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 biding documents as follows:

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

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

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

3) Submit the fill-out Registration Form and the proof of payment from 1) to the email address of the in-charge officer and procurement.tse@egat.co.th in the CC. before 15.00 hrs. Bangkok Standard Time.

4) After the payment has been verified for approximately 3 working days, the in-charge officer will send the link for downloading the bidding documents together with a copy of the receipt to the purchaser's email address in the Registration Form. (Purchaser can contact for the original receipt when the situation resumes to normal.)

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

****

Registration Form

Invitation to Bid No. TILS-L-06

Supply and Construction of Transmission Lines
500 kV Thung Song - Songkhla 3 (from KM. 105 to Songkhla 3)
and Sectionalizing of 230 kV Hat Yai 2 - KhlongNgae to Songkhla 3 Substation

Transmission System Improvement Project in Lower Southern Region to Enhance System Security
Available Duration for Purchasing : October 29, 2020to December 17, 2020
Price of Bidding Documents USD 480.- or THB 15,000.-
(Two-Envelope)

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 Englishby typing. (Complete data is required.)
3) Submit the filled-outRegistration Form and the proof of paymentto 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 a copy of the receipt to the purchaser's email address in the Registration Form, which will take approximately 3 working days. (Purchaser can contact for the original receipt when the situation resumes to normal.)

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.Somsit Supwilai
Email address	Somsit.s@egat.co.th
Telephone No.	66 2436 0341-2
Mobile No.	6681259 4857

Invitation to Bid No. TILS-L-06

Supply and Construction of Transmission Lines 500 kV Thung Song - Songkhla 3 (from KM. 105 to Songkhla 3) and Sectionalizing of 230 kV Hat Yai 2 - Khlong Ngae to Songkhla 3 Substation

Transmission System Improvement Project in Lower Southern 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 :

- From KM. 105 to Songkhla 3 Substation (approx. 106 kilometers)
- Form Hat Yai 2 - Khlong Ngae Transmission Line to Songkhla 3 Substation (approx. 0.9 kilometers)

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

THB 1,529,000,000.- (excluding cost of the Dismantled Equipment to be purchased by Bidder)

Eligibility of Bidders

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

Kannika Rachalapat

Availability of Bidding Documents

Bidding Documents in CD-ROM will be available for examination of Bidder's Qualifications and purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from October 29, 2020 to December 17, 2020 at USD 480.- or THB 15,000.- per copy, non-refundable, at the following address :

International Procurement Department - Transmission Segment
(Room No. 1202/2, 12th Floor, Building Tor. 101)
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

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

Price and Technical Proposals shall be submitted at Room No. 1202/1, 12th Floor, Building Tor. 101 during 9:30 hrs. to 10:00 hrs., Bangkok Standard Time, February 2, 2021 and Technical Proposal will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

October 22, 2020

Kannika Dhachalupat

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

ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย
เรื่อง ประกวดราคาจ้าง เลขที่ TILS-L-06
(ประกวดราคา 2 ซอง)

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดหาและจ้างก่อสร้างสายส่งไฟฟ้าแรงสูง 500 kV ทุ่งสง - สงขลา 3 (จากกิโลเมตรที่ 105 ถึง สถานีไฟฟ้าแรงสูงสงขลา 3) และจัดหาและจ้างก่อสร้างตัดสายส่งไฟฟ้าแรงสูง 230 kV หาดใหญ่ 2 - คลองแงะ ลงที่สถานีไฟฟ้าแรงสูงสงขลา 3 สำหรับโครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคใต้ตอนล่าง เพื่อเสริมความมั่นคงระบบไฟฟ้า โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ.

<u>สถานที่ก่อสร้าง</u> :

- จากกิโลเมตรที่ 105 ถึง สถานีไฟฟ้าแรงสูงสงขลา 3 (ระยะทางประมาณ 106 กิโลเมตร)
- จากสายส่งไฟฟ้าแรงสูง หาดใหญ่ 2 - คลองแงะ ลงที่สถานีไฟฟ้าแรงสูงสงขลา 3 (ระยะทางประมาณ 0.9 กิโลเมตร)

<u>ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ)</u> :

1,529,000,000.- บาท (ไม่รวมราคาอุปกรณ์รื้อถอนที่กำหนดให้ผู้เสนอราคารับซื้อจาก กฟผ.)

