Notice to Bidder

To comply with the ENGINEER ACT, B.E. 2542

FOR THE CONSTRUCTION WORK RELATED TO DESIGN OR CONSTRUCTION SUPERVISION WORK

The Contractors should be aware of the following:

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

NOTE : If you have any questions, please contact COUNCIL OF ENGINEERS THAILAND.
Address : 1616/1 Ladprao, Wangthonglang, Bangkok, Thailand 10310
Telephone : 1303
Email : coe@saraban.mail.go.th

ประชาสัมพันธ์ผู้ประกอบการเพื่อทราบ

เพื่อให้การดำเนินงานสำหรับงานจ้างก่อสร้างที่มีลักษณะงานด้านการออกแบบหรือควบคุมงานก่อสร้าง สอดคล้องกับพระราชบัญญัติวิศวกร พ.ศ. 2542 จึงขอแจ้งแนวทางในการดำเนินงาน ดังนี้

1. ผู้รับจ้างที่เป็นนิติบุคคล ต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร

2. ผู้รับจ้างที่ดำเนินการในรูปแบบของ “กิจการร่วมค้า”

(1) กรณีที่กิจการร่วมค้าได้จดทะเบียนเป็นนิติบุคคลใหม่ กิจการร่วมค้านั้นต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร

(2) กรณีที่กิจการร่วมค้าไม่ได้จดทะเบียนเป็นนิติบุคคลใหม่ เฉพาะนิติบุคคลที่มีหน้าที่เป็นผู้รับผิดชอบงานวิศวกรรมออกแบบหรือควบคุม ต้องเป็นผู้ที่ได้รับใบอนุญาตประกอบวิชาชีพวิศวกรรมควบคุมสำหรับนิติบุคคลจากสภาวิศวกร

หมายเหตุ หากมีข้อสงสัย โปรดติดต่อ สภาวิศวกร

ที่อยู่ : 1616/1 ถนนลาดพร้าว แขวงวังทองหลาง เขตวังทองหลาง กรุงเทพมหานคร 10310

เบอร์ติดต่อ : 1303

อีเมล : coe@saraban.mail.go.th

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

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

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

The Redaction of Sensitive Personal Data

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

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

ประกาศความเป็นส่วนตัว (Privacy Notice) สำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญาของ กฟผ.

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

การขีดฆ่าข้อมูลส่วนบุคคลอ่อนไหว

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

Notice to Bidder

Subject : Online Payment for Purchase of Bidding Documents

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

1) Fill-out the Registration Form and upload the proof of payment via the link provided in https://www4.egat.co.th/fprocurement/biddingeng

   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) The registration will be deemed complete only upon successful processing of the payment and confirmation of funds received.

3) After the payment has been verified for approximately 3 working days, the in-charge officer will send the link for downloading the bidding documents together with the receipt to the purchaser's email address in the Registration Form.

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Invitation to Bid No. SNS1-S-01 *(Revision 1)*

Supply and Construction of 230 kV Srinagarind 2 Substation and Expansion of 230 kV Srinagarind Substation Transmission System for Hydro-Floating Solar Hybrid Project Srinagarind Dam Unit 1

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. The project is on the process of the Government's Approval. The Bid may be cancelled in case the project is not approved.

Place of Construction : Srinagarind 2 Substation and Srinagarind Substation

Medium Cost (including Value Added Tax and other expenses) : THB 321,000,000.-

Eligibility of Bidders

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

Availability of Bidding Documents

Bid Selling Period is extended from "April 30, 2025 to May 23, 2025" to "from April 30, 2025 to June 6, 2025."

Bidding Documents are available for online purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, at USD 170.- or THB 5,000.- per copy, non-refundable.

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

Delivery of Bids

Bid Opening Date is postponed from June 17, 2025 to July 15, 2025 and change venue of Bid submitting and opening from Bidding Room, 1st Floor, Tor 082 Building to Bidding Room, 1st Floor, Tor 137 Building at EGAT's Head Office, Nonthaburi during 09:00 hrs. to 10:00 hrs., Bangkok Standard Time, and will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

May 21, 2025

Kannika Dhachalupat

(Mrs. Kannika Dhachalupat)

Chief, International Procurement Department - Transmission Segment

ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย *(ฉบับแก้ไข ครั้งที่ 1)*

เรื่อง ประกวดราคาจ้าง เลขที่ SNS1-S-01

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดซื้อและจ้างก่อสร้างสถานีไฟฟ้าแรงสูง 230 kV เขื่อนศรีนครินทร์ 2 และจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 230 kV เขื่อนศรีนครินทร์ สำหรับระบบส่งไฟฟ้า สำหรับโครงการโรงไฟฟ้าพลังงานแสงอาทิตย์ทุ่นลอยน้ำร่วมกับโรงไฟฟ้าพลังน้ำเขื่อนศรีนครินทร์ ชุดที่ 1 โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ. ทั้งนี้ โครงการอยู่ระหว่างการขออนุมัติจากคณะรัฐมนตรี การจัดหาครั้งนี้จะไม่ผูกพัน กฟผ. หากโครงการไม่ได้รับอนุมัติ

สถานที่ก่อสร้าง : สถานีไฟฟ้าแรงสูงเขื่อนศรีนครินทร์ 2 และสถานีไฟฟ้าแรงสูงเขื่อนศรีนครินทร์

ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) : 321,000,000.- บาท

คุณสมบัติของผู้เสนอราคา

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

การขายเอกสารประกวดราคา

ขยายระยะเวลาการขายเอกสารประกวดราคาจากวันที่ 30 เมษายน 2568 ถึงวันที่ 23 พฤษภาคม 2568 เป็น จากวันที่ 30 เมษายน 2568 ถึงวันที่ 6 มิถุนายน 2568

ผู้สนใจติดต่อซื้อเอกสารประกวดราคา ในราคาชุดละ 5,000.- ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ทั้งนี้สามารถดูรายละเอียดการซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ http://www4.egat.co.th/fprocurement/biddingeng หรือสอบถามข้อมูลเพิ่มเติมได้ทางโทรศัพท์ หมายเลข 0 2436 0342 หรืออีเมล procurement.tse@egat.co.th

การยื่นซองประกวดราคา

กำหนดยื่นซองประกวดราคา เลื่อนจากวันที่ 17 มิถุนายน 2568 เป็นวันที่ 15 กรกฎาคม 2568 เวลา 09:00 น. ถึง 10:00 น. และเปิดซองประกวดราคาเวลา 10:00 น. ณ ห้องประกวดราคา ชั้น 1 ***จากเดิม อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.082 เป็น อาคารฝ่ายจัดซื้อจัดจ้างและบริหารพัสดุ ท.137*** การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชิงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศแก้ไข ณ วันที่ *21 พฤษภาคม 2568*

กรรณิกา ชชาลุภัฏ

(นางกรรณิกา ธชาลุภัฏ)

หัวหน้ากองจัดซื้อจัดจ้างต่างประเทศสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)
ในการจัดซื้อจัดจ้างที่มิใช่งานก่อสร้าง

1. **ชื่อโครงการ** Bid No. SNS1-S-01
การจัดซื้อและจ้างก่อสร้างสถานีไฟฟ้าแรงสูง 230 kV เขื่อนศรีนครินทร์ 2
และจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 230 kV เขื่อนศรีนครินทร์
ระบบส่งไฟฟ้าสำหรับโครงการโรงไฟฟ้าพลังงานแสงอาทิตย์ทุ่นลอยน้ำร่วมกับ
โรงไฟฟ้าพลังน้ำเขื่อนศรีนครินทร์ ชุดที่ 1
/หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. **วงเงินงบประมาณที่ได้รับจัดสรร**
ระบบส่งไฟฟ้าสำหรับโครงการโรงไฟฟ้าพลังงานแสงอาทิตย์ทุ่นลอยน้ำร่วมกับ
โรงไฟฟ้าพลังน้ำเขื่อนศรีนครินทร์ ชุดที่ 1 งบประมาณ 1,317.77 ล้านบาท

3. **วันที่กำหนดราคากลาง** 27 กุมภาพันธ์ 2568 (วันที่ ชรว. อนุมัติ)
ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 321,000,000.00 บาท **ราคา/หน่วย** ตามเอกสารแนบ

4. **แหล่งที่มาของราคากลาง**
หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานพัฒนาระบบส่ง

5. **รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง**

5.1 นายณัฏฐ์ วงศ์เทพวาณิชย์	หมฟ-ร. กวอ-ร.
5.2 นางสาวจารุวรรณ พิพัฒน์มงคลพร	หอต-ร. กวอ-ร.
5.3 นายภานุวัฒน์ ลิขิตผลผดุง	หวอ-ร กวอ-ร.
5.4 นายรุหาญ รุจิธัญธาร	กวป-ร.
5.5 นายมณเฑียร จำปาอ่อน	กวธ-ร.
5.6 นายสมประสงค์ พัฒนคุณเจริญกิจ	กวส-ส.

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

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MEDIUM COST FOR BID NO. SNS1-S-01

SUMMARY OF BID PRICE

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION AND EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Schedule	Description	Currency	Supply of Equipment		Local Currency	Local Transportation	Local Transportation, Construction and Installation
			Foreign Supply	Local Supply			
			CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht
			Amount	Amount	Amount	Amount	Amount
1	230 KV SRINAGARIND 2 SUBSTATION (PRIMARY EQUIPMENT AND CONTROL BUILDING WORK)	THB	8,786,087.50				
				96,967,013.34	65,291,970.59	138,112.46	25,766,747.36
2	230 KV SRINAGARIND 2 SUBSTATION (FOUNDATION WORK AND FACILITIES)						
					22,139,966.50		
3	230 KV SRINAGARIND SUBSTATION	THB	9,991,335.90				
				46,320,146.85	7,329,609.07	26,589.20	16,887,635.86
BID PRICE		THB	18,777,423.40	Baht	Baht	Baht	Baht
				143,287,160.19	94,761,546.16	164,701.66	42,654,383.22
OTHER EXPENSES		THB	375,548.47				
VAT		THB	1,340,708.03	Baht	Baht	Baht	Baht
				10,030,101.21	6,633,308.23	11,529.12	2,985,806.83
SUMMARY OF BID PRICE		THB	20,493,679.90	Baht	Baht	Baht	Baht
				153,317,261.40	101,394,854.39	176,230.78	45,640,190.05
TOTAL MEDUIM COST		THB	321,022,216.52				
TOTAL MEDUIM COST (ROUND)		THB	321,000,000.00				

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MEDIUM COST FOR BID NO. SNS1-S-01
SCHEDULE 1 : 230 KV SRINAGARIND 2 SUBSTATION (PRIMARY EQUIPMENT AND CONTROL BUILDING WORK)
SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION
TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Currency**	**Local Transportation**	**Local Transportation, Construction and Installation**
		Foreign Supply	Local Supply			
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount	Amount	Amount
PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT	THB	6,939,443.80	93,549,501.04			25,766,747.36
PART 1C : CIVIL WORK				65,291,970.59		
PART 1D : SUPPLY OF SPARE PARTS	THB	1,846,643.70	3,417,512.30		138,112.46	
TOTAL PRICE	**THB**	**8,786,087.50**	**Baht 96,967,013.34**	**Baht 65,291,970.59**	**Baht 138,112.46**	**Baht 25,766,747.36**

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB2 : Distribution Transformer	THB		1,275,000.00	127,500.00
Schedule 1AB5 : Current Transformer and Junction Box	THB			682,180.00
Schedule 1AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	2,412,000.00	108,000.00	417,400.00
Schedule 1AB9 : Power Circuit Breaker				652,510.68

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB10 : Disconnecting Switch	THB	1,116,524.20		734,705.29
Schedule 1AB11 : Power Fuse, Fuse Link and Hook Stick	THB	864,138.00		86,413.80
Schedule 1AB12 : AC&DC Distribution Board and Termination Box			2,095,148.00	212,038.20
Schedule 1AB13 : Stationary Battery and Battery Charger	THB	1,106,003.80	1,462,247.60	256,825.14

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB14 : Substation Steel Structure			26,707,220.44	7,519,683.61
Schedule 1AB15 : Insulator				399,676.48
Schedule 1AB18 : Low Voltage Cable and Conductor			29,594,144.80	7,398,536.20
Schedule 1AB19 : Switchyard Lighting Fixtures			1,287,880.00	480,807.80
Schedule 1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware			2,025,694.00	506,423.50

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB21 : Bus Fitting	THB	698,299.80		174,574.95
Schedule 1AB22 : Grounding Material	THB	616,124.30	1,370,377.80	496,625.53
Schedule 1AB23 : Substation Miscellaneous	THB	126,353.70	229,843.40	89,049.28
Schedule 1AB24 : Control and Protection System			17,858,449.00	1,864,034.30

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB25 : Fault Recording System			4,097,834.00	434,174.90
Schedule 1AB33 : CCTV			4,433,492.00	496,987.00
Schedule 1AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power			848,000.00	65,280.00
Schedule 1AB35 : Communication Cable			156,170.00	211,500.00
Schedule 1AB38 : Remote Terminal Unit				689,820.70

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PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 1AB39 : Commissioning				1,770,000.00
PART 1AB	**THB**	**6,939,443.80**	**Baht 93,549,501.04**	**Baht 25,766,747.36**

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MEDIUM COST FOR BID NO. SNS1-S-01

PART 1C : CIVIL WORK

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 1C1 : Foundation Work	23,031,768.00
Schedule 1C2 : Cable Trench	6,886,016.50
Schedule 1C3 : Building	13,795,808.55
Schedule 1C4 : Earth Work, Road and Crushed Rock Surfacing	5,800,736.00
Schedule 1C6 : Drainage System	11,281,995.00
Schedule 1C7 : Special Construction Works	4,140,392.54
Schedule 1C8 : Miscellaneous	55,200.00
Schedule 1C9 : Fire Protection System	300,054.00
PART 1C	**Baht** **65,291,970.59**

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MEDIUM COST FOR BID NO. SNS1-S-01

PART 1D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation**
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount
Schedule 1D11 : Spare Parts for Power Fuse, Fuse Link and Hook Stick	THB	1,314,859.70		65,742.99
Schedule 1D12 : Spare Parts for AC&DC Distribution Board and Termination Box			245,908.30	12,295.42
Schedule 1D22 : Spare Parts for Grounding Material	THB	531,784.00		26,589.20

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MEDIUM COST FOR BID NO. SNS1-S-01

PART 1D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	Supply of Equipment		Local Transportation
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount
Schedule 1D24 : Spare Parts for Control and Protection System			2,589,278.00	19,798.30
Schedule 1D25 : Spare Parts for Fault Recording System			582,326.00	13,686.55
PART 1D	**THB**	**1,846,643.70**	**Baht 3,417,512.30**	**Baht 138,112.46**

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MEDIUM COST FOR BID NO. SNS1-S-01
SCHEDULE 2 : 230 KV SRINAGARIND 2 SUBSTATION (FOUNDATION WORK AND FACILITIES)
SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION
TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Currency**	**Local Transportation**	**Local Transportation, Construction and Installation**
		Foreign Supply	Local Supply			
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount	Amount	Amount
PART 2C : CIVIL WORK				22,139,966.50		
TOTAL PRICE			**Baht**	**Baht** **22,139,966.50**	**Baht**	**Baht**

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PART 2C : CIVIL WORK

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 2C1 : Foundation Work	1,820,242.00
Schedule 2C2 : Cable Trench	571,575.50
Schedule 2C4 : Earth Work, Road and Crushed Rock Surfacing	4,046,004.00
Schedule 2C5 : Water Supply System	864,626.00
Schedule 2C6 : Drainage System	6,882,431.00
Schedule 2C7 : Special Construction Works	1,223,805.00
Schedule 2C8 : Miscellaneous	6,479,830.00
Schedule 2C9 : Fire Protection System	251,453.00
PART 2C	**Baht** **22,139,966.50**

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MEDIUM COST FOR BID NO. SNS1-S-01
SCHEDULE 3 : 230 KV SRINAGARIND SUBSTATION
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION
TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	Supply of Equipment		Local Currency	Local Transportation	Local Transportation, Construction and Installation
		Foreign Supply	Local Supply			
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount	Amount	Amount
PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT	THB	9,459,551.90	46,320,146.85			16,887,635.86
PART 3C : CIVIL WORK				7,329,609.07		
PART 3D : SUPPLY OF SPARE PARTS	THB	531,784.00			26,589.20	
TOTAL PRICE	**THB**	**9,991,335.90**	**Baht 46,320,146.85**	**Baht 7,329,609.07**	**Baht 26,589.20**	**Baht 16,887,635.86**

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 3AB5 : Current Transformer and Junction Box	THB		250,000.00	818,616.00
Schedule 3AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	1,866,000.00	192,000.00	246,960.00
Schedule 3AB9 : Power Circuit Breaker				587,259.61
Schedule 3AB10 : Disconnecting Switch	THB	5,995,013.20	1,123,780.00	854,255.18

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 3AB12 : AC&DC Distribution Board and Termination Box			437,488.70	52,498.64
Schedule 3AB14 : Substation Steel Structure			3,677,972.75	1,103,391.83
Schedule 3AB15 : Insulator				352,784.52
Schedule 3AB18 : Low Voltage Cable and Conductor			19,803,413.30	6,305,819.19

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 3AB20 : Aluminum Tube, Connector and Miscellaneous Hardware			1,082,611.20	324,783.36
Schedule 3AB21 : Bus Fitting	THB	1,277,712.70		383,313.81
Schedule 3AB22 : Grounding Material	THB	179,047.00	265,787.50	133,450.35
Schedule 3AB23 : Substation Miscellaneous	THB	141,779.00	400,410.40	162,656.82

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 3AB24 : Control and Protection System			15,584,251.00	1,739,492.10
Schedule 3AB25 : Fault Recording System			2,338,014.00	252,833.70
Schedule 3AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power			469,900.00	38,300.00
Schedule 3AB35 : Communication Cable			333,450.00	480,700.00
Schedule 3AB38 : Remote Terminal Unit			361,068.00	335,520.75

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MEDIUM COST FOR BID NO. SNS1-S-01

PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	**Supply of Equipment**		**Local Transportation, Construction and Installation** (excluding VAT) Baht
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	
		Amount	Amount	Amount
Schedule 3AB39 : Commissioning				590,000.00
Schedule 3AB40 : Installation of Equipment and Steel Structure Supplied by EGAT				2,125,000.00
PART 3AB	**THB**	**9,459,551.90**	**Baht 46,320,146.85**	**Baht 16,887,635.86**

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PART 3C : CIVIL WORK

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 3C1 : Foundation Work	5,589,173.00
Schedule 3C2 : Cable Trench	1,384,294.80
Schedule 3C7 : Special Construction Works	328,541.27
Schedule 3C8 : Miscellaneous	27,600.00
PART 3C	**Baht** **7,329,609.07**

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MEDIUM COST FOR BID NO. SNS1-S-01

PART 3D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Description	Currency	Supply of Equipment		Local Transportation
		Foreign Supply	Local Supply	
		CIF Thai Port	Ex-works Price (excluding VAT) Baht	(excluding VAT) Baht
		Amount	Amount	Amount
Schedule 3D22 : Spare Parts for Grounding Material	THB	531,784.00		26,589.20
PART 3D	**THB**	**531,784.00**	**Baht**	**Baht 26,589.20**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB2 : Distribution Transformer

