wire with composite overhead ground wire with optical fiber (OPGW) on 115 kV and 230 kV transmission line
- 2) 220 kV or higher for supply and construction for replacement of overhead ground wire with composite overhead ground wire with optical fiber (OPGW) on 500 kV transmission line

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. It is not allowed to combine the experience records of each firm of the joint venture/consortium in order to meet the experience requirements.

- b. Himself, or either firm of the joint venture/consortium or his subcontractor or the combination thereof, having excellent reputation and adequate technical knowledge and record(s) of experience either in the replacement of overhead ground wire with composite overhead ground wire with optical fiber (OPGW) on the transmission line or in the construction of transmission line with composite overhead ground wire with optical fiber (OPGW). The voltage level of transmission line for the said Work shown on such record shall be as described in a. 1) and a. 2). The accumulative distance of composite overhead ground wire with optical fiber (OPGW) shall be not less than 20 kilometers in length or not less than the Work specified under this Invitation.
- c. In case the scope of work under this Invitation requires stringing of composite overhead ground wire with optical fiber (OPGW) on which the other circuit conductor is under energizing condition while performing such work, himself, or either firm of the joint venture/consortium or his subcontractor or the combination thereof shall have adequate technical knowledge and practical experience in stringing of line conductors or overhead ground wire or OPGW parallel to a live line having voltage level as described in a. 1) and a. 2).

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 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:

- 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 accumulative distance of not less than 20 kilometers.

In the event that the Bidder proposes the Equipment of the manufacturer who, at the time of bidding, fails to meet 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.

**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, insulators for overhead ground wire and for OPGW, hardware assemblies and line accessories for overhead ground wire and for OPGW, 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:
  - Manufacturer for overhead ground wire, 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 operating/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 Manufacturers 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 the 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.

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## **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

#### **UA WITHYA 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, Suanphrikthai  
Muangpathumthani  
Pathumthani 12000  
Tel : 0 2959 5811 Ext.1612  
Fax : 0 2959 5915



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 Klongluangphang  
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



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

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

**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



**SECTION H**  
**ATTACHMENTS**

## **SECTION H**

### **ATTACHMENTS**

- Attachment No. 1 : Additional Conditions for Overhead Ground Wire Replacement Work
- 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**  
**ADDITIONAL CONDITIONS**  
**FOR OVERHEAD GROUND WIRE REPLACEMENT WORK**

EGAT hereby specifies additional conditions and requirements to the Contractor for performing the work of replacement of existing overhead ground wires with new composite overhead ground wires with optical fiber for this Contract as follows :

1. The Contractor shall note that the dismantling of the existing overhead ground wire and stringing of new composite overhead ground wire with optical fiber, including installation of associated hardware and line accessories, shall be performed while one circuit conductor under the replacing overhead ground wire is under de-energized condition and the other circuit conductor is under energized condition. EGAT will allow de-energizing of the specified circuit of each transmission line according to the tentative de-energizing schedule hereto attached, and EGAT will de-energize the transmission lines only at day time (during 6:00 a.m. to 5:00 p.m.)

However, it is to be noted that the attached de-energizing schedule is just a tentative schedule. The effective de-energizing schedule will be discussed and agreed upon by EGAT and the successful Bidder after Award of the Contract. The Contractor shall therefore be responsible for developing detailed work plan, work procedures and safety program describing his activities and the safety and grounding methods that he proposes to implement and to follow while performing such work. The detailed work plan, work procedures and safety program will be applied to all aspects of the Contractor's work performance and shall be submitted to EGAT for review and approval before commencement of the work.

Furthermore, it is required that the Contractor follow appropriate safety and grounding procedures, such as those discussed in IEEE Standard 524-1980 and Specifications No. TL-06 : Stringing of Conductor, Overhead Ground Wire and OPGW Parallel to Live Line, during the course of dismantling and wire stringing activities. Wire stringing operations for OPGW will be conducted in accordance with Specifications attached to these Contract Documents.

2. The Contractor shall estimate quantities of joint boxes to be installed on each transmission line from structure lists furnished in these Contract Documents.

In addition, the Contractor shall be responsible for modification of cable attachment devices of overhead ground wire cross-arms of the existing towers, as necessary, for suitable suspension or termination of hardware assemblies for new composite overhead ground wire with optical fiber. The devices shall be modified to have minimum ultimate tensile strength equal to that of the new OPGW assemblies as specified in the EGAT Telecommunication Equipment Specifications. Such modification shall be submitted to EGAT for approval.