<u>คุณสมบัติของผู้เสนอราคา</u>

1. **ต้องเป็นผู้ประกอบการและพัสดุที่ผ่านการคัดเลือกคุณสมบัติเบื้องต้นตามบัญชีรายชื่อที่ระบุในเอกสารประกวดราคา**
2. ต้องเป็นนิติบุคคลผู้มีอาชีพรับจ้างตามประกวดราคาจ้างดังกล่าว และต้องไม่เป็นผู้ทิ้งงานซึ่งปลัดกระทรวงการคลังได้แจ้งเวียนชื่อไว้ หรือต้องไม่เป็นผู้ที่ กฟผ. ห้ามติดต่อหรือห้ามเข้าเสนอราคา หรือต้องไม่เป็นผู้ที่ได้รับผลของการสั่งให้นิติบุคคลหรือบุคคลอื่นเป็นผู้ทิ้งงานตามคำสั่ง กฟผ.
3. ต้องไม่เป็นผู้มีผลประโยชน์ร่วมกันกับผู้เสนอราคารายอื่น ณ วันประกาศประกวดราคาครั้งนี้เป็นต้นไป หรือต้องไม่เป็นผู้กระทำการอันเป็นการขัดขวางการแข่งขันราคาอย่างเป็นธรรมในการดำเนินการประกวดราคาครั้งนี้
4. ต้องไม่เป็นที่ปรึกษาของ กฟผ. หรือมีส่วนร่วมในบริษัทที่ปรึกษาของ กฟผ. ในงานนี้ หรือต้องไม่มีผู้ปฏิบัติงาน กฟผ. เข้าไปมีส่วนร่วมในกิจการของผู้เสนอราคา ไม่ว่าจะในฐานะผู้ถือหุ้นที่มีสิทธิควบคุมการจัดการ กรรมการ ผู้อำนวยการ ผู้จัดการ พนักงาน ลูกจ้าง ตัวแทน หรือที่ปรึกษา ยกเว้น ในกรณีที่ผู้ปฏิบัติงานได้รับคำสั่งอย่างเป็นทางการจาก กฟผ. ให้ไปปฏิบัติงานหรือเข้าร่วมในกิจการของผู้เสนอราคา
5. ต้องไม่เป็นผู้ได้รับเอกสิทธิ์หรือความคุ้มกัน ซึ่งอาจปฏิเสธไม่ยอมขึ้นศาลไทย เว้นแต่รัฐบาลของผู้เสนอราคาได้มีคำสั่งให้สละสิทธิ์และความคุ้มกันเช่นว่านั้น
6. ผู้ประสงค์เข้าประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม (Joint Venture or Consortium) จะต้องดำเนินการทุกขั้นตอนของการประกวดราคาในนามของกิจการร่วมค้าหรือกิจการค้าร่วม ตั้งแต่การเสนอราคาจนสิ้นสุดข้อผูกพันกับ กฟผ.

กรรมการ ลงชื่อ

การขายเอกสารประกวดราคา

ผู้สนใจติดต่อขอทราบรายละเอียด เพื่อตรวจสอบคุณสมบัติของผู้เสนอราคา และขอซื้อเอกสารประกวดราคา ในราคาชุดละ 15,000.- บาท ได้ที่แผนกจัดจ้างต่างประเทศสายงานระบบส่ง (ห้อง 1202/2 ชั้น 12 อาคาร ท.101) กองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง ฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เขิงสะพานพระราม 7 จังหวัดนนทบุรี ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 29 ตุลาคม 2563 ถึงวันที่ 17 ธันวาคม 2563 หรือสอบถามทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล procurement.tse@egat.co.th ทั้งนี้ สามารถ download แบบฟอร์มลงทะเบียนผู้ซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ http://www4.egat.co.th/fprocurement/biddingeng/