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB2-1	500 kVA, 33000-400/230V distribution transformer, oil immersed, outdoor type as per Ratings and Features RF DX3712	1		THB			1,275,000.00	1,275,000.00	XXXXX	XXXXX
1AB2-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB2-1	Lump sum	Lump sum	THB	XXXXX	XXXXX	XXXXX	XXXXX	127,500.00	127,500.00
Total Price for Schedule 1AB2				**THB**			**Baht**	**1,275,000.00**	**Baht**	**127,500.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB5-1	230 kV CT, 900 kV BIL, 300/-/2000:5//5//5//5//5 A, 50 kA oil filled as per Rating and Features RF CT88F2	12		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-2	230 kV CT, 900 kV BIL, 2000x4000:5//5 A, 50 kA, oil filled as per Rating and Features RF CT8AFA	6		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-3	Steel Supporting Structure for CT88F2 (for Item No. 1AB5-1), H=5.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	12		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-4	Steel Supporting Structure for CT8AFA (for Item No. 1AB5-2), H=5.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	6		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-5	Junction Box type CT6 (for Item No. 1AB5-1) as per Dwg. No. TP-E-18.2 and TP-E-18.4	4		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-6	Junction Box type CT3 (for Item No. 1AB5-2) as per Dwg. No. TP-E-18.2 and TP-E-18.4	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB5-7	Cost of Local Transportation, Construction and Installation for Item No. 1AB5-1 thru 1AB5-6	Lump sum	Lump sum	THB	XXXXX	XXXXX	XXXXX	XXXXX	682,180.00	682,180.00
Total Price for Schedule 1AB5				**THB**			**Baht**		**Baht**	**682,180.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB6-1	230 kV voltage transformer, 950 kV BIL, 230000/√3 : 115/(115/√3) & 115/(115/√3) & 110 V oil filled as per ratings and features RF VT8015	6		THB	311,000.00	1,866,000.00			XXXXX	XXXXX
1AB6-2	33 kV VT, 200 kV BIL, 33000/√3-110/√3&110/√3 V oil filled as per Ratings and Features RF VT3015	6		THB	91,000.00	546,000.00			XXXXX	XXXXX
1AB6-3	230 kV CCVT, 900 kV BIL, 138000:119.5/69 & 119.5/69 V with carrier accessories, oil filled as per Ratings and Features RF PD8W1J	3		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-4	230 kV CCVT, 900 kV BIL, 138000:119.5/69 & 119.5/69 V without carrier accessories, oil filled as per Ratings and Features RF PD800J	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-5	Steel Supporting Structure for VT8015 (for item no.1AB6-1), H = 5.50 m. as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	6		THB			18,000.00	108,000.00	XXXXX	XXXXX
1AB6-6	Steel Supporting Structure for PD8W1J (for item no.1AB6-3), H = 5.50 m. as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	3		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-7	Steel Supporting Structure for PD800J (for item no.1AB6-4), H = 5.50 m. as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB6-8	Junction Box type PT14 (for Item No. 1AB6-1) as per Dwg. No. TP-E-18.1-3/4, 4/4 and TP-E-18.4	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-9	Junction Box type PT1 (for Item No. 1AB6-3) as per Dwg. No. TP-E-18.1-1/4, 3/4 and TP-E-18.4	1		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-10	Junction Box type PT4 (for Item No. 1AB6-4) as per Dwg. No. TP-E-18.1-2/4, 3/4 and TP-E-18.4	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-11	Junction Box type PT6 (for Item 1AB6-2) as per Dwg. No. TP-E-18.1-2/4, 3/4 and TP-E-18.4	2		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
1AB6-12	Cost of Local Transportation, Construction and Installation for Item No. 1AB6-1 thru 1AB6-11	Lump sum	Lump sum	THB	XXXXX	XXXXX	XXXXX	XXXXX	417,400.00	417,400.00
Total Price for Schedule 1AB6				**THB**		**2,412,000.00**	**Baht**	**108,000.00**	**Baht**	**417,400.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB9-1	245 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB8951(IEC)	4			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB9-2	Steel Supporting Structure for CB8951(IEC)*	4			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB9-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB19-1 thru 1AB9-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	652,510.68	652,510.68
Total Price for Schedule 1AB9							**Baht**		**Baht**	**652,510.68**

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

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB10-1	38 kV 1600 A 20 kA air switch vertical break motor operated as per Ratings and Features RF DS36C1(IEC) (Phase spacing = 1 m) (H = 5.50 m from base plate to top terminal)	2		THB	558,262.10	1,116,524.20			XXXXX	XXXXX
1AB10-2	245 kV 3150 A air switch (high creepage) with grounding blade manually gang operated as per Ratings and Features RF DS88BI(IEC) (Phase spacing = 3.5 m)	2			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB10-3	245 kV 3150 A air switch manually gang operated as per Ratings and Features RF DS88B1(IEC) (Phase spacing = 3.5 m)	9			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB10-4	Steel Supporting Structure for DS88BI(IEC)	2			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB10-5	Steel Supporting Structure for DS88B1(IEC)	9			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB10-6	Cost of Local Transportation, Construction and Installation for Item No. 1AB10-1 thru 1AB10-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	734,705.29	734,705.29
Total Price for Schedule 1AB10				**THB**		**1,116,524.20**	**Baht**		**Baht**	**734,705.29**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB11 : Power Fuse, Fuse Link and Hook Stick

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB11-1	33 kV 100 A 12.5 kA 1-pole dropout fuse as per Ratings and Features RF PF3111 (Not including fuse link or refill unit)	3		THB	215,954.20	647,862.60			XXXXX	XXXXX
1AB11-2	Fuse link or refill unit 15E for 33 kV power fuse (Standard Speed)	3		THB	72,091.80	216,275.40			XXXXX	XXXXX
1AB11-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB11-1 thru 1AB11-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	86,413.80	86,413.80
Total Price for Schedule 1AB11				**THB**		**864,138.00**	**Baht**		**Baht**	**86,413.80**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB12-1	400/230 Vac Load Center Unit Substation (LCUS) as per Dwg. No. SE-LCUS-0-01 (Designed by Contractor)	1					975,964.00	975,964.00	XXXXX	XXXXX
1AB12-2	Lighting Relay Panel (LRP) as per Dwg. No. LT-RP-0-03	1					111,958.00	111,958.00	XXXXX	XXXXX
1AB12-3	Safety switch 600 Vac 800 A, 4 wire, solid neutral (S/N), 3 blades, 3 fuses time lag type, outdoor NEMA 4X enclosure or higher, completed with 800 A fuses. The terminal lug shall be suitable for; Incoming cable size : 2(3-1/C x 240 Sq.mm.), power cable (copper) 2(1-1/C x 240 Sq.mm.), power cable (copper) Outgoing cable size : 2(3-1/C x 240 Sq.mm.), power cable (copper) 2(1-1/C x 240 Sq.mm.), power cable (copper)	1					245,908.30	245,908.30	XXXXX	XXXXX
1AB12-4	Termination Box type TB1 as per Dwg No. LT-TB-0-01	13					2,800.60	36,407.80	XXXXX	XXXXX
1AB12-5	Outdoor Receptacle Box type ORB1 as per Dwg. No. SE-ORB-0-01	1			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB12-6	Outdoor Receptacle Box type ORB2 as per Dwg. No. SE-ORB-0-01	1					40,355.70	40,355.70	XXXXX	XXXXX
1AB12-7	Common cubicle for maintenance type 2 as per Dwg. No. SE-CCM-0-01	1					98,780.00	98,780.00	XXXXX	XXXXX
1AB12-8	400/230 Vac Distribution Board as per Dwg. No. TP-E-4.4 (For Control Room, designed by Contractor)	1					225,717.80	225,717.80	XXXXX	XXXXX
1AB12-9	125 Vdc Power Panel as per Dwg. No. TP-E-4.4 (For Control Room, designed by Contractor)	1					187,092.40	187,092.40	XXXXX	XXXXX
1AB12-10	125 Vdc Distribution Board as per Dwg. No. TP-E-4.4 (For Control Room, designed by Contractor)	1					172,964.00	172,964.00	XXXXX	XXXXX
1AB12-11	Cost of Local Transportation, Construction and Installation for Item No. 1A12-1 thru 1AB12-10	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	212,038.20	212,038.20
Total Price for Schedule 1AB12							**Baht**	**2,095,148.00**	**Baht**	**212,038.20**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB13 : Stationary Battery and Battery Charger

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB13-1	Vented stationary battery, 58 cells (tubular type) for 125 Vdc system complete with electrolyte and battery rack as per Specification attached (Designed by Contractor). The capacity of stationary battery shall be 600Ah at least.									
1AB13-1a	a) Battery	1	set	THB	1,017,925.70	1,017,925.70			XXXXX	XXXXX
1AB13-1b	b) Electrolyte	1	set	THB	29,895.80	29,895.80			XXXXX	XXXXX
1AB13-1c	c) Battery Rack	1	set	THB	58,182.30	58,182.30			XXXXX	XXXXX
1AB13-2	125 Vdc battery charger having sufficient rated DC output current, but not less than 15 % of associated battery 8 hour drainage rate, complete with all accessories as per Specification attached, and shall be suitable for use with substation battery Item No. 1AB13-1 (Designed by Contractor)	2					731,123.80	1,462,247.60	XXXXX	XXXXX
1AB13-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB13-1 thru 1AB13-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	256,825.14	256,825.14
Total Price for Schedule 1AB13				**THB**		**1,106,003.80**	**Baht**	**1,462,247.60**	**Baht**	**256,825.14**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB14-1	Substation Steel Structure	Lump sum	Lump sum				26,707,220.44	26,707,220.44	XXXXX	XXXXX
	- 230 kV take-off structure (TS805) as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV beam structure (BB808) as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV take-off structure (P16) as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV beam structure (B33) 20 m. as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV beam structure (B35) 19 m. as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV take-off structure (TS804) as per Dwg. No. SNR2-S-7-02/02 (Designed by Contractor) - 230 kV take-off structure (TS802) as per Dwg. No. ST-TS-8-02 - 230 kV bus support structure (BS801) as per Dwg. No. ST-BS-8-01 (Modified by Contractor), see scope of work									

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1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
	- Junction box support structure (JB001) as per Dwg. No. ST-JB-0-01 - 33 kV metering structure (MS409) as per Dwg. No. ST-MS-4-09 sh.01/03 , 02/03 & 03/03 (Modified by Contractor), see scope of work - 22 kV transformer busbar support (B205) as per Dwg. No. T59174-B205-01 (Modified by Contractor for support 33kV connection from KG1A & KG2A), see scope of work - 22 kV main busbar support (B209) as per Dwg. No. T59174-B209-01 (Modified by Contractor for support 33kV connection from KG1A & KG2A), see scope of work - Distribution transformer support structure (DTS) as per Dwg. No. TP-286 - Telecommunication Tower Type WSA (H = 30.00 m) as per Dwg. No. UWC-06-WSA-501, 502, 503 and 504 - 230 kV beam structure (BB806) 16 m. as per Dwg. No. ST-BB-8-06									

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1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB14-2	Substation Steel Structure	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
	- Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03 - 230 kV beam structure (BB802) 15 m. as per Dwg. No. ST-BB-8-02 - 230 kV bus pole support structure (BP803) as per Dwg. No. ST-BP-8-01 - 230 kV bus pole support structure (BP804) as per Dwg. No. ST-BP-8-01 - Disconnecting Operating Platform (OP002) as per Dwg. No. ST-OP-0-02 - 230 kV take-off structure (TS801) as per Dwg. No. ST-TS-8-01									
1AB14-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB14-1 thru AB14-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	7,519,683.61	7,519,683.61
Total Price for Schedule 1AB14							**Baht**	**26,707,220.44**	**Baht**	**7,519,683.61**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB15 : Insulator

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB15-1	230 kV station post insulator ANSI TR. No. 308 as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB15-2	33 kV station post insulator ANSI TR. No. 210 as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB15-3	Suspension insulator ANSI 52-3 as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB15-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB15-1 thru 1AB15-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	399,676.48	399,676.48
Total Price for Schedule 1AB15							**Baht**		**Baht**	**399,676.48**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB18-1	750 V power cable as per Specification attached	Lump sum	Lump sum				2,643,674.00	2,643,674.00	XXXXX	XXXXX
1AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				6,961,460.00	6,961,460.00	XXXXX	XXXXX
1AB18-3	750 V lighting cable (THW) as per Specification attached	Lump sum	Lump sum				41,250.00	41,250.00	XXXXX	XXXXX
1AB18-4	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum				1,434,125.00	1,434,125.00	XXXXX	XXXXX
1AB18-5	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				17,558,043.80	17,558,043.80	XXXXX	XXXXX
1AB18-6	Aluminum conductor as per Specification attached	Lump sum	Lump sum				919,226.00	919,226.00	XXXXX	XXXXX
1AB18-7	Overhead ground wire as per Specification attached	Lump sum	Lump sum				36,366.00	36,366.00	XXXXX	XXXXX
1AB18-8	Cost of Local Transportation, Construction and Installation for Item No. 1AB18-1 thru 1AB18-7	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	7,398,536.20	7,398,536.20
Total Price for Schedule 1AB18							**Baht**	**29,594,144.80**	**Baht**	**7,398,536.20**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB19-1	Flood lighting fixture, LED lamp, 10000 lumen, wide-beam, complete with control gear as per Specification attached	34			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
1AB19-2	Street lighting fixture, LED lamp, 5000 lumen, wide beam, complete with control gear as per Specification attached	40					10,586.40	423,456.00	XXXXX	XXXXX
1AB19-3	Tapered galvanized steel lamp post H=5000 mm. complete with 5 A 250 V plug fuse, 20 A 500 V terminal block for accepting 4 sq.mm. of incoming and outgoing cables and anchor bolts as per Dwg. No. ST-LP-0-03 and SD-AB-0-01	40					21,610.60	864,424.00	XXXXX	XXXXX
1AB19-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB19-1 thru 1AB19-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	480,807.80	480,807.80
Total Price for Schedule 1AB19							**Baht**	**1,287,880.00**	**Baht**	**480,807.80**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB20-1	Aluminum tube as per Specification attached	Lump sum	Lump sum				796,049.10	796,049.10	XXXXX	XXXXX
1AB20-2	230 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				754,809.00	754,809.00	XXXXX	XXXXX
1AB20-3	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				474,835.90	474,835.90	XXXXX	XXXXX
1AB20-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB20-1 thru 1AB20-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	506,423.50	506,423.50
Total Price for Schedule 1AB20							**Baht**	**2,025,694.00**	**Baht**	**506,423.50**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB21-1	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	698,299.80	698,299.80			XXXXX	XXXXX
1AB21-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB21-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	174,574.95	174,574.95
Total Price for Schedule 1AB21				**THB**		**698,299.80**	**Baht**		**Baht**	**174,574.95**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB22 : Grounding Material

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB22-1	Ground rod as per Specification attached	Lump sum	Lump sum	THB	51,810.00	51,810.00			XXXXX	XXXXX
1AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum				1,370,377.80	1,370,377.80	XXXXX	XXXXX
1AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	564,314.30	564,314.30			XXXXX	XXXXX
1AB22-4	Cost of Local Transportation, Construction and Installation for Item No. 1AB22-1 thru 1AB22-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	496,625.53	496,625.53
Total Price for Schedule 1AB22				**THB**		**616,124.30**	**Baht**	**1,370,377.80**	**Baht**	**496,625.53**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				89,643.40	89,643.40	XXXXX	XXXXX
1AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	37,023.80	37,023.80			XXXXX	XXXXX
1AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum	THB			10,200.00	10,200.00	XXXXX	XXXXX
1AB23-4	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum	THB			130,000.00	130,000.00	XXXXX	XXXXX
1AB23-5	Heat shrinkable insulation material	Lump sum	Lump sum	THB	89,329.90	89,329.90			XXXXX	XXXXX
1AB23-6	Cost of Local Transportation, Construction and Installation for Item No. 1AB23-1 thru 1AB23-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	89,049.28	89,049.28
Total Price for Schedule 1AB23				**THB**		**126,353.70**	**Baht**	**229,843.40**	**Baht**	**89,049.28**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-1	230 KV BUS PROTECTION (LOW IMPEDANCE, 8 FEEDERS)	Panel Nos. 1R, 2R Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-9.1, TP-E-10.1, Scope of Work	2	EA				1,560,363.00	3,120,726.00	XXXXX	XXXXX
1AB24-2	230 kV LINE PROTECTION (87L, 3ph, 79)	Panel Nos. 3R, 5R Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-9.1, TP-E-10.1, Scope of Work	2	EA				1,053,223.00	2,106,446.00	XXXXX	XXXXX
1AB24-3	230 kV LINE PROTECTION (21P, 3ph, 1-BF, DTT)	Panel Nos. 4R, 6R Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-9.1, TP-E-10.1, Scope of Work	2	EA				1,293,405.00	2,586,810.00	XXXXX	XXXXX
1AB24-4	230/33 kV TRANSFORMER PROTECTION (3 RESTRAINS, 3-51, 1-BF, 59)	Panel No. 7R Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-9.1, TP-E-10.1, Scope of Work	1	EA				1,978,070.00	1,978,070.00	XXXXX	XXXXX

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1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-5	METERING PANEL (4 kWh&kVarh METERS)	Panel No. MP1 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-5.1 SH.1-2, TP-E-10.21, Scope of Work	1	EA				3,070,997.00	3,070,997.00	XXXXX	XXXXX
1AB24-6	E1 Converter Panel	Panel No. E1-CONV. Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.20, Scope of Work	1	EA				445,520.00	445,520.00	XXXXX	XXXXX
1AB24-7	GPS RECEIVER PANEL	Panel No. GPS1 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.15, Scope of Work	1	EA				694,181.00	694,181.00	XXXXX	XXXXX

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1AB24 : Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-8	INTERPOSING PANEL TYPE IP2	Panel No. IP1 Included one set of intertrip function equipment : - High-speed aux. tripping relay 8 contacts (52bX) - MCB 2 pole 6A - 27XR Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-6.4 SH.1/6-6/6, TP-E-10.2, Scope of Work	1	EA				664,504.00	664,504.00	XXXXX	XXXXX

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1AB24 : Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-9	TRANSDUCER PANEL	Panel No. TDR1 included 3 W&VAR-TDR, 2 V-TDR (1ph), 2 V-TDR (3ph), 1 A-TDR (1ph), 2 A TDR (3ph), 1 R-TDR, 1 T-TDR, 3 TS, 1 DC-TDR, 1 F-TDR 1 T-TDR (Temp. for Control Building) Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.2, Scope of Work	1	EA				1,008,553.00	1,008,553.00	XXXXX	XXXXX
1AB24-10	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.3, Scope of Work	1	EA				382,041.00	382,041.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-11	MARSHALLING PANEL FOR RTU	Panel Nos. MP-RTU1, MP-RTU2 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.3, Scope of Work	2	EA				386,229.00	772,458.00	XXXXX	XXXXX
1AB24-12	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.3, Scope of Work	1	EA				394,923.00	394,923.00	XXXXX	XXXXX

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1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB24-13	MARSHALLING PANEL FOR TELEPROTECTION (230 kV General)	Panel No. MP-TELE1 Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-10.2, DW-TPS-D01-111-01 Sh.P1 to P11, DW-TPS-D01-114-01 Sh.P1 to P8, Scope of Work	1	EA				388,086.00	388,086.00	XXXXX	XXXXX
1AB24-14	MARSHALLING PANEL FOR PLANT	Panel No. MP-PLANT Drawing Nos. SNR2-E-1, SNR2-E-2, SNR2-E-3, TP-E-6.9 SH.1, TP-E-10.3, Scope of Work	1	EA				245,134.00	245,134.00	XXXXX	XXXXX
1AB24-15	Cost of Local Transportation, Construction and Installation for Item Nos. 1AB24-1 thru 1AB24-14		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,864,034.30	1,864,034.30
Total Price for Schedule 1AB24								**Baht**	**17,858,449.00**	**Baht**	**1,864,034.30**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB25-1	FAULT RECORDING SYSTEM, 80 ANALOG INPUT, 240 DIGITAL INPUT.	Installed in 230 kV Control building. Drawing No. SNR2-E-1, Scope of Work	1	SET				4,097,834.00	4,097,834.00	XXXXX	XXXXX
1AB25-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB25-1		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	434,174.90	434,174.90
Total Price for Schedule 1AB25								**Baht** **4,097,834.00**		**Baht** **434,174.90**	

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB33-1	CCTV System and accessories including:	1	SET				4,433,492.00	4,433,492.00	XXXXX	XXXXX
	(1) Outdoor PTZ Dome Camera (5 EA) (2) Indoor Fixed Camera (8 EA) (3) Outdoor Fixed Camera (25 EA) (4) PC Workstation (1 EA) (5) Server (1 EA) (6) Software license (6.1) Software management license (1 License) (6.2) Redording license (38 Licenses) (6.3) Video analytic license (38 Licenses) (7) Ethernet I/O Module (1 EA) (8) Monitor (2 EA) (9) HDMI Optical Extender (1 SET) (10) LAN Switch (2 EA) (11) CCTV Rack Cabinet (1 EA) (12) CCTV steel box/ End-point steel box (Lumpsum) (13) Monitoring Desk (1 EA) (14) PoE Injector for Fixed camera (33 EA) (15) Adapter for PTZ camera (5 EA) (16) CCTV Pole 2 meter (Lumpsum) (17) CCTV Pole 4 meter (Lumpsum)									

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
	(18) Indoor-type twisted pair cable (Lumpsum) (19) Outdoor-type twisted pair cable (Lumpsum) (20) 12-core ADSS Optical Fiber Cable (Lumpsum) (21) Media Converter (UTP-Fiber Optic) (62 EA) (22) Surge protection-220VAC (24 SET) (23) Line Filter (24 EA) (24) Electrical cable (Lumpsum) (25) EMT couduit (Lumpsum) (26) IMC, Flexible conduit with PVC coating (Lumpsum) (27) E-flex/HDPE (Lumpsum) (28) Ground System (Lumpsum) (29) Accessories (Lumpsum)									
1AB33-2	Cost of Local Transportation, Construction and Installation for Item no. 1AB33-1	1			XXXXX	XXXXX	XXXXX	XXXXX	496,987.00	496,987.00
	IMPORTANT : 1. The Bidders are required to propose their estimated quantities for such item together with their bid proposal for EGAT's consideration.									

