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.

<u>ประกาศความเป็นส่วนตัว (Privacy Notice) สำหรับการจัดซื้อจัดจ้าง การบริหารพัสดุ และการบริหารสัญญาของ กฟผ.</u>

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

<u>การขีดฆ่าข้อมูลส่วนบุคคลอ่อนไหว</u>

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. SPSS-S-01

Supply and Construction of 230/115 kV Ko Samui Substation (GIS) and Expansion of 230 kV Khanom Substation

Submarine Cable System Development Project to Samui Island in Surat Thani Province for System Security Enhancement

Two-Envelope

The Electricity Generating Authority of Thailand (EGAT) is calling for the subject Invitation to Bid to be financed by EGAT's fund. The escalation factor (K) for price adjustment is applied to this Bid.

Place of Construction : Ko Samui Substation (GIS) and Khanom Substation

Medium Cost (including Value Added Tax and other expenses) : THB 900,000,000.-

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

Bidding Documents are available for online purchase during 8:00 hrs. to 15:00 hrs., Bangkok Standard Time, as from January 21, 2026 to February 12, 2026 at USD 270.- or THB 8,000.- per copy, non-refundable.

Please find more details for online purchasing process at https://www4.egat.co.th/fprocurement/biddingeng or contact for further information at telephone no. 66 2436 0344 or procurement.tse@egat.co.th.

Delivery of Bids

Technical and price proposals shall be submitted at Bidding Room, 1st Floor, Tor 137 Building at EGAT's Head Office, Nonthaburi during 9:00 hrs. to 10:00 hrs., Bangkok Standard Time, March 6, 2026 and Technical proposal will be opened publicly at 10:00 hrs.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

January 21, 2026

Wallapa Chwdh

(Miss Wallapa Chewadhnakorlkul)

Chief, Procurement Department - Transmission System Segment

ประกาศการไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

เรื่อง ประกวดราคาจ้าง เลขที่ SPSS-S-01

ประกวดราคา 2 ซอง

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (กฟผ.) มีความประสงค์จะจัดซื้อและจ้างก่อสร้างสถานีไฟฟ้าแรงสูง 230/115 kV เกาะสมุย (GIS) และจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 230 kV ขนอม สำหรับโครงการพัฒนาระบบเคเบิ้ลใต้ทะเลไปยังบริเวณอำเภอเกาะสมุย จังหวัดสุราษฎร์ธานี เพื่อเสริมความมั่นคงระบบไฟฟ้า โดยทำสัญญาแบบปรับราคาได้ (ค่า k) โดยใช้งบประมาณ กฟผ.

สถานที่ก่อสร้าง : สถานีไฟฟ้าแรงสูงเกาะสมุย (GIS) และสถานีไฟฟ้าแรงสูงขนอม

ราคากลาง (รวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ) : 900,000,000.- 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

ผู้สนใจติดต่อซื้อเอกสารประกวดราคา ในราคาชุดละ 8,000.- บาท ในวันทำการระหว่างเวลา 08:00 น. ถึง 15:00 น. ตั้งแต่วันที่ 21 มกราคม 2569 ถึงวันที่ 12 กุมภาพันธ์ 2569 ทั้งนี้ สามารถดูรายละเอียดการซื้อเอกสารประกวดราคาได้ที่เว็บไซต์ https://www4.egat.co.th/fprocurement/biddingeng หรือสอบถามข้อมูลเพิ่มเติมได้ทางโทรศัพท์ หมายเลข 0 2436 0344 หรืออีเมล procurement.tse@egat.co.th

การยื่นซองประกวดราคา

กำหนดยื่นซองข้อเสนอด้านเทคนิคพร้อมซองราคา ในวันที่ 6 มีนาคม 2569 เวลา 09:00 น. ถึง 10:00 น. และเปิดซองข้อเสนอด้านเทคนิคเวลา 10:00 น. ณ ห้องประกวดราคา ชั้น 1 อาคาร ท.137 การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย เชิงสะพานพระราม 7 จังหวัดนนทบุรี

ประกาศ ณ วันที่ 21 มกราคม 2569

(นางสาววัลลภา ชีวธนากรณ์กุล)

หัวหน้ากองจัดซื้อจัดจ้างสายงานระบบส่ง

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและราคากลาง(ราคาอ้างอิง)

ในการจัดซื้อจัดจ้างที่มิใช่งานก่อสร้าง

1. **ชื่อโครงการ** Bid No. SPSS-S-01

   การจัดซื้อและจ้างก่อสร้างสถานีไฟฟ้าแรงสูง 230/115 kV เกาะสมุย (GIS)

   และจัดซื้อและจ้างก่อสร้างขยายสถานีไฟฟ้าแรงสูง 230 kV ขนอม

   โครงการพัฒนาระบบเคเบิ้ลใต้ทะเลไปยังบริเวณอำเภอเกาะสมุย จังหวัดสุราษฎร์ธานี

   เพื่อเสริมความมั่นคงระบบไฟฟ้า

   /หน่วยงานเจ้าของโครงการ ฝ่ายแผนงานและโครงการระบบส่ง การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

2. **วงเงินงบประมาณที่ได้รับจัดสรร**

   โครงการพัฒนาระบบเคเบิ้ลใต้ทะเลไปยังบริเวณอำเภอเกาะสมุย จังหวัดสุราษฎร์ธานี

   เพื่อเสริมความมั่นคงระบบไฟฟ้า งบประมาณ 11,230 ล้านบาท

3. **วันที่กำหนดราคากลาง** 21 พฤศจิกายน 2568 (วันที่ รวร. อนุมัติ)

   ราคารวมภาษีมูลค่าเพิ่มและค่าใช้จ่ายอื่นๆ เป็นเงิน 900,000,000.00 บาท **ราคา/หน่วย** ตามเอกสารแนบ

4. **แหล่งที่มาของราคากลาง**

   หลักเกณฑ์การกำหนดราคากลางการจัดซื้อและจัดจ้างงานก่อสร้างระบบส่งไฟฟ้าของสายงานพัฒนาระบบส่ง

5. **รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง**

5.1 นายณัฏฐ์ วงศ์เทพวาณิชย์	หมฟ-ร. กวอ-ร.
5.2 นายภูภัทร พานทอง	หสก-ร. กวอ-ร.
5.3 นายภานุวัฒน์ ลิขิตผลผดุง	หวอ-ร. กวอ-ร.
5.4 น.ส.จารุวรรณ พิพัฒน์มงคลพร	หอต-ร. กวอ-ร.
5.5 นายรุหาญ รุจิธัญธาร	กวป-ร.
5.6 นายมณเฑียร จำปาอ่อน	กวธ-ร.
5.7 นายสมประสงค์ พัฒนคุณเจริญกิจ	กวส-ส. อรส.

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

MEDIUM COST FOR BID NO. SPSS-S-01

SUMMARY OF BID PRICE

SUPPLY AND CONSTRUCTION OF 230/115 KV KO SAMUI SUBSTATION (GIS) AND EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 KO SAMUI SUBSTATION (GIS)	THB	221,371,014.52				
				120,436,566.69	137,464,243.39	254,885.28	38,676,028.38
2	115 KV KO SAMUI SUBSTATION	THB	30,939,225.37				
				23,015,491.92	7,863,564.08	394,976.02	6,741,892.87
3	230 KV KHANOM SUBSTATION	THB	58,516,877.02				
				53,938,889.72	103,524,910.97	190,940.49	22,969,494.54
4	FACILITY AREA AT KO SAMUI SUBSTATION	THB					
					8,995,911.28		
BID PRICE		THB	310,827,116.91	Baht 197,390,948.33	Baht 257,848,629.72	Baht 840,801.79	Baht 68,387,415.79
OTHER EXPENSES		THB	6,216,542.34				
VAT		THB	22,193,056.15	Baht 13,817,366.38	Baht 18,049,404.08	Baht 58,856.13	Baht 4,787,119.11
SUMMARY OF BID PRICE		THB	339,236,715.40	Baht 211,208,314.71	Baht 275,898,033.80	Baht 899,657.92	Baht 73,174,534.90
TOTAL MEDUIM COST			900,417,256.73				
TOTAL MEDUIM COST (ROUND)			900,000,000.00				

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

SCHEDULE 1 : 230 KV KO SAMUI SUBSTATION (GIS)

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	218,101,562.62	109,345,425.09			38,676,028.38
PART 1C : CIVIL WORK				137,464,243.39		
PART 1D : SUPPLY OF SPARE PARTS	THB	3,269,451.90	11,091,141.60		254,885.28	
TOTAL PRICE	**THB**	**221,371,014.52**	**Baht**	**Baht**	**Baht**	**Baht**
			120,436,566.69	**137,464,243.39**	**254,885.28**	**38,676,028.38**

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 1AB1 : Power Transformer and Marshalling Control Cubicle			172,000.00	17,200.00
Schedule 1AB2 : Distribution Transformer			2,829,000.00	282,900.00
Schedule 1AB4 : Surge Arrester	THB	870,000.00	192,000.00	106,200.00
Schedule 1AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	480,000.00	60,000.00	54,000.00
Schedule 1AB7 : SF6 Gas Insulated Switchgear	THB	212,064,167.52		21,206,416.75

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	1,318,941.80	222,742.00	154,168.38
Schedule 1AB11 : Power Fuse, Fuse Link and Hook Stick	THB	1,303,572.60		130,357.26
Schedule 1AB12 : AC&DC Distribution Board and Termination Box			4,557,229.22	455,722.92
Schedule 1AB13 : Stationary Battery and Battery Charger	THB	1,052,112.60	1,462,247.60	251,436.02
Schedule 1AB14 : Substation Steel Structure			281,846.00	70,461.50
Schedule 1AB15 : Insulator				947.10

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 1AB16 : Cable Terminations	THB	395,198.40		98,799.60
Schedule 1AB17 : XLPE Power Cable			588,060.00	147,015.00
Schedule 1AB18 : Low Voltage Cable and Conductor			19,252,644.40	4,813,161.10
Schedule 1AB19 : Switchyard Lighting Fixtures			884,644.58	221,161.15
Schedule 1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware			79,003.10	19,750.78

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	137,953.20		34,488.30
Schedule 1AB22 : Grounding Material	THB	373,903.20	418,773.30	198,169.13
Schedule 1AB23 : Substation Miscellaneous	THB	105,713.30	209,165.80	78,719.78
Schedule 1AB24 : Control and Protection System			72,451,123.00	9,088,240.95
Schedule 1AB25 : Fault Recording System			2,283,063.09	262,820.66
Schedule 1AB33 : CCTV			2,582,483.00	332,292.00

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 1AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 1AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power Panel			819,400.00	146,600.00
Schedule 1AB39 : Commissioning				505,000.00
PART 1AB	**THB**	**218,101,562.62**	**Baht 109,345,425.09**	**Baht 38,676,028.38**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 1C : CIVIL WORK

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 1C1 : Foundation Work	9,244,874.00
Schedule 1C2 : Cable Trench	3,796,043.00
Schedule 1C3 : Building	59,606,832.10
Schedule 1C4 : Earth Work, Road and Crushed Rock Surfacing	2,446,449.00
Schedule 1C5 : Water Supply System	42,285.00
Schedule 1C6 : Drainage System	9,513,538.00
Schedule 1C7 : Special Construction Works	8,305,341.67
Schedule 1C8 : Miscellaneous	12,590,795.76
Schedule 1C9 : Fire Protection System	31,918,084.86
PART 1C	**Baht** **137,464,243.39**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 1D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 1D7 : Spare Parts for SF6 Gas Insulated Switchgear	THB	2,610,286.80		130,514.34
Schedule 1D11 : Spare Parts for Power Fuse, Fuse Link and Hook Stick	THB	127,381.10		6,369.06
Schedule 1D12 : Spare Parts for AC&DC Distribution Board and Termination Box			118,674.60	5,933.73
Schedule 1D22 : Spare Parts for Grounding Material	THB	531,784.00		26,589.20
Schedule 1D24 : Spare Parts for Control and Protection System			10,081,131.00	56,731.25

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 1D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 1D25 : Spare Parts for Fault Recording System			891,336.00	28,747.70
PART 1D	**THB**	**3,269,451.90**	**Baht 11,091,141.60**	**Baht 254,885.28**

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MEDIUM COST FOR BID NO. SPSS-S-01
SCHEDULE 2 : 115 KV KO SAMUI SUBSTATION
SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT	THB	23,039,704.98	23,015,491.92			6,741,892.87
PART 2C : CIVIL WORK				7,863,564.08		
PART 2D : SUPPLY OF SPARE PARTS	THB	7,899,520.39			394,976.02	
TOTAL PRICE	**THB**	**30,939,225.37**	**Baht**	**Baht**	**Baht**	**Baht**
			23,015,491.92	**7,863,564.08**	**394,976.02**	**6,741,892.87**

นายสมชัย เจริญศรีเกษม
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MEDIUM COST FOR BID NO. SPSS-S-01

PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2AB4 : Surge Arrester	THB	612,000.00	246,000.00	85,800.00
Schedule 2AB5 : Current Transformer and Junction Box	THB	810,000.00	136,000.00	94,600.00
Schedule 2AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	846,000.00	166,000.00	101,200.00
Schedule 2AB10 : Disconnecting Switch	THB	1,225,879.60	138,990.00	136,486.96
Schedule 2AB14 : Substation Steel Structure			22,298.00	5,574.50

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2AB16 : Cable Terminations	THB	4,719,710.40	485,476.00	1,301,296.60
Schedule 2AB17 : XLPE Power Cable			2,163,150.00	540,787.50
Schedule 2AB18 : Low Voltage Cable and Conductor			1,701,026.80	425,256.70
Schedule 2AB19 : Switchyard Lighting Fixtures			196,746.12	49,186.53

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2AB20 : Aluminum Tube, Connector and Miscellaneous Hardware			14,830.20	3,707.55
Schedule 2AB21 : Bus Fitting	THB	70,593.60		17,648.40
Schedule 2AB22 : Grounding Material	THB	102,359.40	136,573.80	59,733.30
Schedule 2AB23 : Substation Miscellaneous	THB	29,119.20	119,488.00	37,151.80

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 2AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2AB24 : Control and Protection System			17,488,913.00	2,101,058.75
Schedule 2AB28 : Compact Switchgear	THB	14,624,042.78		1,462,404.28
Schedule 2AB39 : Commissioning				320,000.00
PART 2AB	**THB**	**23,039,704.98**	**Baht 23,015,491.92**	**Baht 6,741,892.87**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 2C : CIVIL WORK

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 2C1 : Foundation Work	1,168,714.00
Schedule 2C2 : Cable Trench	4,015,550.00
Schedule 2C4 : Earth Work, Road and Crushed Rock Surfacing	522,010.00
Schedule 2C6 : Drainage System	1,043,610.00
Schedule 2C7 : Special Construction Works	307,242.08
Schedule 2C8 : Miscellaneous	573,240.00
Schedule 2C9 : Fire Protection System	233,198.00
PART 2C	**Baht** **7,863,564.08**

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 2D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 2D22 : Spare Parts for Grounding Material	THB	531,784.00		26,589.20
Schedule 2D28 : Spare Parts for Compact Switchgear	THB	7,367,736.39		368,386.82
PART 2D	**THB**	**7,899,520.39**	**Baht**	**Baht 394,976.02**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01
SCHEDULE 3 : 230 KV KHANOM SUBSTATION
SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	55,357,392.17	51,787,340.72			22,969,494.54
PART 3C : CIVIL WORK				103,524,910.97		
PART 3D : SUPPLY OF SPARE PARTS	THB	3,159,484.85	2,151,549.00		190,940.49	
TOTAL PRICE	**THB**	**58,516,877.02**	**Baht**	**Baht**	**Baht**	**Baht**
			53,938,889.72	**103,524,910.97**	**190,940.49**	**22,969,494.54**

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ผู้ช่วยผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง - 1
ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง

21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3AB4 : Surge Arrester	THB	1,740,000.00	384,000.00	233,640.00
Schedule 3AB5 : Current Transformer and Junction Box	THB	1,131,000.00	141,000.00	139,920.00
Schedule 3AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box	THB	1,584,000.00	198,000.00	196,020.00
Schedule 3AB9 : Power Circuit Breaker	THB	14,685,101.81		1,615,361.20
Schedule 3AB10 : Disconnecting Switch	THB	2,582,012.40	445,484.00	49,003.24

นายสมชัย เจริญศรีเกษม
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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
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MEDIUM COST FOR BID NO. SPSS-S-01

PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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			1,905,049.30	209,555.42
Schedule 3AB13 : Stationary Battery and Battery Charger	THB	4,457,658.26	2,353,153.00	749,189.24
Schedule 3AB14 : Substation Steel Structure			4,072,974.00	1,120,067.85
Schedule 3AB15 : Insulator				148,762.85

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3AB16 : Cable Terminations	THB	12,854,494.20	647,300.00	3,712,993.41
Schedule 3AB17 : XLPE Power Cable	THB	15,021,600.00	1,260,600.00	4,477,605.00
Schedule 3AB18 : Low Voltage Cable and Conductor			20,332,197.60	5,591,354.34
Schedule 3AB19 : Switchyard Lighting Fixtures			838,105.82	230,479.10

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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			209,147.40	57,515.54
Schedule 3AB21 : Bus Fitting	THB	409,068.00		112,493.70
Schedule 3AB22 : Grounding Material	THB	724,972.60	695,844.60	390,724.73
Schedule 3AB23 : Substation Miscellaneous	THB	167,484.90	196,853.00	100,192.92
Schedule 3AB24 : Control and Protection System			12,233,542.00	1,285,550.25

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3AB25 : Fault Recording System			2,758,314.00	296,731.00
Schedule 3AB33 : CCTV			2,130,876.00	286,572.00
Schedule 3AB34 : 48 VDC Stationary Battery, Battery Charger and DC Power Panel			819,400.00	146,600.00
Schedule 3AB35 : Communication Cable			165,500.00	288,800.00

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PART 3AB : SUPPLY AND INSTALLATION OF SUBSTATION EQUIPMENT

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3AB38 : Remote Terminal Unit				728,362.75
Schedule 3AB39 : Commissioning				320,000.00
Schedule 3AB40 : Installation of Equipment and Steel Structure Supplied by EGAT				482,000.00
PART 3AB	**THB**	**55,357,392.17**	**Baht 51,787,340.72**	**Baht 22,969,494.54**

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 3C : CIVIL WORK

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 3C1 : Foundation Work	8,272,342.00
Schedule 3C2 : Cable Trench	18,186,317.00
Schedule 3C3 : Building	35,689,915.32
Schedule 3C4 : Earth Work, Road and Crushed Rock Surfacing	4,371,190.70
Schedule 3C5 : Water Supply System	45,920.00
Schedule 3C6 : Drainage System	11,739,875.00
Schedule 3C7 : Special Construction Works	5,388,227.95
Schedule 3C8 : Miscellaneous	4,862,710.00
Schedule 3C9 : Fire Protection System	14,968,413.00
PART 3C	**Baht** **103,524,910.97**

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MEDIUM COST FOR BID NO. SPSS-S-01

PART 3D : SUPPLY OF SPARE PARTS

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3D9 : Spare Parts for Power Circuit Breaker	THB	2,627,700.85		131,385.04
Schedule 3D22 : Spare Parts for Grounding Material	THB	531,784.00		26,589.20
Schedule 3D24 : Spare Parts for Control and Protection System			1,569,223.00	17,778.75
Schedule 3D25 : Spare Parts for Fault Recording System			582,326.00	15,187.50
PART 3D	**THB**	**3,159,484.85**	**Baht 2,151,549.00**	**Baht 190,940.49**

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INVITATION TO BID NO. SPSS-S-01

PART 4C : CIVIL WORK

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Description	**Local Currency** (excluding VAT) Baht
	Amount
Schedule 4C1 : Foundation Work	981,311.00
Schedule 4C4 : Earth Work, Road and Crushed Rock Surfacing	182,736.00
Schedule 4C5 : Water Supply System	1,184,096.00
Schedule 4C6 : Drainage System	636,257.00
Schedule 4C7 : Special Construction Works	99,251.28
Schedule 4C8 : Miscellaneous	5,912,260.00
PART 4C	**Baht** **8,995,911.28**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB1 : Power Transformer and Marshalling Control Cubicle

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB1-1	Marshalling Control Cubicle as per EGAT's Dwg No. TP-E-10.5, TP-E-10.6 and TP-E-10.8	2					86,000.00	172,000.00	XXXXX	XXXXX
1AB1-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB1-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	17,200.00	17,200.00
Total Price for Schedule 1AB1							**Baht**	**172,000.00**	**Baht**	**17,200.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB2 : Distribution Transformer

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB2-1	500 kVA, 22000-400/230V distribution transformer, oil immersed, outdoor type as per Ratings and Features RF DX2712	2					1,172,000.00	2,344,000.00	XXXXX	XXXXX
1AB2-2	100 kVA, 400-400/230V distribution transformer, oil immersed, outdoor type as per Ratings and Features RF DX0305	1					485,000.00	485,000.00	XXXXX	XXXXX
1AB2-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB2-1 thru 1AB2-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	282,900.00	282,900.00
Total Price for Schedule 1AB2							**Baht**	**2,829,000.00**	**Baht**	**282,900.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB4-1	192 kV Surge Arrester as per Ratings and Features RF SA8Y11	6		THB	145,000.00	870,000.00			XXXXX	XXXXX
1AB4-2	Steel Supporting Structure for SA8Y11 (for Item No. 1AB4-1), H=5.50 m as per Dwg. No. ST-LA-8-01 and SD-AB-0-01	6					32,000.00	192,000.00	XXXXX	XXXXX
1AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB4-1 thru 1AB4-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	106,200.00	106,200.00
Total Price for Schedule 1AB4				**THB**		**870,000.00**	**Baht**	**192,000.00**	**Baht**	**106,200.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB6-1	22 kV VT, 150 kV BIL, 22000/√3 : 110/√3&110/√3 Voil filled as per Ratings and Features RF VT 2012	6		THB	80,000.00	480,000.00			XXXXX	XXXXX
1AB6-2	Junction Box type PT6 (for Item No. 1AB6-1) as per Dwg. No. TP-E-18.1-2/4, 3/4 and TP-E-18.4	2					30,000.00	60,000.00	XXXXX	XXXXX
1AB6-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB6-1 thru 1AB6-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	54,000.00	54,000.00
Total Price for Schedule 1AB6				**THB**		**480,000.00**	**Baht**	**60,000.00**	**Baht**	**54,000.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB7 : SF6 Gas Insulated Switchgear

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB7-1	245 kV 4000 A 50 kA Gas Insulated Switchgear as per Ratings and Features RF IS8450C2(IEC) and Drawing No. KM-S-1-01/02 (Line No.2 to Khanom & KT1A)	1		THB	99,487,776.15	99,487,776.15			XXXXX	XXXXX
1AB7-2	245 kV 4000 A 50 kA Gas Insulated Switchgear as per Ratings and Features RF IS8450C2(IEC) and Drawing No. KM-S-1-01/02 (KT2A & Line No.1 to Khanom)	1		THB	99,487,776.15	99,487,776.15			XXXXX	XXXXX
1AB7-3	245 kV 4000 A 50 kA Gas Insulated Switchgear as per Ratings and Features RF IS8450C2(IEC) and Drawing No. KM-S-1-01/02 (Metal Enclosed Bus) including VTs and fast-acting earthing switches at main bus	1	lot	THB	included	included			XXXXX	XXXXX
1AB7-4	245 kV 4000 A 50 kA Gas Insulated Switchgear as per Ratings and Features RF IS8450C2(IEC) outdoor type (GIB) as per Drawing No. KM-S-1-01/02 and KM-S-2-01/01	1	lot	THB	included	included			XXXXX	XXXXX
1AB7-5	Local control cubicle for IS8450C2(IEC) for Item No. 1AB7-1 thru 1AB7-4*	6		THB	included	included			XXXXX	XXXXX

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1AB7 : SF6 Gas Insulated Switchgear

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB7-6	Steel Supporting Structure for IS8450C2(IEC)*	1	lot	THB	included	included			XXXXX	XXXXX
1AB7-7	Removable service platform and removable ladder for GIS inspection*	1	lot	THB	included	included			XXXXX	XXXXX
1AB7-8	Swing Rack Cabinet as per dwg. no. TP-E-10.1 completed with three Controlled Switching Devices (CSDs), including Cables link between CSDs and Ethernet Switch panel for process bus if the proposed CSD type is compatible with IEC 61850 protocol (preferable) or between CSDs and Local control cubicles for GIS if the proposed CSD type is not compatible with IEC 61850 protocol.**	2		THB	6,544,307.61	13,088,615.22			XXXXX	XXXXX
1AB7-9	Cost of Local Transportation, Construction and Installation for Item No. 1AB7-1 thru 1AB7-8	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	21,206,416.75	21,206,416.75

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB7 : SF6 Gas Insulated Switchgear

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Note: The SF6 gas in quantity equivalent to 115% of the total equipment actual requirement shall be provided as follows: - 100% of SF6 gas quantity shall be shipped in returnable steel bottles which shall be returned back to Contractor. - 15% of SF6 gas quantity shall be shipped in non-returnable steel bottles which shall become the property of EGAT.									
Total Price for Schedule 1AB7				**THB**		**212,064,167.52**	**Baht**		**Baht**	**21,206,416.75**

* The design of these equipment/devices shall be verified by GIS manufacturer.