การยื่นซองประกวดราคา

กำหนดยื่นซองข้อเสนอด้านเทคนิคพร้อมซองราคา ในวันที่ 2 กุมภาพันธ์ 2564 เวลา 9:30 น. ถึง 10:00 น. และเปิดซองข้อเสนอด้านเทคนิคเวลา 10:00 น. ณ ห้อง 1202/1 ชั้น 12 อาคาร ท.101 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เขิงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 22 ตุลาคม 2563

กรรณิกา ธชาลุภัฏ

(นางกรรณิกา ธชาลุภัฏ)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)
ในการจัดซื้อจัดจ้างที่มิใช่งานก่อสร้าง

1. **ชื่อโครงการ** Bid No. TILS-L-06
งานจัดหาและจ้างก่อสร้างสายส่ง 500 kV ทุ่งสง - สงขลา 3 (จากกิโลเมตรที่ 105 ถึง สฟ.สงขลา 3)
และจัดหาและจ้างก่อสร้างตัดสายส่ง 230 kV หาดใหญ่ 2 - คลองแงะ ลงที่ สฟ.สงขลา 3
โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคใต้ตอนล่าง เพื่อเสริมความมั่นคงระบบไฟฟ้า
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. **วงเงินงบประมาณที่ได้รับจัดสรร**
โครงการปรับปรุงระบบส่งไฟฟ้าบริเวณภาคใต้ตอนล่าง เพื่อเสริมความมั่นคงระบบไฟฟ้า
งบประมาณ 35,400 ล้านบาท

3. **วันที่กำหนดราคากลาง** 9 กันยายน 2563 (วันที่ รวส. อนุมัติ)
ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 1,529,000,000.00 บาท **ราคา/หน่วย** ตามเอกสารแนบ

4. **แหล่งที่มาของราคากลาง**
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานระบบส่ง

5. **รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง**
5.1 นายพิทักษ์ ปิ่นอนงค์ กวสส-ส.
5.2 นายสมปอง บวรธีระกิจชัย หปส-ส. กวสส-ส.
5.3 นางสิรินยา ตันสัจจา วศ.8 หปส-ส. กวสส-ส.

<u>หมายเหตุ</u> ค่าใช้จ่ายอื่นๆ ได้แก่ ค่าใช้จ่ายที่ กฟผ. ต้องจ่ายตามวิธีการพิจารณาเปรียบเทียบราคาที่กำหนดไว้ในเอกสารประกวดราคา เช่น อากรขาเข้า เป็นต้น

นางสาวอาสยา ช่างวิทยาการ
หจตส-ห.
22 ต.ค. 2563

DETAILS OF THE MEDIUM COST FOR BID NO. TILS-L-06

SCHEDULE 1 : 500 kV Thung Song - Songkhla 3 (from KM. 105 to Songkhla 3) (106 km)

Description	Total (Baht)
1A : PRELIMINARY WORK	9,835,314.00
1B : TOWER FOUNDATIONS	230,445,888.00
1C : TOWERS	817,869,256.65
1D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	207,903,500.00
1E : CONDUCTOR AND OVERHEAD GROUND WIRE	53,782,952.00
1F : LINE ACCESSORIES	26,725,300.00
1G : GROUNDING MATERIALS	7,022,265.60
1H : OPTICAL FIBER AND LINE ACCESSORIES	24,378,057.21
1N : TEST OF EQUIPMENT	3,680,000.00
1O : SUPPLY OF SERVICE OF VEHICLES	7,943,000.00
Total for Schedule 1	**1,389,585,533.46**
Adjusted Price (Import Duty & Tax + VAT)	97,270,987.34
Total Price Schedule 1	**1,486,856,520.80**

SCHEDULE 2 : Sectionalizing of 230 kV Hat Yai 2 - Khlong Ngae to SongKhla 3 (0.9 km)