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
	2. Telecommunication Equipment supplied under Schedule 1AB33 shall conform to Specification No. SD-CCTV-P01, Drawing No. DW-COM-D01-007-ALL, DW-CAB-D01-019-01 And DW-CAB-D01-019-04									
Total Price for Schedule 1AB33							**Baht**	**4,433,492.00**	**Baht**	**496,987.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power Panel

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB34-1	Vented Type Lead-Acid Station Battery 48VDC with capacity not less than 400 Ah (Tubular plate) at 10 Hour rated, 24 Cells, Norminal Voltage 2 Volts/Cell, with Rack 1 set (Srinagarind2 Substation , Control Buliding)	1	SET				208,800.00	208,800.00	XXXXX	XXXXX
1AB34-2	Conventional Type Charger 48VDC, 100 A (Srinagarind2 Substation , Control Buliding)	2	SET				254,800.00	509,600.00	XXXXX	XXXXX
1AB34-3	48Vdc. Load Center Type1: 60 Breaker (Srinagarind2 Substation , Control Buliding)	1	SET				129,600.00	129,600.00	XXXXX	XXXXX
1AB34-4	Local Transportation, Construction and Installation for item 1AB34-1, 1AB34-2 and 1AB34-3	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	65,280.00	65,280.00
Total Price for Schedule 1AB34							**Baht**	**848,000.00**	**Baht**	**65,280.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB35 : Communication Cable

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB35-1	Optical fiber cable from fiber frame termination cabinet at 230 kV Srinagarind 2 Control Building to 2-way joint box at Srinagarind Dam take-off structure									
1AB35-1.1	Supply of optical fiber cable and accessories including: (a) 36-core non-metallic optical fiber cable (approx. 300 meters) (b) Rigid steel conduit for optical fiber cable (lump sum) (c) EFLEX and/or HDPE conduit with hot-dip galvanized steel clamp (lump sum) (d) Rack cabinet and accessories (Control Building - 1 set) (e) Fiber frame termination cabinet with cable tray (Control Building - 1 set) (f) 36 Pigtails (1.5 meters) (Control Building - 1 set) (g) 6-wire cleat for coiling optical fiber cable (4 set) (h) 2-way joint box with accessories for OPGW cable and 36-core non matallic optical fiber	1	LOT				156,170.00	156,170.00	XXXXX	XXXXX
1AB35-1.2	Local transportation, Construction and Installation for item 1AB35-1.1 (Including splicing work and field testing for optical fiber)	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	211,500.00	211,500.00

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB35 : Communication Cable

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
	IMPORTANT: 1. Telecommunication Equipment supplied under Schedule AB35 shall conform to Telecommunication Equipment Specification: Single Sheath Non-metallic Optical Fiber Cable (SD-FOT-P22). 2. The Bidder is required to later break down the unit price for sub-items of this Schedule for consideration.									
Total Price for Schedule 1AB35							**Baht**	**156,170.00**	**Baht**	**211,500.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB38-1	EGAT CCS/ RTU OPERATOR CONSOLE(Complete Set)	Installed in 230 kV Control building. Drawing No. SNR2-E-1, Scope of Work	1	SET		supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	XXXXX	XXXXX
1AB38-2	EGAT RTU TYPE 621M	Installed in 230 kV Control building. Drawing No. SNR2-E-1, Scope of Work	1	EA		supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	XXXXX	XXXXX
1AB38-3	EGAT RTU TYPE 16D	Installed in 230 kV Control building. Drawing No. SNR2-E-1, Scope of Work	1	EA		supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	supplied bty EGAT	XXXXX	XXXXX
1AB38-4	DESIGN AND INSTALLATION OF APPLICATION SOFTWARE	Installed in 230 kV Control building. Drawing No. SNR2-E-1, Scope of Work	1	SET		XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
1AB38-5	Cost of Local Transportation, Construction and Installation for Item Nos. 1AB38-1 thru 1AB38-4		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	689,820.70	689,820.70
Total Price for Schedule 1AB38								**Baht**		**Baht**	**689,820.70**

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MEDIUM COST FOR BID NO. SNS1-S-01

1AB39 : Commissioning

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1AB39-1	Commissioning	Lump Sum	Lump Sum		xxxxx	xxxxx	xxxxx	xxxxx	1,770,000.00	1,770,000.00
Total Price for Schedule 1AB39							**Baht**		**Baht**	**1,770,000.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-1	230 kV Take off Structure Foundation (TS802) Pad Type	FD-TS-8-07	9	set	157,376.00	1,416,384.00
1C1-2	230 kV Take off Structure Foundation (TS804) Pad type	Designed by Contractor TTK-SEHV02-C5.4 See Dwg no. SNR2-C-3	3	set	1,259,939.00	3,779,817.00
1C1-3	230 kV Take off Structure Foundation (P16) Pad type	Designed by Contractor TTK-SEHV02-C5.4 See Dwg no. SNR2-C-3	8	set	1,259,939.00	10,079,512.00
1C1-4	Firewall (FW) pad type	Designed by Contractor NB-TS-8-04 See Dwg no. SNR2-C-3	3	set	1,558,950.00	4,676,850.00
1C1-5	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (CT802 only)	FD-GE-0-01	15	set	11,604.00	174,060.00

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MEDIUM COST FOR BID NO. SNS1-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-6	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (VT803 only)	FD-GE-0-01	10	set	11,604.00	116,040.00
1C1-7	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (BP801 only)	FD-GE-0-01	39	set	11,604.00	452,556.00
1C1-8	230 kV Disconnecting Switch Support foundation (DS802,DS802A,DS802B,DS803,DS804) Pad Type (DS802 only)	FD-DS-8-03	10	set	41,955.00	419,550.00
1C1-9	230 kV Circuit breaker foundation (CBT801) Pad Type	Designed by Contractor FD-CB-8-34 See Dwg no. SNR2-C-3	3	set	158,489.00	475,467.00
1C1-10	Common control cubicle foundation (CCC) pad type	Designed by Contractor ABB/PDG-FD-CCC-9-01 See Dwg no. SNR2-C-3	1	set	32,580.00	32,580.00

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MEDIUM COST FOR BID NO. SNS1-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-11	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	14	set	2,463.00	34,482.00
1C1-12	22&33 kV Metering Structure foundation (MS409) Pad Type (MS409 only)	FD-MS-4-07	1	set	59,377.00	59,377.00
1C1-13	230 kV Bus support structure foundation (BS801,BS802) Pad Type (BS801 only)	FD-BS-8-01	1	set	23,533.00	23,533.00
1C1-14	Transformer Foundation (T-300) Pad Type	Designed by Contractor FD-TX-8-05 See Dwg no. SNR2-C-3	2	set	430,483.00	860,966.00
1C1-15	Distribution transformer foundation (DT , DTS)	TP-311	1	set	29,364.00	29,364.00
1C1-16	22/33 kV Main busbar support structure foundation (B205 only)	Designed by Contractor SVC/BSP2-F-05 See Dwg no. SNR2-C-3	3	set	37,382.00	112,146.00

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MEDIUM COST FOR BID NO. SNS1-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-17	22/33 kV Main busbar support structure foundation (B209 only)	Designed by Contractor SVC/BSP2-F-13a See Dwg no. SNR2-C-3	4	set	26,765.00	107,060.00
1C1-18	Concrete pole strain bus structure (CP22)	CP-SB-4-01	1	set	61,621.00	61,621.00
1C1-19	Telecommunication tower foundation (WSA) Pad Type	Designed by Contractor FD-TT-0-07 See Dwg no. SNR2-C-3	1	set	112,854.00	112,854.00
1C1-20	Junction Box Structure foundation (JB001) Pad Type	FD-JB-0-03	1	set	7,549.00	7,549.00
Total Price for Schedule 1C1					**Baht**	**23,031,768.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C2 : Cable Trench

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-07	Lump Sum	Lump Sum	5,592,481.50	5,592,481.50
1C2-2	Standard cable trench, steel cover included (Type"B")	SD-CE-0-07	Lump Sum	Lump Sum	1,293,535.00	1,293,535.00
Total Price for Schedule 1C2					**Baht**	**6,886,016.50**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C3 : Building

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-1	Control building (E-House type)	Designed by contractor See Scope of work SNR2-CD-0-01A	Lump Sum	Lump Sum	13,139,733.75	13,139,733.75
1C3-1.1	Air conditioning system and Ventilation system					
1C3-1.1.1	Minimum 40,000 BTU split-type air conditioner (Invertor), including installation fee (Not Higher than the price specified by the Bureau of the Budget www.bb.go.th)	-	12	set	54,672.90	656,074.80
1C3-1.1.2	Extra work for air conditioning system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1
1C3-1.1.3	Ventilation system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1
Total Price for Schedule 1C3					**Baht**	**13,795,808.55**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C4-1	RC.Road type " E " section 4 - 4	SD-RD-0-01	Lump sum	Lump sum	3,845,520.00	3,845,520.00
1C4-2	Crushed rock surfacing 0.10 m thickness	-	Lump sum	Lump sum	1,836,680.00	1,836,680.00
1C4-3	Transformer loading	SD-RD-0-03	88	sq.m.	1,347.00	118,536.00
Total Price for Schedule 1C4					**Baht**	**5,800,736.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C6 : Drainage System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C6-1	Drainage System	Designed by Contractor See Scope of work See Dwg. SNR2-C-6	Lump Sum	Lump Sum	7,994,034.00	7,994,034.00
1C6-2	Oil separator (Pad type)	SD-OS-0-02 01/03 - 03/03	1	set	1,132,763.00	1,132,763.00
1C6-3	Oil pit with steel grating	Designed by Contractor WD-DN-0-04 See Dwg no. SNR2-C-6	Lump Sum	Lump Sum	1,112,562.00	1,112,562.00
1C6-4	Dia. 0.15m PVC. Pipe (Class 8.5)	-	Lump Sum	Lump Sum	10,220.00	10,220.00
1C6-5	Dia. 0.50 m Black steel pipe (Seam) TIS 427-2531	WD-DN-0-01	Lump Sum	Lump Sum	1,032,416.00	1,032,416.00
Total Price for Schedule 1C6					**Baht**	**11,281,995.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C7-1	Plate bearing test	-	5	set	20,000.00	100,000.00
1C7-2	Architectural and Civil engineering design work	-	Lump Sum	Lump Sum	2,266,056.54	2,266,056.54
1C7-3	The expenses associated with water transportation for construction	-	Lump Sum	Lump Sum	1,674,336.00	1,674,336.00
1C7-4	Test and commissioning for fire alarm system in Control building	-	1	set	100,000.00	100,000.00
Total Price for Schedule 1C7					**Baht**	**4,140,392.54**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C8-1	Bored hole for soil investigation 10 m depth/hole	-	6	set	9,200.00	55,200.00
Total Price for Schedule 1C8					**Baht**	**55,200.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1C9 : Fire Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C9-1	Fire alarm system for Control Building (E-house type)	Designed by Contractor	Lump Sum	Lump Sum	286,642.00	286,642.00
1C9-2	Portable fire extinguisher CO2 type 10 lbs.	Designed by Contractor	4	set	3,353.00	13,412.00
Total Price for Schedule 1C9					**Baht**	**300,054.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

1D11 : Spare Parts for Power Fuse, Fuse Link and Hook Stick

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D11-1	33 kV 100 A 12.5 kA 1-pole dropout fuse as per Ratings and Features RF PF3111 (Not including fuse link or refill unit)	3		THB	215,954.20	647,862.60			XXXXX	XXXXX
1D11-2	Fuse link or refill unit 15E for 33 kV power fuse (Standard Speed)	9		THB	72,091.80	648,826.20			XXXXX	XXXXX
1D11-3	6.10 m. (20 ft.) hook stick, (14 ft universal with male pin and 6 ft pole extention with female pin) for use with the above power fuse	1		THB	18,170.90	18,170.90			XXXXX	XXXXX
1D11-4	Cost of Local Transportation for Item No. 1D11-1 thru 1D11-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	65,742.99	65,742.99
Total Price for Schedule 1D11				**THB**		**1,314,859.70**	**Baht**		**Baht**	**65,742.99**

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MEDIUM COST FOR BID NO. SNS1-S-01

1D12 : Spare Parts for AC&DC Distribution Board and Termination Box

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D12-1	Safety switch 600 Vac 800 A, 4 wire, solid neutral (S/N), 3 blades, 3 fuses time lag type, outdoor NEMA 4X enclosure or higher, completed with 800 A fuses. The terminal lug shall be suitable for; Incoming cable size : 2(3-1/C x 240 Sq.mm.), power cable (copper) 2(1-1/C x 240 Sq.mm.), power cable (copper) Outgoing cable size : 2(3-1/C x 240 Sq.mm.), power cable (copper) 2(1-1/C x 240 Sq.mm.), power cable (copper)	1					245,908.30	245,908.30	XXXXX	XXXXX
1D12-2	Cost of Local Transportation for 1D12-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	12,295.42	12,295.42
Total Price for Schedule 1D12							**Baht**	**245,908.30**	**Baht**	**12,295.42**

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MEDIUM COST FOR BID NO. SNS1-S-01

1D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D22-1	Portable temporary grounding tools for maintenance as per Specification attached	1		THB	531,784.00	531,784.00			XXXXX	XXXXX
1D22-2	Cost of Local Transportation for Item No. 1D22-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	26,589.20	26,589.20
Total Price for Schedule 1D22				**THB**		**531,784.00**	**Baht**		**Baht**	**26,589.20**

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MEDIUM COST FOR BID NO. SNS1-S-01

1D24 : Spare Parts for Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D24-1	BUS DIFFERENTIAL RELAY (Low Impedance- Switching Zone)	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				814,428.00	814,428.00	XXXXX	XXXXX
1D24-2	LINE CURRENT DIFFERENTIAL RELAY (87L)	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				395,107.00	395,107.00	XXXXX	XXXXX
1D24-3	DISTANCE RELAY (21) FOR 230 kV, 3ph without 79/25	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				344,054.00	344,054.00	XXXXX	XXXXX
1D24-4	AUTO RECLOSING AND SYNCHRONISM CHECK RELAY (79+25)	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				162,581.00	162,581.00	XXXXX	XXXXX
1D24-5	TRANSFORMER DIFFERENTIAL RELAY (87K, 3 restraint windings)	Supply as spare part. Drawing No. SNR2-E-1	1	EA				388,305.00	388,305.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

1D24 : Spare Parts for Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D24-6	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG,51/51G,51S/51SG,51C/51CG)	Supply as spare part. Drawing No. SNR2-E-1	1	EA				125,601.00	125,601.00	XXXXX	XXXXX
1D24-7	BREAKER FAILURE RELAY (50BF+62BF)	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				153,707.00	153,707.00	XXXXX	XXXXX
1D24-8	OVERVOLTAGE RELAY (59N,59C)	Supply as spare part. Drawing No. SNR2-E-1	1	EA				205,495.00	205,495.00	XXXXX	XXXXX
1D24-9	Cost of Local Transportation, Construction and Installation for Item Nos. 1D24-1 thru 1D24-8		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	19,798.30	19,798.30
Total Price for Schedule 1D24								**Baht**	**2,589,278.00**	**Baht**	**19,798.30**

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MEDIUM COST FOR BID NO. SNS1-S-01

1D25 : Spare Parts for Fault Recording System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D25-1	ANALOG ISOLATOR CARD	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				85,909.00	85,909.00	XXXXX	XXXXX
1D25-2	POWER SUPPLY	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				35,542.00	35,542.00	XXXXX	XXXXX
1D25-3	ACQUISITION UNIT	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				25,260.00	25,260.00	XXXXX	XXXXX
1D25-4	CPU & MEMORY MODULE 1	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				84,218.00	84,218.00	XXXXX	XXXXX
1D25-5	ANALOG ISOLATOR FOR VOLTAGE	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				84,218.00	84,218.00	XXXXX	XXXXX
1D25-6	ANALOG ISOLATOR FOR CURRENT	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				84,218.00	84,218.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

1D25 : Spare Parts for Fault Recording System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

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						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
1D25-7	DIGITAL ISOLATOR MODULE	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				81,906.00	81,906.00	XXXXX	XXXXX
1D25-8	HARD DISK & HARD DISK CONTROLLER	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				75,795.00	75,795.00	XXXXX	XXXXX
1D25-9	TELE- COMMUNICATION BOARD	Supply as spare part. Drawing Nos. SNR2-E-1, SNR-E-1.1 SH.1-2	1	EA				25,260.00	25,260.00	XXXXX	XXXXX
1D25-10	Cost of Local Transportation, Construction and Installation for Item Nos. 1D25-1 thru 1D25-9		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	13,686.55	13,686.55
Total Price for Schedule 1D25								**Baht**	**582,326.00**	**Baht**	**13,686.55**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C1-1	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (CT802 only)	FD-GE-0-01	12	set	11,604.00	139,248.00
2C1-2	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (VT803 only)	FD-GE-0-01	4	set	11,604.00	46,416.00
2C1-3	230 kV Disconnecting Switch Support foundation (DS802,DS802A,DS802B,DS803,DS804) Pad Type (DS802 only)	FD-DS-8-03	4	set	41,955.00	167,820.00
2C1-4	230 kV Circuit breaker foundation (CBT801) Pad Type	Designed by Contractor FD-CB-8-34 See Dwg no. SNR2-C-3	4	set	158,489.00	633,956.00
2C1-5	Common control cubicle foundation (CCC) pad type	Designed by Contractor ABB/PDG-FD-CCC-9-01 See Dwg no. SNR2-C-3	1	set	32,580.00	32,580.00

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2C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