** Compatibility between CSD and CB GIS and Capability to fulfill required functions shall be verified by both GIS manufacturer and Bidder/Contractor together.

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB10-1	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	659,470.90	1,318,941.80			XXXXX	XXXXX
1AB10-2	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					111,371.00	222,742.00	XXXXX	XXXXX
1AB10-3	Cost of Local Transportation, Construction and Installation for Item No. 1AB10-1 thru 1AB10-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	154,168.38	154,168.38
Total Price for Schedule 1AB10				**THB**		**1,318,941.80**	**Baht**	**222,742.00**	**Baht**	**154,168.38**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB11 : Power Fuse, Fuse Link and Hook Stick

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB11-1	22 kV 100 A 12.5 kA 1-pole dropout fuse as per Ratings and Features RF PF2111 (Not including fuse link or refill unit)	6		THB	199,060.40	1,194,362.40			XXXXX	XXXXX
1AB11-2	Fuse link or refill unit 20E for 22 kV power fuse (standard speed)	6		THB	18,201.70	109,210.20			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	130,357.26	130,357.26
Total Price for Schedule 1AB11				**THB**		**1,303,572.60**	**Baht**		**Baht**	**130,357.26**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB12-1	400/230 Vac Load Center Unit Substation (LCUS) as per Dwg. No. SE-LCUS-0-01 (Design by Contractor)	1					975,964.00	975,964.00	XXXXX	XXXXX
1AB12-2	Safety switch 600 Vac 800 A, 4 wire, S/N, 3 blades, 3 fuses time lag type, outdoor enclosure (Galvannealed steel or painted stainless steel, IP43, at least 2 mm thickness) 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) 1(1-1/C x 240 sq.mm.), Power Cable (Copper) for neutral Outgoing cable size : 2(3-1/C x 240 sq.mm.), Power Cable (Copper) 1(1-1/C x 240 sq.mm.), Power Cable (Copper) for neutral	2					540,809.31	1,081,618.62	XXXXX	XXXXX
1AB12-3	Termination Box type TB1 as per Dwg No. LT-TB-0-01	7					2,800.60	19,604.20	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB12-4	22kV 100A 12.5kA Load break switch with Cable Termination as per Ratings and Features RF LB2110 Manually operate, 3 phase, outdoor type with cable termination suitable for - Incoming cable size of 3-1/C x 35 sq.mm, 22 kV XLPE Power Cable as per Rating and Features RF PC2110, 1 hole NEMA Pad - Outgoing cable size of 3-1/C x 35 sq.mm, 22 kV XLPE Power Cable as per Rating and Features RF PC2110, 1 hole NEMA Pad	2					580,065.20	1,160,130.40	XXXXX	XXXXX
1AB12-5	Common cubicle for maintenance type 2 as per Dwg. No. SE-CCM-0-01	1					109,111.20	109,111.20	XXXXX	XXXXX
1AB12-6	Outdoor Receptacle Box type ORB1 as per Dwg. No. SE-ORB-0-01	1					25,234.00	25,234.00	XXXXX	XXXXX
1AB12-7	Outdoor Receptacle Box type ORB2 as per Dwg. No. SE-ORB-0-01	2					44,576.40	89,152.80	XXXXX	XXXXX
1AB12-8	Lighting Relay Panel (LRP) as per Dwg. No. LT-RP-0-03	1					111,958.00	111,958.00	XXXXX	XXXXX
1AB12-9	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

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1AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

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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
1AB12-10	400/230 Vac Distribution Board as per Dwg. No. TP-E-4.4 (For GIS, designed by Contractor)	1					225,717.80	225,717.80	XXXXX	XXXXX
1AB12-11	125 Vdc Power Panel as per Dwg. No. TP-E-4.4(designed by Contractor)	1					187,092.40	187,092.40	XXXXX	XXXXX
1AB12-12	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
1AB12-13	125 Vdc Distribution Board as per Dwg. No. TP-E-4.4 (For GIS, designed by Contractor)	1					172,964.00	172,964.00	XXXXX	XXXXX
1AB12-14	Cost of Local Transportation, Construction and Installation for Item No. 1AB12-1 thru 1AB12-13	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	455,722.92	455,722.92
Total Price for Schedule 1AB12							**Baht**	**4,557,229.22**	**Baht**	**455,722.92**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB13 : Stationary Battery and Battery Charger

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB13-1	Vented stationary battery, 58 cells (tubular type) for 125 Vdc system complete with electrolyte and battery rack as per Specification attached (Design by Contractor, The capacity of Stationary Battery shall not be less than 1200 Ah)									
1AB13-1a	a) Battery	1	set	THB	964,034.50	964,034.50			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	2					731,123.80	1,462,247.60	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB13 : Stationary Battery and Battery Charger

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
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	251,436.02	251,436.02
Total Price for Schedule 1AB13				**THB**		**1,052,112.60**	**Baht**	**1,462,247.60**	**Baht**	**251,436.02**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB14-1	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	4					11,149.00	44,596.00	XXXXX	XXXXX
1AB14-2	Junction box support structure (JB001) as per Dwg. No. ST-JB-0-01, it shall be modified for Safety Switchs.	2					9,811.00	19,622.00	XXXXX	XXXXX
1AB14-3	Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03, it shall be modified for ORB1, ORB2 and CCM.	4					7,581.00	30,324.00	XXXXX	XXXXX
1AB14-4	Telecommunication Tower Type WSA as per Dwg. No. UWC-06-WSA-501, 502, 503 & 504, the maximum allowable height should match the reference drawing as closely as possible, but shall not exceed 12 meters.	1					187,304.00	187,304.00	XXXXX	XXXXX
1AB14-5	Cost of Local Transportation, Construction and Installation for Item No. 1AB14-1 thru 1AB14-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	70,461.50	70,461.50
Total Price for Schedule 1AB14							**Baht**	**281,846.00**	**Baht**	**70,461.50**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB15 : Insulator

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB15-1	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
1AB15-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB15-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	947.10	947.10
Total Price for Schedule 1AB15							**Baht**		**Baht**	**947.10**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Reference: EGAT Specification No. 326*									
1AB16-1	22 kV cable terminations for 1/C no. 35 sq.mm. XLPE power cable as per Ratings and Features RF TN212H complete with termination accessories	6		THB	6,835.40	41,012.40			XXXXX	XXXXX
1AB16-2	Cable Cleats with necessary miscellanous hardware for item no. 1AB17-1, trefoil formation 3-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	341,280.00	341,280.00			XXXXX	XXXXX
1AB16-3	Cable Cleats with necessary miscellanous hardware for item no. 1AB17-1, flat formation 1-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	12,906.00	12,906.00			XXXXX	XXXXX
1AB16-4	Cost of Local Transportation, Construction and Installation for Item No.1AB16-1 thru 1AB16-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	98,799.60	98,799.60

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1AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	* In the event that EGAT specification no. 326 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 326 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 1AB16				**THB**		**395,198.40**	**Baht**		**Baht**	**98,799.60**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB17 : XLPE Power Cable

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

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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
1AB17-1	Reference: EGAT Specification No. 322* 22 kV 1/C no. 35 sq.mm. XLPE power cable as per Ratings and Features RF PC2110	Lump sum	Lump sum				588,060.00	588,060.00	XXXXX	XXXXX
1AB17-2	Cost of Local Transportation, Construction and Installation for Item No.1AB17-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	147,015.00	147,015.00
	* In the event that EGAT specification no. 322 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 322 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 1AB17							**Baht** **588,060.00**		**Baht** **147,015.00**	

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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				4,960,120.00	4,960,120.00	XXXXX	XXXXX
1AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				6,079,480.00	6,079,480.00	XXXXX	XXXXX
1AB18-3	750 V lighting cable (THW) as per Specification attached	Lump sum	Lump sum				146,520.00	146,520.00	XXXXX	XXXXX
1AB18-4	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum				747,714.00	747,714.00	XXXXX	XXXXX
1AB18-5	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				7,234,066.40	7,234,066.40	XXXXX	XXXXX
1AB18-6	Aluminum conductor as per Specification attached	Lump sum	Lump sum				77,352.00	77,352.00	XXXXX	XXXXX
1AB18-7	Overhead ground wire as per Specification attached	Lump sum	Lump sum				7,392.00	7,392.00	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	4,813,161.10	4,813,161.10
Total Price for Schedule 1AB18							**Baht**	**19,252,644.40**	**Baht**	**4,813,161.10**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB19-1	Flood lighting fixture, LED lamp, 10000 lumen, wide-beam, complete with control gear as per Specification attached	14					18,686.80	261,615.20	XXXXX	XXXXX
1AB19-2	Solar lighting fixture for fence and access road, LED, All in one typeas per Ratings and Features RF LX01L1 and Dwg. No. LT-FX-0-03	19					13,257.20	251,886.80	XXXXX	XXXXX
1AB19-3	Tapered galvanized steel lamp post H=4500 mm. complete with anchor bolts as per Dwg. No. ST-LP-0-03 and SD-AB-0-01	19					19,533.82	371,142.58	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	221,161.15	221,161.15
Total Price for Schedule 1AB19							**Baht**	**884,644.58**	**Baht**	**221,161.15**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

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SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB20-1	Aluminum tube as per Specification attached	Lump sum	Lump sum				51,942.00	51,942.00	XXXXX	XXXXX
1AB20-2	230 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				12,870.00	12,870.00	XXXXX	XXXXX
1AB20-3	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				14,191.10	14,191.10	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	19,750.78	19,750.78
Total Price for Schedule 1AB20							**Baht**	**79,003.10**	**Baht**	**19,750.78**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB21-1	230 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	137,953.20	137,953.20			XXXXX	XXXXX
1AB21-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB21-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	34,488.30	34,488.30
Total Price for Schedule 1AB21				**THB**		**137,953.20**	**Baht**		**Baht**	**34,488.30**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB22 : Grounding Material

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB22-1	Ground rod as per Specification attached	Lump sum	Lump sum	THB	93,258.00	93,258.00			XXXXX	XXXXX
1AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum				418,773.30	418,773.30	XXXXX	XXXXX
1AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	280,645.20	280,645.20			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	198,169.13	198,169.13
Total Price for Schedule 1AB22				**THB**		**373,903.20**	**Baht**	**418,773.30**	**Baht**	**198,169.13**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				43,040.80	43,040.80	XXXXX	XXXXX
1AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	16,383.40	16,383.40			XXXXX	XXXXX
1AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum				6,125.00	6,125.00	XXXXX	XXXXX
1AB23-4	Heat shrinkable insulation material	Lump sum	Lump sum	THB	89,329.90	89,329.90			XXXXX	XXXXX
1AB23-5	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				160,000.00	160,000.00	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	78,719.78	78,719.78
Total Price for Schedule 1AB23				**THB**		**105,713.30**	**Baht**	**209,165.80**	**Baht**	**78,719.78**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	DSS : Digital Substation System including System Integrator	- See Bill of Materials for 1AB24-1 - See Scope of work - Specification No.1008 - Drawing Nos. KSM-E-1 sh.1-4 and TP-E-20.3	1	Set				72,451,123.00	72,451,123.00	XXXXX	XXXXX
1AB24-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB24-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	9,088,240.95	9,088,240.95
Total Price for Schedule 1AB24								**Baht**	**72,451,123.00**	**Baht**	**9,088,240.95**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	DSS : Fault Recording System	- See Bill of Materials for 1AB25-1 - See Scope of work - Specification Nos. 1003 and 1008 - Drawing Nos. KSM-E-1 sh.1-4	1	Set				2,283,063.09	2,283,063.09	XXXXX	XXXXX
1AB25-2	Cost of Local Transportation, Construction and Installation for Item No. 1AB25-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	262,820.66	262,820.66
Total Price for Schedule 1AB25								**Baht**	**2,283,063.09**	**Baht**	**262,820.66**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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				2,582,483.00	2,582,483.00	XXXXX	XXXXX
	(1) Outdoor PTZ Dome Camera (2 EA) (2) Indoor Fixed Camera (6 EA) (3) Outdoor Fixed Camera (14 EA) (4) PC Workstation (1 EA) (5) Server (1 EA) (6) Software license (6.1) Software management license (1 License) (6.2) Redording license (22 Licenses) (6.3) Video analytic license (22 Licenses) (7) Ethernet I/O Module (1 EA) (8) Monitor (4 EA) (9) HDMI Optical Extender (2 SET) (10) LAN Switch (2 EA) (11) CCTV Rack Cabinet (1 EA) Size: 60x80x218.5cm. Front door: Steel sheet with Plastic Acrylic Rear door: Perforated steel sheet (12) CCTV steel box/ End-point steel box (Lumpsum)									
	(13) Monitoring Desk (1 EA) (14) PoE Injector for Fixed camera (20 EA)									

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	(15) Adapter for PTZ camera (2 EA) (16) CCTV Pole 2 meter (Lumpsum) (17) CCTV Pole 4 meter (Lumpsum) (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) (34 EA) (22) Surge protection-220VAC (8 SET) (23) Line Filter (8 EA) (24) Electrical cable (Lumpsum) (25) EMT couduit (Lumpsum) (26) IMC, Flexible conduit with PVC coating (Lumpsum) (27) EFLEX/HDPE (Lumpsum) (28) Ground System (Lumpsum) (29) Accessories (Lumpsum)									
1AB33-2	Cost of Local Transportation, Construction and Installation for Item no. 1AB33-1	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	332,292.00	332,292.00
	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. SPSS-S-01

1AB33 : CCTV

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 and DW-CAB-D01-019									
Total Price for Schedule 1AB33							**Baht**	**2,582,483.00**	**Baht**	**332,292.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB34-1	Vented Type Lead-Acid Station Battery 48VDC with capacity not less than 800 Ah (Tubular plate) at 10 Hour rated, 24 Cells, Norminal Voltage 2 Volts/Cell, with Rack 1 set (Ko Samui Substation, Control Buliding)	1	SET				229,100.00	229,100.00	XXXXX	XXXXX
1AB34-2	Conventional Type Charger 48VDC, 200 A (Ko Samui Substation, Control Buliding)	2	SET				227,300.00	454,600.00	XXXXX	XXXXX
1AB34-3	48Vdc. Load Center Type1: 60 Breaker (Ko Samui Substation, Control Buliding)	1	SET				135,700.00	135,700.00	XXXXX	XXXXX
1AB34-4	Local Transportation, Construction and Installation for item 1AB34-1, 1AB34-2 and 1AB34-3	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	146,600.00	146,600.00
Total Price for Schedule 1AB34							**Baht**	**819,400.00**	**Baht**	**146,600.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1AB39 : Commissioning

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1AB39-1	Commissioning	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	505,000.00	505,000.00
Total Price for Schedule 1AB39							**Baht**		**Baht**	**505,000.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C1-1	230 kV Disconnecting Switch Support foundation (DS802,DS802A,DS802B,DS803,DS804) Pile , Bored pile Type (DS802 only)	FD-DS-8-04	4	Set	40,398.00	161,592.00
1C1-2	Power Transformer foundation (T300) with oil containing pit (pile type)	FD-TX-8-04	5	Set	457,940.00	2,289,700.00
1C1-3	230 kv Shunt reactor foundation (SR801)(pile type)	Designed by Contractor FD-TX-8-04 See Dwg no. KM-C-3	2	Set	457,940.00	915,880.00
1C1-4	230 kV GIS bushing structure foundation (Pad type / Pile type)	Designed by Contractor LTS/LN3-FD-GS-8-1 See Dwg no. KM-C-3	12	Set	40,477.00	485,724.00
1C1-5	230 kV GIB-1 support structure foundation (Pile type)	Designed by Contractor LTS/LN3-FD-GS-8-1 See Dwg no. KM-C-3	Lump sum	Lump sum	70,476.00	70,476.00

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MEDIUM COST FOR BID NO. SPSS-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C1-6	230 kV GIB-2 support structure foundation (Pile type)	Designed by Contractor LTS/LN3-FD-GS-8-1 See Dwg no. KM-C-3	Lump sum	Lump sum	47,520.00	47,520.00
1C1-7	230 kV GIB-3 support structure foundation (Pile type)	Designed by Contractor LTS/LN3-FD-GS-8-1 See Dwg no. KM-C-3	Lump sum	Lump sum	364,293.00	364,293.00
1C1-8	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(LA802 only)	FD-GE-0-03	3	Set	5,867.00	17,601.00
1C1-9	Outdoor marshalling Cubicle foundation and Sub-Trench (MC002) Pad Type	FD-MC-0-06	3	Set	10,072.00	30,216.00
1C1-10	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	5	Set	2,546.00	12,730.00

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MEDIUM COST FOR BID NO. SPSS-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C1-11	Junction Box Structure foundation (JB001) Pad Type	FD-JB-0-03	3	Set	8,393.00	25,179.00
1C1-12	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05	4	Set	6,777.00	27,108.00
1C1-13	Lighting Relay Panel foundation (RP002) Pad Type	FD-RP-0-03	1	Set	6,393.00	6,393.00
1C1-14	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type(Pad type)	FD-LP-0-05	13	Set	10,270.00	133,510.00
1C1-15	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type(Pile type)	FD-LP-0-05	6	Set	10,270.00	61,620.00

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1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C1-16	22&33 kV Distribution Transformer foundation (DX402) Pad Type	FD-DX-4-01	2	Set	11,181.00	22,362.00
1C1-17	Isolating Transformer Foundation (IST) Pad Type	FD-TX-0-01	1	Set	21,869.00	21,869.00
1C1-18	Outdoor Load Break Switch foundation. (LBS)	Designed by Contractor MTG-LBS-0-01 See Dwg no. KM-C-3	2	Set	12,786.00	25,572.00
1C1-19	Concrete pole strain bus structure(CP12)	CP-SB-4-01	5	Set	37,387.00	186,935.00
1C1-20	Fire Wall 8.00m Height (FW) Pile Type	Designed by Contractor FD-FW-0-05 See Dwg no. KM-C-3	2	Set	1,200,698.00	2,401,396.00
1C1-21	Telecommunication tower foundation (WSA)	FD-TT-0-08	1	Set	126,409.00	126,409.00

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MEDIUM COST FOR BID NO. SPSS-S-01

1C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C1-22	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	1,810,789.00	1,810,789.00
Total Price for Schedule 1C1					**Baht**	**9,244,874.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C2 : Cable Trench

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-02	Lump sum	Lump sum	1,187,760.00	1,187,760.00
1C2-2	Standard cable trench, steel cover included (Type"B")	SD-CE-0-02	Lump sum	Lump sum	506,239.00	506,239.00
1C2-3	Cable trench type "A" including steel cover for XLPE system	Designed by Contractor	Lump sum	Lump sum	1,202,314.00	1,202,314.00
1C2-4	Cable trench type "B" including steel cover for XLPE system	Designed by Contractor	Lump sum	Lump sum	899,730.00	899,730.00
Total Price for Schedule 1C2					**Baht**	**3,796,043.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C3 : Building

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-1	230 kV GIS Building	Designed by contractor See Scope of work KSM-GIS-8-01A	Lump Sum	Lump Sum	34,786,713.60	34,786,713.60
1C3-1.1	Ventilation system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1
1C3-1.2	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump Sum	Lump Sum	805,152.60	805,152.60

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MEDIUM COST FOR BID NO. SPSS-S-01

1C3 : Building

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-2	Control Building	SD-CD-0-03A SD-CD-0-03C SD-CD-0-03FP SD-CD-0-03L SD-CD-0-03M SD-CD-0-03ME SD-CD-0-03SN See Dwg.No.KM-C-1 See Scope of work	Lump Sum	Lump Sum	20,557,325.42	20,557,325.42
1C3-2.1	Air conditioning system and Ventilation system	-	Lump Sum	Lump Sum	Included in 1C3-2	Included in 1C3-2
1C3-2.1.1	Minimum 18,000 BTU split-type air conditioner, including installation fee (Not Higher than the price specified by the Bureau of the Budget www.bb.go.th)	-	1	set	26,728.97	26,728.97

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MEDIUM COST FOR BID NO. SPSS-S-01

1C3 : Building

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-2.1.2	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)	-	4	set	54,672.90	218,691.60
1C3-2.1.3	Minimum 48,000 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)	-	8	set	56,915.89	455,327.12
1C3-2.1.4	Minimum 60,000 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)	-	2	set	67,422.62	134,845.24
1C3-2.1.5	Extra work for air conditioning system	-	Lump sum	Lump sum	Included in 1C3-2	Included in 1C3-2
1C3-2.1.6	Ventilation system	-	Lump sum	Lump sum	Included in 1C3-2	Included in 1C3-2

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MEDIUM COST FOR BID NO. SPSS-S-01