Description	Total (Baht)
2A : PRELIMINARY WORK	105,000.00
2B : TOWER FOUNDATIONS	4,322,800.00
2C : TOWERS	9,941,193.21
2D : INSULATOR STRING AND OVERHEAD GROUND WIRE ASSEMBLIES	4,142,700.00
2E : CONDUCTOR AND OVERHEAD GROUND WIRE	8,622,920.00
2F : LINE ACCESSORIES	238,500.00
2G : GROUNDING MATERIALS	63,720.00
2H : OPTICAL FIBER AND LINE ACCESSORIES	615,371.84
2I : DISMANTLING WORK	155,000.00
2J : TEMPORARY DETOUR LINE	11,499,713.50
2Q : DISMANTLING WORK FOR TEMPORARY DETOUR LINES	280,000.00
Total for Schedule 2	**39,986,918.55**
Adjusted Price (Import Duty & Tax + VAT)	2,799,084.30
Total Price Schedule 2	**42,786,002.85**

Summary Price (Schedule 1 and 2)	**1,429,572,452.01**
Adjusted Price (Import Duty & Tax + VAT)	**100,070,071.63**
Total Price for Schedule 1 and 2	**1,529,642,523.64**

นางสาวอาสยา ช่างวิทยาการ

MEDIUM COST OF BID NO. TILS-L-06 หจตส-ห. 22 ต.ค. 2563	**1,529,000,000.00**

(นางสุ...รัตน์ ไชยพัน...
วส.
9ก.ย.6...

Important Information

for

Invitation to Bid No. TILS-L-06

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

Article A-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 A-4. Eligibility of Bidders : Technical Requirements

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

DATA SHEET

for

Invitation to Bid No. TILS-L-06

(Two-envelope)

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 2,421,990.- or THB 76,450,000.-.

3. Article B-4. Validity of Bids

   The validity of the bid shall be for two hundred and seventy (270) Days from the date specified for opening of technical proposals.

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

   4.1 The following sub-item shall be added to item r., For 115 kV and 230 kV Transmission Line after sub-item (viii):

   "(ix) Detailed information on the proposed INVAR Conductor, including

   (a) Detailed calculations on the following items of the proposed INVAR Conductor

   (1) Ampacity (Current Carrying Capacity)

(2) Sag & Tension Calculation

Sag-Tension calculations for INVAR Conductor at various output conditions given below shall be submitted along with the Bid. These calculations shall also include calculations for determination of transition temperature. The parameters and conditions taken for sag tension calculations shall be as follows :

Parameters

Ruling spans shall be in accordance with those of the existing transmission lines given in Technical Information of Transmission Lines attached to Specifications for INVAR Conductor and Hardware Assemblies and Line Accessories (Revision 1).

Design condition

Base condition : 27°C, No wind, Tension 22% UTS of conductor

Sag & Tension Requirement Condition

6°C, 12°C, 18°C, 27°C,…,210°C No wind 27°C with wind

Output might be given in the format as shown in Technical Information of Transmission Lines attached to Specifications for INVAR Conductor and Hardware Assemblies and Line Accessories (Revision 1).

(3) Power loss (comparing to that of 2x1272 MCM ACSR/GA conductor)

(b) Previous test report of INVAR conductor of the same or similar size as specified in the Specifications to demonstrate that the Equipment offered meets all the requirements of the Contract. Such previous test reports shall consist of Type Test, Acceptance or Sample Test, Routine Test, and etc.

(c) Test method or Test procedure, including referenced standardization and acceptance criteria, for the following tests of INVAR conductor

(1) Test before producing (Type Test or Design Test).

(2) Test during producing (Sample Test or Acceptance Test and Routine Test).

(3) Specific tests consisting of

- *Temperature of surrounded area*
- *Temperature of rainfall at any distance far from conductor*
- *Ampacity test*
- *Etc.*

Detailed items of the tests and duration that each test item will take shall also be provided.