	Item NoDescription	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C1-6	Lighting Relay Panel foundation (RP002) Pad Type	FD-RP-0-03	1	set	5,899.00	5,899.00
2C1-7	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	3	set	2,463.00	7,389.00
2C1-8	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type	FD-LP-0-05	40	set	10,761.00	430,440.00
2C1-9	Junction Box Structure foundation (JB001) Pad Type	FD-JB-0-03	1	set	7,549.00	7,549.00
2C1-10	22&33 kV Metering Structure foundation (MS409) Pad Type (MS409 only)	FD-MS-4-07	1	set	58,029.00	58,029.00
2C1-11	230 kV Bus support structure foundation (BS801,BS802) Pad Type (BS801 only)	FD-BS-8-01	1	set	23,533.00	23,533.00

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MEDIUM COST FOR BID NO. SNS1-S-01

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

	Item NoDescription	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C1-12	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05	3	set	6,271.00	18,813.00
2C1-13	Distribution transformer foundation (DT , DTS)	TP-311	1	set	29,364.00	29,364.00
2C1-14	22/33 kV Main busbar support structure foundation (B205 only)	Designed by Contractor SVC/BSP2-F-05 See Dwg no. SNR2-C-3	3	set	37,382.00	112,146.00
2C1-15	22/33 kV Main busbar support structure foundation (B209 only)	Designed by Contractor SVC/BSP2-F-13a See Dwg no. SNR2-C-3	4	set	26,765.00	107,060.00
Total Price for Schedule 2C1					**Baht**	**1,820,242.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C2 : Cable Trench

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-07	Lump Sum	Lump Sum	483,787.50	483,787.50
2C2-2	Standard cable trench, steel cover included (Type"B")	SD-CE-0-07	Lump Sum	Lump Sum	87,788.00	87,788.00
Total Price for Schedule 2C2					**Baht**	**571,575.50**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C4-1	RC.Road type " E " section 4 - 4	SD-RD-0-01	Lump Sum	Lump Sum	2,851,440.00	2,851,440.00
2C4-2	Crushed rock surfacing 0.10 m thickness	-	Lump Sum	Lump Sum	1,016,760.00	1,016,760.00
2C4-3	Transformer loading	SD-RD-0-03	132	sq.m.	1,347.00	177,804.00
Total Price for Schedule 2C4					**Baht**	**4,046,004.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C5 : Water Supply System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C5-1	Water supply system	Designed by Contractor See Scope of work See Dwg.SNR2-C-9	Lump Sum	Lump Sum	147,324.00	147,324.00
2C5-2	100 cu.m Underground water tank (Pad type)	-	1	set	447,450.00	447,450.00
2C5-3	Package booster pump with pressure tank system	Designed by Contractor	1	set	122,660.00	122,660.00
2C5-4	Housing for Package booster pump with foundation	Designed by Contractor	1	set	147,192.00	147,192.00
Total Price for Schedule 2C5					**Baht**	**864,626.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C6 : Drainage System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C6-1	Drainage System	Designed by Contractor See Scope of work See Dwg. SNR2-C-6	Lump Sum	Lump Sum	6,879,365.00	6,879,365.00
2C6-2	Dia. 0.15m PVC. Pipe (Class 8.5)	-	Lump Sum	Lump Sum	3,066.00	3,066.00
Total Price for Schedule 2C6					**Baht**	**6,882,431.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C7-1	Site office	See Scope of work	1	set	850,000.00	850,000.00
2C7-2	Test and commissioning for package booster pump system	-	1	set	845.00	845.00
2C7-3	Plate bearing test	-	2	set	20,000.00	40,000.00
2C7-4	Architectural and Civil engineering design work	-	Lump Sum	Lump Sum	332,960.00	332,960.00
Total Price for Schedule 2C7					**Baht**	**1,223,805.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C8-1	Main entrance gate 8.00m width (sliding)	SD-SG-0-03	1	set	432,745.00	432,745.00
2C8-2	Concrete fence (Pad type)	SD-RF-0-02	Lump Sum	Lump Sum	4,318,620.00	4,318,620.00
2C8-3	Guard house	HS-GH-0-02	1	set	447,709.00	447,709.00
2C8-4	Sign Board Structure & foundation	SD-SB-0-08	1	set	179,084.00	179,084.00
2C8-5	Standard symbol and sign letters of substation	TP655A-MS-A	1	set	653,962.00	653,962.00
2C8-6	Garage (5.50x17.50m)	HS-PS-0-02	1	set	429,310.00	429,310.00
2C8-7	Bored hole for soil investigation 10 m depth/hole	-	2	set	9,200.00	18,400.00
Total Price for Schedule 2C8					**Baht**	**6,479,830.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

2C9 : Fire Protection System

SUPPLY AND CONSTRUCTION OF 230 KV SRINAGARIND 2 SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C9-1	Wheel fire extinguisher (2*50 lbs) with cabinet	HS-WR-0-04 - 01/01	1	set	251,453.00	251,453.00
Total Price for Schedule 2C9					**Baht**	**251,453.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB5-1	230 kV CT, 900 kV BIL, 500/-/4000:5//5//5//5//5 A, 50 kA, oil filled as per Rating and Features RF CT8AF2	12		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
3AB5-2	230 kV CT, 900 kV BIL, 2000x4000:5//5 A, 50 kA, oil filled as per Rating and Features RF CT8AFA	6		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
3AB5-3	Steel Supporting Structure for CT8AF2 (for Item No.3AB5-1), H=5.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	12		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
3AB5-4	Steel Supporting Structure for CT8AFA (for Item No.3AB5-2), H=5.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	6		THB	supplied by EGAT	supplied by EGAT	supplied by EGAT	supplied by EGAT	XXXXX	XXXXX
3AB5-5	Junction Box type CT6 (for Item No. 3AB5-1) as per Dwg. No. TP-E-18.2 and TP-E-18.4	4		THB			54,000.00	216,000.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB5-6	Junction Box type CT3 (for Item No. 3AB5-2) as per Dwg. No. TP-E-18.2 and TP-E-18.4	2		THB			17,000.00	34,000.00	XXXXX	XXXXX
3AB5-7	Cost of Local Transportation, Construction and Installation for Item No. 3AB5-1 thru 3AB5-6	Lump sum	Lump sum	THB	XXXXX	XXXXX	XXXXX	XXXXX	818,616.00	818,616.00
Total Price for Schedule 3AB5				**THB**			**Baht**	**250,000.00**	**Baht**	**818,616.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB6-1	230 kV voltage transformer, 950 kV BIL, 230000/√3 : 115/(115/√3) & 115/(115/√3) & 110 V oil filled as per ratings and features RF VT8015	6		THB	311,000.00	1,866,000.00			XXXXX	XXXXX
3AB6-2	Steel Supporting Structure for VT8015 (for Item No.3AB6-1), H=5.50 m as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	6		THB			18,000.00	108,000.00	XXXXX	XXXXX
3AB6-3	Junction Box type PT14 (for Item No.3AB6-1) MODIFY TO BE PT14 (M) BY CONTRACTOR	2		THB			42,000.00	84,000.00	XXXXX	XXXXX
3AB6-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB6-1 thru 3AB6-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	246,960.00	246,960.00
Total Price for Schedule 3AB6				**THB**		**1,866,000.00**	**Baht**	**192,000.00**	**Baht**	**246,960.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB9-1	245 kV 4000 A 50 kA GCB 1&3 pole trip as per Ratings and Features RF CB8951(IEC)	3			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB9-2	Steel Supporting Structure for CB8951(IEC)*	3			Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB9-3	Cost of Local Transportation, Construction and Installation for Item No. 3AB9-1 thru 3AB9-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	587,259.61	587,259.61
Total Price for Schedule 3AB9							**Baht**		**Baht**	**587,259.61**

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

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB10-1	245 kV 4000 A air switch (high creepage) motor operated as per Ratings and Features RF DS89AH(IEC) (Phase spacing = 3.50 m)	8		THB	479,778.20	3,838,225.60			XXXXX	XXXXX
3AB10-2	245 kV 4000A air switch (high creepage) with grounding blade motor gang operated as per Ratings and Features RF DS89AI(IEC) (Phase spacing = 3.50 m)	2		THB	628,372.80	1,256,745.60			XXXXX	XXXXX
3AB10-3	245 kV 4000A air switch (high creepage) manually gang operated as per Ratings and Features RF DS89BH(IEC) (Phase spacing = 3.50 m) (Modified and installed on beam structure by Contractor, H = 18.00 m)	2		THB	450,021.00	900,042.00			XXXXX	XXXXX
3AB10-4	Steel Supporting Structure for DS89AH(IEC) as per EGAT's Dwg. No. ST-DS-4-01 and SD-AB-0-01, H = 6.00 m	8					112,378.00	899,024.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB10-5	Steel Supporting Structure for DS89AI(IEC) as per EGAT's Dwg. No. ST-DS-4-01 and SD-AB-0-01, H = 6.00 m	2					112,378.00	224,756.00	XXXXX	XXXXX
3AB10-6	Cost of Local Transportation, Construction and Installation for Item No. 3AB10-1 thru 3AB10-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	854,255.18	854,255.18
Total Price for Schedule 3AB10				**THB**		**5,995,013.20**	**Baht**	**1,123,780.00**	**Baht**	**854,255.18**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB12-1	Marshalling Cubicle for Breaker (MC003) as per Dwg. No. TP-E-10.18	1					38,806.90	38,806.90	XXXXX	XXXXX
3AB12-2	400/230 Vac Distribution Board as per Dwg. No. TP-E-4.4 (For Control Room, designed by Contractor)	1					225,717.80	225,717.80	XXXXX	XXXXX
3AB12-3	125 Vdc Distribution Board as per Dwg. No. TP-E-4.4 (For Control Room, designed by Contractor)	1					172,964.00	172,964.00	XXXXX	XXXXX
3AB12-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB12-1 thru 3AB12-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	52,498.64	52,498.64
Total Price for Schedule 3AB12							**Baht**	**437,488.70**	**Baht**	**52,498.64**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB14-1	Substation Steel Structure	Lump sum	Lump sum				3,677,972.75	3,677,972.75	XXXXX	XXXXX
	- 230 kV take-off structure (TS802A) as per Dwg. No. SNR-TS-BB-8-02A (For guidline only) - 230 kV beam (BB802A) as per Dwg. No. SNR-TS-BB-8-02A (For guidline only) - Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02 - Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03 (Modified and installed with MC003) - 230 kV take-off structure (CE1) as per Dwg. No. SNR-TS-BB-8-0XA (For guidline only), H = 23.50 m - 230 kV beam structure (BD1) as per Dwg. No. SNR-TS-BB-8-0XA (For guidline only), Beam = 16.50 m - 230 kV beam structure (BE2) for main bus as per Dwg. No. SNR-TS-BB-8-0XA (For guidline only), Beam = 15.00 m									
3AB14-2	Cost of Local Transportation, Construction and Installation for Item No. 3AB14-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,103,391.83	1,103,391.83
Total Price for Schedule 3AB14							**Baht**	**3,677,972.75**	**Baht**	**1,103,391.83**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB15 : Insulator

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB15-1	230 kV station post insulator ANSI TR. No. 308, high creepage distance of not less than 6,050 mm. as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB15-2	Suspension insulator fog type (17" minimum leakage distance and 18,000 lb minimum combined M&E strength) as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB15-3	Suspension insulator ANSI 52-3 as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB15-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB15-1 thru 3AB15-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	352,784.52	352,784.52
Total Price for Schedule 3AB15							**Baht**		**Baht**	**352,784.52**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB18-1	750 V power cable as per Specification attached	Lump sum	Lump sum				692,340.00	692,340.00	XXXXX	XXXXX
3AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				17,915,590.00	17,915,590.00	XXXXX	XXXXX
3AB18-3	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				1,190,857.80	1,190,857.80	XXXXX	XXXXX
3AB18-4	Aluminum conductor as per Specification attached	Lump sum	Lump sum		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB18-5	Overhead ground wire as per Specification attached	Lump sum	Lump sum				4,625.50	4,625.50	XXXXX	XXXXX
3AB18-6	Cost of Local Transportation, Construction and Installation for Item No. 3AB18-1 thru 3AB18-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	6,305,819.19	6,305,819.19
Total Price for Schedule 3AB18							**Baht**	**19,803,413.30**	**Baht**	**6,305,819.19**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB20-1	230 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				706,114.20	706,114.20	XXXXX	XXXXX
3AB20-2	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				376,497.00	376,497.00	XXXXX	XXXXX
3AB20-3	Cost of Local Transportation, Construction and Installation for Item No. 3AB20-1 thru 3AB20-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	324,783.36	324,783.36
Total Price for Schedule 3AB20							**Baht**	**1,082,611.20**	**Baht**	**324,783.36**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB21-1	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	1,277,712.70	1,277,712.70			XXXXX	XXXXX
3AB21-2	Cost of Local Transportation, Construction and Installation for Item No. 3AB21-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	383,313.81	383,313.81
Total Price for Schedule 3AB21				**THB**		**1,277,712.70**	**Baht**		**Baht**	**383,313.81**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB22 : Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB22-1	Thermite welding material as per Specification attached	Lump sum	Lump sum				265,787.50	265,787.50	XXXXX	XXXXX
3AB22-2	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	179,047.00	179,047.00			XXXXX	XXXXX
3AB22-3	Cost of Local Transportation, Construction and Installation for Item No. 3AB22-1 thru 3AB22-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	133,450.35	133,450.35
Total Price for Schedule 3AB22				**THB**		**179,047.00**	**Baht**	**265,787.50**	**Baht**	**133,450.35**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

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Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				264,510.40	264,510.40	XXXXX	XXXXX
3AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	141,779.00	141,779.00			XXXXX	XXXXX
3AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum	THB			20,400.00	20,400.00	XXXXX	XXXXX
3AB23-4	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum	THB			115,500.00	115,500.00	XXXXX	XXXXX
3AB23-5	Cost of Local Transportation, Construction and Installation for Item No. 3AB23-1 thru 3AB23-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	162,656.82	162,656.82
Total Price for Schedule 3AB23				**THB**		**141,779.00**	**Baht**	**400,410.40**	**Baht**	**162,656.82**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB24-1	230 KV BUS PROTECTION (LOW IMPEDANCE, 18 FEEDERS) ,1BF	Panel Nos. 1R and 2R, Installed at Electronics Building. Included one set of Tie-bay Breaker failure (50BF-800) : 50BF-800, 86BF-800, 50BF-CO, TS, IL(RED), PB, MCB 2 pole 6A, and 27XR Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-9.1, TP-E-10.1 and Scope of Work	1	SET				4,293,089.00	4,293,089.00	XXXXX	XXXXX
3AB24-2	230 kV LINE PROTECTION (87L, 3ph, 79)	Panel Nos. 3R and 5R, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-9.1, TP-E-10.1 and Scope of Work	2	EA				1,053,223.00	2,106,446.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB24-3	230 kV LINE PROTECTION (21P, 3ph, 1-BF, DTT)	Panel Nos. 4R and 6R, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-9.1, TP-E-10.1 and Scope of Work	2	EA				1,293,405.00	2,586,810.00	XXXXX	XXXXX
3AB24-4	METERING PANEL (4 kWh&kVarh METERS)	Panel No. MP1, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-5.1 SH.1-2, TP-E-10.21 and Scope of Work	1	EA				3,070,997.00	3,070,997.00	XXXXX	XXXXX
3AB24-5	E1 Converter Panel	Panel No. E1-CONV., Installed at Existing Control Room. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.20 and Scope of Work	1	EA				445,520.00	445,520.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB24-6	INTERPOSING PANEL TYPE IP6	Panel No. IP1, Installed at Electronics Building. Included one set of intertrip function equipment : - High-speed aux. tripping relay 8 contacts (52bX) - MCB 2 pole 6A - 27XR Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-6.4 SH.1-6, TP-E-10.2 and Scope of Work	1	EA				605,328.00	605,328.00	XXXXX	XXXXX
3AB24-7	TRANSDUCER PANEL	Panel No. TDR1, Installed at Electronics Building included 2 W&VAR-TDR, 2 V-TDR (3ph), 3 A-TDR (3ph), 3 TS, 2 F-TDR, 1 DC-TDR, 1 T-TDR (Temp. for Electronics Building) Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.2 and Scope of Work	1	EA				924,782.00	924,782.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and Installation (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB24-8	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC1, Installed at Electronics Building Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.3 and Scope of Work	1	EA				382,041.00	382,041.00	XXXXX	XXXXX
3AB24-9	MARSHALLING PANEL FOR RTU	Panel No. MP-RTU1, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.3 and Scope of Work	1	EA				386,229.00	386,229.00	XXXXX	XXXXX
3AB24-10	MARSHALLING PANEL FOR TELEPROTECTION (230 kV General)	Panel No. MP-TELE1, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.2, DW-TPS-D01-111-01 Sh.P1 to P11, DW-TPS-D01-114-01 Sh.P1 to P8 and Scope of Work	1	EA				388,086.00	388,086.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

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TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB24-11	MARSHALLING PANEL FOR FRS	Panel No. MP-FRS1, Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.3 and Scope of Work	1	EA				394,923.00	394,923.00	XXXXX	XXXXX
3AB24-12	Modification to the Existing Control and Protection System	Specification No. 1002 Dwg Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1 and Scope of Work	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	109,800.00	109,800.00
3AB24-13	Cost of Local Transportation, Construction and Installation for Item Nos. 3AB24-1 thru 3AB24-11		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,629,692.10	1,629,692.10
Total Price for Schedule 3AB24								**Baht** **15,584,251.00**		**Baht** **1,739,492.10**	

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB25-1	FAULT RECORDING SYSTEM, 32 ANALOG INPUT, 96 DIGITAL INPUT.	Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2 and Scope of Work	1	SET				2,338,014.00	2,338,014.00	XXXXX	XXXXX
3AB25-2	Cost of Local Transportation, Construction and Installation for Item No. 3AB25-1		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	252,833.70	252,833.70
Total Price for Schedule 3AB25								**Baht** **2,338,014.00**		**Baht** **252,833.70**	

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power Panel

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB34-1	48Vdc. Load Center Type2: 30 Breaker (Srinagarind Substation, Electronic	1	SET				289,900.00	289,900.00	XXXXX	XXXXX
3AB34-2	VCT 2x1C 185 SQMM from SNR Power Plant Control Buliding 3rd Floor to Electronic Building	200	Meter				900.00	180,000.00	XXXXX	XXXXX
3AB34-3	Local Transportation, Construction and Installation for item 3AB34-1 and 3AB34-2	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	38,300.00	38,300.00
Total Price for Schedule 3AB34							**Baht**	**469,900.00**	**Baht**	**38,300.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB35 : Communication Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB35-1	Optical fiber cable from fiber frame termination cabinet at Srinagarind Power Plant Control Room 3rd Floor to 2-way joint box at Srinagarind 2 take-off structure									
3AB35-1.1	Supply of optical fiber cable and accessories including: (a) 36-core non-metallic optical fiber cable (approx. 700 meters) (b) Rigid steel conduit for optical fiber cable (lump sum) (c) EFLEX and/or HDPE conduit with hot-dip galvanized steel clamp (lump sum) (d) Fiber frame termination cabinet with cable tray (Control Room -1 set) (e) 36 Pigtails (1.5 meters) (Control Room -1 set) (f) 6-wire cleat for coiling optical fiber cable (4 sets) (g) 2-way joint box with accessories for OPGW cable and 36-core non matallic optical fiber cable at SNR2 take-off structure (1 set)	1	LOT				211,920.00	211,920.00	XXXXX	XXXXX
3AB35-1.2	Local transportation, Construction and Installation for item 3AB35-1.1 (Including splicing work and field testing for optical fiber)	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	301,500.00	301,500.00
3AB35-2	Optical fiber cable from fiber frame termination cabinet at Srinagarind Power Plant Control Room to Electronic Building									

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB35 : Communication Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB35-2.1	Supply of optical fiber cable and accessories including: (a) 36-core non-metallic optical fiber cable (approx. 200 meters) (b) Rigid steel conduit for optical fiber cable (lump sum) (c) EFLEX and/or HDPE conduit with hot-dip galvanized steel clamp (lump sum) (d) Rack cabinet and accessories (Electronic Building - 1 set) (e) Fiber frame termination cabinet with cable tray (Electronic Building - 1 set and Control Room - 1 set) (f) 36 Pigtails (1.5 meters) (Electronic Building - 1 set and Control Room - 1 set)	1	LOT				121,530.00	121,530.00	XXXXX	XXXXX