1C3 : Building

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C3-2.2	Solar rooftop system	-	Lump sum	Lump sum	1,680,000.00	1,680,000.00
1C3-2.3	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	942,047.55	942,047.55
Total Price for Schedule 1C3					**Baht**	**59,606,832.10**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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, 5 - 5	SD-RD-0-01	Lump sum	Lump sum	1,663,800.00	1,663,800.00
1C4-2	Transformer loading	SD-RD-0-03	Lump sum	Lump sum	191,619.00	191,619.00
1C4-3	Crushed rock surfacing 0.10 m thickness	-	Lump sum	Lump sum	591,030.00	591,030.00
Total Price for Schedule 1C4					**Baht**	**2,446,449.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C5 : Water Supply System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C5-1	Laying of water supply : HDPE. pipe (PN10) with valve & fittings	Designed by Contractor	Lump Sum	Lump Sum	42,285.00	42,285.00
Total Price for Schedule 1C5					**Baht**	**42,285.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C6 : Drainage System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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. KM-C-6	Lump Sum	Lump Sum	3,381,749.00	3,381,749.00
1C6-2	Oil pit with steel grating	WD-DN-0-04	Lump Sum	Lump Sum	2,589,472.00	2,589,472.00
1C6-3	Oil separator (Pile type) with piling work	SD-OS-0-02	1	set	1,394,617.00	1,394,617.00
1C6-4	Dia. 0.15m PVC. Pipe (Class 8.5)		Lump Sum	Lump Sum	7,540.00	7,540.00
1C6-5	Dia. 0.50 m Black steel pipe (Spiral-Seam) TIS 427-2562	WD-DN-0-01	Lump Sum	Lump Sum	2,140,160.00	2,140,160.00
Total Price for Schedule 1C6					**Baht**	**9,513,538.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C7-1	Site office	See Scope of work	1	set	861,333.00	861,333.00
1C7-2	Test and commissioning for package booster pump system	-	Lump Sum	Lump Sum	845.00	845.00
1C7-3	Fire Protection design work	-	Lump Sum	Lump Sum	704,993.71	704,993.71
1C7-4	Test and commissioning for fire protection system in switchyard	-	Lump Sum	Lump Sum	97,558.00	97,558.00
1C7-5	Test and commissioning for fire pump system	-	Lump Sum	Lump Sum	75,841.00	75,841.00
1C7-6	Test and commissioning for foam-water spray system (for Transformer / Shunt reactor)	-	2	set	42,500.00	85,000.00
1C7-7	Test and commissioning for GIS Building fire protection system	-	Lump Sum	Lump Sum	100,000.00	100,000.00
1C7-8	Test and commissioning for inert gas system (Test in Electrical room)	-	Lump Sum	Lump Sum	78,731.00	78,731.00

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MEDIUM COST FOR BID NO. SPSS-S-01

1C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C7-9	Test and commissioning for fire pump house's sound proof system	-	Lump Sum	Lump Sum	80,000.00	80,000.00
1C7-10	Test and commissioning for noise barrier	-	Lump Sum	Lump Sum	130,000.00	130,000.00
1C7-11	Dynamic Pile load test	-	Lump Sum	Lump Sum	114,000.00	114,000.00
1C7-12	Static pile load test	-	2	set	163,698.00	327,396.00
1C7-13	Plate bearing test	-	1	set	6,500.00	6,500.00
1C7-14	Architectural,Engineering design work and 3D Animation presentation file	-	Lump Sum	Lump Sum	5,643,143.96	5,643,143.96
Total Price for Schedule 1C7					**Baht**	**8,305,341.67**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C8-1	Garage (5.50x12.00m)	HS-PS-0-02	1	set	280,736.00	280,736.00
1C8-2	Flag Pole (12.00m)	Designed by Contractor SD-FP-0-02 See Dwg no. KM-C-1	1	set	170,088.00	170,088.00
1C8-3	Main entrance gate 8.00m width (sliding)	SD-SG-0-03 01/01 01/01 r.0	1	set	495,655.00	495,655.00
1C8-4	Standard symbol and sign letters of substation	TP.655A-MS-A-1/1	1	set	652,416.00	652,416.00
1C8-5	Wire mesh fence and gate (Pad type)	SD-CF-0-01	Lump Sum	Lump Sum	141,813.00	141,813.00

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1C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
1C8-6	Fence	Designed by Contractor SD-RF-0-01 See Dwg no. KM-C-1	Lump Sum	Lump Sum	238,850.00	238,850.00
1C8-7	Noise barrier	Designed by contractor	Lump Sum	Lump Sum	9,968,139.00	9,968,139.00
1C8-8	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	31,876.76	31,876.76
1C8-9	Guard rail	SD-GR-0-01	Lump sum	Lump sum	611,222.00	611,222.00
Total Price for Schedule 1C8					**Baht**	**12,590,795.76**

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MEDIUM COST FOR BID NO. SPSS-S-01

1C9 : Fire Protection System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C9-1	Water storage tank min. capacity 350 cu.m.	Designed by Contractor	1	set	2,233,790.00	2,233,790.00
1C9-2	Foam house	Designed by Contractor	1	set	944,714.00	944,714.00
1C9-3	Fire protection system for Control building	Designed by Contractor	Lump Sum	Lump Sum	11,955,794.00	11,955,794.00
1C9-4	Fire Protection System for 230kV GIS Building	Designed by Contractor	Lump Sum	Lump Sum	5,832,105.00	5,832,105.00
1C9-5	Wheel fire extinguisher (2*50 lbs) with cabinet	HS-WR-0-04	1	set	233,198.00	233,198.00
1C9-6	Fire pump house with sound proof system	Designed by Contractor	1	set	2,154,339.86	2,154,339.86
1C9-7	Fire pump system	Designed by Contractor	Lump Sum	Lump Sum	4,757,007.00	4,757,007.00
1C9-8	Fire Protection System for transformer / shunt reactor	Designed by Contractor	2	set	665,719.00	1,331,438.00

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MEDIUM COST FOR BID NO. SPSS-S-01

1C9 : Fire Protection System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
1C9-9	Bladder tank proportioning system and components	Designed by Contractor	1	set	1,097,418.00	1,097,418.00
1C9-10	Fire Protection System for switchyard	Designed by Contractor	Lump Sum	Lump Sum	447,300.00	447,300.00
1C9-11	Fire Protection environmental monitoring system	Designed by Contractor	Lump Sum	Lump Sum	832,495.00	832,495.00
1C9-12	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump Sum	98,486.00	98,486.00
Total Price for Schedule 1C9					**Baht**	**31,918,084.86**

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MEDIUM COST FOR BID NO. SPSS-S-01

1D7 : Spare Parts for SF6 Gas Insulated Switchgear

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Note : detail and breakdown price of each equipment for each item shall be submitted together with tender documents during the bidding									
1D7-1	Gas density meter with two-stage contacts for circuit breaker compartment spare parts for GIS	1	set	THB	35,697.20	35,697.20			XXXXX	XXXXX
1D7-2	Gas density meter for other compartment spare parts for GIS	1	set	THB	64,447.90	64,447.90			XXXXX	XXXXX
1D7-3	Rupture disc of overpressure protection device spare parts for GIS (1EA for each type/each operating pressure)	1	set	THB	27,857.50	27,857.50			XXXXX	XXXXX
1D7-4	Pump with motor for hydraulic spare parts for GIS (if any)	1	set	THB	60,729.90	60,729.90			XXXXX	XXXXX
1D7-5	Maintenance closing device for circuit breaker	1	set	THB	52,103.70	52,103.70			XXXXX	XXXXX
1D7-6	SF6 gas filling cart accessories for GIS	1	set	THB	231,157.30	231,157.30			XXXXX	XXXXX
1D7-7	Operating Analyzer Fitting Means accessories for GIS (1 EA of Fitting Means/1 set)	3	set	THB	259,675.90	779,027.70			XXXXX	XXXXX
1D7-8	Hand pump for hydraulic accessories for GIS (if any)	1	set	THB	535,414.00	535,414.00			XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

1D7 : Spare Parts for SF6 Gas Insulated Switchgear

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
1D7-9	Loose pressure gauge completed with necessary fitting for circuit breaker compartment accessories for GIS (1 gauge/1 set precision pressure gauge spare parts for GIS, can be combined with Gas density meter for CB compartment)	3	set	THB	274,617.20	823,851.60			XXXXX	XXXXX
1D7-10	Cost of Local Transportation for Item No. 1D7-1 thru 1D7-9	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	130,514.34	130,514.34
Total Price for Schedule 1D7				**THB**		**2,610,286.80**	**Baht**		**Baht**	**130,514.34**

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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Fuse link or refill unit 20E for 22 kV power fuse (standard speed)	6		THB	18,201.70	109,210.20			XXXXX	XXXXX
1D11-2	6.10 m. (20 ft.) hook stick combination operating hook stick and fuse remover, (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
1D11-3	Cost of Local Transportation for Item No. 1D11-1 thru 1D11-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	6,369.06	6,369.06
Total Price for Schedule 1D11				**THB**		**127,381.10**	**Baht**		**Baht**	**6,369.06**

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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Fuse time lag type 800 A	6					19,779.10	118,674.60	XXXXX	XXXXX
1D12-2	Cost of Local Transportation for Item No. 1D12-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	5,933.73	5,933.73
Total Price for Schedule 1D12							**Baht**	**118,674.60**	**Baht**	**5,933.73**

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MEDIUM COST FOR BID NO. SPSS-S-01

1D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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. SPSS-S-01

1D24 : Spare Parts for Control and Protection System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	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
1D24-1	DSS : Spare Parts	- See Bill of Materials for 1D24-1 - Specification No. 1008	1	Set				10,081,131.00	10,081,131.00	XXXXX	XXXXX
1D24-2	Cost of Local Transportation for Item No. 1D24-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	56,731.25	56,731.25
Total Price for Schedule 1D24								**Baht**	**10,081,131.00**	**Baht**	**56,731.25**

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MEDIUM COST FOR BID NO. SPSS-S-01

1D25 : Spare Parts for Fault Recording System

SUPPLY AND CONSTRUCTION OF 230 KV KO SAMUI SUBSTATION (GIS)

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	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
1D25-1	DSS : Digital Fault Recorder Equipment	- Spare DFR equipment is same ordering number as supplied in schedule 1AB25-1 - Specification Nos. 1003 and 1008	1	Set				891,336.00	891,336.00	XXXXX	XXXXX
1D25-2	Cost of Local Transportation for Item No. 1D25-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	28,747.70	28,747.70
Total Price for Schedule 1D25								**Baht**	**891,336.00**	**Baht**	**28,747.70**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB4-1	108 kV Surge Arrester as per Ratings and Features RF SA7Y11	6		THB	102,000.00	612,000.00			XXXXX	XXXXX
2AB4-2	Steel Supporting Structure for SA7Y11 (for Item No. 2AB4-1), H=4.50 m as per Dwg. No. ST-LA-7-01 and SD-AB-0-01	6					41,000.00	246,000.00	XXXXX	XXXXX
2AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB4-1 thru 2AB4-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	85,800.00	85,800.00
Total Price for Schedule 2AB4				**THB**		**612,000.00**	**Baht**	**246,000.00**	**Baht**	**85,800.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB5-1	115 kV CT, 550 kV BIL, 1000x2000:1//1A, 40 kA, oil filled as per Rating and Features RF CT78EP	6		THB	135,000.00	810,000.00			XXXXX	XXXXX
2AB5-2	Steel Supporting Structure for CT78EP (for Item No. 2AB5-1), H=4.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	6					17,000.00	102,000.00	XXXXX	XXXXX
2AB5-3	Junction Box type CT3 (for Item No. 2AB5-1) as per Dwg. No. TP-E-18.2 and TP-E-18.4	2					17,000.00	34,000.00	XXXXX	XXXXX
2AB5-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB5-1 thru 2AB5-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	94,600.00	94,600.00
Total Price for Schedule 2AB5				**THB**		**810,000.00**	**Baht**	**136,000.00**	**Baht**	**94,600.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB6 : Coupling Capacitor Voltage Transformer, Coupling Capacitor, Voltage Transformer and Junction Box

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB6-1	115 kV voltage transformer, 550 kV BIL, 115000/√3 : 115/(115/√3) & 115/(115/√3) & 110 V oil filled as per ratings and features RF VT7013	6		THB	141,000.00	846,000.00			XXXXX	XXXXX
2AB6-2	Steel Supporting Structure for VT7013 (for Item No. 2AB6-1), H=4.50 m as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	6					18,000.00	108,000.00	XXXXX	XXXXX
2AB6-3	Junction Box type PT-D2 (for Item No. 2AB6-1) as per Dwg. No. TP-E-20.7	2					29,000.00	58,000.00	XXXXX	XXXXX
2AB6-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB6-1 thru 2AB6-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	101,200.00	101,200.00
Total Price for Schedule 2AB6				**THB**		**846,000.00**	**Baht**	**166,000.00**	**Baht**	**101,200.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB10-1	123 kV 2000 A air switch (high creepage) motor operated as per Ratings and Features RF DS77AH(IEC) (Phase spacing = 2.25 m)	2		THB	612,939.80	1,225,879.60			XXXXX	XXXXX
2AB10-2	Steel Supporting Structure for DS77AH(IEC) as per EGAT's Dwg. No. ST-DS-4-01 and SD-AB-0-01, H = 5.30 m	2					69,495.00	138,990.00	XXXXX	XXXXX
2AB10-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB10-1 thru 2AB10-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	136,486.96	136,486.96
Total Price for Schedule 2AB10				**THB**		**1,225,879.60**	**Baht**	**138,990.00**	**Baht**	**136,486.96**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB14-1	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	2					11,149.00	22,298.00	XXXXX	XXXXX
2AB14-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB14-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	5,574.50	5,574.50
Total Price for Schedule 2AB14							**Baht**	**22,298.00**	**Baht**	**5,574.50**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB16-1	Reference: EGAT Specification No. 326* 115 kV cable terminations for 1/C no. 800 sq.mm. XLPE power cable as per Ratings and Features RF TN7D1H complete with termination accessories	12		THB	357,084.20	4,285,010.40			XXXXX	XXXXX
2AB16-2	Steel supporting structure for 115 kV cable terminations for item no.2AB16-1, the distance from the top part of the stand-on-structure cable termination (at live part) to the bottom of steel support structure base plate shall be 4.50 m, phase spacing shall be 2.25 m., 3-phase set, see Dwg. No. KM-ST-TA-7-01 for reference (Designed by Contractor)**	4					121,369.00	485,476.00	XXXXX	XXXXX
2AB16-3	Cable Cleats with necessary miscellanous hardware for item no. 2AB17-1, flat formation 1-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	434,700.00	434,700.00			XXXXX	XXXXX
2AB16-4	Cost of Local Transportation, Construction and Installation for Item No.2AB16-1 thru 2AB16-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,301,296.60	1,301,296.60

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Note : Steel supporting structure (Item No. 2AB16-2) for cable termination for 1/C 800 sq.mm. XLPE power cable shall be designed, considering prevention of any electrical and magnetic issues such as Eddy current. * In the event that EGAT specification no. 326 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 326 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 2AB16				**THB**		**4,719,710.40**	**Baht**	**485,476.00**	**Baht**	**1,301,296.60**

** The design of supporting structures of cable termination shall be verified by cable terminations manufacturer.

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB17 : XLPE Power Cable

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB17-1	Reference: EGAT Specification No. 322* 115 kV 1/C no. 800 sq.mm. XLPE power cable as per Specification attached	Lump sum	Lump sum				2,163,150.00	2,163,150.00	XXXXX	XXXXX
2AB17-2	Cost of Local Transportation, Construction and Installation for Item No.2AB17-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	540,787.50	540,787.50
	* In the event that EGAT specification no. 322 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 322 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 2AB17							**Baht**	**2,163,150.00**	**Baht**	**540,787.50**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB18-1	750 V power cable as per Specification attached	Lump sum	Lump sum				148,720.00	148,720.00	XXXXX	XXXXX
2AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				703,120.00	703,120.00	XXXXX	XXXXX
2AB18-3	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				791,436.80	791,436.80	XXXXX	XXXXX
2AB18-4	Aluminum conductor as per Specification attached	Lump sum	Lump sum				57,750.00	57,750.00	XXXXX	XXXXX
2AB18-5	Cost of Local Transportation, Construction and Installation for Item No.2AB18-1 thru 2AB18-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	425,256.70	425,256.70
Total Price for Schedule 2AB18							**Baht**	**1,701,026.80**	**Baht**	**425,256.70**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB19-1	Solar lighting fixture for fence and access road, LED, All in one typeas per Ratings and Features RF LX01L1 and Dwg. No. LT-FX-0-03	6					13,257.20	79,543.20	XXXXX	XXXXX
2AB19-2	Tapered galvanized steel lamp post H=4500 mm. complete with anchor bolts as per Dwg. No. ST-LP-0-03 and SD-AB-0-01	6					19,533.82	117,202.92	XXXXX	XXXXX
2AB19-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB19-1 thru 2AB19-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	49,186.53	49,186.53
Total Price for Schedule 2AB19							**Baht**	**196,746.12**	**Baht**	**49,186.53**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB20-1	115 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				14,830.20	14,830.20	XXXXX	XXXXX
2AB20-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB20-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	3,707.55	3,707.55
Total Price for Schedule 2AB20							**Baht**	**14,830.20**	**Baht**	**3,707.55**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB21-1	115 kV and below Bus fitting as per Specification attached	Lump sum	Lump sum	THB	70,593.60	70,593.60			XXXXX	XXXXX
2AB21-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB21-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	17,648.40	17,648.40
Total Price for Schedule 2AB21				**THB**		**70,593.60**	**Baht**		**Baht**	**17,648.40**

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2AB22 : Grounding Material

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB22-1	Thermite welding material as per Specification attached	Lump sum	Lump sum				136,573.80	136,573.80	XXXXX	XXXXX
2AB22-2	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	102,359.40	102,359.40			XXXXX	XXXXX
2AB22-3	Cost of Local Transportation, Construction and Installation for Item No. 2AB22-1 thru 2AB22-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	59,733.30	59,733.30
Total Price for Schedule 2AB22				**THB**		**102,359.40**	**Baht**	**136,573.80**	**Baht**	**59,733.30**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB23-1	Rigid steel conduit as per Specification attached	Lump sum	Lump sum				59,488.00	59,488.00	XXXXX	XXXXX
2AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	29,119.20	29,119.20			XXXXX	XXXXX
2AB23-3	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				60,000.00	60,000.00	XXXXX	XXXXX
2AB23-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB23-1 thru 2AB23-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	37,151.80	37,151.80
Total Price for Schedule 2AB23				**THB**		**29,119.20**	**Baht**	**119,488.00**	**Baht**	**37,151.80**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB24-1	DSS : Digital Substation System including System Integrator	- See Bill of Materials for 2AB24-1 - See Scope of work - Specification No.1008 - Drawing Nos. KSM-E-1 sh.1-4 and TP-E-20.3	1	Set				17,488,913.00	17,488,913.00	XXXXX	XXXXX
2AB24-2	Cost of Local Transportation, Construction and Installation for Item No. 2AB24-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	2,101,058.75	2,101,058.75
Total Price for Schedule 2AB24								**Baht**	**17,488,913.00**	**Baht**	**2,101,058.75**

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB28 : Compact Switchgear

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB28-1	123 kV 2000 A 40 kA Compact Switchgear as per Ratings and Features RF CW7240(IEC) and Dwg. No. KM-S-1-02/02	2		THB	7,312,021.39	14,624,042.78			XXXXX	XXXXX
2AB28-2	Local Control Cubicle for CW7240(IEC) for Item No. 2AB28-1*	2		THB	included	included			XXXXX	XXXXX
2AB28-3	Steel Supporting Structure for CW7240(IEC) for Item No. 2AB28-1*	2		THB	included	included			XXXXX	XXXXX
2AB28-4	Cost of Local Transportation, Construction and Installation for Item No. 2AB28-1 thru 2AB28-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,462,404.28	1,462,404.28
	Note: The SF6 gas in a quantity equivalent to 115% of the total equipment actual requirement shall be provided as follows: - 100% of SF6 gas quantity shall be shipped in returnable steel bottles which shall be returned back to Contractor. - 15% of SF6 gas quantity shall be shipped in non-returnable steel bottles which shall become the property of EGAT.									
Total Price for Schedule 2AB28				**THB**		**14,624,042.78**	**Baht**		**Baht**	**1,462,404.28**

* The design of these equipment/devices shall be verified by Compact Switchgear manufacturer.

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MEDIUM COST FOR BID NO. SPSS-S-01

2AB39 : Commissioning

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2AB39-1	Commissioning	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	320,000.00	320,000.00
Total Price for Schedule 2AB39							**Baht**		**Baht**	**320,000.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C1-1	115 kV Cable termination support foundation(TA702)	Designed by Contractor FD-TM-7-05 See Dwg no. KM-C-3	4	Set	30,936.00	123,744.00
2C1-2	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(LA701 only)	FD-GE-0-03	6	Set	5,867.00	35,202.00
2C1-3	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(CT702 only)	FD-GE-0-03	6	Set	5,867.00	35,202.00
2C1-4	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(VT703 only)	FD-GE-0-03	6	Set	5,867.00	35,202.00
2C1-5	115 kV Compact switchgear structure foundation (CS701) pile type	Designed by Contractor TA2-CS-7-01 See Dwg no. KM-C-3	2	Set	8,508.00	17,016.00

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MEDIUM COST FOR BID NO. SPSS-S-01

2C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C1-6	115 kV Disconnecting Switch Support foundation (DS704) Pile Type	FD-DS-7-08	2	Set	32,221.00	64,442.00
2C1-7	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	2	Set	2,546.00	5,092.00
2C1-8	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type	FD-LP-0-05	6	Set	10,270.00	61,620.00
2C1-9	Outdoor merging unit structure foundation (MU001)	FD-MU-0-01	2	Set	11,915.00	23,830.00
2C1-10	Concrete pole strain bus structure (CP12)	CP-SB-4-01	3	Set	37,387.00	112,161.00
2C1-11	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	655,203.00	655,203.00
Total Price for Schedule 2C1					**Baht**	**1,168,714.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2C2 : Cable Trench

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C2-1	Standard cable trench, steel cover included (Type"A")	SD-CE-0-02	Lump sum	Lump sum	805,980.00	805,980.00
2C2-2	Standard cable trench, steel cover included (Type"B")	SD-CE-0-02	Lump sum	Lump sum	247,233.00	247,233.00
2C2-3	HV cable trench type "A" with concrete cover	Designed by Contractor	Lump sum	Lump sum	2,275,833.00	2,275,833.00
2C2-4	HV cable trench type "B" with concrete cover	Designed by Contractor	Lump sum	Lump sum	686,504.00	686,504.00
Total Price for Schedule 2C2					**Baht**	**4,015,550.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	259,440.00	259,440.00
2C4-2	Crushed rock surfacing 0.10 m thickness	-	Lump sum	Lump sum	262,570.00	262,570.00
Total Price for Schedule 2C4					**Baht**	**522,010.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2C6 : Drainage System

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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. KM-C-6	Lump sum	Lump sum	1,036,070.00	1,036,070.00
2C6-2	Dia. 0.15m PVC. Pipe (Class 8.5)	-	Lump sum	Lump sum	7,540.00	7,540.00
Total Price for Schedule 2C6					**Baht**	**1,043,610.00**

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2C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
2C7-1	Dynamic Pile load test	-	Lump sum	Lump sum	28,500.00	28,500.00
2C7-2	Architectural and Civil engineering design work	-	Lump sum	Lump sum	278,742.08	278,742.08
Total Price for Schedule 2C7					**Baht**	**307,242.08**

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2C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
2C8-1	Fence	Designed by Contractor SD-RF-0-01 See Dwg no. KM-C-3	Lump sum	Lump sum	573,240.00	573,240.00
Total Price for Schedule 2C8					**Baht**	**573,240.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2C9 : Fire Protection System

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	1	set	233,198.00	233,198.00
Total Price for Schedule 2C9					**Baht**	**233,198.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

2D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
2D22-1	Portable temporary grounding tools for maintenance as per Specification attached	1		THB	531,784.00	531,784.00			XXXXX	XXXXX
2D22-2	Cost of Local Transportation for Item No. 2D22-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	26,589.20	26,589.20
Total Price for Schedule 2D22				**THB**		**531,784.00**	**Baht**		**Baht**	**26,589.20**

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MEDIUM COST FOR BID NO. SPSS-S-01

2D28 : Spare Parts for Compact Switchgear

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Note : detail and breakdown price of each equipment for each item shall be submitted together with tender documents during the bidding									
2D28-1	123 kV 2000 A 40 kA Compact Switchgear as per Ratings and Features RF CW7240(IEC) spare parts for Compact Switchgear	1		THB	7,312,021.39	7,312,021.39			XXXXX	XXXXX
2D28-2	Local Control Cubicle for CW7240(IEC) for Item No. 2D28-1* spare parts for Compact Switchgear	1		THB	included	included			XXXXX	XXXXX
2D28-3	Steel Supporting Structure for CW7240(IEC) for Item No. 2D28-1* spare parts for Compact Switchgear	1		THB	included	included			XXXXX	XXXXX
2D28-4	Maintenance Closing Device for CB of Compact Switchgear RF CW7240(IEC)*	1	set	THB	55,715.00	55,715.00			XXXXX	XXXXX
2D28-5	Special tools and appliances for complete installation and maintenance for CW7240(IEC) (if any give details)*	1	set	THB	included	included			XXXXX	XXXXX
2D28-6	Cost of Local Transportation for Item No. 2D28-1 thru 2D28-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	368,386.82	368,386.82

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2D28 : Spare Parts for Compact Switchgear

SUPPLY AND CONSTRUCTION OF 115 KV KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	Note: The SF6 gas in quantity equivalent to 115% of the total equipment actual requirement shall be provided and shipped in non-returnable steel bottles which shall become the property of EGAT.									
Total Price for Schedule 2D28				**THB**		**7,367,736.39**	**Baht**		**Baht**	**368,386.82**

* The design of these equipment/devices shall be verified by Compact Switchgear manufacturer.