(d) Previous test reports of the same or equivalent type of compression deadend, armor rod, tension sleeve and repair sleeve for INVAR conductor to demonstrate that the Equipment offered meets all the requirements specified in Specifications for INVAR Conductor and Hardware Assemblies and Line Accessories (Revision 1). The previous test reports shall include

(1) Type Test
(2) Sample Test
(3) Routine Test

(e) Detailed design of fittings at T.O.S. for connection of INVAR Conductor (twin-bundled conductor) with the other conductors in substations (to be performed at Songkhla 3 Substations)"

4.2 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."***

6. 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

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)

INVITATION TO BID NO. TILS-L-06

SUPPLY AND CONSTRUCTION OF TRANSMISSION LINES 500 kV THUNG SONG – SONGKHLA 3 (FROM KM. 105 TO SONGKHLA 3) AND SECTIONALIZING OF 230 kV HAT YAI 2 – KHLONG NGAE TO SONGKHLA 3 SUBSTATION

TRANSMISSION SYSTEM IMPROVEMENT PROJECT IN LOWER SOUTHERN REGION TO ENHANCE SYSTEM SECURITY

(TWO-ENVELOPE)

Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for Supply and Construction of Transmission Lines 500 kV Thung Song – Songkhla 3 **(**from KM. 105 to Songkhla 3**)** and Sectionalizing of 230 kV Hat Yai 2 – Khlong Ngae to Songkhla 3 Substation under Transmission System Improvement Project in Lower Southern Region to Enhance System Security 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 two (2) Schedules as described below:

Schedule 1: Supply and Construction of 500 kV Thung Song – Songkhla 3 Transmission Line

The Work for this Schedule is supply and construction of 500 kV transmission line which is 50 Hz, 3 phase, quad-bundled conductor per phase on double circuit self-supporting lattice steel towers extending from KM. 105 to Songkhla 3 Substation, having a distance of approximately 106 kilometers in length as the second section of the 500 kV Thung Song – Songkhla 3 Transmission Line in the southern region of Thailand with a total distance of approximately 211 kilometers. This transmission line will be located on the new right-of-way with 30 meters in width on each side of the center line of the transmission line.

Please note that the first section of the whole 500 kV Thung Song–Songkhla 3 Transmission Line to be constructed from Thung Song Substation to KM. 105 and the work at the connection point as shown in the Drawing No. T05-001 : Interfacing Work will be undertaken under Invitation to Bid No. TILS-L-02 .

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

Schedule 2: Supply and Construction for Sectionalizing of 230 kV Hat Yai 2 – Khlong Ngae Transmission Line to Songkhla 3 Substation

The Work for this Schedule is supply and construction of two 230 kV transmission lines which are 50 Hz, 3 phase, twin-bundled conductor per phase on double circuit self-supporting lattice steel towers extending from Songkhla 3 Junction A to Songkhla 3 Substation in the southern region of Thailand, having a distance of approximately 0.4 and 0.5 kilometer, on the new right-of-way with 25 meters in width on each side of the center line of the transmission line to sectionalize the 230 kV Hat Yai 2 – Khlong Ngae Transmission Line to Songkhla 3 Substation.

The conductor to be employed will be high temperature low sag conductor (INVAR). 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. The INVAR Conductor and both types of overhead ground wires shall be supplied by the Contractor.

The scope of Work under this Schedule shall also include supply and construction of 230 kV Hat Yai 2 – Khlong Ngae Temporary Detour Lines No. 1 and No. 2 . These lines are 230 kV, 50 Hz, 3 phase, twin-bundled conductor per phase, single circuit and each having a distance of approximately 0.85 kilometer. Both temporary detour lines shall be constructed parallel to each other at Songkhla 3 Junction A. It shall also be noted that the temporary detour lines shall be constructed as indicated in the Specifications No. TL-05 (Rev.1) : Construction of Temporary Detour Line.

The conductor to be employed for the temporary detour lines 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

Moreover, since the stringing of the line shall be executed while the other circuit is being energized, the Contractor shall perform the said work with full precaution in accordance with the requirements of the Specifications No. TL-06 (Rev. 0) : Stringing of Conductor, Overhead Ground Wire and OPGW Parallel to Live line.

The dismantling Work of the existing 230 kV Hat Yai 2 – Khlong Ngae Transmission Line (at Songkhla 3 Junction A) which is double circuit strung with twin-bundled 1272 MCM ACSR/GA conductor, having a distance of approximately 0.85 kilometer as well as of the 230 kV temporary detour lines mentioned above shall also be performed under this Schedule.

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.