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3AB35 : Communication Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB35-2.2	Local transportation, Construction and Installation for item 3AB35-2.1 (Including splicing work and field testing for optical fiber)	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	179,200.00	179,200.00
	IMPORTANT: 1. Telecommunication Equipment supplied under Schedule AB35 shall conform to Telecommunication Equipment Specification: Single Sheath Non-metallic Optical Fiber Cable (SD-FOT-P22). 2. The Bidder is required to later break down the unit price for sub-items of this Schedule for consideration.									
Total Price for Schedule 3AB35							**Baht**	**333,450.00**	**Baht**	**480,700.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB38-1	EGAT RTU TYPE 621M	Installed at Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2 and Scope of Work	1	EA		Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	XXXXX	XXXXX
3AB38-2	DUAL SPEED SWITCH HUB 24 PORTS	Installed at Existing Control Room. Drawing Nos. SNR-E-1.1 SH.1-2 and Scope of Work	2	EA		Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	XXXXX	XXXXX
3AB38-3	BRIDGE MEDIA CONVERTER (BMC)	Single mode type, Installed at Existing Control Room. Included two sets of equipment - Power Supply 12VDC for BMC - 2 sets of Patch Cord at least 30 meters, Single mode Type Drawing Nos. SNR-E-1.1 SH.1-2 and Scope of Work	2	EA		Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	Supplied bty EGAT	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB38-4	OFC INTERFACING PANEL,1-FTC AND ACCESSORIES	Panel No. OFC, Installed at Existing Control Room and Electronics Building. Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.16 and Scope of Work	2	EA				145,334.00	290,668.00	XXXXX	XXXXX
3AB38-5	36 Cores Non-metallic Optical Fiber Cable	To be used as connection between OFC Interfacing Panel at Existing Control Room and Electronics Building. The length of cable refer to "Equipment lay-out drawing (S-6)" Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.16 and Scope of Work	1	SET				33,600.00	33,600.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Currency	**Supply of Equipment**				**Local Transportation, Construction and Installation** (excluding VAT) Baht	
						Foreign Supply		Local Supply			
						CIF Thai Port		Ex-works Price (excluding VAT) Baht			
						Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB38-6	EFLEX AND/OR HDPE CONDUIT WITH HOT-DIP GALVANIZED STEEL CLAMP	To be used as connection between OFC Interfacing Panel at Existing Control Room and Electronics Building. The length of eflex refer to "Equipment lay-out drawing (S-6)" Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.16 and Scope of Work	1	SET				36,800.00	36,800.00	XXXXX	XXXXX
3AB38-7	Modification to the Existing Computerized Control System	Drawing Nos. SNR-E-1.1 SH.1-2, SNR-E-2.1, SNR-E-2.2, SNR-E-3.1, TP-E-10.16 and Scope of Work	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	78,700.00	78,700.00
3AB38-8	Cost of Local Transportation, Construction and Installation for Item Nos. 3AB38-1 thru 3AB38-6		Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	256,820.75	256,820.75
Total Price for Schedule 3AB38								**Baht**	**361,068.00**	**Baht**	**335,520.75**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB39 : Commissioning

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB39-1	Commissioning	Lump Sum	Lump Sum		xxxxx	xxxxx	xxxxx	xxxxx	590,000.00	590,000.00
Total Price for Schedule 3AB39							**Baht**		**Baht**	**590,000.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3AB40 : Installation of Equipment and Steel Structure Supplied by EGAT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation, Construction and (excluding VAT) Baht	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht			
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3AB40-1	Dismantlement : Removal and then packing of the existing equipment	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	2,125,000.00	2,125,000.00
Total Price for Schedule 3AB40							**Baht**		**Baht**	**2,125,000.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-1	230 kV Take off Structure Foundation (TS802A) Pad Type	Designed by Contractor TTK-SEHV02-C5.4 See Dwg no. SNR1-C-3	3	set	1,259,939.00	3,779,817.00
3C1-2	230 kV Take off Structure Foundation (CE1) Pad type	Designed by Contractor SNR1-S2314-C5.1A See Dwg no. SNR1-C-3	2	set	242,989.00	485,978.00
3C1-3	230 kV Circuit breaker foundation (CBT801) Pad Type	Designed by Contractor FD-CB-8-34 See Dwg no. SNR1-C-3	3	Set	158,489.00	475,467.00
3C1-4	230 kV Disconnecting Switch Support foundation (DS802,DS802A,DS802B,DS803,DS804) Pad Type (DS802 only)	Designed by Contractor FD-DS-8-03 See Dwg no. SNR1-C-3	10	set	41,955.00	419,550.00
3C1-5	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	14	set	2,463.00	34,482.00

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MEDIUM COST FOR BID NO. SNS1-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

	Item No.	Description	Drawing No. / Reference No.	Qty	Unit	Local Currency (excluding VAT) Baht	
						Unit Price	Amount
3C1-6	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type(CT802 only)	Designed by Contractor FD-GE-0-01 See Dwg no. SNR1-C-3		18	set	11,604.00	208,872.00
3C1-7	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Pad Type (VT803 only)	Designed by Contractor FD-GE-0-01 See Dwg no. SNR1-C-3		6	set	11,604.00	69,624.00
3C1-8	Junction Box Structure foundation (JB003) Pad Type	Designed by Contractor FD-JB-0-05 See Dwg no. SNR1-C-3		1	set	6,271.00	6,271.00
3C1-9	230kV Circuit breaker support structure foundation (CB) (Existing to be removed)	Unidentified		3	set	23,168.00	69,504.00
3C1-10	230kV Disconnecting Switch support structure foundation (DSC) (Existing to be removed)	Unidentified		2	set	13,412.00	26,824.00

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MEDIUM COST FOR BID NO. SNS1-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-11	230kV Current transformer support structure foundation (CT) (Existing to be removed)	Unidentified	2	set	6,392.00	12,784.00
Total Price for Schedule 3C1					**Baht**	**5,589,173.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3C2 : Cable Trench

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-02	Lump Sum	Lump Sum	523,414.80	523,414.80
3C2-2	Standard cable trench, steel cover included (Type"A")	Designed by Contractor SD-CE-0-02 See Dwg no. SNR-C-3	Lump Sum	Lump Sum	812,350.00	812,350.00
3C2-3	Standard cable trench, steel cover included (Type"A") (Existing to be removed)	SNR1-S2314-C5.3A	Lump Sum	Lump Sum	48,530.00	48,530.00
Total Price for Schedule 3C2					**Baht**	**1,384,294.80**

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MEDIUM COST FOR BID NO. SNS1-S-01

3C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C7-1	Architectural and Civil engineering design work	See Scope of work	Lump Sum	Lump Sum	328,541.27	328,541.27
Total Price for Schedule 3C7					**Baht**	**328,541.27**

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MEDIUM COST FOR BID NO. SNS1-S-01

3C8 : Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
3C8-8	Bored hole for soil investigation 10 m depth/hole	-	3	set	9,200.00	27,600.00
Total Price for Schedule 3C8					**Baht**	**27,600.00**

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MEDIUM COST FOR BID NO. SNS1-S-01

3D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

Item No.	Description	Qty.	Unit	Currency	Supply of Equipment				Local Transportation	
					Foreign Supply		Local Supply			
					CIF Thai Port		Ex-works Price (excluding VAT) Baht		(excluding VAT) Baht	
					Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
3D22-1	Portable temporary grounding tools for maintenance as per Specification attached	1		THB	531,784.00	531,784.00			XXXXX	XXXXX
3D22-2	Cost of Local Transportation for Item No. 3D22-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	26,589.20	26,589.20
Total Price for Schedule 3D22				**THB**		**531,784.00**	**Baht**		**Baht**	**26,589.20**

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Important Information

for

Invitation to Bid No. SNS1-S-01

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-6. Preparation and Delivery of Bids and Article B-1. Preparation of Bids

Details on how to prepare the proposal have been revised. Bids shall be prepared in accordance with the Instructions to Bidders contained in the Bidding Documents in one (1) original hard copy and one (1) electronic copy contained in USB flash drive.

Article A-6. Preparation and Delivery of Bids

Details of bid opening time and place shall be specified in the Tentative Schedule.

Article A-7. Availability of Bidding Documents

Availability of Bidding Documents has been changed from CD-ROM to electronic files for download via link provided by EGAT.

Channel of Documents Submission

For channel of document submission in the hereunder Articles, facsimile and telex has been replaced with letters submitted electronically or electronic mails (E-mails).

- Article B-1. Preparation of Bids
- Article B-4. Validity of Bids
- Article D-9. Notices
- Article E-20. Documents Required for Each Shipment
- Article F-11. Payment

Article B-2. Bid Prices

For Source of Supply and Service 1. Prices for Equipment , Prices for Equipment manufactured outside Thailand (imported Equipment) shall be firm CIF Thai Port basis and quoted in Thai baht, US dollar, euro, Japanese yen, renminbi (Chinese yuan), or in the Bidder's or Manufacturer's home currency only if his currency trading is prevailed at the time of bidding in any international market other than in Bidder's or Manufacturer's home country.

Article E-19. <u>Shipment</u>

The Maritime Promotion Bureau has been updated to the Maritime Promotion Division and its contact information has also been updated.

Article F-11. <u>Payment</u>

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

DATA SHEET

for

Invitation to Bid No. SNS1-S-01

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

Article A-1. <u>Invitation</u>

Insert the following as the second and third paragraphs of this article respectively:

" The Letter of Award of Contract to be issued to the successful Bidder will be made after EGAT obtains the Project approval from the Government of Thailand, and the approval for Project implementation from the Government's authority and/or other related entities as required (if any) by Thai laws.

Unless EGAT gets approval as such, the Project and the work under this invitation has to be cancelled. In the event such cancellation is required, all costs incurred by the Bidder in purchasing documents and preparing his bid shall be at his own account and will not be reimbursed by EGAT."

Article B-3. <u>Bid Security</u>

The amount of bid security shall be USD 542,250.- or THB 18,450,000.-.

Article B-4. <u>Validity of Bids</u>

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

Maintenance Guarantee Period

- For all Work except 500 kV System

  The Contractor shall guarantee the proper functioning of the Work for a period of one (1) Year except the following Equipment the guarantee period of which shall be as follows :

Equipment	Period of Guarantee (Year)
- Fault Recording System	2
- Control and Protection System	2

- For 500 kV System

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

Defective Equipment to be replaced with the whole new set

Not Applicable

SECTION A

INVITATION TO BID

ELECTRICITY GENERATING AUTHORITY OF THAILAND

Nonthaburi
Thailand

INVITATION TO BID NO. SNS1-S-01

SUPPLY AND CONSTRUCTION OF 230 kV SRINAGARIND 2 SUBSTATION AND EXPANSION OF 230 kV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

A-1. Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for supply and construction of 230 kV Srinagarind 2 Substation and Expansion of 230 kV Srinagarind Substation under Transmission System for Hydro-Floating Solar Hybrid Project Srinagarind Dam Unit 1 as described herein in accordance with terms, conditions and Specifications described in these Bidding Documents.

A-2. Work Description

The supply and construction of 230 kV Srinagarind 2 Substation and Expansion of 230 kV Srinagarind Substation will be on a supply and construction basis, the Contractor shall be responsible for complete supply, installation, construction and also engineering design work to the standard specified and best modern practice. The substations to be constructed and the scope of work under this Invitation are described in Section H. Scope of Work.

A-3. Eligibility of Bidders: General Requirements

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

a. The Bidder shall be a partnership, firm or company, either alone or in joint venture or in consortium.

b. The Bidder shall be well-established and maintain a permanent place of business.

c. The Bidder shall not be, or supply the Equipment, from the country under the state of Civil War.

d. The Bidder shall be a juristic person who manufactures or provides such material or services, as the case may be, and not be named in the List of Work Abandoners published by the Permanent Secretary, Ministry of Finance, and/or in the Debarment List and/or in the List of Work Abandoners declared by EGAT.

e. The Bidder shall not be a Jointly Interested Bidder with other Bidders as from the date of EGAT's issuance of the Invitation to Bid, or shall not be a person who undertakes any action as an "Obstruction of Fair Price Competition" as defined in Additional Regulation for this Invitation.

f. The Bidder shall not either be EGAT's consultant or involving in EGAT's consultancy company under this Invitation, or have EGAT's personnel involved in his business as shareholder having voting right that can control his business, director, manager, officer, employee, agent or consultant except for the ones who are officially ordered by EGAT to act or participate therein.

g. The Bidder shall not be the person who is privileged or protected not to be taken any legal proceeding under Thai Court; provided that such Bidder's government declares that such special privilege is waived.

h. In case of a joint venture or consortium, the Bidder shall carry out all the work under such formation from the time of bidding until the fulfillment of the Contract.

i. The Bidder must have purchased the bidding documents from EGAT. For a joint venture or a consortium, only one (1) member of the joint venture or consortium is required to purchase the bidding documents.

   In case the Bidder’s name is not exactly the same as the purchaser’s name, the purchaser shall notify EGAT of the name of the Bidder in writing prior to the bid opening time.

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

a. The Bidder shall have adequate fund to meet financial obligations incidental to this Contract.

b. The Bidder shall supply documentary evidence established in accordance with Article B-8. Information to be Submitted with Bid to demonstrate adequately that he is eligible to bid and is qualified to perform the Contract if his bid is accepted. Bidder should also demonstrate his capacity to perform the Work either with or without the use of subcontractor.

A-4. Eligibility of Bidders: Technical Requirements

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

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

If the Bidder is a new company formed by acquisition of or merger with other companies or business units before submitting the Bid, the experience records of any of such previous companies or business units that meet the requirements set forth herein are acceptable as the experience records of the Bidder.

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

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

b. The Bidder shall have one of the following qualifications regarding experiences executing contract of supply and construction substation.

1) Having experience with EGAT in executing at least one (1) contract as contractor (not as subcontractor) for supply and construction of a complete 115 kV or above conventional or GIS substation, with its overall performance satisfactory to EGAT;

2) Having experience in executing at least one (1) contract as contractor (not as subcontractor) for supply and construction of a complete 220 kV or above conventional or GIS substation in an overseas country (not his own country).

Experience record of the Bidder or either member of the joint venture/consortium, including experience record derived from being a member of other joint venture or consortium in previous project(s) is acceptable. It is not allowed to combine the experience records of each member of the joint venture/consortium in order to meet the experience requirements.

c. Further to b.1) mentioned above, having a record of experience within the last ten (10) years on the technical knowledge and practical experience on design, construction, installation and commissioning of Equipment of a 115 kV or above complete conventional or GIS substation. Bidder shall also demonstrate his capacity to perform Work.

Further to b.2) mentioned above, having a record of experience within the last ten (10) years on the technical knowledge and practical experience on design, construction, installation and commissioning of Equipment of a 220 kV or above complete conventional or GIS substation. Bidder shall also demonstrate his capacity to perform Work.

Experience record of the Bidder or either member of the joint venture/consortium, including experience record derived from being a member 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 c. above were performed by the Bidder or either member of the joint venture/consortium of this project. It is not allowed to combine the experience records of each member of the joint venture/consortium in order to meet the experience requirements.

With respect to item b. and c. above, reference records of either the parent or affiliated companies of the Bidder or of either member of joint venture or consortium shall not be acceptable. If the Bidder has previously formed as the joint venture/consortium with other company and the experience record(s) of the joint venture/consortium meet(s) the requirement set forth herein, such experience record(s) of the joint venture/consortium is(are) also acceptable as the experience record(s) of the Bidder.

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

1. Regularly manufacturing of Equipment of the type and similar ratings proposed.

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

3. The manufacturer shall have the experience records that meet the requirements set forth herein.

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

4. If the Manufacturer is a new company formed by acquisition of or merger with other companies or business units, and any of such previous companies or business units has the experience records that meet the requirements set forth herein, such experience records are acceptable as the experience records of the new company, provided that each item of the equipment to be supplied under this bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records as described in Item I.d.5 thru I.d.8 below. Otherwise, it shall not be acceptable and shall be sufficient grounds for rejection.

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

5. For 230/115 kV Ratings of Gas-Insulated Switchgear (GIS). These Equipment shall be manufactured by the qualified manufacturers who shall fulfill the following requirements:

   5.1 Having one of the following qualifications:

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

      OR

5.1.2 For 230 kV Gas-Insulated Switchgear (GIS):

Having a supply record of Equipment of the type proposed (type of enclosure, interrupter of circuit breaker, rated filling gas pressure) at the nominal system voltage of 220 kV or above, 3000 A or above, 50 kA or above, with successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least three (3) substations of which total GIS bays shall not be less than twelve (12).

However, the Equipment of the type and short circuit current ratings proposed shall have a supply record of successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least one (1) substation of which total GIS bays shall not be less than four (4).

In case that the supply record of Equipment of the type and ratings proposed fulfills the requirement, the manufacturer may propose a newly developed or modified type of such Equipment with successful operation/use of at least three (3) substations of which total GIS bays shall not be less than twelve (12) and having minimum one (1) year in overseas country (not his own country). The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgment whether or not to consider or accept the proposed developed or modified type.

For 115 kV Gas-Insulated Switchgear (GIS):

Having a supply record of Equipment of the type proposed (type of enclosure, interrupter of circuit breaker, rated filling gas pressure) at the nominal system voltage of 110 kV or above, 2000 A or above, 40 kA or above, with successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least three (3) substations of which total GIS bays shall not be less than twelve (12).

However, the Equipment of the type and short circuit current ratings proposed shall have a supply record of successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least one (1) substation of which total GIS bays shall not be less than four (4).

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

twelve (12) and having minimum one (1) year in overseas country (not his own country). The detailed information of the development or modification shall be submitted with his proposal. EGAT, however, reserves the right and will make its own judgment whether or not to consider or accept the proposed developed or modified type.

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

6. For 230/115 kV Ratings of Power Circuit Breaker, Disconnecting Switch and 115 kV Compact Switchgear shall be manufactured by the qualified manufacturers who shall fulfill the following requirements:

6.1 Having one of the following qualifications:

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

OR

6.1.2 For 230 kV Power Circuit Breaker and Disconnecting Switch:

Having a supply record of Equipment of the type proposed at nominal system voltage of 220 kV or above, 3000 A or above, 50 kA or above, with successful operation/use of at least three (3) consecutive years in an overseas country (not his own country) and at least three (3) three phase sets.

However, the Equipment of the type and short circuit current ratings proposed shall have a supply record of successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least one (1) three phase set.

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

For 115 kV Power Circuit Breaker, Disconnecting Switch and Compact Switchgear:

Having a supply record of Equipment of the type proposed at nominal system voltage of 110 kV or above, 2000 A or above, 40 kA or above, with successful operation/use of at

least three (3) consecutive years in an overseas country (not his own country) and at least three (3) three phase sets.

However, the Equipment of the type and short circuit current ratings proposed shall have a supply record of successful operation/use of at least three (3) consecutive years in overseas country (not his own country) and at least one (1) three phase set.

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

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

7. For 230/115 kV Ratings of following Equipment: Instrument Transformer and Surge Arrester. These Equipment shall be manufactured by the qualified manufacturers who shall fulfill the following requirements:

7.1 Having one of the following qualifications:

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

OR

7.1.2 Having a supply record of Equipment of the type and ratings proposed with successful operation/use of at least three (3) three phase sets and having minimum three (3) consecutive years in an overseas country (not his own country).

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

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

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

8. For 230 kV Control and Protection Panel and below, having the following qualifications:

8.1 Being local manufacturer.

8.2 Having one of the following qualifications:

8.2.1 Having a letter of acceptance for manufacturing of Control and Protection Boards and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein.