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB4 : Surge Arrester

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB4-1	192 kV Surge Arrester as per Ratings and Features RF SA8Y11	12		THB	145,000.00	1,740,000.00			XXXXX	XXXXX
3AB4-2	Steel Supporting Structure for SA8Y11 (for Item No. 3AB4-1), H=5.50 m as per Dwg. No. ST-LA-8-01 and SD-AB-0-01	12					32,000.00	384,000.00	XXXXX	XXXXX
3AB4-3	Cost of Local Transportation, Construction and Installation for Item No. 3AB4-1 thru 3AB4-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	233,640.00	233,640.00
Total Price for Schedule 3AB4				**THB**		**1,740,000.00**	**Baht**	**384,000.00**	**Baht**	**233,640.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB5 : Current Transformer and Junction Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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, 300/-/2000:5//5//5//5//5 A, 50 kA oil filled as per Rating and Features RF CT88F2	3		THB	377,000.00	1,131,000.00			XXXXX	XXXXX
3AB5-2	Steel Supporting Structure for CT88F2 (for Item No. 3AB5-1), H=5.50 m as per Dwg. No. ST-CT-4-01 and SD-AB-0-01	3					29,000.00	87,000.00	XXXXX	XXXXX
3AB5-3	Junction Box type CT6 (for Item No. 3AB5-1) as per Dwg. No. TP-E-18.2 and TP-E-18.4	1					54,000.00	54,000.00	XXXXX	XXXXX
3AB5-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB5-1 thru 3AB5-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	139,920.00	139,920.00
Total Price for Schedule 3AB5				**THB**		**1,131,000.00**	**Baht**	**141,000.00**	**Baht**	**139,920.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 CCVT, 900 kV BIL, 138000:119.5/69 & 119.5/69 V with carrier accessories, oil filled as per Ratings and Features RF PD8W1J	6		THB	264,000.00	1,584,000.00			XXXXX	XXXXX
3AB6-2	Steel Supporting Structure for PD8W1J (for Item No. 3AB6-1), H=5.50 m as per Dwg. No. ST-VT-4-01 and SD-AB-0-01	6					18,000.00	108,000.00	XXXXX	XXXXX
3AB6-3	Junction Box type PT11 (for Item No. 3AB6-1) as per Dwg. No. TP-E-18.1-2/4, 3/4 and TP-E-18.4	2					45,000.00	90,000.00	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	196,020.00	196,020.00
Total Price for Schedule 3AB6				**THB**		**1,584,000.00**	**Baht**	**198,000.00**	**Baht**	**196,020.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB9 : Power Circuit Breaker

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 with 2.7 peak withstand current as per Ratings and Features RF CB8953(IEC)	4		THB	2,516,329.85	10,065,319.40			XXXXX	XXXXX
3AB9-2	Swing Rack Cabinet as per dwg. no. TP-E-10.1 completed with four Controlled Switching Device (CSD) and Control Cable link between Power Circuit Breaker and CSD (include to CT/ VT)	1		THB	4,174,298.41	4,174,298.41			XXXXX	XXXXX
3AB9-3	Steel Supporting Structure for CB8953*	4		THB	111,371.00	445,484.00			XXXXX	XXXXX
3AB9-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB9-1 thru 3AB9-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,615,361.20	1,615,361.20
Total Price for Schedule 3AB9				**THB**		**14,685,101.81**	**Baht**		**Baht**	**1,615,361.20**

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

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB10 : Disconnecting Switch

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 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	659,470.90	1,318,941.80			XXXXX	XXXXX
3AB10-2	245 kV 4000A air switch (high creepage) with grounding blade manually gang operated as per Ratings and Features RF DS89BI(IEC) (Phase spacing = 3.50 m)	2		THB	631,535.30	1,263,070.60			XXXXX	XXXXX
3AB10-3	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					111,371.00	222,742.00	XXXXX	XXXXX
3AB10-4	Steel Supporting Structure for DS89BI(IEC) as per EGAT's Dwg. No. ST-DS-4-01 and SD-AB-0-01, H = 6.00 m	2					111,371.00	222,742.00	XXXXX	XXXXX
3AB10-5	Cost of Local Transportation, Construction and Installation for Item No. 3AB10-1 thru 3AB10-4	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	49,003.24	49,003.24
Total Price for Schedule 3AB10				**THB**		**2,582,012.40**	**Baht**	**445,484.00**	**Baht**	**49,003.24**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	400/230 Vac Load Center Unit Substation (LCUS) as per Dwg. No. SE-LCUS-0-01 (Design by Contractor)	1					975,964.00	975,964.00	XXXXX	XXXXX
3AB12-2	Lighting Relay Panel (LRP) as per Dwg. No. LT-RP-0-03	1					111,958.00	111,958.00	XXXXX	XXXXX
3AB12-3	Outdoor Receptacle Box type ORB1 as per Dwg. No. SE-ORB-0-01	1					25,234.00	25,234.00	XXXXX	XXXXX
3AB12-4	Outdoor Receptacle Box type ORB2 as per Dwg. No. SE-ORB-0-01	1					44,576.40	44,576.40	XXXXX	XXXXX
3AB12-5	Common cubicle for maintenance type 1 as per Dwg. No. SE-CCM-0-01	1					72,726.50	72,726.50	XXXXX	XXXXX
3AB12-6	Marshalling Cubicle for Breaker (MC003) as per Dwg. No. TP-E-10.18	2					38,806.90	77,613.80	XXXXX	XXXXX
3AB12-7	Termination Box type TB1 as per Dwg No. LT-TB-0-01	4					2,800.60	11,202.40	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB12 : AC&DC Distribution Board and Termination Box

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB12-8	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
3AB12-9	125 Vdc Power Panel as per Dwg. No. TP-E-4.4 (designed by Contractor)	1					187,092.40	187,092.40	XXXXX	XXXXX
3AB12-10	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
3AB12-11	Cost of Local Transportation, Construction and Installation for Item No. 3AB12-1 thru 3AB12-10	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	209,555.42	209,555.42
Total Price for Schedule 3AB12							**Baht**	**1,905,049.30**	**Baht**	**209,555.42**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB13 : Stationary Battery and Battery Charger

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB13-1	Vented stationary battery, 58 cells (tubular type) for 125 Vdc system complete with electrolyte and battery rack as per Specification attached (Design by Contractor, The capacity of Stationary Battery shall not be less than 2,600 Ah)									
3AB13-1a	a) Battery	1	set	THB	4,223,447.73	4,223,447.73			XXXXX	XXXXX
3AB13-1b	b) Electrolyte	1	set	THB	77,701.92	77,701.92			XXXXX	XXXXX
3AB13-1c	c) Battery Rack	1	set	THB	156,508.61	156,508.61			XXXXX	XXXXX
3AB13-2	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. 3AB13-1	2					1,176,576.50	2,353,153.00	XXXXX	XXXXX

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3AB13 : Stationary Battery and Battery Charger

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB13-3	Cost of Local Transportation, Construction and Installation for Item No. 3AB13-1 thru 3AB13-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	749,189.24	749,189.24
Total Price for Schedule 3AB13				**THB**		**4,457,658.26**	**Baht**	**2,353,153.00**	**Baht**	**749,189.24**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	230 kV take-off structure (TS801) as per Dwg. No. ST-TS-8-01	9					323,769.00	2,913,921.00	XXXXX	XXXXX
3AB14-2	230 kV beam (BB801) 15 m. as per Dwg. No. ST-BB-8-01	6					140,032.00	840,192.00	XXXXX	XXXXX
3AB14-3	Disconnecting switch operating platform (OP002) as per Dwg. No. ST-OP-0-02	8					11,149.00	89,192.00	XXXXX	XXXXX
3AB14-4	Junction box support structure (JB003) as per Dwg. No. ST-JB-0-03	5					7,581.00	37,905.00	XXXXX	XXXXX
3AB14-5	Overhead ground wire structure (OS1) as per Dwg. No. RS-TE106-C4.8	1					124,870.00	124,870.00	XXXXX	XXXXX
3AB14-6	6.0 m self support telecommunication tower on the roof of control building as per Dwg. No. ST-TT-0-05	1					66,894.00	66,894.00	XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB14 : Substation Steel Structure

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB14-7	Cost of Local Transportation, Construction and Installation for Item No. 3AB14-1 thru 3AB14-6	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	1,120,067.85	1,120,067.85
Total Price for Schedule 3AB14							**Baht**	**4,072,974.00**	**Baht**	**1,120,067.85**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB15 : Insulator

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Cost of Local Transportation, Construction and Installation for Item No. 3AB15-1 thru 3AB15-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	148,762.85	148,762.85
Total Price for Schedule 3AB15							**Baht**		**Baht**	**148,762.85**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB16-1	Reference: EGAT Specification No. 326* 230 kV cable terminations for 1/C no. 800 sq.mm. XLPE power cable as per Ratings and Features RF TN8D1H complete with termination accessories	12		THB	839,271.40	10,071,256.80			XXXXX	XXXXX
3AB16-2	Steel supporting structure for 230 kV cable terminations for item no.3AB16-1, the distance from the top part of the stand-on-structure cable termination (at live part) to the bottom of steel support structure base plate shall be 5.50 m, phase spacing shall be 3.50 m., 3-phase set, see Dwg. No. KN-S-7-03/03 for reference (Designed by Contractor)**	4					161,825.00	647,300.00	XXXXX	XXXXX
3AB16-3	33 kV cable terminations for 1/C no. 50 sq.mm. XLPE power cable as per Ratings and Features RF TN321H complete with termination accessories	6		THB	8,017.90	48,107.40			XXXXX	XXXXX
3AB16-4	Cable Cleats with necessary miscellanous hardware for item no. 3AB17-1, flat formation 1-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	2,067,600.00	2,067,600.00			XXXXX	XXXXX
3AB16-5	Cable Cleats with necessary miscellanous hardware for item no. 3AB17-2, trefoil formation 3-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	663,000.00	663,000.00			XXXXX	XXXXX

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB16 : Cable Terminations

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB16-6	Cable Cleats with necessary miscellanous hardware for item no. 3AB17-2, flat formation 1-phase set (Design by Contractor) as per RF no. TNAC1	Lump sum	Lump sum	THB	4,530.00	4,530.00			XXXXX	XXXXX
3AB16-7	Cost of Local Transportation, Construction and Installation for Item No.3AB16-1 thru 3AB16-6	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	3,712,993.41	3,712,993.41
	Note : Steel supporting structure (Item No. 3AB16-2) for 230 kV cable termination for 1/C 800 sq.mm. XLPE power cable shall be designed, considering prevention of any electrical and magnetic issues such as Eddy current.									
	* In the event that EGAT specification no. 326 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 326 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 3AB16				**THB**		**12,854,494.20**	**Baht**	**647,300.00**	**Baht**	**3,712,993.41**

** The design of supporting structures of cable termination shall be verified by cable terminations manufacturer.

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB17 : XLPE Power Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB17-1	Reference: EGAT Specification No. 322* 230 kV 1/C no. 800 sq.mm. XLPE power cable as per Ratings and Features RF PC8D10	Lump sum	Lump sum	THB	15,021,600.00	15,021,600.00			XXXXX	XXXXX
3AB17-2	33 kV 1/C no. 50 sq.mm. XLPE power cable as per Ratings and Features RF PC3211	Lump sum	Lump sum				1,260,600.00	1,260,600.00	XXXXX	XXXXX
3AB17-3	Cost of Local Transportation, Construction and Installation for Item No.3AB17-1 and 3AB17-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	4,477,605.00	4,477,605.00
	* In the event that EGAT specification no. 322 is provided in conjunction with EGAT Specification No. 1001, the provisions stipulated in EGAT specification no. 322 shall take precedence over any conflicting requirements in EGAT Specification No. 1001.									
Total Price for Schedule 3AB17				**THB**	**15,021,600.00**		**Baht** **1,260,600.00**		**Baht** **4,477,605.00**	

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB18 : Low Voltage Cable and Conductor

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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				2,415,380.00	2,415,380.00	XXXXX	XXXXX
3AB18-2	600 V control cable with PVC insulation as per Specification attached	Lump sum	Lump sum				7,969,830.00	7,969,830.00	XXXXX	XXXXX
3AB18-3	750 V lighting cable (THW) as per Specification attached	Lump sum	Lump sum				3,080.00	3,080.00	XXXXX	XXXXX
3AB18-4	750 V lighting cable (NYY) as per Specification attached	Lump sum	Lump sum				2,324,850.00	2,324,850.00	XXXXX	XXXXX
3AB18-5	Annealed copper ground wire as per Specification attached	Lump sum	Lump sum				7,068,969.60	7,068,969.60	XXXXX	XXXXX
3AB18-6	Aluminum conductor as per Specification attached	Lump sum	Lump sum				539,000.00	539,000.00	XXXXX	XXXXX
3AB18-7	Overhead ground wire as per Specification attached	Lump sum	Lump sum				11,088.00	11,088.00	XXXXX	XXXXX
3AB18-8	Cost of Local Transportation, Construction and Installation for Item No. 3AB18-1 thru 3AB18-7	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	5,591,354.34	5,591,354.34
Total Price for Schedule 3AB18							**Baht**	**20,332,197.60**	**Baht**	**5,591,354.34**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB19 : Switchyard Lighting Fixtures

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB19-1	Flood lighting fixture, LED lamp, 10000 lumen, wide-beam, complete with control gear as per Specification attached	8					18,686.80	149,494.40	XXXXX	XXXXX
3AB19-2	Solar lighting fixture for fence and access road, LED, All in one typeas per Ratings and Features RF LX01L1 and Dwg. No. LT-FX-0-03	21					13,257.20	278,401.20	XXXXX	XXXXX
3AB19-3	Tapered galvanized steel lamp post H=4500 mm. complete with anchor bolts as per Dwg. No. ST-LP-0-03 and SD-AB-0-01	21					19,533.82	410,210.22	XXXXX	XXXXX
3AB19-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB19-1 thru 3AB19-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	230,479.10	230,479.10
Total Price for Schedule 3AB19							**Baht**	**838,105.82**	**Baht**	**230,479.10**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB20 : Aluminum Tube, Connector and Miscellaneous Hardware

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Aluminum tube as per Specification attached	Lump sum	Lump sum				72,718.80	72,718.80	XXXXX	XXXXX
3AB20-2	230 kV and below Compression connector as per Specification attached	Lump sum	Lump sum				81,041.40	81,041.40	XXXXX	XXXXX
3AB20-3	230 kV and below Miscellaneous hardware as per Specification attached	Lump sum	Lump sum				55,387.20	55,387.20	XXXXX	XXXXX
3AB20-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB20-1 thru 3AB20-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	57,515.54	57,515.54
Total Price for Schedule 3AB20							**Baht**	**209,147.40**	**Baht**	**57,515.54**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB21 : Bus Fitting

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	409,068.00	409,068.00			XXXXX	XXXXX
3AB21-2	Cost of Local Transportation, Construction and Installation for Item No. 3AB21-1	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	112,493.70	112,493.70
Total Price for Schedule 3AB21				**THB**		**409,068.00**	**Baht**		**Baht**	**112,493.70**

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3AB22 : Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Ground rod as per Specification attached	Lump sum	Lump sum	THB	193,424.00	193,424.00			XXXXX	XXXXX
3AB22-2	Thermite welding material as per Specification attached	Lump sum	Lump sum				695,844.60	695,844.60	XXXXX	XXXXX
3AB22-3	Grounding hardware as per Specification attached	Lump sum	Lump sum	THB	531,548.60	531,548.60			XXXXX	XXXXX
3AB22-4	Cost of Local Transportation, Construction and Installation for Item No. 3AB22-1 thru 3AB22-3	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	390,724.73	390,724.73
Total Price for Schedule 3AB22				**THB**		**724,972.60**	**Baht**	**695,844.60**	**Baht**	**390,724.73**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB23 : Substation Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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				161,953.00	161,953.00	XXXXX	XXXXX
3AB23-2	Fitting for rigid steel conduit as per Specification attached	Lump sum	Lump sum	THB	78,155.00	78,155.00			XXXXX	XXXXX
3AB23-3	HDPE conduit and fitting as per Specification attached	Lump sum	Lump sum				4,900.00	4,900.00	XXXXX	XXXXX
3AB23-4	Heat shrinkable insulation material	Lump sum	Lump sum	THB	89,329.90	89,329.90			XXXXX	XXXXX
3AB23-5	Identification and danger notice plate as per drawing attached	Lump sum	Lump sum				30,000.00	30,000.00	XXXXX	XXXXX
3AB23-6	Cost of Local Transportation, Construction and Installation for Item No. 3AB23-1 thru 3AB23-5	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	100,192.92	100,192.92
Total Price for Schedule 3AB23				**THB**		**167,484.90**	**Baht**	**196,853.00**	**Baht**	**100,192.92**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 LINE PRIMARY PROTECTION (87L, 1ph, 51S/51SG)	Panel Nos. 105R and 108R, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.8, KN-E-3 SH.1-2, TP-E-9.1, TP-E-10.1 and Scope of Work	2	Ea				1,391,585.00	2,783,170.00	XXXXX	XXXXX
3AB24-2	230 kV LINE PROTECTION (87L, 1ph, 59L, 2-BF, DTT)	Panel Nos. 106R and 109R, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.8, KN-E-3 SH.1-2, TP-E-9.1, TP-E-10.1 and Scope of Work	2	Ea				1,973,792.00	3,947,584.00	XXXXX	XXXXX
3AB24-3	230 kV SHUNT REACTOR PROTECTION	Panel Nos. 107 and 110R, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.8, KN-E-3 SH.1-2, TP-E-9.1, TP-E-10.1 and Scope of Work	2	Ea				781,791.00	1,563,582.00	XXXXX	XXXXX
3AB24-4	INTERPOSING PANEL TYPE IP5	Panel No. IP11, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, TP-E-6.4 SH.1-6, TP-E-10.2 and Scope of Work	1	Ea				634,209.00	634,209.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB24-5	TRANSDUCER PANEL	Panel No. TDR11, Installed at new Control Building. included 2 W&VAR-TDR, 2 V-TDR (1ph), 1 DC-TDR, 2 TS, 1 T-TDR (Temp. for new control Building) Specification No. 1002 Drawing Nos. KN-E-1 SH.1, TP-E-10.2 and Scope of Work	1	Ea				297,818.00	297,818.00	XXXXX	XXXXX
3AB24-6	MARSHALLING PANEL FOR CONTROL SYSTEM	Panel No. MPC11, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, TP-E-10.3 and Scope of Work	1	Ea				382,041.00	382,041.00	XXXXX	XXXXX
3AB24-7	MARSHALLING PANEL FOR RTU	Panel Nos. MP-RTU11 and MP-RTU12, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, TP-E-10.3 and Scope of Work	2	Ea				386,229.00	772,458.00	XXXXX	XXXXX

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3AB24 : Control and Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 FRS	Panel No. MP-FRS11, Installed at new Control Building. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, TP-E-10.3 and Scope of Work	1	Ea				394,923.00	394,923.00	XXXXX	XXXXX
3AB24-9	E1 Converter Panel	Panel No. E1-CONV., Installed at new Control Room. Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.8, TP-E-10.20 and Scope of Work	1	Ea				763,576.00	763,576.00	XXXXX	XXXXX
3AB24-10	GPS RECEIVER PANEL	Panel No. GPS11 Specification No. 1002 Dwg Nos. KN-E-1 SH.1, KN-E-2.8, TP-E-10.15 and Scope of Work	1	Ea				694,181.00	694,181.00	XXXXX	XXXXX
3AB24-11	Modified the existing control and protection system	Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.1, KN-E-2.2 SH.1-2, KN-E-3 SH.1-2 and Scope of Work	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	220,100.00	220,100.00
3AB24-12	Cost of Local Transportation, Construction and Installation for Item Nos. 3AB24-1 thru 3AB24-10		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	1,006,019.00	1,065,450.25
Total Price for Schedule 3AB24								**Baht**	**12,233,542.00**	**Baht**	**1,285,550.25**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB25 : Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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, 48 ANALOG INPUT, 144 DIGITAL INPUT.	Installed at new Control Building. Specification No. 1003 Drawing Nos. KN-E-1 SH.1 and Scope of Work	1	SET				2,758,314.00	2,758,314.00	XXXXX	XXXXX
3AB25-2	Cost of Local Transportation, Construction and Installation for Item Nos. 3AB25-1		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	296,731.00	296,731.00
Total Price for Schedule 3AB25								**Baht**	**2,758,314.00**	**Baht**	**296,731.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB33 : CCTV