All types of steel towers and foundations have already been designed by EGAT. Furthermore, the fabrication / erection drawings, as well as stub & setting dimensions and details & bar bending schedule of foundations for all tower types will be prepared and provided to the Contractor by EGAT.

However, the Contractor shall also note that the detailed fabrication / erection drawings for some tower leg extensions as well as stub & setting dimensions for some tower types may not be available or some modifications to EGAT's furnished details & bar bending schedule of foundations may be required. In such case, the Contractor shall perform and provide these drawings for EGAT's approval.

Detailed fabrication/ erection drawings of steel towers provided by EGAT will be furnished to the Contractor after confirmation of Letter of Award of Contract. The Contractor shall carefully scrutinize EGAT's furnished detailed fabrication/ erection drawings, make minor modifications as necessary and submit all revised drawings to EGAT for review and approval. The full responsibility for adequacy and accuracy of all detailed drawings shall rest with the Contractor and he shall have no right to claim for additional compensation as a result of his misinterpretation or failure to check the drawings for compliance with the design requirements, inaccuracies, errors and omissions.

Reproducible drawings and CD-ROM of EGAT's furnished detailed fabrication / erection drawings of steel towers will not be required. The approved drawings, reproducible drawings and CD-ROM of these steel towers required to be submitted for this Contract shall therefore be bill of material. However, in case the Contractor makes modifications to EGAT's furnished detailed fabrication / erection drawings of steel towers or details & bar bending schedule of foundations or prepares drawings of which leg extensions and/or stub & setting dimensions are not available, such drawings shall be submitted for EGAT's approval and therefore reproducible drawings and CD-ROM of these drawings shall be required.

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. The Bidder shall be named in EGAT Accepted Bidders List for Supply and Construction of Transmission Line : 500 kV Transmission Line with Four-bundled Conductor. The said Accepted List is attached at the end of Section A. Invitation to Bid.

b. For 500 kV Transmission Line with Four-bundled Conductor

i. For Insulator for conductor, the manufacturer shall be named in EGAT Accepted Manufacturers List for Insulator Fog Type and/or Standard Type attached at the end of Section A. Invitation to Bid.

OR

In case EGAT Accepted Manufacturers List is not attached herewith, the manufacturer shall have the qualifications as follows :

1. Insulator for conductor manufacturer shall be a regular manufacturer of excellent reputation having significant technical knowledge and at least three (3) years experience in the design, manufacture and testing of the Equipment, having manufacturing capacity available to perform the Work properly and expeditiously within the time specified, and having satisfactory past experience.

2. Insulator for conductor manufacturer shall have 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 400 kV or higher during the last ten years.

ii. Proposing towers, 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 for conductor manufacturer being an eligible local firm having set up a plant in Thailand

4) Spacer dampers for conductor manufacturer having a record of five (5) consecutive years of successful operation/use of the same or similar type as those required under this Invitation and used in multi but not less than four-bundled conductor transmission lines operated at a voltage level of 400 kV or higher having accumulated circuit distance of not less than 200 kilometers

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

6) For proposed conductor, according to the Industrial Product Standards Act B.E. 2511 which stipulates that the conductor is an industrial product that is required to conform with the Thai Industrial Standards – TIS 85-2548;

   In case of locally supplied conductor, the manufacturer of the conductor shall receive a license from the Industrial Product Standards Council, Ministry of Industry, for manufacture of the industrial product and use of a standard mark, and

   In case of foreign supplied conductor, the conductor shall be imported by a person having received a license from the Industrial Product Standards Council, Ministry of Industry, for importation of the industrial product.

c. <u>For 115 kV & 230 kV Transmission Line for Single & Twin-Bundled Invar Conductor</u>

Proposing towers, conductor, insulators for conductor, hardware assemblies and line accessories for conductor, dampers 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) Insulator for conductor manufacturer having a record of a minimum three (3) consecutive years of successful operation / use of at least 10,000 units of insulators of the same or similar ANSI class as those required under this Invitation in any one transmission line operating in the transmission network electric utility in overseas country (not his own country) during the last ten years at the following voltage levels :

- 110 kV or higher for the Work of supply and construction of 115 kV transmission line

- 220 kV or higher for the Work of supply and construction of 230 kV transmission line

3) Invar conductor manufacturer having an experience in design, manufacture, test and supply of at least two hundred (200) kilometers of Invar conductor with successful operation thereof for a period of at least one (1) year as of the date of the bid opening

4) Manufacturer(s) of hardware assemblies, line accessories and spacer dampers for Invar conductor shall have an experience in design, manufacture, test and supply of hardware assemblies, line accessories and spacer dampers for any type of high-temperature low-sag conductor for at least three (3) 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.