OR

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

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

a. The Bidder shall have sufficient capacity to carry out the work.

b. The Bidder shall have no just or proper claims pending against him with respect to breach in the performance of Contract on other similar works awarded by EGAT. In case the Bidder is a joint venture/consortium, either member of the joint venture/consortium shall have no just or proper claims pending against him with respect to breach in the performance of Contract on other similar works awarded by EGAT.

c. The Bidder himself or his subcontractors, at the time of submitting this proposal, shall not carry excessive work nor be in a default position with respect to work with EGAT. Unsatisfactory past performance on Contract awarded by EGAT may be a sufficient reason of being disqualified.

d. The Bidder shall propose Equipment from manufacturers who fulfill the requirements below. If there is any deficiency, EGAT reserves the right to require the Bidder to propose new manufacturer or new type/model of Equipment without any additional cost to EGAT.

1. Regularly manufacturing of Equipment of the type and similar ratings proposed.

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

3. The manufacturer shall have the experience records that meet the requirements set forth herein.

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

4. If the Manufacturer is a new company formed by acquisition of or merger with other companies or business units, and any of such previous companies or business units has the experience records that meet the requirements set forth herein, such experience records are acceptable as the experience records of the new company, provided that each item of the equipment to be supplied under this bid shall be manufactured from the same source of supply as indicated in each of such relevant supply records as described in Item II.d.5 thru II.d.14 below.

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

5. For 33, 22 and 11 kV ratings of following Equipment : Metal-Clad SF_6 Gas Insulated Switchgear, Power Circuit Breaker, Instrument Transformer, Disconnecting Switch and Surge Arrester

   Having one of the following qualifications:

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

   OR

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

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

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

6. For Distribution Transformer, Power Fuse, AC&DC Distribution Board and Lighting Relay Panel (LRP), Load Center Unit Substation (LCUS), Junction Box, Battery Charger, Substation Steel Structure, 33 kV and below Cable Terminations, 115 kV and below XLPE Power Cable, Power Cable, Control

Cable and Switchboard Wire, Lighting Cable, Copper Ground Wire, Overhead Ground Wire, Aluminum Conductor, Optical Fiber Cable, Switchyard Lighting Fixtures, Aluminum Tube, Compression Connector and Miscellaneous Hardware, Bus Fittings, Ground Rod, Thermite Welding Material, Grounding Hardware, Conduit and Conduit Fittings

6.1 Being local manufacturer for the following Equipment:

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

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

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

6.3 Having one of the following qualifications:

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

OR

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

7. For Insulator

Having one of the following qualifications:

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

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

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

OR

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

8. For Stationary Battery

Having one of the following qualifications:

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

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

OR

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

9. For above 33kV through 230 kV Outdoor Type Cable Termination and Cable Termination for GIS.

Having one of the following qualifications:

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

OR

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

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

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

10. For 230 kV XLPE Power Cable

    Having one of the following qualifications:

    10.1 Having a supply record of Equipment of the type and similar ratings proposed with successful operation/use for at least three (3) consecutive years in an overseas country (not his own country).

    OR

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

11. Proposing the protective relays from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications. Type/Model of the protective relays proposed shall be as specified in EGAT ACCEPTED MULTIFUNCTION RELAY LIST attached at the end of Section A. Invitation to Bid.

12. For Fault Recording System.

    12.1 Having one of the following qualifications:

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

        OR

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

            12.1.2.1 Having a letter of acceptance for manufacturing of Control and Protection Boards and/or fabrication of the specific Equipment issued by EGAT within the scope specified therein.

            OR

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

The design and engineering shall be performed by the FRS manufacturer. The assembly, factory test and commissioning shall be in accordance with the FRS manufacturer's standard and shall be performed under the FRS manufacturer's supervisor.

12.2 Proposing the Fault Recording System (FRS) from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR FAULT RECORDING SYSTEM attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications. Type/model of FRS proposed shall be as specified in EGAT ACCEPTED FAULT RECORDING SYSTEM LIST attached at the end of Section A. Invitation to Bid.

13. Being local manufacturer for steel supporting structure of Instrument Transformer, Surge Arrester and Disconnecting Switch.

14. For Closed-circuit television (CCTV) system and equipment

14.1 Proposed camera and Network Video Recorder (NVR) manufacturer shall have a representative or a branch office of manufacturer in Thailand for at least ten (10) years.

14.2 Proposed brand of IP cameras shall have a supply record of IP cameras for at least five hundred (500) IP cameras per contract with successful operation/use for at least three (3) years in Thailand.

14.3 The bidder or subcontractor shall have one of the following qualifications:

14.3.1 Having experiences in installation and cabling of outdoor-type IP cameras for at least fifty (50) cameras per contract with successful operation/use for at least three (3) years in Thailand.

OR

14.3.2 Having experiences in optical fiber cabling in substation switchyards for at least five (5) substations per contract with successful operation/use for at least three (3) years in Thailand.

14.4 Being local manufacturer for the following Equipment: CCTV Rack cabinet, Monitoring desk, CCTV pole, 12-core ADSS optical fiber cable.

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

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

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

Definitions:

Complete substation:	New substation or Extension of the existing substation which comprise of at least one transformer circuit and one line circuit. All above scope may not be necessary to include the building construction and the civil works by themselves. However, the design, supervision, and execution of the buildings and the civil works shall be required.
Year(s) of operation/use:	The period of operation Completion date or Commissioning date or Taking over date or Operation date or Put in service date stated in End User Certificate or the sufficient documentary evidence before bid opening.

A-5. Joint Venture or Consortium

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

A-6. Preparation and Delivery of Bids

Bids shall be prepared in accordance with the Instructions to Bidders contained in the Bidding Documents in one (1) original ***hard copy and one (1) electronic copy contained in USB flash drive***, in English, on the bid forms included for this purpose and shall be accompanied with a bid security as required under Article B-3. Bid Security shall be submitted in a separate sealed envelope.

For preparation of original hard copy, each page of the original hard copy shall be marked with the volume number and the page number in the lower right-hand corner, for example, Volume 1 of 10 and Page 1 of 100.

For preparation of electronic copy, each volume of the signed original hard copy shall be scanned into one (1) PDF file and each PDF file shall be named according to the volume number.

The USB flash drive shall contain electronic files of the proposal in the following formats:-

- PDF files of all pages of each volume of the proposal, and

- Excel files of filled-in Proposal Data, and

- Excel files of filled-in Price Schedule

In the event of any discrepancy between the original hard copy and the electronic file(s), the original hard copy shall govern.

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

INVITATION TO BID NO. SNS1-S-01

SUPPLY AND CONSTRUCTION OF 230 kV SRINAGARIND 2 SUBSTATION AND EXPANSION OF 230 kV SRINAGARIND SUBSTATION

TRANSMISSION SYSTEM FOR HYDRO-FLOATING SOLAR HYBRID PROJECT SRINAGARIND DAM UNIT 1

and shall be addressed and delivered to :

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

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

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

Bids will be opened publicly at ***place and*** time specified ***in Tentative Schedule***.

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

A-7. Availability of Bidding Documents

The Bidding Documents are available for examination ***and online purchase at http://www4.egat.co.th/fprocurement/biddingeng/*** and can be obtained ***by downloading via link provided by EGAT*** upon payment to EGAT, non-refundable, in the amount of USD 170.- or Baht 5,000.- These prices include the value added tax.

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

EGAT Accepted Multifunction Relay List

Manufacturer	Model	87L			21P			21BU			25			79			67			51			50BF			50EF			27/59			81			24			87K/87R/87C			87B (H)			87B (L)			60C (V)			60C (I)			Remark
		500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	
ABB	RED670 (*)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																
	REL670 (*)				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																
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	REQ650 (**)										*	*	*												■																											* Only product version 2.1 is accepted.
GE	P543 (**)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																
	L90 (*)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																
	P443 (*)				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																
	D30									■																																									
	D60 (*)				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																				
	ALPSDA1				■	■	■	■	■	■																																								
	P64x (*)																			**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	*	*	*											* Only P643, P645 ** Only P643
	T35																																				■	■											
	T60 (*)																■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■														
	P746																			*	*	*	*	*	*	*	*	*																							* Must add 1 Relay for ground unit (More than 6 bays case)
	P740 (*)																																																
	P747																																																
	B90 (**)																																																
	B30																																									*	*	*											* Only for breaker and a half, double bus double breaker or main and transfer bus arrangement
	P14Nx																																																
	P14Dx (**)														*										**																											* Only 3 Pole recloser function ** Only 3-phase breaker failure function
	P841																																																
	P141 (**)																																																
	C60																								■																										
	F60																								■																										
	F650 (**)																																																
	SR350																																																

Oct 2023

EGAT Accepted Multifunction Relay List

Manufacturer	Model	87L			21P			21BU			25			79			67			51			50BF			50EF			27/59			81			24			87K/87R/87C			87B (H)			87B (L)			60C (V)			60C (I)			Remark
		500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	
GE	DRS															*																																	
	P94Vx																																																
	MIV																																															
	P94V																												*	*	*																		* None of VT input (open delta connection) for 59N.
	P143 (**)															*																																	* Only 3 Pole recloser function
SEL	SEL-311L																																															
	SEL-411L (*)																																														
	SEL-421 (*)																																														
	SEL-311C																																														
	SEL-387																																						*	*								* 4-restraint
	SEL-487E (*)																																														
	SEL-587																																							*								* 2-restraint
	SEL-787 (**)																																							*								* 4-restraint
	SEL-587Z																																														
	SEL-487B (*)																																														
	SEL-501																																														
	SEL-351A																																														
	SEL-451 (*)																																														
	SEL-751 (**)																																														
	SEL-551																																														
	SEL-751A																																														
Siemens	7SD52 (**)																																														
	7SA522 (**)																																														
	7SA6 Series (**)																																														
	7SA87 (*)																																														
	Duobias (**)																																														
	7UT6 (**)																																						*	*	*							* 5-restraint
	7UT82 (**)																																						*	*	*							* 2-restraint
	7UT86 (*)																																						*	*	*							* 3-restraint
	7SS52 (**)																																														
	7SS60																																											*	*	*				* Only for breaker and a half, double bus double breaker and main&transfer bus arrangement
	7SS85 (*)																																														
	7VK6 Series (**)																																														

Oct 2023

EGAT Accepted Multifunction Relay List

Manufacturer	Model	87L			21P			21BU			25			79			67			51			50BF			50EF			27/59			81			24			87K/87R/87C			87B (H)			87B (L)			60C (V)			60C (I)			Remark
		500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	
Siemens	7SJ62 (**)																																																
	7SJ85 (*)															*									**																									* Only 3 Pole recloser function ** Only 3-phase breaker failure function
	7SJ61 (**)																																																
	7SJ82 (**)																																																
	7VK61 (**)																																																
	7SL82 (**)																																																
	7SL87 (*)																																																
	7RW80 (**)																																																
	7SA82 (**)																																																
Toshiba	GRZ200 (*)																																																
	GRT200 (*)																																																
	GRD200 (*)																																																
	GRE140																																																
	GRB200 (*)																																																
	GRL200 (*)																																																
Schneider Electric	P543 (*)																																																
	P443 (*)																																																
	P645 (*)																																							*	*	*								* 5-restraint
	P746 (*)																																																
	P740 (**)																																																
	P821																								*	*																								* Only firmware version 1.F is accepted
	P141 (**)																																																
	P143 (**)																																																
	P120																																																
	P122																																																
ZIV	ZLV																																																
	IDV																																																
	IRL																																																
	IRV																																																
Ingeteam	EF-LD (*)																																			*	*	*							**	**	**				* Only 2-step overfluxing relay ** Only for open delta connection
	EF-ZT (*)																																											*	*	*				* Only for open delta connection

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EGAT Accepted Multifunction Relay List

Manufacturer	Model	87L			21P			21BU			25			79			67			51			50BF			50EF			27/59			81			24			87K/87R/87C			87B (H)			87B (L)			60C (V)			60C (I)			Remark
		500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	500 kV	230 kV	115 kV	
Ingeteam	EF-TD (*)																																		*	*	*							**	**	**				* 3-restraint ** Only for open delta connection
	EF-MD (*)																																											*	*	*				* Only for open delta connection
	DA-PT (**)																																											*	*	*				* Only for open delta connection
NR Electric	PCS-931 (*)																																																
	PCS-902 (*)																																																
	PCS-978 (*)																																																
	PCS-9611 (*)																																															*	* Only 1 unbalance input current.
	PCS-978S (*)																																															
	PCS-9611S (*)																																														*	* Only 1 unbalance input current.
	PCS-915SC (*)																																															
Mitsubishi	MRD-HA (**)																																								*									* 3-restraint
	MBP-H1A (**)																																												*	*				* In case of double bus single breaker arrangement, maximum 8 feeders with 1 bus coupler and 2 bus sections are allowed.
Protecta	DTIVA-E3																																															
	DTVA-E1																																															
	DTRV-E2																																															
	DGYD																																															

Remarks

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

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

Notes

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

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EGAT ACCEPTED FAULT RECORDING SYSTEM LIST

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

Remarks

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

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

Notes

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

2. If any types of FRS in the list are planned to discontinue the manufacturing, the manufacturer or the representative is responsible for informing EGAT at least 1 year before the unavailable date.

EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY

Description	Manufacturer / Country
Protective Relay	ABB / Sweden, Switzerland, USA
	GE / USA, Canada, Spain, UK
	SEL / USA
	Siemens / Germany, UK
	Toshiba / Japan, Vietnam
	Schneider Electric / France, UK
	ZIV / Spain
	INGETEAM / Spain
	NR Electric / China
	Mitsubishi / Japan
	Protecta / Hungary
	Arcteq / Finland
	Sifang / China

Sep 2023

EGAT ACCEPTED MANUFACTURER LIST FOR FAULT RECORDING SYSTEM

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

EGAT ACCEPTED MANUFACTURER LIST FOR

CONTROL AND PROTECTION PANEL (LOCAL MANUFACTURER)

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

Notes

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

SECTION H

SCOPE OF WORK

SCOPE OF WORK

H-1.General

1. 230 KV SRINAGARIND 2 SUBSTATION

GENERAL

230 kV Srinagarind 2 Substation is located at Srinagarind Dam, Amphoe Si Sawat, Kanchanaburi Province.

The Contractor shall design, supply and construct the new 230/33 kV Srinagarind 2 Air Insulated Substation (AIS) which consist of Four (4) Bays of Single Bus Single Breaker scheme. The new 230/33 kV AIS shall be provided for transmission lines and transformers as follows:

- Two (2) bays for 230 kV Lines No. 1 & 2 to Srinagarind
- One (1) bay for 3-1Ø-55/27.5//27.5 MVA , 230/√3-33-33 kV Power Transformer "KG1A"
- One (1) bay for 3-1Ø-60/30//30 MVA, 230/√3-33-33 kV Future work of Power Transformer "KG2A"

The overall 230 and 33 kV system, control building and KG1A should be completely constructed and ready for commissioning test with 33kV Floating Solar system (FPV) within completion date of Schedule 1

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

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

1) As stated elsewhere in these bidding documents, the drawings included in the bidding documents except drawing mark "For Construction" are for bidding purposes only and shall not be used for execution of the work.

2) The submitted drawings which are incomplete/unacceptable, or are the bidding document copies with minor modifications shall be returned unmarked to the Contractor.

3) The drawings shall be furnished which provide all details required for thoroughly described equipment as well as installation methods and requirements. However, EGAT retains the right to request additional details if those furnished are perceived inadequate.

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

ELECTRICAL PART

Schedule 1 and 2

Work included in this Contract.

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

1. 230/33 kV Air Insulated Substation (AIS) substation
   - 1.1 Design, supply and installation of equipment required for a complete the new 230 kV AIS.
   - 1.2 Design, supply and installation of equipment required for a complete the new 33 kV AIS.
   - 1.3 Design, supply and installation of miscellaneous hardware required for the following
     - 1.3.1 Design, supply and installation of equipment required for an additional 230 kV Lines No. 1 to Srinagarind.
     - 1.3.2 Design, supply and installation of equipment required for an additional 230 kV Lines No.2 to Srinagarind.
     - 1.3.3 The grounding equipment and miscellaneous hardware for 3-1Ø-55/27.5//27.5 MVA , 230/√3-33-33 kV Power Transformer "KG1A"
     - 1.3.4 The grounding equipment and miscellaneous hardware for 3-1Ø-60/30//30 MVA, 230/√3-33-33 kV Future work of Power Transformer "KG2A"
     - 1.3.5 Design, supply and installation of equipment required for an additional 33 kV to Floating Solar System.
   - 1.4 Design and installation of Circuit breakers, Instrument transformers, Disconnecting switches, Steel structures as per substation Steel structure Layout (SNR2-S-7-01/02 and SNR2-S-7-02/02), and Insulators to complete electrical work. There is some equipment supplied by EGAT and installed by Contractor (see bidding document).
   - 1.5 Design supply and installation of Distribution transformer (KW1A), Instrument transformers, Disconnecting switches, Steel structures, fuses, miscellaneous hardware and related accessories to complete electrical work.

There is some equipment supplied and installed by Contractor (see bidding document).

1.6 The Contractor shall design the control building to install control & protection panels, air-conditioning system and ventilation system.

1.7 Design, supply and Installation of the identification plates of all equipment and other necessary plates. The nameplates color shall conform to Dwg. No.SE-ID-8-01 and their locations shall be appropriate.

1.8 Design the take-off structure beam including P16, B33 and B35 to form 230 kV Main Bus with the capacity of 4,000 A, 4x1272 MCM ACSR (Strain Bus).

1.9 The sag and tension of phase wires and overhead ground wires shall be calculated and designed according to internationally-accepted standards by the contractor and the said calculation shall be submitted to EGAT for approval.

2. Station service system

2.1 Design, supply and installation of the station service system complete with integral accessories to provide the complete system operation. The station service system shall mainly consist of as follows :

- 500 kVA, 33,000-400/230 V distribution transformer (KW1A)
- Load Center Unit Substation (LCUS)
- 33 kV drop-out fuses for KW1A
- 600 V, 800 A safety switches
- 33 kV equipment, and AC & DC distribution boards, stationary batteries, battery chargers, power cables, and all related equipment for the complete operation

2.2 Design, supply and installation of equipment required for a complete 400/230 V power supply system.

2.3 Design, supply and installation of station service transformers (KW1A).

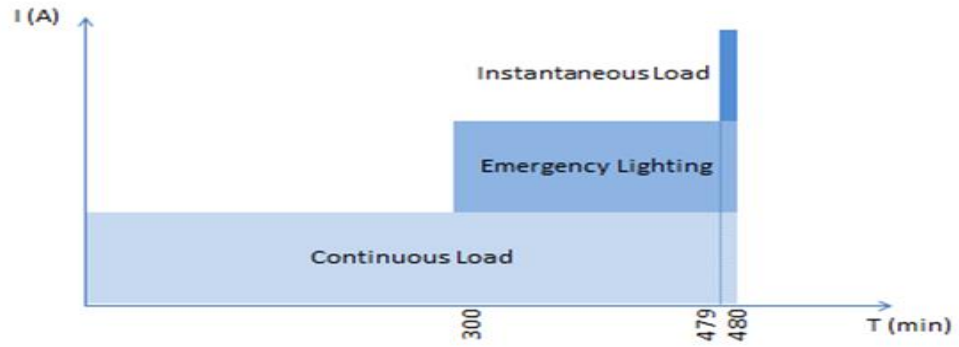
2.4 Design, supply and installation of emergency lighting system for control & relay building in case of normal station service fails with the illuminance of 150 LUX for at least 3 hours as shown in figure below (2.5) .