3. The drawings to be submitted for approval shall be in accordance with the list attached herewith.

### List of Approval Drawings for fiber Optic Transmission

Item No.	Drawing Description	Drawing Number
1	Location diagram for joint box	DW-FOT-D02-209-Rn-01
2	Position of OPGW stringing	DW-FOT-D02-222-Rn-01
3	Installation arrangement of 2-way joint box and accessories at tower arm #3	DW-FOT-D01-221-01
4	Installation arrangement of joint box and accessories at TOS	DW-FOT-D01-211-01
5	Route of direct buried cable and installation detail	DW-FOT-D03-204-XXXX-02
6	Fiber termination box installation & detail	DW-FOT-D03-216-XXXX-01
7	Rack cabinet & fiber frame termination installation & detail	DW-FOT-D03-215-XXXX-01
8	Repeater station drawing	DW-FOT-D03-217-XXXX-03
9	Installation of optical fiber cable at repeater	DW-FOT-D03-204-XXXX-03
10	Installation drawing and method of OPGW/OFC in joint box at tower and TOS	DW-FOT-D01-233-01
11	Optical fiber connection diagram	DW-FOT-D02-213-Rn-01
12	Equipment drawing for OPGW, OFC joint box, tension & suspension clamp, cleat ground type, vibration damper jumper clamp, Heli formed reinforced rods, fiber optic Heli formed suspension unit, OPGW dead end, bow shackle, twisted bow shackle, chain link, extension link, clevis thimble termination	-
13	Hardware list for OPGW	-
14	OPGW test report	-

**Legend**

XXXX

Station name

N

Region number

- 1: Central region operation division
- 2: Northeastern region operation division
- 3: Southern region operation division
- 4: Northern region operation division
- 5: Metropolitan area operation division
- All: more than one region

## 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>500 kV On Nuch – Nong Chok Transmission Line</u></b>	
	(The dismantled Equipment as listed below shall be purchased by the Contractor)	
1.1	3/8 ” Extra high strength galvanized steel wire	18.70 km
1.2	Others	To be specified at site
<b>Part 2 :</b>	<b><u>500 kV Sai Noi – Bangkok Noi Transmission Line</u></b>	
	(The dismantled Equipment as listed below shall be purchased by the Contractor)	
2.1	3/8 ” Extra high strength galvanized steel wire	30.20 km
2.2	Others	To be specified at site
<b>Part 3 :</b>	<b><u>500 kV Sai Noi – Chaeng Watthana Transmission Line (Sai Noi – Rangsit Section)</u></b>	
	(The dismantled Equipment as listed below shall be purchased by the Contractor)	
3.1	3/8 ” Extra high strength galvanized steel wire	25.50 km
3.2	Others	To be specified at site
<b>Part 4 :</b>	<b><u>500 kV Sai Noi – Chaeng Watthana Transmission Line (Rangsit – Cheang Watthana Section)</u></b>	
	(The dismantled Equipment as listed below shall be purchased by the Contractor)	
4.1	3/8 ” Extra high strength galvanized steel wire	7.80 km
4.2	Others	To be specified at site

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>Part 5 :</b>	<b><u>230 kV Nava Nakhon – Wang Noi Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
5.1	3/8 ” high strength galvanized steel overhead ground wire	31.10 km
5.2	Others	To be specified at site
<b>Part 6 :</b>	<b><u>230 kV Lat Phrao – Ratchadaphisek Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
6.1	3/8 ” high strength galvanized steel overhead ground wire	6.70 km
6.2	Others	To be specified at site
<b>Part 7 :</b>	<b><u>230 kV Rathadaphisek – Bang Kapi Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
7.1	3/8 ” high strength galvanized steel overhead ground wire	4.50 km
7.2	Others	To be specified at site
<b>Part 8 :</b>	<b><u>230 kV Bang Kapi – On Nuch Transmission Line (Route No. 1 and Route No. 2)</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
8.1	3/8 ” high strength galvanized steel overhead ground wire	18.00 km
8.2	Others	To be specified at site
<b>Part 9 :</b>	<b><u>230 kV North Bangkok – Bangkok Noi Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
9.1	3/8 ” high strength galvanized steel overhead ground wire	19.00 km
9.2	Others	To be specified at site

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>Part 10 :</b>	<b><u>230 kV Bangkok Noi – South Thon Buri Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
10.1	3/8 ” high strength galvanized steel overhead ground wire	7.70 km
10.2	Others	To be specified at site
<b>Part 11 :</b>	<b><u>230 kV South Thon Buri – South Bangkok Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
11.1	3/8 ” high strength galvanized steel overhead ground wire	16.20 km
11.2	Others	To be specified at site
<b>Part 12 :</b>	<b><u>230 kV Chaeng Wattana – North Bangkok Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
12.1	3/8 ” high strength galvanized steel overhead ground wire	12.50 km
12.2	Others	To be specified at site
<b>Part 13 :</b>	<b><u>230 kV Rayong 2 – Bang Khai Junction Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
13.1	3/8 ” high strength galvanized steel overhead ground wire	12.60 km
13.2	Others	To be specified at site
<b>Part 14 :</b>	<b><u>230 kV Bang Pakong – Prachin Buri 2 Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
14.1	3/8 ” high strength galvanized steel overhead ground wire	77.30 km
14.2	Others	To be specified at site

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>
<b>Part 15 :</b>	<b><u>115 kV Bang Pakong – Chon Buri Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
15.1	3/8 ” high strength galvanized steel overhead ground wire	25.80 km
15.2	Others	To be specified at site
<b>Part 16 :</b>	<b><u>115 kV Chon Buri – Si Racha Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
16.1	3/8 ” high strength galvanized steel overhead ground wire	21.70 km
16.2	Others	To be specified at site
<b>Part 17 :</b>	<b><u>115 kV Si Racha – Ao Phai Transmission Line</u></b> (The dismantled Equipment as listed below shall be purchased by the Contractor)	
17.1	3/8 ” high strength galvanized steel overhead ground wire	4.60 km
17.2	Others	To be specified at site

**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.