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB33-1	CCTV System and accessories including:	1	SET				2,130,876.00	2,130,876.00	XXXXX	XXXXX
	(1) Outdoor PTZ Dome Camera (2 EA) (2) Indoor Fixed Camera (6 EA) (3) Outdoor Fixed Camera (11 EA) (4) PC Workstation (1 EA) (5) Server (1 EA) (6) Software license (6.1) Software management license (1 License) (6.2) Redording license (19 Licenses) (6.3) Video analytic license (19 Licenses) (7) Ethernet I/O Module (1 EA) (8) Monitor (4 EA) (9) HDMI Optical Extender (2 SET) (10) LAN Switch (1 EA) (11) CCTV Rack Cabinet (1 EA) Size: 60x80x218.5cm. Front door: Steel sheet with Plastic Acrylic Rear door: Perforated steel sheet									
	(12) CCTV steel box/ End-point steel box (Lumpsum) (13) Monitoring Desk (1 EA) (14) PoE Injector for Fixed camera (17 EA)									

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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

3AB33 : CCTV

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	(15) Adapter for PTZ camera (2 EA) (16) CCTV Pole 2 meter (Lumpsum) (17) CCTV Pole 4 meter (Lumpsum) (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) (24 EA) (22) Surge protection-220VAC (5 SET) (23) Line Filter (5 EA) (24) Electrical cable (Lumpsum) (25) EMT couduit (Lumpsum) (26) IMC, Flexible conduit with PVC coating (Lumpsum) (27) EFLEX/HDPE (Lumpsum) (28) Ground System (Lumpsum) (29) Accessories (Lumpsum)									
3AB33-2	Cost of Local Transportation, Construction and Installation for Item no. 3AB33-1	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	286,572.00	286,572.00
	IMPORTANT :									

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB33 : CCTV

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
	1. The Bidders are required to propose their estimated quantities for such item together with their bid proposal for EGAT's consideration. 2. Telecommunication Equipment supplied under Schedule 3AB33 shall conform to Specification No. SD-CCTV-P01, Drawing No. DW-COM-D01-007-ALL and DW-CAB-D01-019									
Total Price for Schedule 3AB33							**Baht**	**2,130,876.00**	**Baht**	**286,572.00**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB34-1	Vented Type Lead-Acid Station Battery 48VDC with capacity not less than 800 Ah (Tubular plate) at 10 Hour rated, 24 Cells, Norminal Voltage 2 Volts/Cell, with Rack 1 set (Khanom Substation, New Control Buliding)	1	SET				229,100.00	229,100.00	XXXXX	XXXXX
3AB34-2	Conventional Type Charger 48VDC, 200 A (Khanom Substation, New Control Buliding)	2	SET				227,300.00	454,600.00	XXXXX	XXXXX
3AB34-3	48Vdc. Load Center Type1: 60 Breaker (Khanom Substation, New Control Buliding)	1	SET				135,700.00	135,700.00	XXXXX	XXXXX
3AB34-4	Local Transportation, Construction and Installation for item 3AB34-1, 3AB34-2 and 3AB34-3	1	JOB		XXXXX	XXXXX	XXXXX	XXXXX	146,600.00	146,600.00
Total Price for Schedule 3AB34							**Baht**	**819,400.00**	**Baht**	**146,600.00**

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

3AB35 : Communication Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB35-1	Optical fiber cable from fiber frame termination cabinet at Khanom New Control Building to Existing Control Building									
3AB35-1.1	Supply of optical fiber cable and accessories including: (a) 36-core non-metallic optical fiber cable (approx. 450 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 (New Control Building -1 set) (e) Fiber frame termination cabinet with cable tray (New Control Building -1 set, Existing Control Building -1 set) (f) 36 Pigtails (1.5 meters) (New Control Building -1 set, Existing Control Building -1 set)	1	LOT				165,500.00	165,500.00	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	288,800.00	288,800.00

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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

3AB35 : Communication Cable

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 3AB35							**Baht**	**165,500.00**	**Baht**	**288,800.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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 CCS/ RTU OPERATOR CONSOLE(Complete Set)	Installed at new Control Building. Drawing Nos. KN-E-1 SH.1 and Scope of Work	1	Set		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB38-2	EGAT RTU TYPE 621M	Installed at new Control Building. Drawing Nos. KN-E-1 SH.1 and Scope of Work	1	Ea		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB38-3	EGAT RTU TYPE 16D	Installed at new Control Building. Drawing Nos. KN-E-1 SH.1 and Scope of Work	1	Ea		Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	Supplied by EGAT	XXXXX	XXXXX
3AB38-4	DESIGN AND INSTALLATION OF APPLICATION SOFTWARE	Installed at new Control Building. Drawing Nos. KN-E-1 SH.1 and Scope of Work	1	Ea		XXXXX	XXXXX	XXXXX	XXXXX	Included	Included
3AB38-5	Cost of Local Transportation, Construction and Installation for Item Nos. 3AB38-1 thru 3AB38-3		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	687,462.75	687,462.75

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21 Nov 2025

MEDIUM COST FOR BID NO. SPSS-S-01

3AB38 : Remote Terminal Unit

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	Modification to the Existing Computerized Control System	Specification No. 1002 Drawing Nos. KN-E-1 SH.1, KN-E-2.1, KN-E-2.2 SH.1-2, KN-E-2.8, KN-E-3 SH.1-2 and Scope of Work	Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	40,900.00	40,900.00
Total Price for Schedule 3AB38								**Baht**		**Baht**	**728,362.75**

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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
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MEDIUM COST FOR BID NO. SPSS-S-01

3AB39 : Commissioning

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB39-1	Commissioning	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	320,000.00	320,000.00
Total Price for Schedule 3AB39							**Baht**		**Baht**	**320,000.00**

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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
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MEDIUM COST FOR BID NO. SPSS-S-01

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

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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
3AB40-1	Dismantlement	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	482,000.00	482,000.00
Total Price for Schedule 3AB40							**Baht**		**Baht**	**482,000.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-1	230 kv Shunt reactor foundation (SR801)(pile type)	Designed by Contractor FD-TX-8-04 See Dwg no. KN-C-3	3	Set	423,872.00	1,271,616.00
3C1-2	230 kV Take off Structure Foundation (TS801) Pile Type	FD-TS-8-03	9	Set	73,282.00	659,538.00
3C1-3	230 kV Circuit breaker foundation (CBT801) Pile & Long Pile Type	FD-CB-8-35	3	Set	133,331.00	399,993.00
3C1-4	230 kV Disconnecting Switch Support foundation (DS802,DS802A,DS802B,DS803,DS804) Pile , Bored pile Type (DS802 only)	FD-DS-8-04	2	Set	38,695.00	77,390.00

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MEDIUM COST FOR BID NO. SPSS-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-5	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803, LA401, LA402, LA801, LA802) Long & Bored Pile Type(LA802 only)	FD-GE-0-03	12	Set	5,569.00	66,828.00
3C1-6	230 kV Cable termination support foundation (TM801) Pile Type	Designed by Contractor FD-TM-7-05 See Dwg no. KN-C-3	8	Set	29,889.00	239,112.00
3C1-7	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(CT802 only)	FD-GE-0-02	3	Set	6,519.00	19,557.00
3C1-8	115/230 kV General equipment support structure foundation (BP701,BP801,CC704,CT702,CT802,VT703,VT803,LA401,LA402,LA701,LA801,LA802) Short Pile Type(VT803 only)	FD-GE-0-02	5	Set	6,519.00	32,595.00

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3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-9	Junction Box Structure foundation (JB001) Pad Type	FD-JB-0-03	2	Set	7,853.00	15,706.00
3C1-10	Junction Box Structure foundation (JB003) Pad Type	FD-JB-0-05	5	Set	6,486.00	32,430.00
3C1-11	Disconnecting Switch Operating Platform foundation (OP002)	FD-OP-0-02	8	Set	2,489.00	19,912.00
3C1-12	230 kV Overhead groundwire structure foundation (OS1)	FD-OG-0-02	1	Set	53,844.00	53,844.00
3C1-13	Outdoor Load Break Switch foundation. (LBS)	Designed by Contractor KN-LBS-0-01 See Dwg no. KN-C-3	2	Set	6,486.00	12,972.00

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3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-14	22&33 kV Distribution Transformer foundation (DX402) Pad Type	FD-DX-4-01	2	Set	10,755.00	21,510.00
3C1-15	Firewall (FW) pile type	Designed by Contractor FD-FW-0-05 See Dwg no. KN-C-3	1	Set	1,185,732.00	1,185,732.00
3C1-16	Lighting Relay Panel foundation (RP002) Pad Type	FD-RP-0-03	1	Set	6,110.00	6,110.00
3C1-17	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	3,436,456.00	3,436,456.00
3C1-18	Micro Pile	-	Lump sum	Lump sum	499,270.00	499,270.00

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MEDIUM COST FOR BID NO. SPSS-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-19	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type	FD-LP-0-05	21	Set	9,838.00	206,598.00
3C1-20	230 kV Take off Structure Foundation (TS801) Pad Type(Existing to be removed)	FD-TS-8-01	2	Set	5,302.00	10,604.00
3C1-21	230 kV Disconnecting Switch Support foundation (DS801) Pad Type (Existing to be removed)	FD-DS-8-01	1	Set	882.00	882.00
3C1-22	Disconnecting switch operating platform foundation (OP001) (Existing to be removed)	FD-OP-0-01	2	Set	15.00	30.00
3C1-23	Concrete pole strain bus structure (CP22) (Existing to be removed)	CP-SB-4-01	1	Set	2,041.00	2,041.00

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MEDIUM COST FOR BID NO. SPSS-S-01

3C1 : Foundation Work

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION
SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C1-24	230 kV Circuit breaker foundation (CB801) Pad Type (Existing to be removed)	FD-CB-8-01	2	Set	808.00	1,616.00
Total Price for Schedule 3C1					**Baht**	**8,272,342.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3C2 : Cable Trench

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

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	6,968,011.00	6,968,011.00
3C2-2	Standard cable trench, steel cover included (Type"B")	SD-CE-0-02	Lump sum	Lump sum	539,392.00	539,392.00
3C2-3	Cable trench, steel cover included (Type"A")	Designed by Contractor	Lump sum	Lump sum	3,070,984.00	3,070,984.00
3C2-4	Cable trench, steel cover included (Type"B")	Designed by Contractor	Lump sum	Lump sum	722,670.00	722,670.00
3C2-5	Cable trench type "A" including steel cover for XLPE system	Designed by Contractor	Lump sum	Lump sum	4,904,900.00	4,904,900.00
3C2-6	Cable trench type "B" including steel cover for XLPE system	Designed by Contractor	Lump sum	Lump sum	1,980,360.00	1,980,360.00
Total Price for Schedule 3C2					**Baht**	**18,186,317.00**

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3C3 : Building

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C3-1	Control Building	SD-CD-0-02A SD-CD-0-02C SD-CD-0-02FP SD-CD-0-02L SD-CD-0-02M SD-CD-0-02ME SD-CD-0-02SN See Dwg.No.KN-C-1 See Scope of work	Lump Sum	Lump Sum	30,401,267.08	30,401,267.08
3C3-1.1	Air conditioning system and Ventilation system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1
3C3-1.1.1	Minimum 18,000 BTU split-type air conditioner, including installation fee (Not Higher than the price specified by the Bureau of the Budget www.bb.go.th)	-	1	set	32,708.24	32,708.24

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3C3 : Building

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C3-1.1.2	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)	-	1	set	66,903.23	66,903.23
3C3-1.1.3	Minimum 48,000 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)	-	14	set	69,647.97	975,071.58
3C3-1.1.4	Minimum 60,000 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)	-	2	set	82,505.06	165,010.12
3C3-1.1.5	Extra work for air conditioning system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1
3C3-1.1.6	Ventilation system	-	Lump Sum	Lump Sum	Included in 1C3-1	Included in 1C3-1

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3C3 : Building

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C3-1.2	Solar rooftop system	-	Lump sum	Lump sum	2,520,000.00	2,520,000.00
3C3-1.3	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	1,528,955.07	1,528,955.07
Total Price for Schedule 3C3					**Baht**	**35,689,915.32**

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3C4 : Earth Work, Road and Crushed Rock Surfacing

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C4-1	Crushed rock surfacing 0.10 m thickness	-	Lump sum	Lump sum	1,474,000.00	1,474,000.00
3C4-2	RC.Road type " E " section 4 - 4	SD-RD-0-01	Lump sum	Lump sum	2,774,730.00	2,774,730.00
3C4-3	Transformer loading	SD-RD-0-03	Lump sum	Lump sum	98,255.70	98,255.70
3C4-4	RC.Road type " E " section 4 - 4 (Existing to be removed)	SD-RD-0-01	Lump sum	Lump sum	24,205.00	24,205.00
Total Price for Schedule 3C4					**Baht**	**4,371,190.70**

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3C5 : Water Supply System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
3C5-1	Laying of water supply : HDPE. pipe (PN10) with valve & fittings	Designed by Contractor	Lump Sum	Lump Sum	37,200.00	37,200.00
3C5-2	Laying of water supply : Galvanized steel pipe (ClassB) with valve & fittings	Designed by Contractor	Lump Sum	Lump Sum	8,720.00	8,720.00
Total Price for Schedule 3C5					**Baht**	**45,920.00**

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3C6 : Drainage System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C6-1	Drainage System	Designed by Contractor See Scope of work See Dwg. KN-C-6	Lump Sum	Lump Sum	7,601,208.00	7,601,208.00
3C6-2	Oil pit with steel grating	WD-DN-0-04	Lump Sum	Lump Sum	2,068,080.00	2,068,080.00
3C6-3	Oil separator (Pile type) with piling work	SD-OS-0-02	1	set	1,506,197.00	1,506,197.00
3C6-4	Drainage System(Existing to be removed)	WD-DN-0-01	Lump Sum	Lump Sum	27,646.00	27,646.00
3C6-5	Dia. 0.15m PVC. Pipe (Class 8.5)	-	Lump Sum	Lump Sum	15,080.00	15,080.00
3C6-6	Dia. 0.50 m Black steel pipe (Spiral-Seam) TIS 427-2562	WD-DN-0-01	Lump Sum	Lump Sum	521,664.00	521,664.00
Total Price for Schedule 3C6					**Baht**	**11,739,875.00**

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3C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C7-1	Site office	See Scope of work See "section G-3: local conditions"	1	set	861,333.00	861,333.00
3C7-2	Dynamic Pile load test	-	Lump Sum	Lump Sum	142,500.00	142,500.00
3C7-3	Static pile load test	-	1	set	163,698.00	163,698.00
3C7-4	Architectural and Civil engineering design work	-	Lump Sum	Lump Sum	3,698,809.41	3,698,809.41
3C7-5	Fire Protection design work	-	Lump Sum	Lump Sum	302,162.20	302,162.20
3C7-6	Test and commissioning for fire protection system in switchyard	Designed by contractor	Lump Sum	Lump Sum	97,558.00	97,558.00
3C7-7	Test and commissioning for inert gas system (Test in Electrical room)	Designed by contractor	Lump Sum	Lump Sum	78,131.00	78,131.00

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3C7 : Special Construction Works

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
3C7-8	Test and commissioning for Warehouse fire protection system	Designed by contractor	Lump Sum	Lump Sum	44,036.34	44,036.34
Total Price for Schedule 3C7					**Baht**	**5,388,227.95**

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3C8 : Miscellaneous

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

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Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
3C8-1	Garage (5.50x12.00m)	HS-PS-0-02	1	set	271,385.00	271,385.00
3C8-2	Warehouse	Designed by Contractor KN-WH-0-01A See Dwg no. KN-C-3	Lump Sum	Lump Sum	3,864,585.00	3,864,585.00
3C8-3	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	726,740.00	726,740.00
Total Price for Schedule 3C8					**Baht**	**4,862,710.00**

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MEDIUM COST FOR BID NO. SPSS-S-01

3C9 : Fire Protection System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
3C9-1	Fire stop system	Designed by contractor	Lump Sum	Lump Sum	1,696,336.00	1,696,336.00
3C9-2	Fire protection system for Control building	Designed by contractor	Lump Sum	Lump Sum	9,770,200.00	9,770,200.00
3C9-3	Fire Protection System for Warehouse	Designed by contractor	Lump Sum	Lump Sum	2,550,000.00	2,550,000.00
3C9-4	Fire Protection System for switchyard	Designed by contractor	Lump Sum	Lump Sum	119,382.00	119,382.00
3C9-5	Fire Protection environmental monitoring system	Designed by contractor	Lump Sum	Lump Sum	832,495.00	832,495.00
Total Price for Schedule 3C9					**Baht**	**14,968,413.00**

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3D9 : Spare Parts for Power Circuit Breaker

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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
3D9-1	245 kV 4000 A 50 kA GCB 1&3 pole trip with 2.7 peak withstand current as per Ratings and Features RF CB8953(IEC)	1		THB	2,516,329.85	2,516,329.85			XXXXX	XXXXX
3D9-2	Steel Supporting Structure for CB8953*	1		THB	111,371.00	111,371.00			XXXXX	XXXXX
3D9-3	Cost of Local Transportation for Item No. 3D9-1 thru 3D9-2	Lump sum	Lump sum		XXXXX	XXXXX	XXXXX	XXXXX	131,385.04	131,385.04
Total Price for Schedule 3D9				**THB**		**2,627,700.85**	**Baht**		**Baht**	**131,385.04**

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

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3D22 : Spare Parts for Grounding Material

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

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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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3D24 : Spare Parts for Control and Protection System

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SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	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
3D24-1	LINE CURRENT DIFFERENTIAL RELAY (87L)	Supply as spare part. (same model type as supplied in Item No. 3AB24-1) Drawing No. KN-E-1 SH.1	1	Ea				395,107.00	395,107.00	XXXXX	XXXXX
3D24-2	LINE CURRENT DIFFERENTIAL RELAY (87L)	Supply as spare part. (same model type as supplied in Item No. 3AB24-2) Drawing No. KN-E-1 SH.1	1	Ea				395,107.00	395,107.00	XXXXX	XXXXX
3D24-3	BREAKER FAILURE RELAY (50BF+62BF)	Supply as spare part. (same model type as supplied in Item No. 3AB24-2) Drawing No. KN-E-1 SH.1	1	Ea				153,707.00	153,707.00	XXXXX	XXXXX
3D24-4	TRANSFORMER OVERCURRENT RELAY (51T/51TG, 51L/51LG,51/51G,51S/51SG,51C/51CG)	Supply as spare part. (same model type as supplied in Item No. 3AB24-1) Drawing No. KN-E-1 SH.1	1	Ea				125,601.00	125,601.00	XXXXX	XXXXX

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3D24 : Spare Parts for Control and Protection System

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SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	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
3D24-5	REACTOR DIFFERENTIAL RELAY (87R)	Supply as spare part. (same model type as supplied in Item No. 3AB24-3) Drawing No. KN-E-1 SH.1	1	Ea				294,206.00	294,206.00	XXXXX	XXXXX
3D24-6	OVERVOLTAGE RELAY (59N,59C)	Supply as spare part. (same model type as supplied in Item No. 3AB24-2) Drawing No. KN-E-1 SH.1	1	Ea				205,495.00	205,495.00	XXXXX	XXXXX
3D24-7	Cost of Local Transportation for Item Nos. 3D24-1 thru 3D24-6		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	17,778.75	17,778.75
Total Price for Schedule 3D24								**Baht**	**1,569,223.00**	**Baht**	**17,778.75**

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3D25 : Spare Parts for Fault Recording System

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Item No.	Description	Drawing No. / Reference No.	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
3D25-1	ANALOG ISOLATOR CARD	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				85,909.00	85,909.00	XXXXX	XXXXX
3D25-2	POWER SUPPLY	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				35,542.00	35,542.00	XXXXX	XXXXX
3D25-3	ACQUISITION UNIT	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				25,260.00	25,260.00	XXXXX	XXXXX
3D25-4	CPU & MEMORY MODULE 1	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				84,218.00	84,218.00	XXXXX	XXXXX
3D25-5	ANALOG ISOLATOR FOR VOLTAGE	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				84,218.00	84,218.00	XXXXX	XXXXX
3D25-6	ANALOG ISOLATOR FOR CURRENT	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				84,218.00	84,218.00	XXXXX	XXXXX

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3D25 : Spare Parts for Fault Recording System

SUPPLY AND CONSTRUCTION FOR EXPANSION OF 230 KV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	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
3D25-7	DIGITAL ISOLATOR MODULE	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				81,906.00	81,906.00	XXXXX	XXXXX
3D25-8	HARD DISK & HARD DISK CONTROLLER	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				75,795.00	75,795.00	XXXXX	XXXXX
3D25-9	TELE- COMMUNICATION BOARD	Supply as spare part. Drawing No. KN-E-1 SH.1	1	Ea				25,260.00	25,260.00	XXXXX	XXXXX
3D25-10	Cost of Local Transportation for Item Nos. 3D25-1 thru 3D25-9		Lump Sum	Lump Sum		XXXXX	XXXXX	XXXXX	XXXXX	15,187.50	15,187.50
Total Price for Schedule 3D25								**Baht**	**582,326.00**	**Baht**	**15,187.50**

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ทำการแทน ผู้อำนวยการฝ่ายวิศวกรรมระบบส่ง
21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C1 : Foundation Work

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
4C1-1	Concrete pole strain bus structure	Designed by Contractor CP-SB-4-01 See Dwg no. KSM-C-3	18	Set	37,387.00	672,966.00
4C1-2	Lamp post for fence and access road lighting foudation (LP3) (LED type) Pad Type & Pile Type	FD-LP-0-05 01/01 r.0	9	Set	10,270.00	92,430.00
4C1-3	Reinforcement of standard handhole	SD-HH-0-01 01/01 r.1	5	Set	9,186.00	45,930.00
4C1-4	Driven Pile (Driven Pile, Dowel bar are included and pile shoe if require)	SD-PL-0-01	Lump sum	Lump sum	169,985.00	169,985.00
Total Price for Schedule 4C1					**Baht**	**981,311.00**

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21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C4 : Earth Work, Road and Crushed Rock Surfacing

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
4C4-1	RC.Road type " E " section 3 - 3	SD-RD-0-01	Lump sum	Lump sum	182,736.00	182,736.00
Total Price for Schedule 4C4					**Baht**	**182,736.00**

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21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C5 : Water Supply System

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
4C5-1	Water supply system	Designed by Contractor See Scope of work See Dwg. KM-C-9	Lump sum	Lump sum	939,467.00	939,467.00
4C5-2	Laying of water supply : HDPE. pipe (PN10) with valve & fittings	-	Lump sum	Lump sum	9,505.00	9,505.00
4C5-3	Laying of water supply : Galvanized steel pipe (ClassB) with valve & fittings	-	Lump sum	Lump sum	7,560.00	7,560.00
4C5-4	24 cu.m Underground water tank (Pile type)	WD-UT-0-02	1	set	227,564.00	227,564.00
Total Price for Schedule 4C5					**Baht**	**1,184,096.00**

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21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C6 : Drainage System

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
4C6-1	Drainage System	Designed by Contractor See Scope of work See Dwg. KSM-C-6	Lump sum	Lump sum	636,257.00	636,257.00
Total Price for Schedule 4C6					**Baht**	**636,257.00**

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21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C7 : Special Construction Works

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	**Local Currency** (excluding VAT) Baht	
					Unit Price	Amount
4C7-1	Test and commissioning for package booster pump system	-	Lump sum	Lump sum	845.00	845.00
4C7-2	Dynamic Pile load test	-	1	set	28,500.00	28,500.00
4C7-3	Architectural and Civil engineering design work	-	Lump sum	Lump sum	69,906.28	69,906.28
Total Price for Schedule 4C7					**Baht**	**99,251.28**

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21 Nov 2025

INVITATION TO BID NO. SPSS-S-01

4C8 : Miscellaneous

SUPPLY AND CONSTRUCTION OF FACILITY AREA AT KO SAMUI SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

Item No.	Description	Drawing No. / Reference No.	Qty.	Unit	Local Currency (excluding VAT) Baht	
					Unit Price	Amount
4C8-1	Duplex house with piling work	HS-US-0-05A HS-US-0-05C HS-US-0-05L HS-US-0-05SN	2	set	2,746,998.00	5,493,996.00
4C8-2	Guard house with piling work	HS-GH-0-02	1	set	418,264.00	418,264.00
Total Price for Schedule 4C8					**Baht**	**5,912,260.00**

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21 Nov 2025

Important Information

for

Invitation to Bid No. SPSS-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-3. Eligibility of Bidders: General Requirements

According to the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017), the article has been revised as per Data Sheet.