2.5 Design, supply and installation of the stationary battery, in which the battery is capable of delivering power to the control and protection for tripping all circuit breakers and emergency essential load including FPV panels for at least 8 hours if normal station service fails. The capacity of the battery shall

not be less than 600 AH and designed by Contractor which the considered factors that influence the capacity of battery shall be as follows :

- The temperature correction factor is 1.0
- The design margin factor is 1.15
- The aging factor is 1.25

In case of bus faults occurring on the last hour of battery power, the battery shall generate sufficient power for tripping all circuit breakers. The stationary battery shall be designed and calculated in accordance with IEEE or other acceptable international standards. In addition, the size of the stationary battery shall be designed to support the operation of the new and future 230 kV AIS as shown on the attached bidding document drawings. The calculation shall be submitted to EGAT for approval.



Battery Duty Cycle

3. Grounding system

3.1 Design, supply and installation the grounding system of the following

- 230/33 kV Substation
- Control cabinets & Relay building
- 33 kV and LV system.

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

3.3 The contractor shall design, supply and install the conductor size 2x4/0 AWG bare copper wire type connect from ground grid to steel structure and equipment.

3.4 The ground grid conductors spacing under the building area shall be as same as the switchyard.

3.5 Design, supply and installation of the grounding equipment and miscellaneous hardware for

- 230/33 kV substation
- 33 kV power supply system
- LV system

3.6 The contractor shall evaluate the price of ground grid based on the specified design for price reference as below :

3.6.1 The maximum ground grid conductor spacing (D_0) shall be 3.0 meters.

3.6.2 The number of ground rod shall be 130 pieces.

3.7 The Contractor shall conduct the soil resistivity measurement. The result shall be submitted to EGAT for approval.

3.8 The Contractor shall design a grounding grid based on the measured soil resistivity by hand calculation using the equations in IEEE-80 standard and submitted to EGAT for Approval. The parameters for grounding system calculation shall be used as follows :

- Fault current division factor (s_f) value = 1
- Fault current (rms) = 50 kA
- Time duration of fault = 1 second

These parameters shall be used for determine the size of grounding conductor for the substation grounding system. If the ground conductor spacing calculated by hand (D_1) is less than the grounding conductor spacing for reference (D_0), the Contractor shall design a grounding grid by using the software. The certification of software shall be acceptable for commercial use.

3.9 The foundation without steel structure shall have spare grounding points (2x4/0 AWG) of future electrical equipment. In the future, those points shall be able to extend for grounding of equipment installed above future foundation.

4. Lightning protection

4.1 Design, supply and installation of the substation lightning protection system complete with all related equipment. The Contractor shall design the lightning protection system for the protection of all substation equipment which is under the protective zone. To meet EGAT's design criteria for the lightning protection system and to enhance the stability of lightning protection system, the Basic Insulation Level voltage (BIL) is to be used in calculation instead of Critical Flashover voltage (CFO) as follows :

- 900 kV for 230 kV Substation

For 33 kV Substation, the stroke current of 2 kA shall be used for the calculation.

4.2 For the design of lightning protection system for control with relay building the lightning protection level (LPL) shall be used level 1 for calculation and the overhead ground wire is not permitted. Air terminal rods installed at the roof shall be used instead.

4.3 Lightning protection system shall be designed to meet IEC, NEMA and E.I.T. standards or internationally-accepted standards.

5. Facility system

5.1 Outdoor facility system

5.1.1 Design, supply and installation of a substation lighting system complete with all integral accessories to provide a complete system operation. The lighting system shall mainly consist of equipment lighting, fence lighting, access road lighting, power box (PRB), sign board lighting, lighting relay panel, raceways, and wiring cables for lighting circuits.

5.1.2 The lamps for outdoor facility lighting system shall be LED type with all integral accessories, e.g. lamp holders, fixtures, reflectors, and etc. The Contractor shall provide drawings that show details for installation.

5.1.3 Design, supply and installation of circuits for the main entrance gate.

5.1.4 Design, supply and installation of circuits for remote control and door phone system of the entrance gate. The control of the entrance gate shall be operated in both manual and remote-control modes which shall be controlled from both the control room and the guardhouse.

5.2 Indoor facility system

5.2.1 Design, supply and installation of the facility system which mainly consists of lighting system, grounding system, power supply, fire alarm and protection system, air conditioning system, and ventilation system, and telephone & LAN system in the 230 kV AIS building and Control building. All cable wiring systems shall conform to NEC and IEC standards or internationally-accepted standards.

5.2.2 The lamps for indoor facility lighting system shall be LED type with all integral accessories, e.g. lamp holders, fixtures, reflectors, and etc. The Contractor shall provide drawings that show details for installation and specify the LED lamp and LED luminaire circuit identified that the LED lamp circuit shall be supplied by 2 - 3 manufacturers.

5.2.3 All steel accessories e.g. lip-channel, conduit, conduit fittings, conduit accessories, box and cover shall be hot dip galvanized.

5.3 The size of low voltage cable shall be sufficient to keep the voltage drop at the load point less than 5% at rated load current.

5.4 The voltage drop shall conform to EGAT's requirement and the calculation shall be submitted for approval.

5.5 The inverter for emergency essential load shall meet the requirement as per DWG. No. SNR2-L-5-01/01. Also, The Harmonic current emission values shall be limited as per IEC 1000-3-4 standard. The contractor shall responsible for inverter sizing calculation and the calculation shall be submitted to EGAT for approval.

6. Telecommunication system

Design, supply and installation of the telecommunication tower 30 meters height. The telecommunication tower shall be constructed and divided into appropriate portions which are painted white and orange alternately with the top and bottom portions being painted orange. The obstruction lighting system shall be controlled by automatic flash box (AFB) that gives 30 - 60 flashes per minute. The AFB shall be turned on and turned off by a photo-light switch. The lightning protection system for the telecommunication tower shall be calculated and designed by the Contractor and the said calculation shall be submitted to EGAT for approval.

7. Others work

7.1 Supply and Installation of miscellaneous hardware required for suspension and station post insulators assembly.

7.2 Modification of Junction box supporting structures (JB003) for the installation of outdoor receptacle box (ORB1 & ORB2) and common cubicle for maintenance (CCM).

7.3 Modification of Junction box supporting structures (JB001) for the installation of safety switches.

7.4 Design, supply and installation of cabling from the outdoor Common control cabinet for transformer (CCC) to the associated equipment.

7.5 Modification of MS409 to install Motor operating Disconnecting Switch (3317A and 3317B, Item: 1AB10-1) at H=5.5 m (From Base Plate to top terminal) and design steel supports structure for 33 kV termination and XLPE Cable from 33 kV floating solar switchgear building (The 33 kV terminations and 33 kV XLPE cables from floating solar are supplied and installed by others).

7.6 Modification of MS409 to install 33 kV Power Fuse (3391F(A)) connected to Distribution Transformer (kW1A) and to install VW1A (See example as DWG. No. SE-MS-3-06 (01/01) for information.

7.7 Modification of BS801 at "H" (From Base Plate to top terminal) and distance "X" suitable for 33 kV phase spacing $\geq$ 0.8 m to install Aluminum tube circuit No.1&No.2 from KG1A connected to MS409. The contractor shall recheck and design conforming to actual phase spacing, and the height of BS801 (H) which will be specified in DWG. of 230/33 kV Power transformers "KG1A " will be supplied by EGAT

7.8 The electrical path outgoing from 33 kV terminal bushing (2 Circuits) of Power transformer shall be selected by contractor either bare conductor or conduit to meet all EGAT's requirement.

7.9 Modification of B205 to installed 3"diameter Aluminum tube connecting from 33 kV bushing (2 circuits), which will be specified in DWG. of Power transformers "KG1A" supplied by EGAT. to 33 kV Main bus to form delta connection.

7.10 Modification of B209 to install Six (6) sets Stacked formation of 3" diameter Aluminum tube to form delta winding connection from each single Power transformer through B205 and connection of 33 kV No.1 and No.2 to BS801

with safety height from ground level to the lowest live parts and safety electrical clearance with accepted standard.

7.11 Supply and installation of cabling for control and protection system of transformers "KG1A" and common cubicle cabinet (CCC).

7.12 Installation of heat shrinkable insulation material for 33 kV conductor between 33 kV drop-out fuses and distribution transformers.

7.13 Installation of heat shrinkable insulation material for phase spacing distance less than 1.00 m. in 33 kV system (if any).

7.14 Supply and installation of labels or signs for indication the low voltage underground cable routes in case of the low voltage cables and communication cables installed by direct burial method or run in conduit method.

7.15 Modification of Junction Box PT6 to install on the MS409 structure

8. Temporary power supply for site office

8.1 Rental of a generator set and supply of fuel to support construction loads after the Letter of Award (LOA) for a period of six to eight (6-8) months, or until the contractor can connect to the 22 kV system for construction work (8.2).

8.2 Connection of 22/33 kV system for construction load from 22/33 kV PEA's meter which is adjacent to solar floating assembly area to 230 kV substation construction site approximately 0.8 – 1.0 km

9. Temporary Transportation

Rental the barge from local area or in the province for transport all related construction machine e.g. backhole from the land to construction site (island). The period of temporary transportation will be at least eight (8) months.

10. Testing and commissioning

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

Work not included in this Contract.

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

1. Supply and installation of 3-1Ø-55/27.5//27.5 MVA, 230/ √3-33-33 kV Power Transformer "KG1A" except cabling work for control and protection system and grounding system.
2. Supply and installation of 3-1Ø-60/30//30 MVA, 230/ √3-33-33 kV Power Transformer "KG2A".
3. Supply of Generator Set
4. The stringing work for the connection between the 230 kV Substation take-off structures and the dead-end towers of the transmission lines.
5. Supply of suspension and station post insulators
6. Supply of and installation of 33 kV Switchgear building (By others)
7. Supply of and installation of 33 kV XLPE cables from 33 kV Switchgear to 3317A and 3317B (By others)

CONTROL AND PROTECTION PART

Schedule 1

Work Included In This Contract

1. Design, supply, installation, wiring, test and commissioning of complete control and protection system which comprises at least the following equipment:
   - Swing rack type switchboard panels
   - Metering panel
   - Interposing relay panel and transducer panel
   - Marshalling panel for the tele-protection interface
   - Marshalling panel for the control system
   - Fault recording system panels and marshalling panel for fault recording system
   - Marshalling panels for the remote terminal units
   - Marshalling cubicle for power plant
   - E1 converter panel
   - Outdoor GPS receiver system
   - GPS receiver Panel
   - 125 VDC power panel, 125 VDC and 400/230 VAC distribution board
   - Cables and accessories as well as connection of cables among all of the boards and the associated equipment in order to complete the function of the control and protection system.

2. Design, installation, wiring, test and commissioning of Remote Terminal Units (RTUs) and EGAT CCS/ RTU operator console which are supplied by EGAT, whereas configuration included in this contract must be fulfilled under EGAT's supervision. Cable and accessories for interfacing are supplied by Contractor.

3. Providing completed EGAT RTU I/O List and FRS Channel List in both hardcopy and electronic file.

4. Installation of the application software, database, control function and display for the Computerized Control System whereas the application software is supplied by EGAT. The installation shall be under EGAT's supervision.

5. Design, supply, installation, test and commissioning of Optical Fiber Cable of Remote Terminal Units (RTUs) and Fault Recording System (FRS) that connection within the control room.

6. Design, supply, installation, wiring, test and commissioning of Ethernet switch which connected between protection relays and EGAT's operation lan.

7. Design, supply, installation, wiring, test and commissioning of GPS receiver which is used as a reference time base to control and protection equipment.

8. The Contractor shall be responsible for providing complete schematic and wiring diagrams of the control and protection systems.

9. The Contractor shall provide the draftsman working at site during the commissioning stage in order to be in charge of writing the As-built Drawings of Control and Protection System.

Work Not Included In This Contract

1. Supply of Remote Terminal Units (RTUs), EGAT CCS/ RTU operator console and application software.

COMMUNICATION PART

Schedule 1

Work included in this Contract.

1 Design, supply, and installation of the substation CCTV system which complies with the following qualifications:

1.1 The system can be operated 24 hours a day.

1.2 All cameras in the system shall be IP-camera type.

1.3 At least 2 monitoring locations are required, the guardhouse and the control room.

1.4 Installation space in the control room shall be prepared for rack cabinet(s) and CCTV operation desk(s) positions.

1.5 In case of outdoor installation, all devices shall be weather-proof type which can be operated in all outdoor weather conditions, robust and durable.

1.6 The bidder or a subcontractor shall be authorized by a representative or a branch office of manufacturer in Thailand.

1.7 The bidder or a subcontractor shall be able to supply the spare parts of CCTV equipment in this contract for at least five (5) years starting from the date of EGAT acceptance.

1.8 The calculation and required drawing according to the attached Bidding Document Specification shall be submitted to EGAT for approval.

CIVIL AND ARCHITECTURAL PART

SCHEDULE 1

Work included in this Contract

ARCHITECTURAL WORK

1. Design and construction of
   1.1 Control Building (E-House Type).
      1.1.1 The proper foundation can be selected for the design and construction and shall be submitted to EGAT for approval.
      1.1.2 Structures shall be composed steel frame and sandwich panel system with PIR insulation and shall be submitted to EGAT for approval.
      Material Specification
         1.1.2.1 Steel Sheet (Both side)
         1.1.2.2 Aluminium-Zinc alloy coated not less than 150 g/m^2 (AZ150)
         1.1.2.3 The base metal (BMT) thickness shall not be less than 0.42 mm.
         1.1.2.4 Total after painted (APT) thickness shall not be less than 0.50 mm.
         1.1.2.5 The Minimum yield strength of 550MPa (G550)
         1.1.2.6 Finish coating. Front side: Primer not less than 5 microns and not less than 20 microns polyester resin on the top coat. Back side: not less than 5 microns polyester resin on the back side
         1.1.2.7 Insulation: PIR-Polyisocyanurate 4 Inch (100 mm.) Closed cell content not less than 90%. Density: Not less than 40 kg/m^3.
         1.1.2.8 Thermal Conductivity: No more than 0.023 w/mK (ASTM C518)
         1.1.2.9 Fire Reaction: EN 13501-1 Class B-s1, d0. BS476 Part 6<12, BS476 Part 7
         1.1.2.10 Flammability test: Self-extinguishing grade B2
         1.1.2.11 Standard: ASTM E84 – Class A
         1.1.2.12 Colour. Main: Grey colour RAL 9002, Decorate: Yellow colour RAL 1023 (20% of total area).

1.1.2.13 Warranty: With 10 years guarantee of material and installation.

1.1.3 Steel structure for roof shall be installed above and fully cover the control building area. The roof system shall be metal sheet with boltless system, and shall be submitted to EGAT for approval before installation.

Material Specification

1.1.3.1 The Boltless system with galvanized clip.

1.1.3.2 Aluminium- zinc alloy coated not less than 150 g/m² (AZ150)

1.1.3.3 The base metal (BMT) thickness shall not be less than 0.42 mm.

1.1.3.4 Total after painted (APT) thickness shall not be less than 0.50 mm.

1.1.3.5 The Minimum yield strength of 550 MPa (G550)

1.1.3.6 Finish coating. Front side: Primer not less than 5 microns and not less than 17-20 microns polyester resin on the top coat. Back side: not less than 10 microns polyester resin on the back side

1.1.3.7 Colour: Grey colour RAL 9002

1.1.3.8 With 10 years guarantee of material and installation.

1.1.3.9 Standards

- TIS 1128-2562
- ASTM A792 or AS2728 or AS1397
- AS 3566 Class 3 (Bolt)

1.1.4 Architecture of the whole building.

1.1.5 Control building dimensions (E-House Type), the size of the building, equipment layouts and cable block out shall conform to electrical drawing Dwg. No. SNR2-S-7 and Dwg. No. SNR2-S-6. Other facilities layouts shall conform to requirements with reference to architectural drawings and scope of work. Control building height shall be 3.0 m approximately. Prefabrication drawings shall be submitted to EGAT for approval.

1.1.6 Building facilities

- Electricity and illumination system including cable work for illumination, ventilation system, power supply, air conditioning system, and telephone system.
- Plumbing system for water supply, building drain and vent, storm water drainage including sanitary wares and fittings.
- Miscellaneous including grounding and labeling.

- Cable routing and cable support (cable tray and cable ladder) installed in cable room and main cable trench.
- Furniture as specified in architectural Drawings.
- Signboard on building and room name sign on each room.
- Lightning protection system.
- Emergency lighting system.
- Warning sign provided in accordance with EIT Standard or Quality and Safety Development Division Standard (EGAT).
- The Battery Room shall have wall-mounted type eyewash, made with stainless steel material, and with hand operator. The eye wash shall be in accordance with safety EGAT Design Standard Manual and ANSI Z358.1-2009: Standard for Emergency Eyewashes and Shower Equipment.
- Toilet shall be included within the building, with a size of 3.00 x 1.40 meters. Toilet and Battery room shall include sanitary wares, fittings, and accessories, as indicated in table below:

Item	Description	Quantity	Colour	Location	Standard
1	Dual flush toilet with full set of water tank	1	White	Toilet	ISO 9001:2000, TIS 792-2001(2544)
2	Wall basin with full set accessories	1	White	Toilet	
		1	White	Battery Room	
3	Wall hung urinal with flash valve	1	White	Toilet	
4	Single lever faucet	1	Nickel - chromium	Toilet	ISO 9001:2000, TIS 1278-2012(2555), TIS 2067-2001(2544)
		1	Nickel - chromium	Battery Room	
5	Rinsing spray	1	Nickel - chromium	Toilet	ISO 9001:2000, TIS 1497-2005(2548)
6	Paper holder, wall mount type	1	Nickel - chromium	Toilet	ISO 9001:2000
7	Towel ring	1	Nickel - chromium	Toilet	ISO 9001:2000, TIS 797-2001(2544)
8	Hook	1	Nickel - chromium	Toilet	
9	Frameless crystal mirror	1		Toilet	ISO 9001:2000, TIS 1732-1998(2541)
10	Floor drain	1	Stainless	Toilet	ISO 9001:2000
		1	Stainless	Battery Room	

- The model, brand, and color of sanitary wares, fittings, accessories, and emergency eyewash shall be submitted for approval by EGAT

CIVIL WORK

1. Design and construction of

   1.1 Steel structure and foundations for Specified equipment and the others not shown in "For Construction drawings" and / or EGAT's specification.

      1.1.1 Transformer foundation with oil containing pit.

      1.1.2 Take-off with fire wall foundations (fire wall conformed to NFPA 850).

      1.1.3 Take-off structure foundations.

      1.1.4 Common Control Cabinet foundation.

      1.1.5 230 kV Circuit breaker foundation.

      1.1.6 22/33 kV Main busbar support structure foundation

      1.1.7 Telecommunication tower foundation

   1.2 Road and drainage system.

   1.3 Drainage system for cable trench.

   1.4 Sizing of Oil containing pit (value of L, B, W, W1 and W2).

   1.5 Sizing of Oil separator (value of A and D), volume of oil 25/62/85cu.m. The contractor shall make an Oil separator design calculation in accordance with "IEEE STD-979-1994 (R2004)" (IEEE Guide for Substation Fire Protection), "IEEE STD-980-1994 (R2001)" (IEEE Guide for containment and control of oil spills in substation) and "Wastewater Quality Standard" of Pollution Control Department, Ministry of Natural Resources and Environment.

2. Construction of

   2.1 Steel structure foundation.

   2.2 Take-off foundation.

   2.3 Equipment structure foundation with sub trench (if required).

   2.4 Transformer loading.

   2.5 Cable trench.

   2.6 RC. Road.

   2.7 Oil separator.

   2.8 Oil containing pit with steel grating and black steel spiral-seam pipes (TIS 427-2531) with protection method according to AWWA C217, C205.

   2.9 Crushed rock surfacing.

3. The drawings and calculation of all buildings shall be verified with adequate details for intended application and submitted to EGAT for approval.

4. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.

5. All design, construction and testing shall be in accordance with Specification No.3001 : Civil and Architectural Work.

6. Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.

7. EGAT's Soil Investigation Report shall be submitted to the Contract after award of contract. If Soil Investigation Report affects foundation design (as shown in Price Schedule), the consequent works can be additional/deductive work.