If the manufacturer is a new company formed by acquisition of or merger with other companies or business units, and any of such previous companies or business units has the experience records that meet the requirements set forth herein, such experience records are acceptable as the experience records of the new company, provided that each item of the Equipment to be supplied under this Bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records as described in Item **I**.b. and **I**.c. above. Otherwise, it shall not be acceptable and shall be sufficient grounds for rejection. For the avoidance of doubt, it is not allowed to combine the experience records of the previous companies or business units in order to meet the experience requirements.

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

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 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 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.

This 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 shield wire / overhead ground wire, insulators for shield wire and for OPGW, hardware assemblies and line accessories for shield wire / 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:

For 500 kV Transmission Line with Four-bundled Conductor

Manufacturers for shield wire (zinc-coated extra high strength steel wire), hardware assemblies and line accessories for shield wire and for OPGW, and non-metallic optical fiber cable (OFC) being an eligible local firm having set up a plant in Thailand

For 115 kV & 230 kV Transmission Line for Single & Twin-Bundled Invar Conductor

Manufacturers 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

If the manufacturer is a new company formed by acquisition of or merger with other companies or business units, and any of such previous companies or business units has the experience records that meet the requirements set forth herein, such experience records are acceptable as the experience records of the new company, provided that each item of the Equipment to be supplied under this Bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records. For the avoidance of doubt, it is not allowed to combine the experience records of the previous companies or business units in order to meet the experience requirements.

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

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 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 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 this Bid.

This 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.

EGAT Accepted Bidders List

for Supply and Construction of Transmission Line

500 kV Transmission Line with Four-bundled Conductor

No.	Bidder/Country
1	Consortium of J-Power Systems Corporation and Thai Sumiden Engineering and Construction Co., Ltd. (J-Power Systems Corporation / Japan and TSEC (Thailand) Co., Ltd. / Thailand)
2	Fujikura Ltd. / Japan
3	The Consortium of Kalpataru and CHC (Kalpataru Power Transmission Ltd. / India and CHC Engineering Co., Ltd. / Thailand)
4	DEMCO-COBRA-RCR CONSORTIUM (Demco Public Company Limited / Thailand, Cobra Instalaciones Y Servicios, S.A. / Spain and RCR Company Limited / Thailand)
5	DEMCO-COBRA Consortium (Demco Public Co., Ltd. / Thailand and Cobra Instalaciones Y Servicios, S.A. / Spain)
6	KEC INTERNATIONAL LIMITED / India
7	LARSEN & TOUBRO LIMITED / India
8	SEPCO1 Electric Power Construction Corporation / China
9	THE CONSORTIUM OF PRECISE SYSTEM AND PROJECT CO., LTD AND THAI SUMIDEN ENGINEERING AND CONSTRUCTION CO., LTD. (PRECISE SYSTEM AND PROJECT CO., LTD / Thailand and TSEC (THAILAND) CO., LTD. / Thailand)
10	Hyundai Engineering & Construction Co., Ltd. / Korea
11	RCR Co., Ltd. / Thailand
12	The Joint Venture of Hydrochina International Engineering Co., Ltd. and Benyapha Powerline Co., Ltd. and SEPCO1 Electric Power Construction Corporation (Hydrochina International Engineering Co., Ltd. / China, Benyapha Powerline Co., Ltd. / Thailand and SEPCO1 Electric Power Construction Corporation / China)
13	TPL-TEDA Consortium (TATA Projects Limited / India and TEDA Company Limited / Thailand)
14	Joint Venture of SCL and Benyapha and SEPCO1 (Sinohydro (Thailand) Co., Ltd. / Thailand and Benyapha Powerline Co., Ltd. / Thailand and SEPCO1 Electric Power Construction Corporation / China)
15	The Consortium of Kalpataru Power Transmission Limited, Precise System and Project Company Limited and Thai Sumiden Engineering and Construction Company Limited (Kalpataru Power Transmission Limited / India, Precise System and Project Company Limited / Thailand and TSEC (Thailand) Co., Ltd. / Thailand)