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 technical proposal 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).

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

Section B : Overview of the Procurement Process

The procurement process diagram has been updated**.**

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 B-8. Information to be Submitted with Bid

According to the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017), the article has been revised as per Data Sheet.

Article E-19. Shipment

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

Article F-11. Payment

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

According to the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017), the article has been revised as per Data Sheet.

G-3. Contractor's Office and Other Construction Facilities

Details of vehicles and relevant conditions to be provided by the Contractor for inspection of the work have been added at the end of this article.

DATA SHEET

for

Invitation to Bid No. SPSS-S-01

(Two-envelope)

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

Article A-3. Eligibility of Bidders: General Requirements

The following requirement shall be added to Article A-3. Eligibility of Bidders: General Requirements, item I.:

j. Bidders shall provide written minimum standards of the policy and directions for anti-corruption in relation to procurement together with supporting evidence pursuant to the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017).

Article B-3. Bid Security

The amount of bid security shall be USD 1,335,060.- or THB 44,000,000.-.

Article B-4. Validity of Bids

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

Article B-8. Information to be Submitted with Bid

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

s. Bidder's minimum standards of the policy and directions for anti-corruption in relation to procurement, together with the completely filled out Anti-Corruption Compliance Checklist as provided, and supporting evidence.

Where the Bidder holding a certification under ISO 37001 Anti-Bribery Management Systems, certification from the Thai Private Sector Collective Action against Corruption (CAC Certified), or any certification as prescribed by the Anti-Corruption Co-operation Committee, shall be deemed to have satisfied the minimum standards of the policy and directions for anti-corruption in relation to procurement. Such certification documents may be submitted as part of the bid.

Such minimum standards of the policy and directions for anti-corruption in relation to procurement, or the certification, shall remain valid and effective from the technical proposal opening date.

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

1. If the Contractor fails to meet any of the completion dates for Schedule 1 : 230 kV Ko Samui Substation (GIS) or Schedule 2 : 115 kV Ko Samui Substation or Schedule 3 : 230 kV Khanom Substation, the liquidated damages shall be at the rate of one-tenth of one (0.10) per cent of the total Contract Price for Schedule 1 : 230 kV Ko Samui Substation (GIS) and Schedule 2 : 115 kV Ko Samui Substation and Schedule 3 : 230 kV Khanom Substation for each Day of delay. This sum is payable regardless of the actual loss and/or damages incurred.
2. If the Contractor fails to meet the completion date for Schedule 4 : Facility Area at Ko Samui Substation, the liquidated damages shall be at the rate of one-tenth of one (0.10) per cent of the total Contract Price for that schedule for each Day of delay. This sum is payable regardless of the actual loss and/or damages incurred.

<u>Maintenance Guarantee Period</u>

- <u>For all Work except 500 kV System</u>

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

<u>Equipment</u>	<u>Period of Guarantee (Year)</u>
- Fault Recording System	2
- Control and Protection System	2

- <u>For 500 kV System</u>

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

<u>Defective Equipment to be replaced with the whole new set</u>

Not Applicable

Article F-11. Payment

The following paragraphs shall be added as the last two paragraphs of this article:

" Please note that the Contractor shall provide written minimum standards of the policy and directions for anti-corruption in relation to procurement or a certification of anti-corruption standards that are valid until the date of receipt of the final payment under the Contract.

In the case where EGAT finds that the validity period of the Contractor's submitted minimum standards of the policy and directions for anti-corruption in relation to procurement, or the relevant certification, will expire before the date of receipt of the final payment under the Contract, EGAT shall issue a written notification to the Contractor requiring the submission of a revised or updated, completely filled out Anti-Corruption Compliance Checklist together with supporting evidence, prior to the expiration date of the existing Anti-Corruption Compliance Checklist. "

Article G-3. Contractor's Office and Other Construction Facilities

The provision regarding vehicles for EGAT's inspection under this article shall not be applicable. All other terms and conditions specified in this article shall remain applicable.

Anti-Corruption Compliance Checklist **(Rev.1)**

Bidders shall provide written minimum standards of the policy and directions for anti-corruption in relation to procurement ("Minimum Standards") together with supporting evidence pursuant to the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017). This checklist shall be submitted with Bids.

Project: (Please specify the project for which you are bidding) .....

State Agency: Electricity Generating Authority of Thailand

Bidder Name: (Please specify the bidder's name) .....

Please mark ✓ one of the following boxes ☐ that applies to the bidders* and complete all details in the space provided:

☐ 1. Have one of the following certificates:

- ○ Certificate under ISO 37001 Anti-Bribery Management Systems, or
- ○ Certificate from the Thai Private Sector Collective Action against Corruption, or
- ○ Certificate as prescribed by the Anti-Corruption Co-operation Committee: (Please specify the certificate name)

Validity period: ..... (Please specify the validity period of the chosen certificate) .....

Please attach an evidence of the chosen certificate.

☐ 2. Do not have a certificate as specified in item 1, but have the Minimum Standards with one of the following validity:

- ○ Perpetual Validity, or
- ○ Validity period: ..... (Please specify the validity period of the Minimum Standards) .....

Details of the Minimum Standards and supporting evidence are as follows: (Please mark ✓ in the "Yes" or "No" column):

Item	Yes	No	Reference Evidence (Please specify Article)
1. Bidders have any clearly defined written anti-corruption policies that is regularly updated.			
2. Bidders have any clearly defined written guidelines, methods, or measures for preventing corruption in procurement that is regularly updated, including but not limited to:			
2.1 Code of Conduct			
2.2 Internal unit or personnel explicitly responsible for the prevention of corruption			
2.3 Penalties or regulations against corruption			
2.4 Channels or systems to report any suspicious or queries related to corruption			
2.5 Anti-corruption training plan			
3. Bidders have communicated and publicized the anti-corruption policies and guidelines relation to procurement as stated in items 1 and 2.			
4. Bidders have provided training on anti-corruption to directors, executives, or employees.			
5. The anti-corruption policies and guidelines are reviewed at least every three (3) years.			

We hereby certify that the information provided above and the supporting evidence are true and correct.

Signed .....

(.....)

Name of Bidder

Stamp company seal (if any)

Date.....

* Notes:

1. The certificate or Minimum Standards shall remain valid and effective from the technical proposal opening date until the date of receipt of the final payment under the contract.
2. If the bidders do not have a certificate, the bidders shall fulfill all items stipulated in the above table to meet the Eligibility of Bidders' criteria for participation in this procurement.
3. In case of Consortium of two (2) or more firms, partnership or companies, this checklist of each member shall be submitted separately.
4. In the case of an unincorporated Joint Venture, each participant shall submit this checklist separately.
5. This checklist is a translation from Thai based on the Notification of the Anti-Corruption Co-operation Committee Concerning Minimum Standards of the Policy and Directions for Anti-Corruption in Relation to Procurement Required to be put in place by the Business Operator, in accordance with Section 19 of the Public Procurement and Supplies Administration Act, B.E. 2560 (A.D. 2017), dated September 25, 2024. In the event of any discrepancy, the Thai version in the notification shall prevail.

SECTION A

INVITATION TO BID

ELECTRICITY GENERATING AUTHORITY OF THAILAND

Nonthaburi
Thailand

INVITATION TO BID NO. SPSS-S-01

SUPPLY AND CONSTRUCTION OF 230/115 kV KO SAMUI SUBSTATION (GIS) AND EXPANSION OF 230 kV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

(TWO-ENVELOPE)

A-1. Invitation

The Electricity Generating Authority of Thailand (EGAT) hereby invites sealed bids for supply and construction of 230/115 kV Ko Samui Substation (GIS) and Expansion of 230 kV Khanom Substation under Submarine Cable System Development Project to Samui Island in Surat Thani Province for System Security Enhancement as described herein in accordance with terms, conditions and Specifications described in these Bidding Documents.

A-2. Work Description

The supply and construction of 230/115 kV Ko Samui Substation (GIS) and Expansion of 230 kV Khanom 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 ***technical proposal*** 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 to I.d.7 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 kV Control and Protection Panel and below, having the following qualifications:

6.1 Being local manufacturer.

6.2 Having one of the following qualifications:

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

OR

6.2.2 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 of Equipment layout shall be performed by the manufacturer of control and protection panel under the Substation Control and Protection System Integrator's supervision. However, the design and engineering of the complete substation protection and automation system shall be performed by the Substation Control and Protection System Integrator.

7. For Substation Control and Protection System Integrator

Having one of the following qualifications:

7.1 Having successful experience in EGAT's digital substation.

OR

7.2 Having at least two (2) records of practical experience on design and implementation of an IEC 61850 based control and protection system of a complete conventional or GIS with 110 kV or above digital substation (both station bus and process bus) with at least two (2) consecutive years of successful operation in overseas utilities (not his own country).

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.19 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 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:

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 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.

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 following Equipment: Instrument Transformer and Surge Arrester. These Equipment 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 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.

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 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:

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

OR

7.2 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.

8. 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

8.1 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.

8.2 Having been granted a license 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.

8.3 Having one of the following qualifications:

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

OR

8.3.2 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).

9. For Insulator

Having one of the following qualifications:

9.1 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:

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

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

OR

9.2 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).

10. For Stationary Battery

Having one of the following qualifications:

10.1 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

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

Having one of the following qualifications:

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

OR

11.2 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.

12. For 230 kV XLPE Power Cable

    Having one of the following qualifications:

    12.1 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

    12.2 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).

13. 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.

14. For Fault Recording System.

    14.1 Having one of the following qualifications:

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

        OR

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

            14.1.2.1 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

            14.1.2.2 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.

14.2 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.

15. For supervisory software of IEC 61850 based substation control and protection system:

Having at least one (1) supply record of implementing supervisory software in IEC 61850 based substation control and protection system which comprises at least two (2) manufacturers of protective Intelligent Electronic Device (IED) with successful operation and use of at least one (1) year.

16. For Merging Unit (MU)

Having one of the following qualifications:

16.1 Proposing the MU of the type and rating which has already been successfully operated in EGAT's digital substation.

OR

16.2 Proposing the MU from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY (regardless of country) attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications.

AND

Having supply records of at least three (3) digital substations (both station bus and process bus) of the type proposed with at least three (3) consecutive years of successful operation at nominal system voltage of 110 kV or above in overseas utilities (not his own country).

17. For Bay Control Unit (BCU)

Having one of the following qualifications:

17.1 Proposing the BCU of the type and rating which has already been successfully operated in EGAT's digital substation.

OR

17.2 Proposing the BCU from the manufacturers as listed in EGAT ACCEPTED MANUFACTURER LIST FOR PROTECTIVE RELAY (regardless of country) attached at the end of Section A. Invitation to Bid and shall be in compliance with the details specified in EGAT's Specifications.

AND

Having supply records of at least three (3) digital substations (both station bus and process bus) of the type proposed with at least three (3) consecutive years of successful operation at nominal system voltage of 110 kV or above in overseas utilities (not his own country).

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

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

19.1 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.

19.2 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.

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

19.3.1 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

19.3.2 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.

19.4 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 ***in a separate 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 original hard copy and the electronic copy of the proposal shall be placed in two (2) separate sealed envelopes:

Envelope I which shall ***consist of the original hard copy of technical proposal, and a USB flash drive containing the electronic files of the original technical proposal in PDF and Excel format, as required by EGAT, and***

Envelope II which shall ***consist of the original hard copy of price proposal, and a USB flash drive containing the electronic files of the price proposal in PDF and Excel format, as required by EGAT.***

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

Envelope I

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

INVITATION TO BID NO. SPSS-S-01

SUPPLY AND CONSTRUCTION OF 230/115 kV KO SAMUI SUBSTATION (GIS) AND EXPANSION OF 230 kV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

TECHNICAL PROPOSAL

The Envelope for the technical proposal shall contain the following :

a. the completed Proposal Data Forms of the proposed proposal(s)

b. reference documents pertaining to Bidder's qualification and experience under Article A-3. Eligibility of Bidders: General Requirements, A-4. Eligibility of Bidders: Technical Requirements, and Article B-8. Information to be submitted with Bid

c. delivery date guaranteed by Bidders

d. any minor deviations on Technical Specifications

e. any other technical information and drawings the Bidder deems to be adequate to explain his bid

f. Confirmation Form of not being a Jointly Interested Bidder with other Bidders and not being a person who undertakes any actions as an Obstruction of Fair Price Competition, and Registration/Non-registration with the Revenue Department as a VAT registrant

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

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

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

h. USB flash drive containing electronic files of the original technical proposal in the following formats :-

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

- Excel files of filled-in Proposal Data.

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

<u>Envelope II</u>

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

INVITATION TO BID NO. SPSS-S-01

SUPPLY AND CONSTRUCTION OF 230/115 kV KO SAMUI SUBSTATION (GIS) AND EXPANSION OF 230 kV KHANOM SUBSTATION

SUBMARINE CABLE SYSTEM DEVELOPMENT PROJECT TO SAMUI ISLAND IN SURAT THANI PROVINCE FOR SYSTEM SECURITY ENHANCEMENT

PRICE PROPOSAL

The Envelope ***II*** for the price proposal shall contain the following :

a. price schedules according to Section C

b. ***Discount Form***

c. USB flash drive containing electronic files of the price proposal in the following formats :-

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

- Excel files of filled-in Price Schedule

The technical proposal and the price proposal shall be addressed and delivered to ***EGAT*** on or before 10:00 a.m., Bangkok Standard Time, see Tentative Schedule

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

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

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

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

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

A-7. Availability of Bidding Documents

The Bidding Documents 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 …270.-…. or Baht …8,000.-….. . 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 (*)																																																
	RET670 (*)																																																
	RET650 (**)																																					*	*	*										
	REB650 (**)																																																* 3-restraint
	REB670 (*)																																															
	REB500																																															
	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

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	
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.

Oct 2023

EGAT ACCEPTED FAULT RECORDING SYSTEM LIST

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

Remarks

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

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

Notes

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

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

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 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

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. 230/115 KV KO SAMUI SUBSTATION

GENERAL

The Scope of work comprises two schedules as follows:

Schedule 1

The new 230 kV substation shall consist of 230 kV indoor GIS and the bus arrangement shall be breaker and a half which consists of two (2) diameters for the following feeders:

- Two (2) feeders for 230 kV Submarine cable No. 1 & No. 2 to Khanom substation
- Two (2) feeders for 300 MVA, 230/121-22 kV transformer KT1A and KT2A

Schedule 2

The new 115 kV outdoor conventional substation shall consist of two (2) individual bays as follow:

- One (1) individual bay to receive energy from 230/121-22 kV Transformer (KT1A) through 115 kV line No.1 to PEA
- One (1) individual bay to receive energy from 230/121-22 kV Transformer (KT2A) through 115 kV line No.2 to PEA

The connection between 230/121-22 kV Transformer and 115 kV outdoor conventional substation shall be 115 kV XLPE cable 1-1/C 800 sq.mm. per phase.

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

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

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

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

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

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

ELECTRICAL PART

Work included in this Contract

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

1. 230 kV substations with GIS and 115 kV substation with AIS

1.1 Design, supply and installation of equipment and miscellaneous hardware required for a complete 230 kV substation with GIS.

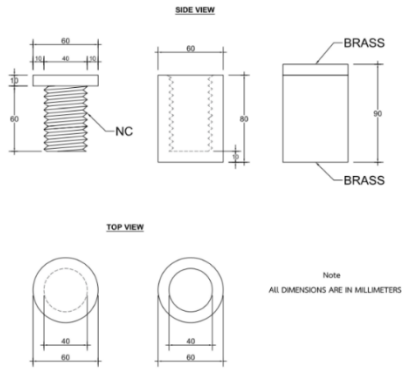
1.2 Design, supply and installation of equipment and miscellaneous hardware required for a complete 115 kV substation with AIS.

1.3 Design, supply and installation of equipment required for a complete 22 kV/400 V power supply system, including all related equipment, raceway for complete operation.

1.4 To meet EGAT's service continuity requirements, the GIS gas compartment can be designed as indicated in the single line diagram or can be designed differently under a condition that the design of the gas compartment shall fulfill the requirements as specified in the Specification.

1.5 The GIB shall not be installed in multiple stacks for the purpose of convenient maintenance. If this is unavoidable, the contractor shall submit the drawing/ document to EGAT for approval.

1.6 The marking pins for referenced positions from the main bus shall be provided in the GIS building. The positions of the marking pins shall be shown on the drawings for future GIS extension, and the quantity shall not be less than 4 sets per each GIS building. The marking pins shall be made of brass or stainless steel.



1.7 The detachable walkway (catwalk), removable service platform, and removable ladder for GIS visual protective inspection shall be provided and properly installed on each GIS module. The drawings of these walkways, platforms, and ladders installed with the GIS shall be submitted to EGAT.

EGAT reserves the right to request additional detachable walkways (catwalks) , removable service platforms, and removable ladders for GIS visual protective inspection from your provided equipment if deemed necessary. The Contractor shall not consider this as additional cost and time to EGAT.

1.8 The feeder nameplates as well as phasing, device, and switching numbers shown on the GIS module shall be painted or mounted (detachable type) on the enclosure of GIS whichever is appropriate according to the instruction from EGAT installation team. The color of the nameplates shall conform to Dwg. No. SE-ID-7-01 and SE-ID-8-01. Their sizes and locations shall be appropriate for GIS module. EGAT reserves the right to request more details and clarification if deemed necessary.

1.9 The contractor shall supply identification plates for the both indoor and outdoor substation. The material, size and color shall conform to Dwg. No. SE-ID-7-01, SE-ID-8-01 and SE-ID-0-01, except size of GIS identification plates shall be proposed by the contractor and approved by EGAT. EGAT reserves the right to request more details and clarification if deemed necessary.

1.10 Design, supply and installation of miscellaneous hardware for:

- The connection between the 230 kV and 115 kV substations.

- The connection from the 230 kV GIS air bushings to

  - 300 MVA 230/115-22 kV auto transformers (KT1A and KT2A)

  - 230 kV Shunt reactor

  - 230 kV Land cable to Khanom substation

- The grounding equipment and miscellaneous hardware for 230/115-22 kV auto transformers (KT1A and KT2A) and 230 kV Shunt reactor.

- The contractor shall supply miscellaneous hardware to complete the installation requirements between substation side and cable side as shown in Dwg. No. KM-S-4-01/01.

1.11 Sag and tension of phase wires and overhead ground wires shall be designed and calculated by Contractor. The calculation shall be based on internationally-accepted standards. The said calculation shall be submitted to EGAT for approval.

2. Grounding system

2.1 Design, supply and installation of the new ground grid and grounding system of the following:

- 230 kV and 115 kV substation (including grounding connection for all equipment, facilities, structures within)
- Control building
- 230 kV GIS building
- Fire pump house
- Foam house
- Water tank

2.2 Design, supply and installation of the grounding equipment and miscellaneous hardware. The type of grounding conductor for the substation grounding system shall be 4/0 AWG bare copper wire.

2.3 The Contractor shall conduct soil resistivity measurement. Based on the measured soil resistivity, the Contractor shall evaluate/design the ground grid by hand calculation using the equations in IEEE-80 standard, and submit the calculation report to EGAT for Approval. The parameters for the calculation are as follows:

- Fault current division factor (s_f) value = 1
- Fault current = 20 kA or recommended by EGAT during Approval
- Fault clearing time (t_f) = 1 second or recommended by EGAT during Approval
- The grounding conductor spacing for the grounding grid of the 230/ 115 kV substations shall be 2.50 m. (D_0)
- The total number of ground rods for the 230/115 substations shall be not less than 600 pieces.

The Contractor shall determine the size of grounding conductors for the substation grounding system and select the number of 4/0 AWG bare copper wires accordingly.

The Contractor shall prepare the connection point between EGAT's and PEA's grounding system.

If the grounding conductor spacing obtained by hand calculation, i.e. D_1 is smaller than D_0, the Contractor shall design a grounding grid using the software. The software shall be certified to be acceptable for commercial use.

2.4 The Contractor shall perform ground resistance measurement after the completion of grounding system installation. Prior to the measurement, the overhead ground wire shall be disconnected from the substation. The method of measurement shall follow IEEE 81-2012 standard "IEEE Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Grounding System" or the latest version. The result shall be submitted to EGAT for Approval.

2.5 Design, supply and installation of the grounding system of the isolating transformer. The grounding system of the isolating transformer shall be separated from substation grounding system.

3. XLPE Cable System (high voltage and medium voltage)

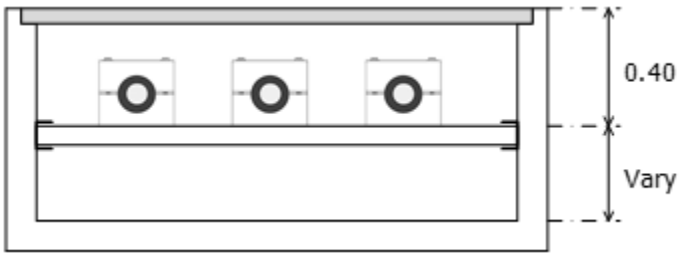
115 kV XLPE Cable System

3.1 Design, supply and installation of 115 kV XLPE cable system which comprises at least the following:

- The design and calculation of the 115 kV XLPE cable system shall conform to IEC or IEEE standards.

- The 115 kV XLPE cable shall be 1/C- 800 sq. mm single- core with copper conductor.

- The 115 kV XLPE cable shall be installed in flat formation as shown in the figure below (for example).



- The bending radius of the XLPE cable shall be checked by Contractor for the XLPE cable installation and cable trench design.