8. EGAT's Soil Investigation Report (attached to the Contract) is a document that can be a reference for design, however; the review of the soil investigation report shall be under responsibility of the Contractor and the warranty of work shall remain following all obligations as specified in the Contract.

9. In case of soil layer is soft clay, consolidation test shall be performed from clay of one bored hole only. The position shall be submitted to EGAT for approval.

10. All foundations shall be as specified in layout drawing. Except the result of soil investigation shows that the specified foundations are not appropriate, the Contractor shall design the proposed foundations.

11. The Contract price shall be adjusted (added or reduced) in case that the soil investigation results to be used for the design works is different from the layout and standard drawings.

12. Seismic load test (sonic integrity test) according to ASTM D5882-96 shall be applied to all bored piles (if bored pile type is required)

13. Plate bearing test according to ASTM D1194-94 shall be submitted to EGAT for approval.(if pad type foundation is required).

14. The Contractor shall remove all debris from construction material and other works in order to make the site clean and be in the condition acceptable to EGAT.

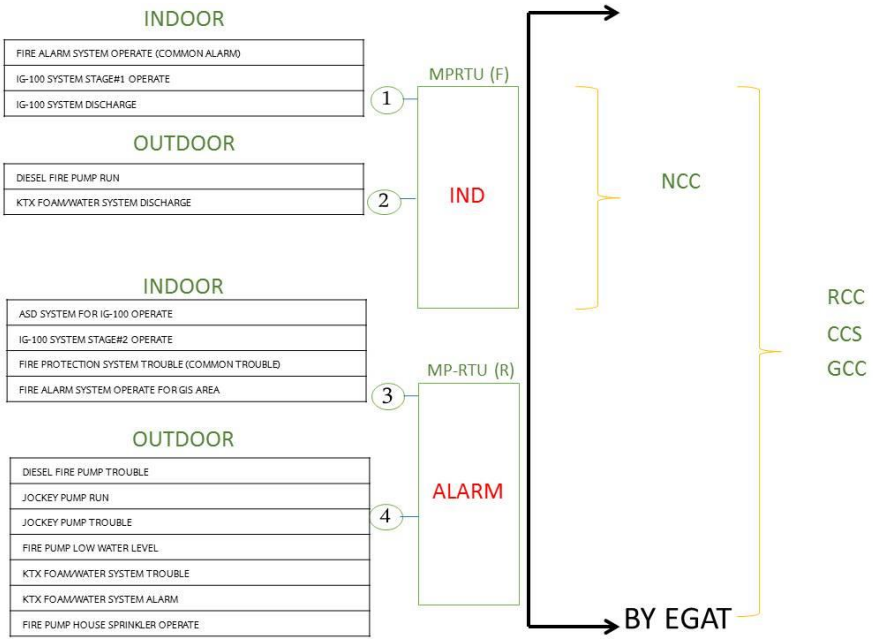
15. According to the Contract Document Section G-3 : Contractor's Office and Other Construction Facilities; the detail in paragraph 3 shall be changed as follows : the Contractor shall provide for EGAT an office container at the site during construction with a minimum space of 36 sq.m for office area, 24 sq.m for conference room which shall both be air-conditioned and 4 sq.m for toilet. The facilities as shown on the section G-3 are required for 2 sets.

WATER SUPPLY AND FIRE PROTECTION SYSTEM

1. Design and construction of
   1.1 water supply system
   1.2 Fire protection system for 230 kV Control Building.
      1.2.1. Control/Relay Building shall consist of addressable type smoke detector.
      1.2.2. The installation practice shall be in accordance with the last edition of NFPA 72.
      1.2.3. There shall be sounder and beacon on the roof of the building.
      1.2.4. Fire protection system, fire alarm system, installation room and accessories shall be in accordance with the applicable requirements set forth in the latest edition of the following codes and standards:
         - NFPA 2001 : Clean Agent Fire Extinguishing Systems.
         - NFPA 70 : National Electrical Code.
         - NFPA 72 : National Fire Alarm Code.
         - NFPA 75 : Standard for the Fire Protection of Information Technology Equipment.

- IEEE Std 979: IEEE Guide for Substation Fire Protection
- NFPA 850 : Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Substations.

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



1.2.6. There shall be portable fire extinguisher in the building with the quantity conforming with NFPA standard. For portable fire extinguisher as shown on specification 3001- 10.13.3 shall be changed to the new details as followings :

The fire extinguishers shall be conformed to latest TIS standards. The portable and mobile fire extinguishers shall be carbon dioxide (CO_2) conforming to TIS 881 and/or dry chemical conforming to TIS 332 , capacity 10 lbs/set. The fitting accessories shall be provided.

The portable fire extinguishers shall be installed according to the latest NFPA 10.

1.2.7. Fire detection devices in substation shall be as table below.

Protected Area	Detector
1. Control, Relay and Telecommunication Rooms, Thyristor valve room	ASD and SD
2. Under-Raised Floor	ASD and SD
3. Feeder Sections and Switchgear areas	ASD and SD
4. Electrical Room	ASD and SD
5. Battery room	
5.1 Battery room Vented Type	HD
5.2 Battery room Dry Type	HD
6. GIS Area	OBSD
7. Inert Gas Room	SD
8. Other Room such as Shops, Office, Warehouse and Pantry	HD or SD
9. Emergency Diesel generator room or Emergency Generator Set House	HD
10. Transformer, Shunt Reactor	LHD
11.Cable Spreading Rooms and Cable Tunnels	▪ SD when environmental condition is acceptable. ▪ LHD when environmental condition is out of range for SD ▪ ASD in high risk area and required early response.
12. Main Cable Trench of GIS Area	LHD

Abbreviations

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

1.2.8. Battery room shall be furnished with an all-stainless steel, wall-mounted emergency eyewash. Contractor shall submit the catalog and proposed location of the eyewash to EGAT for approval.

SCHEDULE 2

Work included in this Contract

CIVIL WORK

1. Design and construction of
   - 1.1 Steel structure and foundations for Specified equipment and the others not shown in "For Construction drawings" and / or EGAT's specification.
     - 1.1.1 Take-off structure foundations.
     - 1.1.2 Common Control Cabinet foundation.
     - 1.1.3 230 kV Circuit breaker foundation.
     - 1.1.4 22/33 kV Main busbar support structure foundation
   - 1.2 Road and drainage system.
   - 1.3 Drainage system for cable trench.
   - 1.4 Remote control (shall be controlled from either the control room or the guard house) and door phone system for main entrance gate.

2. Construction of
   - 2.1 Steel structure foundation.
   - 2.2 Equipment structure foundation with sub trench (if required).
   - 2.3 Transformer loading.
   - 2.4 Cable trench.
   - 2.5 RC. Road.
   - 2.6 Crushed rock surfacing.
   - 2.7 Concrete fence.
   - 2.8 Main entrance gate 8.00 m width (sliding).
   - 2.9 Signboard structure and foundation.
   - 2.10 Site office.
   - 2.11 Guard house.
   - 2.12 Garage house
   - 2.13 Lamp post for fence and access road lighting LED type foundation.

3. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.

4. All design, construction and testing shall be in accordance with Specification No.3001 : Civil and Architectural Work.

5. Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.

6. EGAT's Soil Investigation Report shall be submitted to the Contract after award of contract. If Soil Investigation Report affects foundation design (as shown in Price Schedule), the consequent works can be additional/deductive work.

7. EGAT's Soil Investigation Report (attached to the Contract) is a document that can be a reference for design, however; the review of the soil investigation report shall be under responsibility of the Contractor and the warranty of work shall remain following all obligations as specified in the Contract.

8. In case of soil layer is soft clay, consolidation test shall be performed from clay of one bored hole only. The position shall be submitted to EGAT for approval.

9. All foundations shall be as specified in layout drawing. Except the result of soil investigation shows that the specified foundations are not appropriate, the Contractor shall design the proposed foundations.

10. The Contract price shall be adjusted (added or reduced) in case that the soil investigation results to be used for the design works is different from the layout and standard drawings.

11. Seismic load test (sonic integrity test) according to ASTM D5882-96 shall be applied to all bored piles (if bored pile type is required).

12. Plate bearing test according to ASTM D1194-94 shall be submitted to EGAT for approval.(if pad type foundation is required).

13. The Contractor shall remove all debris from construction material and other works in order to make the site clean and be in the condition acceptable to EGAT.

14. According to the Contract Document Section G-3 : Contractor's Office and Other Construction Facilities; the detail in paragraph 3 shall be changed as follows : the Contractor shall provide for EGAT an office container at the site during construction with a minimum space of 36 sq.m for office area, 24 sq.mfor conference room which shall both be air-conditioned and 4 sq.mfor toilet. The facilities as shown on the section G-3 are required for 2 sets.

WATER SUPPLY SYSTEM

1. Design and construction of
   1.1 Water supply system.
   1.2 Pipe coating system shall conform to ASME A13.1 standard and ANSI-A13.1
   1.3 Underground water piping shall have indicator sign.

2. Construction of
   2.1 Underground water tank capacity 100 cu m

2. 230 KV SRINAGARIND SUBSTATION

GENERAL

230 kV srinagarind Substation is located at Srinagarind Dam, Amphoe Si Sawat, Kanchanaburi Province.

The existing 230 kV Srinagarind Substation is a conventional substation (AIS) with Double Bus Single Breaker scheme.

The contractor shall add and replace the equipment of 230 kV Srinagarind Substation for following:

- Add 230 kV equipment for 230 kV Line No.1 to Srinagarind 2
- Add 230 kV equipment for 230 kV Line No.2 to Srinagarind 2
- Replace 230 kV equipment for 230 kV Bus coupler
- Extend 230 kV Main buses

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

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

1) As stated elsewhere in these bidding documents, the drawings included in the bidding documents except drawing mark "For Construction" are for bidding purposes only and shall not be used for execution of the work.

2) The submitted drawings which are incomplete/unacceptable, or are the bidding document copies with minor modifications shall be returned unmarked to the Contractor.

3) The drawings shall be furnished which provide all details required for thoroughly described equipment as well as installation methods and requirements. However, EGAT retains the right to request additional details if those furnished are perceived inadequate.

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

ELECTRICAL PART

Work included in this Contract.

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

1. 230 kV Air Insulated Substation (AIS) substation
   - 1.1 Design, supply and installation of equipment required for a complete the 230 kV AIS.
   - 1.2 Design, supply and installation of miscellaneous hardware required for the following
     - 1.2.1 Design, supply and installation of equipment required for an additional 230 kV Lines No. 1 to Srinagarind 2.
     - 1.2.2 Design, supply and installation of equipment required for an additional 230 kV Lines No.2 to Srinagarind 2.
     - 1.2.3 Design, supply and installation of equipment required for replacement of 230 kV bus coupler.
     - 1.2.4 Design, supply and installation of equipment required for extension of 230 kV main buses.
   - 1.3 Design, supply and installation of Instrument transformers, Disconnecting switches, Steel structures, miscellaneous hardware and related accessories to complete electrical work.
   - 1.4 Design and installation of Circuit breakers, Current Transformers, Aluminum conductors to complete electrical work.
   - 1.5 Design, supply and Installation of the identification plates of all equipment and other necessary plates.

     The nameplates color shall conform to Dwg. No.SE-ID-8-01 and their locations shall be appropriate.
   - 1.6 Design supply and installation of 230 kV take-off structures and beam structures
     - TS802A and BB802A as per drawing no. SNR-TS-BB-8-02A (for guideline)
     - CE1, BD1 and BE2 as per drawing no. SNR-TS-BB-8-0XA (for guideline)

1.7 The Contractor shall extend the 230 kV main buses for 230 kV Lines No. 1 and 2 to Srinagarind 2 and connect the extended 230 kV main buses with the existing main buses to complete electrical work.

- The existing main buses (strain bus) conductor used 1260 Sq.mm.T-AAAC.
- The extended main buses (strain bus) conductor shall be 4x1272 MCM ACSR.

The Contractor shall design supply and install the miscellaneous hardware for bus connection to complete electrical work.

1.8 The Contractor shall replace the equipment of 230 kV bus coupler and design, supply and installation of miscellaneous hardware for bus connection to complete electrical work.

1.9 The Contractor shall design supply and installation of miscellaneous hardware for bus connections between 230 kV main buses and all bays to complete electrical work (if necessary).

1.10 The sag and tension of phase wires and overhead ground wires shall be calculated and designed according to internationally-accepted standards by the contractor and the said calculation shall be submitted to EGAT for approval.

1.11 The contractor shall verify the strength of the related existing structures (existing take-off structures and beam structures) with sag and tension calculation. If the strength of existing structures is not appropriate, the contractor shall be modified the existing structures (if necessary) to complete electrical work.

1.12 The contractor shall modify beam structures to install the 230 kV disconnecting switches on beam structures.

2. Grounding system

2.1 Design, supply and installation the grounding system of the following

- 230 kV AIS Substation
- Control and Protection cabinets
- LV system (if any)

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

2.3 The contractor shall design, supply and install the conductor size 2x4/0 AWG bare copper wire type connect from ground grid to steel structure and equipment.

2.4 Design, supply and installation of the grounding equipment and miscellaneous hardware for

- 230 kV AIS substation
- Control and Protection cabinets
- LV system (if any)

3. Lightning protection

3.1 Design, supply and installation of the substation lightning protection system complete with all related equipment. The Contractor shall design the lightning protection system for the protection of all substation equipment which is under the protective zone. To meet EGAT's design criteria for the lightning protection system and to enhance the stability of lightning protection system, the Basic Insulation Level voltage (BIL) is to be used in calculation instead of Critical Flashover voltage (CFO) as follows :

- 900 kV for 230 kV Substation.

3.2 Lightning protection system shall be designed to meet IEC, NEMA and E.I.T. standards or internationally-accepted standards.

4. Others work

4.1 Supply and Installation of miscellaneous hardware required for suspension and station post insulators assembly.

4.2 Design and Installation of suspension and post insulators. Supply and installation of all hardware for suspension and post insulator assembly.

4.3 Supply and installation of labels or signs for indication the low voltage underground cable routes in case of the low voltage cables and communication cables installed by direct burial method or run in conduit method.

4.4 The voltage drop shall conform to EGAT's requirement and the calculation shall be submitted for approval.

5. Testing and commissioning

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

Work not included in this Contract.

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

1. The stringing work for the connection between the 230 kV Substation take-off structures and the dead-end towers of the transmission lines.
2. Supply of suspension and station post insulators.
3. Supply of 230 kV circuit breakers.
4. Supply of 230 kV current transformers.
5. Supply of aluminum conductors.

CONTROL AND PROTECTION PART

Work Included In This Contract

1. Design, supply, installation, wiring, test and commissioning of complete control and protection system which comprises at least the following equipment.
   - Swing Rack type protective relay switchboards.
   - Transducer panel.
   - Interposing Panel.
   - Metering Panel.
   - E-1 Converter Panel.
   - 19" Rack Cabinet for OFC Interfacing Panel.
   - EFLEX Conduit diameter 1.5"
   - 36 Cores Non-metallic Optical Fiber Cable
   - Fault Recording System (FRS) and Marshalling panels for the Fault Recording System.
   - Marshalling panels for the remote terminal unit.
   - Marshalling panels for the control system.
   - Marshalling panels for the tele-protection.
   - 400/230 VAC and 125 VDC Power distribution boards.
   - Loose equipment as specified in price schedule.
   - Related accessory equipment which is required for interfacing between the existing equipment and new equipment.
   - Cable and accessories as well as connection of cables among all the new equipment, the existing panels and the associated equipment in order to complete the function of the control and protection system.

2. Design, modification, wiring, test and commissioning of the existing equipment which comprises at least the following equipment in order to incorporate the new equipment.
   - The existing panels such as 125 VDC MDB main distribution board, existing control and protection panels and marshalling panels. (e.g. for the Remote Terminal Unit, Tele-Protection, Existing Control System, etc.)

- Removal Existing Bus Differential Relay (87B), Tie-bay Breaker failure Relay (50BF- 800) and related accessory equipment in Panel S54, S55, S56, S57 and all related panel.
- Cables and accessories as well as connection of cables among all of the boards, primary equipment and the associated equipment in order to complete the function of the control and protection system.

3. Design, installation, wiring, test and commissioning of EGAT Remote Terminal Units (RTUs) and ADAM Cards which are supplied by EGAT. The configuration of database which is included in this contract shall be fulfilled by the contractor under EGAT's supervision.

4. Design of the schematic and wiring diagram of the additional and replacement inputs to the existing Computerized Control System (CCS), including test and commissioning of the complete CCS that connection between the existing control room and the new relay room. Providing completed EGAT RTU I/O List in both hardcopy and electronic file.

5. Design, supply, installation, wiring, test and commissioning of Optical Fiber Cable of Remote Terminal Unit (RTU) and Fault Recording System (FRS) that connection between the Existing control room and the New relay room.

6. Design, supply, installation, wiring, test and commissioning of Optical Fiber Cable of E1 Converter and Current Differential Relay (87L) that connection between the existing control room and the new relay room.

7. Any modification and interfacing work to the existing panels, including supply of related accessory equipment which is required for incorporating the new equipment. The modified existing drawings shall be modified by the Contractor and submitted to EGAT for approval. The final drawings shall be submitted as ACAD files.

8. Contractor shall be responsible for providing complete schematic and wiring diagrams of the control and protection systems.

9. Removal of the unused existing protection panel, unused equipment of existing control and protection panel. The removed protection panel shall be neatly kept in a suitable place recommended by EGAT.

10. Removal of the unused existing cables. The removed cable shall be neatly reeled and kept in a suitable place recommended by EGAT.

11. Contractor shall provide the draftsman working at site during the commissioning stage in order to be in charge of writing the As-built Drawings of Control and Protection System.

Work Not Included In This Contract

1. Supply of Remote Terminal Units (RTUs), EGAT CCS/ RTU operator console and application software.

CIVIL AND ARCHITECTURAL PART

Work included in this Contract

CIVIL WORK

1. Design and construction of
   - 1.1 Steel structure and foundations for Specified equipment and the others not shown in “For Construction drawings” and / or EGAT’s specification.
     - 1.1.1 Take-off structure foundations.
     - 1.1.2 230 kV Circuit breaker support structure foundation.
     - 1.1.3 230 kV Disconnecting switch support structure foundation
     - 1.1.4 115/230 kV General equipment support structure foundation.
     - 1.1.5 Junction box structure foundation.
     - 1.1.6 Cable trench type "A" 0.90m width
   - 1.2 Drainage system for cable trench.

2. Construction of
   - 2.1 Steel structure foundation.
   - 2.2 Cable trench.

3. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.

4. All design, construction and testing shall be in accordance with Specification No.3001 : Civil and Architectural Work.

5. Bored hole for soil investigation shall conform to Specification No. 3001. The position shall be submitted to EGAT for approval.

6. In case of soil layer is soft clay, consolidation test shall be performed from clay of one bored hole only. The position shall be submitted to EGAT for approval.

7. All foundations shall be as specified in layout drawing. Except the result of soil investigation shows that the specified foundations are not appropriate, the Contractor shall design the proposed foundations.

8. The Contract price shall be adjusted (added or reduced) in case that the soil investigation results to be used for the design works is different from the layout and standard drawings.

9. Plate bearing test according to ASTM D1194-94 shall be submitted to EGAT for approval. (if pad type foundation is required).

10. The Contractor shall remove all debris from construction material and other works in order to make the site clean and be in the condition acceptable to EGAT.

11. According to the Contract Document Section G-3 : Contractor's Office and Other Construction Facilities; the detail in paragraph 3 shall be changed as follows : the Contractor shall provide for EGAT an office container at the site during construction with a minimum space of 36 sq.m for office area, 24 sq.m for conference room which shall both be air-conditioned and 4 sq.m for toilet. The facilities as shown on the section G-3 are required for 2 sets.