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No.	Bidder/Country
16	Consortium of Loxley, Larsen & Toubro and Sri U-Thong (Loxley Public Company Limited / Thailand, Larsen & Toubro Limited / India and Sri U-Thong Limited / Thailand)
17	Demco - RCR CONSORTIUM (Demco Public Company Limited / Thailand and RCR Company Limited / Thailand)
18	Joint Venture of XD-HYPEC-SCL-TNP (XIAN ELECTRIC ENGINEERING CO., LTD. / China, HUBEI HONGYUAN POWER ENGINEERING CO., LTD. / China, SINOHYDRO (THAILAND) CO., LTD. / Thailand and TNP POWER THAI CO., LTD. / Thailand)
19	Consortium of Larsen & Toubro Limited and Sri U-Thong Limited (Larsen & Toubro Limited / India and Sri U-Thong Limited / Thailand)
20	CONSORTIUM OF LARSEN & TOUBRO, LPS AND SRI U-THONG (LARSEN & TOUBRO LIMITED / India and LOXLEY POWER SYSTEM CO., LTD. / Thailand and Sri U-Thong Limited / Thailand)
21	JOINT VENTURE OF STC, XD AND BENYAPHA (SINOHYDRO (THAILAND) CO., LTD. / Thailand, XIAN ELECTRIC ENGINEERING CO., LTD. / China and BENYAPHA POWERLINE CO., LTD. / Thailand)
22	TSEC (Thailand) Co., Ltd. / Thailand
23	JOINT VENTURE OF XD AND STC (Xian Electric Engineering Co., Ltd / China and Sinohydro (Thailand) Co., Ltd. / Thailand)
24	Sri U-Thong Limited / Thailand
25	Henan Electric Power Transmission & Transformation Construction Co., Ltd. / China
26	Kalpataru Power Transmission Limited / India
27	HS Consortium (Hydro Engineering Co., Ltd. / Thailand and Sinotec Co., Ltd. / China)
28	SRI U-THONG & LPS CONSORTIUM (Sri U-Thong Limited / Thailand and Loxley Power Systems Co., Ltd. / Thailand)
29	Benyapha Power Line Co., Ltd. / Thailand
30	Joint Venture of STC and BENYAPHA (Sinohydro (Thailand) Co., Ltd. / Thailand and Benyapha Powerline Co., Ltd. / Thailand)
31	Demco Public Company Limited / Thailand

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No.	Bidder/Country
32	Joint Venture of STC-BENYAPHA-NEPC (Sinohydro (Thailand) Co., Ltd. / Thailand, Benyapha Powerline Co., Ltd. / Thailand and NEPC Power Construction Co., Ltd. / Thailand)

Note:

- Additionally, any Bidders named in this accepted list are allowed to form a new consortium or joint venture with other Bidders in this list.

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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

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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 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.

94 T, Shinnawatra Building
3rd floor, Sukhumvit Soi 23
Klong Toey Nua, Wattana
Bangkok 10110
Tel : 0 2706 6717
Fax : 0 2706 6716

(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. 22nd 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

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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

16th 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.

27th 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

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

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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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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.

Item	Description	Estimated Quantity
1.	1272 MCM ACSR/GA conductor (500 kV) as per Schedule 1E, Item 1E1.1	2,582.40 km
2.	1272 MCM ACSR/GA conductor (230 kV) as per Schedule 2E, Item 2E2.1	9.12 km
3.	1272 MCM ACSR/GA conductor (230 kV) as per Schedule 2J, Item 2J9.1	11.40 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. L-500 kV (Revision 1), Section B : Conductor and Specifications No. C-2 (Revision 6), Section B : Circuit Conductors.