- The cable trench for 115 kV XLPE cable system shall be with concrete trench covers.

- Ampacity calculation report to be submitted for approval:

- The Contractor shall design the 115 kV cable system such that one (1) 1/C-800 sq.mm XLPE cable shall be able to carry the continuous current as follows:

  - no less than 825 A for 300 MVA, 230/115-22 kV power transformers (KT1A and KT2A) feeders

- given that the ambient temperature is not less than 45°C and the at least the following cases shall be considered for a comparative study.

  - In open air with the effect of solar heat

  - In trough without the effect of solar heat

- The calculation shall conform to IEC standard. The other parameters used in the design shall be practical, reasonable, and operational. The calculated continuous current rating shall be shown in the single-line diagram drawing.

- Sheath induced voltage calculation report to be submitted for approval:

- For the XLPE cable system with single-point bonding (if selected), the sheath induced voltage calculation report shall be submitted to EGAT for Approval. The calculation shall conform to IEEE standard. The assumptions and parameters for the calculation shall have reliable supporting references.

- The report shall clearly examine the sheath induced voltage under the following cases

  - At rated current

  - At faults (at least including 3-phase, Single-line-to-ground, Double-line fault types)

  - Transients (Switching and Lightning surges)

- The sheath induced voltage under rated current shall not exceed 60 V.

- The Contractor shall evaluate and clarify the following:

- how the jacket of the cable is protected from the sheath induced voltage due to transients (Switching and Lightning surges) . In case the information of Switching and Lightning surges is not available, use a conservative approach with reasonable representative surges for the design.

- whether the Surge Voltage Limiter (SVL) is required to provide such protection.

- Without proper clarification or the clarification not having internationally-accepted and reliable supporting references, the Contractor is recommended to install the Surge Voltage Limiter (SVL).

- In case SVL is to be installed, it is the responsibility of the Contractor to design, supply, and install the SVL and all related hardware and accessories for a complete installation e.g. link boxes, disconnecting switches etc. This shall not be considered as the extra work.

- In addition, the clarification document for the SVL rating selection, drawings for SVL installation and maintenance manual shall be provided and submitted for approval.

- Details of sheath bonding for installation shall be provided and shown in drawings.

- EGAT reserves the right to request more details and clarification if deemed necessary.

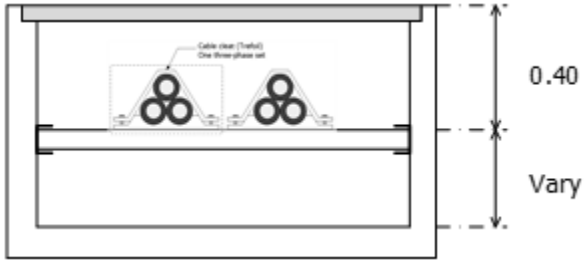
22 kV XLPE Cable System (Connection from tertiary side of Auto-transformer to Station service transformer)

3.2 Design, supply and installation of **22 kV** XLPE cable system complete from the 22 kV buses at the 22 kV side of the auto-transformers KT1A and KT2A to the Station service transformers KW1A and KW2A

- The design and calculation of the 22 kV XLPE cable system shall conform to IEC and/or IEEE standards.

- The 22 kV XLPE cable shall be 1/C-35 sq.mm single-core with copper conductor.

- The 22 kV XLPE cable shall be installed in trefoil formation as shown in the figure below (for example: bundle circuit).



- The bending radius of the XLPE cable shall be checked by Contractor for the XLPE cable installation and cable trench design.

- The cable trench for 22 kV XLPE cable system shall be with metallic trench covers.

- Ampacity calculation report to be submitted for approval:

- The Contractor shall design the 22 kV cable system such that one (1) 1/C-35 sq.mm XLPE cable shall be able to carry the continuous current no less than 50 A given that the ambient temperature is not less than 45°C and at least the following cases shall be carried out for a comparative study.

  - In open air with the effect of solar heat

  - In trough without the effect of solar heat

  - EGAT may request additional cases to be carried out if deemed necessary. The Contractor shall not consider this as additional cost and time to EGAT.

- The calculation shall conform to IEC standard. The other parameters used in the design shall be practical, reasonable, and operational. The calculated continuous current rating shall be shown in the single-line diagram drawing.

- Sheath induced voltage calculation report to be submitted for approval:

- For the XLPE cable system with single-point bonding (if selected), the sheath induced voltage calculation report shall be submitted to EGAT for Approval. The calculation shall conform to IEEE standard. The assumptions and parameters for the calculation shall have reliable internationally-accepted supporting references.

- The report shall clearly examine the sheath induced voltage under the following cases

  - At rated current

- At faults (at least including 3-phase, Single-line-to-ground, Double-line fault types)

- EGAT may request additional cases to be carried out if deemed necessary. The Contractor shall not consider this as additional cost and time to EGAT.

- The sheath induced voltage under rated current shall not exceed 60 V.

- In case that the calculation result indicates that the Surge Voltage limiter (SVL) is required to protect the jacket of the cable from the overvoltages, it is the responsibility of the Contractor to design, supply, and install the SVL and all related hardware and accessories for a complete installation e.g. link boxes, disconnecting switches etc. In addition, the clarification document for the SVL rating selection, drawings for SVL installation and maintenance manual shall be provided and submitted for Approval.

- Details of sheath bonding for installation shall be provided and shown in drawings.

- EGAT reserves the right to request more details and clarification if deemed necessary.

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) of

- 900 kV for 230 kV substation

- 550 kV for 115 kV substation

shall be used for the calculation instead of Critical Flashover voltage (CFO).

For 22 kV substation, the stroke current of 2 kA shall be used for the calculation.

4.2 The Lightning Protection Level (LPL) of Level 1 shall be used for the design of lightning protection system for the control building, GIS building, and switchgear building.

The overhead ground wire is not permitted for the lightning protection system for the GIS building. Air terminal rods installed at the roof shall be used instead. The Contractor shall also supply and install test boxes as per bidding drawing.

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

5. Station service system

5.1 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, 22,000-400/230 V distribution transformer (KW1A)
- 500 kVA, 22,000-400/230 V distribution transformer (KW2A)
- Load Center Unit Substation (LCUS)
- 22 kV drop-out fuses
- 22 kV Load break switch
- 600 V, 800 A safety switches
- 22 kV equipment, and AC & DC distribution boards, stationary batteries, battery chargers, power cables, and all related equipment for a complete operation.
- 100 kVA, 400-400/230 V Isolation transformer for living/facility area

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

5.3 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 for at least 8 hours if normal station service fails.

The capacity of the battery shall not be less than 1,200 Ah. 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.

The following factors that influence the capacity of the battery shall be used in the capacity of the battery design:

- The temperature coefficient of 1.10
- The design margin factor of 1.15
- The aging factor of 1.25

In addition, the size of the stationary battery shall be designed to support the operation of the 230 kV GIS as shown on the attached bidding document drawings.

The design calculation shall be submitted to EGAT for approval.

6. Telecommunication system

6.1 Design, supply and installation of the telecommunication tower. The telecommunication tower shall be constructed and divided into appropriate portions, with its total height not exceeding 12 meters. 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 telecommunication tower will be installed on the substation ground level.

6.2 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. Facility system

7.1 Outdoor facility system:

- Design, supply and installation of a switchyard lighting system complete with all integral accessories to provide a complete system operation. The lighting system shall mainly consist of equipment lighting, one lighting relay panels, raceways, and wiring cables for lighting circuits.

- Design, supply and installation of a switchyard lighting system complete with all integral accessories to provide a complete system operation. The lighting system of fence lighting and access road lighting shall be LED (SOLAR panel with built in battery) as per drawing no. LT-FX-0-03-01/01.

- Design, supply and installation of a switchyard lighting system complete with all integral accessories to provide a complete system operation. The lighting system of equipment lighting shall be LED as per drawing no. LT-FX-0-02-01/01.

- Design, supply and installation of circuits for entrance gate control and a door phone system. The control of the entrance gate shall be operated by a remote switch which shall be controlled from either the guardhouse or control room.

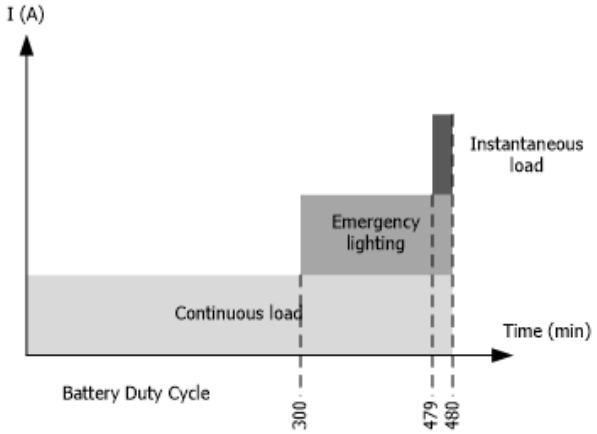
- Design, supply and installation of circuits for the switchyard gate. The control of the switchyard gate shall be operated by both remote switch and remote control which shall be controlled from the control room.

7.2 Indoor facility system:

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

- 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.

- Design, supply and installation of emergency lighting system for the Control building and 230 kV GIS building in case of normal station service fails with the illuminance of 150 LUX for at least 3 hours as shown in Figure below.



- All steel hardware and accessories e.g. lip-channel, conduit, conduit fitting, conduit accessories, boxes and covers shall be hot-dipped galvanized. All listed hardware and accessories shall be submitted to EGAT for approval. In cases where hot-dip galvanization is not available for certain items, clarification and approval must be obtained from EGAT before construction, without incurring additional cost and time.

7.3 The size of the low-voltage cable shall be adequate to ensure that the voltage drop at the load point remains less than 5% under rated load current.

The voltage drop from the safety switch to the LCUS/AC board, and from the LCUS/AC board to the load, shall not exceed 2% and 3%, respectively.

The voltage drop shall comply with EGAT's requirements, and the voltage drop calculation must be submitted to EGAT for approval.

7.4 Design, supply, and installation of the equipment and hardware required to provide the installation of the GPS antenna and FRS antenna, and their cabling connection (in metallic conduits) to the associated panels in the control room.

7.5 The inverter for essential load shall meet the following requirements. The Contractor shall be responsible for sizing the inverter.

No.	Description	Requirement data	Unit	No.	Description	Requirement data	Unit
1	Environmental Condition			6	Control button		
	1.1 Minimum ambient temperature	0	Celsius		6.1 Inverter START and STOP	YES	
	1.2 Maximum ambient temperature	40	Celsius		6.2 Acknowledge alarm silent	YES	
	1.3 Relative Humidity	0-95	%		6.3 Lamp test	YES	
	1.4 Tropicalization	YES	-				
	1.5 Altitude	<1000	meters	7	Measurement scale 90 degree		
					7.1 AC output voltage cls 1.5	YES	
2	Cabinet						
	2.1 Protection Level	IP 20		8	Protection		
	2.2 Mounting	Removable			8.1 Overload shutdown	YES	
	2.3 Epoxy painting color	RAL7032			8.2 Low DC voltage shutdown (<105 V)	YES	
	2.4 Convection ventilation	Forced air			8.3 AC output fuse to prevent short circuit current and overload	YES	
	2.5 Steel sheet thickness	1.5	mm.		8.4 Overload temperature shut down	YES	
					8.5 Thermistor fan controlled (Inverter will shut down when temperature exceed 70 Celsius)	YES	
3	Main supply Voltage						
	3.1 Nominal Voltage	125	V.		8.6 DC circuit breaker	YES	
	3.2 Voltage variation	100-150	V.		8.7 AC circuit breaker	YES	
	3.3 Permissible ripple voltage on DC	< 5	% Vp-p		8.8 DC input fuse to prevent short circuit current and overload	YES	
	3.4 Self-precharge	YES					
				9	Monitor		
4	Output AC Voltage				9.1 Input DC voltmeter	YES	
	4.1 Nominal voltage	220	V.		9.2 Output AC voltmeter	YES	
	4.2 Supply system	1 ph+N					
	4.3 Static voltage regulation at 0-100% load variation and power factor 1.0	+/- 2	%	10	Alarm and LED lamp status indicator		
	4.4 Dynamic voltage regulation -At AC input fluctuation +/- 10 %	+/- 5	%		10.1 Inverter ON/OFF	YES	
					10.2 DC input status	YES	
	4.5 harmonic distortion	< 5	% THD		10.3 Load on inverter	YES	
	4.6 Output frequency	50	Hz		10.4 LED lamp alarm indicators (Alarm noise shall not less than 75 db)	YES	
	4.7 Frequency variable	+/- 0.5	%		10.5 AC output status	YES	
	4.8 Synchronized frequency	+/- 1	% Hz		(LED shall blink when Under/Over voltage +/- 10 %)		
5	Output capacity			11	Cable entry		
	5.1 Output continuous capacity	xx	kVA		11.1 DC incoming	YES	
	Note xx : Design by Contractor				11.2 AC Outgoing	YES	
	5.2 Overload capacity 100 % continuous	YES			11.3 Terminal	INSIDE	
	5.3 Overload capacity 125 %	10	min				
	5.4 Overload capacity 150 %	1	min				
	5.5 Efficiency at rated load and 1.0 power factor	> 85	%				

7.6 The Contractor should refer to Dwg. No. SD-CD-0-03L, SD-CD-0-03M, for guideline for facility system design of the control building.

7.7 The Contractor should refer to Dwg. No. TYP2A-GIS-8-01L and TYP2A-GIS-8-01M for guideline for facility system design of the 230 kV GIS building.

7.8 The lighting fixture type may change due to the 230 kV GIS building structure. The contractor shall submit the installation details and drawings to EGAT for approval.

8. Grid Connected Solar Photovoltaics (PV) Rooftop System

8.1 The Contractor shall design, supply, deliver, install, construct, test, commission and maintain the Grid-Connected Solar PV rooftop system, which shall be completed with all necessary accessories and minor items to facilitate the correct completion of the work. All requirements of relevant standards over these works shall be applied.

The 40 kWp Solar on Grid system with string inverters shall be installed at the rooftop of control building. All the Solar PV rooftop system should be metered and the energy generated from the PV rooftop system shall be recorded.

8.2 General Requirement

8.2.1 The grid- connected rooftop solar power system shall consist of the following equipment/components but not limited to:

- Photovoltaic modules (PV modules) with grid-connected rooftop solar power support structure
- Grid-connected inverter
- DC combiner panel
- AC panel
- DC fuse or DC circuit breaker & AC circuit breaker
- DC & AC surge arrester
- DC & AC cable
- Conduit & Cable tray
- DC & AC connector
- Identification plate

- Monitor equipment
- Tools required for operation and maintenance
- Any other item(s) that may be required to successfully commission, operation and maintain the grid-connected solar PV rooftop system.

8.2.2 All equipment/ components parts used in the grid- connected solar PV rooftop system shall conform to the single line diagram and Technical Specifications of systems as shown in Dwg.No. SE-PV-0-01-01/01 & SE-PV-0-02-01/02 – 02/02 or internationally-accepted standards.

8.2.3 Submittals for documents, drawings, catalogs and manuals of equipment, warranty cards and spare parts shall conform to Technical Specifications of systems as shown in Dwg.No. SE-PV-0-02-01/02 – 02/02.

8.2.4 All documents and drawings shall be certified and signed by the Contractor' s authorized senior professional engineers certified by Thailand' s Council of Engineers.

8.2.5 The contractor or subcontractor shall have experience in executing at least two (2) contracts as the contractor for design and installation of Solar PV rooftop system in Thailand which has the capacity of PV system more than 40 kWp, with successful operation of at least two (2) consecutive years.

8.2.6 Testing and commissioning of the grid-connected solar PV rooftop system shall conform to the internationally-accepted standards.

8.2.7 Mentoring and training to EGAT's operating staff for operation and maintenance.

8.2.8 The insurance period for workmanship and Materials shall conform to Technical Specifications of systems as shown in SE-PV-0-02-01/02 – 02/02.

9. Other work

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

9.2 Modification of Junction box supporting structure (JB001) for the installation of the 600 V, 800 A safety switches and Power box (PRB-1).

9.3 Modification of Junction box supporting structure (JB003) for the installation of Outdoor receptacle box (ORB1 and ORB2) and Common control cubicle for maintenance (CCM).

9.4 Modification of the Transformer concrete wall for the installation of 22 kV XLPE cables, 22 kV cable terminations, a 22 kV voltage transformer, 22 kV power fuses, and 22 kV disconnecting switches, equipment lighting fixture (flood light), as specified in the Bidding Documents.

9.5 Modification of the GIS building wall for the installation of OHGW support.

9.6 Installation of suspension and post insulators and all hardware for suspension and post insulator assembly.

9.7 Supply and installation of the cabling work from the transformers to the marshalling cubicle (MC002) and the associated equipment.

9.8 Design, supply, and installation of identification plates for all equipment and other necessary plates.

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

9.10 Design, supply and installation of electrical system for living/facility area to complete system operation.

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 connection between the 230 kV Submarine cable termination and 230 kV disconnecting switch except to supply miscellaneous hardware required to complete the connection.

2. Supply and installation of 230/115-22 kV autotransformers (KT1A and KT2A) except cabling from the marshalling cubicle for auto-transformer (MC002) to the associated equipment.

3. Supply and installation of 230 kV Shunt reactor except cabling from the control cubicle for Shunt reactor to the associated equipment.

4. Supply of suspension insulators and post insulators.

CONTROL AND PROTECTION PART

Schdule1 and Schedule 2 : 230&115 kV KOH SAMUI SUBSTATION

Work included in this Contract

1. Design, supply, installation, wiring, test and commissioning of the complete control and protection system based on IEC 61850 standard which comprises at least the following equipment:

   For Process Level

   - Merging unit cubicle
   - 400/230 VAC board, 125 VDC power panel and 125 VDC distribution boards

   For Bay Level

   - Protective IED panel (swing-rack type)
   - Bay Control Unit (BCU) panel (swing-rack type)
   - Ethernet switch panel for station bus (19" rack type)
   - Ethernet switch panel for process bus (19" rack type)
   - E1 converter panel (19" rack type)
   - Metering panel (swing-rack type) Each energy meter shall be calibrated by EGAT's Energy Meter Department before being installed in each metering panel.
   - Tele-protection panel (swing-rack type and supplied by EGAT)
   - Fault Recording System (FRS) panel (19" rack type)
   - 400/230 VAC board, 125 VDC power panel and 125 VDC distribution boards

   For Station Level

   - GPS receiver panel and accessories (19" rack type)
   - Outdoor antenna and accessories
   - Engineering workstation (EWS), NAS and accessories

- 400/230 VAC board, 125 VDC power panel and 125 VDC distribution boards

For Loose Part

- Optical fiber cables, copper cables, patch cord 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.

- EFLEX conduits for optical fiber cables inside/outside buildings

  Outdoor optical fiber cables shall be wired in EFLEX conduits laying in cable trench as per drawing no. TP-E-20.13

- Loose equipment as specified in price schedule.

2. Design, supply, installation, wiring, test and commissioning of the engineering workstation, and all required system software and hardware in order to successfully run the IEC 61850 based substation protection and automation system.

3. Design, supply, installation, wiring, test and commissioning of the complete Controlled Switching Device (CSD) or Point-On-Wave (POW) switching system, and all required system software and hardware in order to successfully run the CSD or POW switching system. The CSD or POW switching system shall be suitably designed to utilize for selective and controlled tripping of circuit breakers in case of single line ground fault (1LG) occurred on cable section. Actual scheme shall be immediate tripping of faulted phase and delayed tripping of sound phases.

4. Contractor shall be responsible for Connecting the signal and data of Distributed Temperature Sensing (DTS), Distributed Acoustic Sensing (DAS) and Automatic Identification System (AIS) from the online monitoring system to the Operator's Console desk monitor in control room with connection cable.

5. The System Integrator is responsible for designing and providing the interface data between all station-level equipment supplied by the Contractor and the HMI and Gateway equipment provided by EGAT. The aforementioned HMI and Gateway will have EGAT SCADA X and EGAT GATEWAY X software installed, which are also supplied by EGAT. The required data for EGAT SCADA X and

EGAT GATEWAY X, as detailed below.

- Signal list which consisting of the following details;
    - Index for National Control Center (NCC), Backup National Control Center (BNCC), Regional Control Center (RCC), Backup Regional Control Center (BRCC), Group Control Center (GCC), and Backup Group Control Center (BGCC)
    - Description
    - IED name
    - Data attribute reference
    - Report control block
    - Dataset reference
- Complete CID and SCD file
- Single Line Diagram
- Interlocking Diagram

6. The System Integrator (SI) shall be responsible for at least the following scope of works:

- Design the complete IEC 61850 based substation protection and automation system as well as the communication network based on IEC 61850 standard in order to coordinate with the existing equipment and/or equipment supplied by EGAT.
- Configure each IED and communication network in order to completely fulfill the designed IEC 61850 based substation protection and automation system.
- Design the CSD or POW switching system and all required system software that interface with control & protection system

- Design the engineering workstation and all required system software in order to successfully run the IEC 61850 based substation protection and automation system. In addition, the signal lists to be displayed/controlled via engineering workstation shall be discussed with EGAT after the Award of Contract.

- Perform at least the following tests:

Individual test

This test is to verify each IED performance which shall comply with EGAT's Specifications as well as the relevant drawings and documents. In addition, the internal logic of each IED shall be adapted according to EGAT's comments in case the IED performance does not fulfill EGAT's requirements.

Service setting test

This test is to verify the response of all control and protection related functions with the calculated parameters setting implementation for all IEDs. The calculation report using the given data which will be provided after the Award of Contract shall be done by the System Integrator and submitted to EGAT for approval before configuring to all IEDs.

Factory Acceptance Test (FAT)

This test is to verify system performance with configured IEDs and complete panel/cubical assembly which shall comply with EGAT's Specifications as well as the relevant drawings and documents. The System Integrator shall design test procedures to ensure their consistency with the practical application of the equipment.

These activities typically include:

- Perform wiring checks on all panels and cubicles.
- Pre-Factory Acceptance Test
- Factory Acceptance Test

Site Acceptance Test (SAT)

This test is to finally verify the complete IEC 61850 based substation protection and automation system with the existing equipment and/or equipment supplied by EGAT at site which the system performance shall comply with EGAT's Specifications as well as the relevant drawings and documents. In addition, the test will be under EGAT's supervision.

All test reports shall at least clearly show the following details:

- Test procedures
- All used data such as parameters, standards, and etc.
- Test results
- Conclusion.

In addition, all tests shall be witnessed by EGAT's staff. Moreover, EGAT shall have access to all necessary data for complete understanding of the tests as well as the validity of the results.

7. The Contractor shall be responsible for providing both hardcopies and electronic files of the complete schematic and wiring diagrams of the IEC 61850 based substation protection and automation system including programmable logic schemes of each IED, programmable logic schemes of parallel transformer (if any), SSD files (if any), ICD files, SCD files, CID files, signal lists of SV, GOOSE and MMS, communication network connection diagram and patch-cord/optical fiber cable route diagram. Moreover, the required software for the above-said SCL files configuration shall also be supplied. In case of the SCD file configuration, the supplied software shall be compatible with all IEDs operated in the substation and shall also support multi-vendor IEDs. In addition, the Contractor can use the substation system network topology on drawing no. TP-E-20.3 as a guideline. The said drawing can be modified by the Contractor. However, it shall be submitted to EGAT for approval.

8. Regarding interfacing work, EGAT shall provide the Contractor with existing equipment information

in ACAD or PDF file format. The Contractor shall be responsible for providing both hardcopies and ACAD files of the complete schematic and wiring diagrams of the interfacing work between IEC 61850 based substation protection and automation system and the existing equipment and/or equipment supplied by EGAT. In addition, the approved final revision of green-red drawings and final drawings shall be printed and submitted in A1 paper size.

9. The Contractor shall provide the draftsman working at the site during the commissioning stage in order to be in charge of writing the as-built drawings, signal lists of SV, GOOSE and MMS, communication network connection diagram of control and protection system.

Works not included in this Contract

1. Supply and installation the operator console desk which consists of Inverter, HMIs, gateways, EGAT SCADA X software, EGAT GATEWAY X software, and all required system software and hardware.

2. Factory acceptance test for HMI, EGAT SCADA X, and GATEWAY X

COMMUNICATION PART

230/115 KV KO SAMUI SUBSTATION (GIS)

Work included in this Contract

CCTV system

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

Schedule1 230 KV KO SAMUI SUBSTATION (GIS)

Work included in this Contract

ARCHITECTURAL WORK

1. Design and construction of
   1.1 230 kV GIS Building.

      1.1.1 Architecture of the whole building.

      1.1.2 The contractor shall construct the building in accordance with "IEEE STD- 979-1994 (R2004)" (IEEE Guide for Substation Fire Protection).

      1.1.3 230 kV GIS Building shall be designed with reference to Dwg.No.KSM-GIS-8-01A. but size of building, equipment layouts and cable block out shall conform to electrical drawing Dwg.No.KM-S-7 and Dwg.No.KM-S-6. Other facilities layouts shall conform to requirements with reference to architectural drawings and scope of work.

      1.1.4 The design of building shall analyze and take the following aspects into consideration: Site, Environment, Context, Function, Climate (sunlight, wind, rain, heat etc.), Energy efficiency, Safety and including aesthetic of architecture to encourage EGAT corporate identity.

      1.1.5 For exterior surface of the building, there shall be at least 20% of total building area which uses yellow color that represents corporate image of EGAT.

      1.1.6 GIB Block out of the building shall be filled with fire stop material-mortar or sealant or foam with 2 hr. fire resistance rate and install in accordance to the manufacturer's instruction.

      1.1.7 The size of the GIS building can be adjusted to suit the installation of electrical equipment inside the building.

      1.1.8 The GIS building's wall facing the transformers shall be a fire-resistant wall, with at least 2 hours of fire rate.

      1.1.9 Building facilities

      - Electricity and illumination system including cable work for illumination, ventilation system, power supply, air conditioning system, and telephone system.
      - Strom water drainage system.
      - Miscellaneous including grounding and labeling.

- Cable routing and cable support (cable tray and cable ladder) installed in cable room and main cable trench.
- Overhead traveling crane, of lifting capacity not less than 7.5 metric tons and wireless crane remote control. Overhead traveling crane shall have cat-walk for maintenance the equipment on ceiling and complete with guard rail height no less than 90 cm along the cat-walk.
- Overhead traveling crane shall comply with standard DIN EN 15011 standard.
- Overhead traveling crane motors shall be dual speed or inverter.
- Life line shall be installed above along runway rail of overhead traveling crane.
- Contractor shall provide 2 sets of crane wireless remote controller, one for installation process and another handover to EGAT.
- Stairs shall be easy assets to the cat-walk. Consist of platform with guard rail on the top of stair and staircase.
- Crane safety equipment shall be conformed to the standards.
- Crane testing shall be carried out by the Contractor at his own expense under close supervision of EGAT. The Contractor shall delegate qualified personnel to perform these tests.

    a. Testing after installation: Contractor shall perform testing new overhead traveling crane before operating as the law. The crane testing license shall be valid until completion of crane installation. The crane testing license shall be Certified by a licensed mechanical engineer.

    b. Testing for handover of crane: Contractor shall perform testing used overhead traveling crane as the law. And The crane testing license and new wireless remote controller shall be handed over to EGAT.

    c. Testing for Maintained License: After the handover of crane, contractor shall perform crane testing, inspection and maintenance for 4 times per 2 years, every 6 months to maintain crane testing license as the law at contractor's cost and expense.

- Signboard on building.
- Lightning protection system.
- Emergency lighting system.
- Warning sign provided in accordance with EIT Standard or Quality and Safety Development Division Standard (EGAT).

1.2 3D Animation

1.2.1 3D Animation Requirement

1.2.1.1 A video of walk-through substation 3D animation. The video shall be not less than 3 minutes length, the resolution shall be not less than 4K (3840 x2163 pixels) with a frame rate of 60 fps, have an MP4 H.264 file type. The video shall also show these details.

- Substation's name, in both Thai and English
- A clear view of substation's entrance and signboard
- Normal-eye-view (normal perspective) exterior scenes of the whole substation, including every building and electrical equipment
- Bird 's-eye-view exterior scenes of the whole substation, including every building and electrical equipment
- Normal-eye-view (normal perspective) interior scenes of every building in the substation, such as control room, GIS area, electrical room, relay room, switchgear room, etc.
- Bird 's-eye-view interior scenes of GIS area, and any other rooms

1.2.1.2 All relate 3D files used to create the 3D animation, both in their respective original file types and being exported as SketchUp (SKP) files.

1.2.2 3D Animation Video Specification

1.2.2.1 The contractor shall make use of any software with a software copyright.

1.2.2.2 A music, which is not subjected to copyrights, shall be added into the 3D animation.

1.2.2.3 The contour, landscape and surrounding of the substation in the 3D animation shall also be created, based on the real existing surrounding.

1.2.2.4 A model used to create the 3D animation shall follow these details:

- Any components with a size of 0.008 cubic meters, or more, shall be created as a 3D model
- All models shall be texture-mapped, with a color and texture close to the real surface of the material, equipment, or building they are based on.
- The 3D animation shall make use of the renderings systems along with the ray tracing system to create a realistic light, in accordance to the real sun positioning in Thailand.

2. Construction of

2.1 230/115 kV Control Building.

2.1.1 For exterior surface of the building, there shall be at least 20% of total building area which uses yellow color that represents corporate image of EGAT.

2.1.2 The specification and characteristics of metal sheet roofing and walling shall be as follows:

- The boltless system with galvanized clip.
- Aluminium-zinc alloy coated not less than 200 g/m² (AZ200).
- The base metal thickness (BMT) shall not be less than 0.42 mm.
- The Minimum yield strength of 550MPa (G550).
- Finish Coating
    a. Front Side: Primer not less than 5 micron and not less than 17-20 micron polyester resin on the top coat.
    b. Back Side: not less than 10 micron polyester resin on the back side.
- Color is specified later.
- With 10 years guarantee of material and installation.
- Therefore, the specification and characteristics of metal sheet roofing and walling in the architectural drawing shall be cancelled.

2.1.3 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 access floor system material in the Specification No.3001 (Civil and Architectural work) No.3001-10.8.3.5 Access Floor System (Raised Flooring System) shall be cancelled

WATER SUPPLY AND FIRE PROTECTION SYSTEM

1. Design and construction of

1.1 Fire protection system for 230 kV GIS Building.

1.1.1 GIS Building shall consist of optical beam smoke detector and linear heat detector.

1.1.2 Fire protection system of GIS Building shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected device, shown and recorded at control room in 230/115 kV Control Building. The installation practice shall be in accordance with the last edition of NFPA 72.

1.1.3 There shall be sounder and beacon on the roof of the building.

1.1.4 For air sampling smoke detector as shown on specification 3001- 10.13.2 part i item no.1, 7, 13 and 14 shall be changed to the new details as followings :

i. Air Sampling Smoke Detector.

(1) Shall consist of a high sensitivity type detector, using light scatter technology.

(7) Detection system for all cabinet shall be omitted.

(13)The minimum sensitivity settings for a single sampling hole are so that the detection system alarm at 1.5%obs/ft (4.95%obs/m). A sampling hole maximum coverage area is 400.0 sq.ft (37.2 sq.m).

(14) Maximum transport time from the most remote port to the detection unit of an air-sampling system shall be a maximum of 90 seconds.

1.1.5 Fire protection system, fire alarm system and accessories shall be in accordance with the applicable requirements set forth in the latest edition of the following codes and standards:

- NFPA 70 : National Electrical Code.
- NFPA 72 : National Fire Alarm Code.
- NFPA 75 : Standard for the Fire Protection of Information Technology Equipment.
- NFPA 76 : Standard for the Fire Protection of Telecommunications Facilities.
- 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

1.1.6 Ventilation Fan for GIS area at fire-rated wall shall install fire damper 2 hour fire-rated.

1.2 Fire protection system for 230/115 kV Control Building.

1.2.1 Control Building shall consist of Total Flood Clean Agent Fire Suppression System with heat detector, addressable type smoke detector, aspirated smoke detector and linear heat detector.

1.2.2 Fire protection system of Control Building shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected device, shown and recorded at control room in 230/115 kV Control Building. 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 For system requirements for indoor fire protection system as shown on specification 3001-10.13.1 part e, item no.1 and 6 shall be changed to the new details as follow

(1) System description and operation : Supply and Installation of a Total Flood Clean Agent Fire Suppression System utilizing IG-100 shall cover all these zones :

Zone 1: Equipment (Control/Relay) Room ;
Zone 2: Electrical Room ;
Zone 3: Under Raised Floor (If Required);
Zone 4: Battery Room ;
Zone 5: Cable Room (If required) ;
Zone 6: Inert Gas Room
Other zone (If required)

Each protected zone shall have its own set of IG-100 cylinders.

(6) Detectors shall be cross-zoned detection requiring 2 detectors to be in alarm before discharge. A zone of A or B of addressable smoke detector / heat detector and a zone C of all ASD shall be crossed or two zone of A and B are crossed.

1.2.5 For air sampling smoke detector as shown on specification 3001- 10.13.2 part i item no.1, 7, 13 and 14 shall be changed to the new details as followings :

i. Air Sampling Smoke Detector.

(1) Shall consist of a high sensitivity type detector, using light scatter technology.

(7) Detection system for all cabinet shall be omitted.

(13) The minimum sensitivity settings for a single sampling hole are so that the detection system alarm at 1.5%obs/ft(4.95%obs/m). A sampling hole maximum coverage area is 400.0 sq.ft (37.2 sq.m).

(14) Maximum transport time from the most remote port to the detection unit of an air-sampling system shall be a maximum of 90 seconds.

1.2.6 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.
- NFPA76 : Standard for the Fire Protection of Telecommunications Facilities.
- 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.

1.2.7 There shall be one control panel which controls fire detection system and IG-100 fire suppression system in the building.

1.2.8 There shall be a protective clear polycarbonate cover which can be immediately lifted or opened for all IG-100 manual release stations.

1.2.9 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.

1.2.10 Linear heat detector wire type shall be installed for solar cell panel.

1.3 Fire protection system for the switchyard to meet the requirement as specified in IEEE Guide for Substation Fire Protection: IEEE Std 979, all requirements of NFPA 850.

1.4 Fire protection system for the Transformer: The Foam-water spray system shall comply with the following;

1.4.1 Foam-water spray system: NFPA 13, NFPA16 & NFPA 850.

1.4.2 Foam concentrate shall be non-fluorine type.

1.4.3 Bladder tank vessel construction standards : Carbon steel to ASME code section VIII for unfired pressure vessel.

1.4.4 Nozzles : NFPA 16 and as per Manufacturer's Recommendation

1.4.5 Detection system : Air Expansion Linear Heat Detection System (LHB)

1.4.6 Equipment for system : FM approved, UL Listings , Vds

1.4.7 Foam-water spray system provided for Transformer shall be designed for a minimum density of 10.2 litre/min-sq.m over the exposed surface at the Transformer.

1.4.8 There shall be one linear heat detector box for each transformer.

1.4.9 There shall be one control panel, for fire detection and foam/water spray system, which controls all foam/water spray system for each series of KTX protected transformers.

1.5 Fire Pump System. (conforming to NFPA 14, 20, 22, 24, 72).

1.6 Minimum 350 cu.m water storage tank, fire pump, and jockey pump shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected devices, shown and recorded at control room together with graphic annunciator in 230 kV Control Building. The installation practice shall be in accordance with the latest edition of NFPA 72.

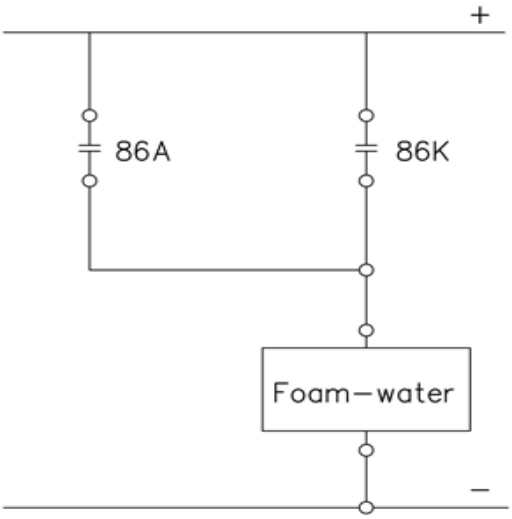
1.7 There shall be one fire alarm system graphic annunciator at each building to enable responding personnel to identify the location of a fire accurately and to indicate the status of emergency equipment or fire safety functions.

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

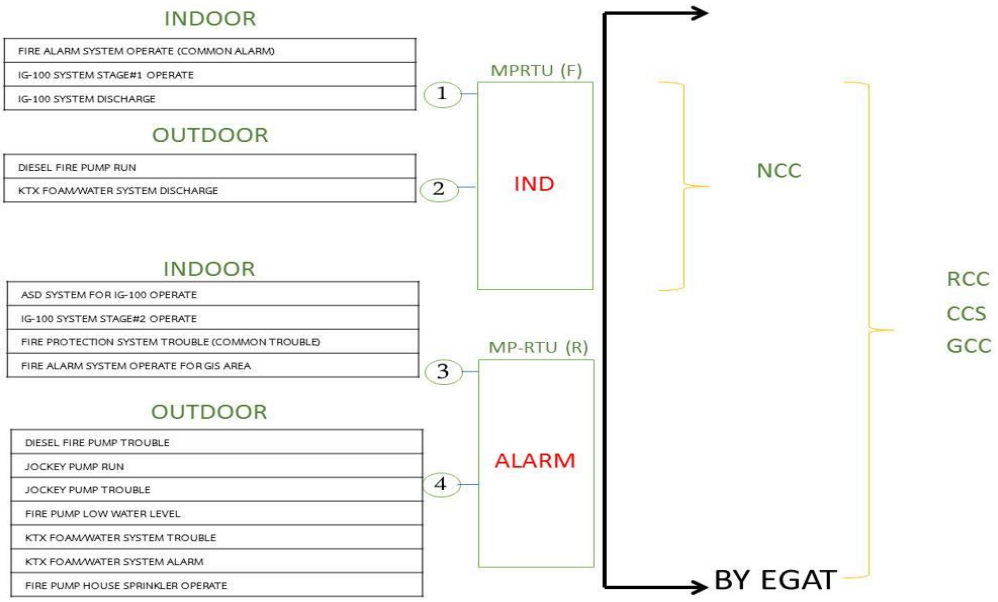
1.9 Fire protection system circuits for buildings and switchyards : notification appliance circuits , and signaling line circuits , shall be class A circuit. Initiating device circuits can be class B circuit.

1.10 For Control System Logic as shown on specification 3001-13.4 item 4.1 shall be changed to the new detail as following

(4.1) In case of fire, heat detector and the tubular expansion detector first give alarm. If rate of rise/fixed temp in heat detector/tubular expansion detector sense fire condition, there shall be alarm in control room and the detected transformer shall be tripped before applying Foam-Water spray as the condition shown in the diagram below ;



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



1.12 There shall be only one subcontractor engaging in design, supply and installation of Fire Protection System for Buildings and Switchyard.

1.13 Water supply system.

1.14 All building wall openings for fire protection dampers shall be provided with stainless steel louvers and insect screens to install inside of building.

1.15 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 (CO2) conforming to TIS 881 and/or dry chemical conforming to TIS 332 , minimum capacity 10 lbs/set. Dry chemical fire extinguishers fire rating shall not less than 4A:40B. The fitting accessories shall be provided.
- The portable fire extinguishers shall be installed according to the latest NFPA 10.

1.16 There shall be safety signs for fire extinguisher, manual release station and fire alarm device.

1.17 Contractor shall warranty the fire protection system for two full years starting the date after contract final completion. Fire protection system shall be inspected and maintained for 2 years, not less than 4 times per year and not less than manufacturers' recommendation, at contractor's cost and expense.

1.18 Notwithstanding the expiration of any warranty period described in this contract, the warranty period for any fire protection system or equipment and maintenance period shall be extended by a period equal to the sum of any periods during the warranty period when such system or equipment cannot be used for the purposes for which they were intended or the delays in maintenance, starting from the date EGAT has given contractor notice.

1.19 There shall be a set of computer desk with chair, a set of CPU which suitable for fire protection system software and operate 24 hours a day and a set of 24" LED monitor which show the status of fire protection system in control room in 230 kV Control Building. One set of laser jet printer shall be provided.

1.20 Consumable materials for fire protection system, for example, filters, liquids, and seals shall be provided according to manufacturer's instructions for a period of two years.

1.21 Fire pump house shall be protected by 2 hour fire-rated construction with appropriate ventilation system conformed to NFPA20. If there is any ventilation fan, it shall be explosion proof type.

1.22 Fire pump house shall be installed a sound proof system. The sound pressure level shall not exceed 70 dBA and shall not exceed 10 dBA comparing to background noise according to the Announcement of National Environmental Board No.29 (2007). The contractor shall conduct a site survey and measure the background noise at the site and submit report to EGAT before

designing the soundproof system. The contractor shall submit design calculation, drawing and catalogs to EGAT for approval. After completed construction of sound proof system, the contractor shall conduct the noise and room temperature measurement by third party at the site conformed to the relevant law.

1.23 Foam house shall be protected by 2 hour fire-rated construction with 2 hour fire-rated door shall be provided for maintenance the equipment inside and appropriate ventilation system. If there is any ventilation fan, it shall be explosion proof type.

1.24 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, Storage room 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

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

1.26 Underground water piping shall have indicator sign.

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

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

1.29 For all buildings, piping or cable penetrating the wall/floor and block out at wall/floor shall be enclosed with fire stop material. Fire stop material shall be approved by UL Listed/FM Approved and comply with NFPA 80 (Standard for Fire Doors and Other Opening Protectives) and other relevant standards. The installer shall be certified by manufacturer and have experience in installation of material for at least 5 years, of at least 10 projects.

1.30 All firestops for penetration from outside cable trenches to cable room and from cable room to under raised floor area shall be multi cable transit fire stop. Other firestops shall be block type

being able to be removed and reinstalled conveniently. Firestop catalog and installation detail drawings shall be submitted to EGAT for approval. The cables penetrating from outside the building into building shall be coated with firestop cable coating with the length of 50 cm. measuring from building's exterior wall outward.

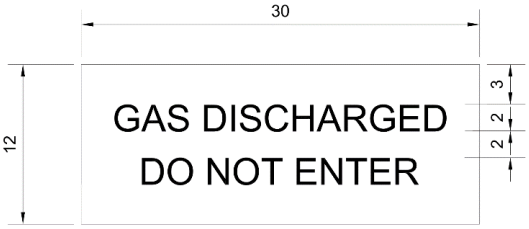
1.31 There shall be stainless steel flexible connector for fire fighting Pipe and foam solution pipe when penetrating through buildings' wall.

1.32 The contractor shall provide extra dry contacts of fire pump system signals for future expansion of substation.

1.33 There shall be weather proof type linear heat detector (cable type) system with the approval of UL and/or FM and/or VDS standard for rooftop solar PV system of each building. The system shall send signal of fire alarm to EGAT's RTU and fire protection control panel together with graphic annunciator of each building.

1.34 Minimum 350 cu.m. water storage tank shall install water level sight glass or visual water level indicator and guard rail at the top of tank shall be at less 90 cm.

1.35 There shall be a warning sign in front of each exit door of IG-100 protected rooms/zones as the following detail;



The dimensions are in centimeter. The housing shall be Electro-galvanized steel sheet 1mm. thick with epoxy powder coating. The sign shall be made with clear acrylic sheet that evenly diffuse the light throughout the whole sign. There shall be LEDs lamps to illuminate the sign and operated simultaneously with strobe light in front of the room to notify the gas discharge.

2. Construction of

2.1 Cabinets with 2x50 lbs wheel fire extinguisher.

CIVIL WORK

1. Design and construction of

1.1 230 kV GIS Building

1.1.1 Structure & foundation, the design and construction shall be submitted to EGAT for approval.

1.1.2 The main structure shall be structural steel. Fire protection for steel structure shall conform to legal provision.

1.1.3 Steel structure for roof. Fire protection for steel structure shall be fireproof paint system with fire-resistant at least 1 hour of fire rate conform to legal provision.

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

1.1.1 230 kV GIB & GIS bushing structure and foundation
1.1.2 Shunt reactor foundation
1.1.3 Cable tray for transformer, underground cable in HDPE duct (if required)
1.1.4 Telecommunication tower 12.00m height foundation.
1.1.5 Load break switch structure foundation

1.3 Fire wall

1.4 Noise barrier shall be designed, installed and tested to comply with the Announcement of National Environmental Board No.29 (2007) in order to protect the disturbing noise from the Transformer, so that the Ambient Noise Level in the community surrounding the Koh Samui Substation does not rise higher than 10 decibels comparing to the Background Noise Level. According to EGAT's noise level data, the average Background Noise Level in 24 hours is at 53 decibels and the Transformer's noise level is at 65 decibels at 1(one) meter. The contractor shall conduct a site survey and measure the background noise at the site and submit report to EGAT before designing the soundproof system. The contractor shall submit design calculation, drawing and catalogs to EGAT for approval. After completed construction of sound proof system, the contractor shall conduct the noise measurement by third party at the site conformed to the relevant law.

1.5 22 kV XLPE cable trench.

1.6 Flag pole 12.00 m height.

1.7 Fence.

1.8 Road and drainage system.

1.9 Drainage system for cable trench.

1.10 Remote control (shall be controlled from either the control room or the guard house) and door phone system for main entrance gate.

1.11 Site office.

2. Construction of

2.1 230/115 kV Control Building.

2.2 Steel structure 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.
2.9 Crushed rock surfacing.
2.10 Gate and wire mesh fence.
2.11 Main entrance gate 8.00 m width (sliding).
2.12 Standard symbol and sign letter of substation.
2.13 Garage house.
2.14 Lamp post for fence and access road lighting LED type foundation.
2.15 Guard rail.

3. The cement for Civil Work shall conform to the requirements of "Portland cement, Type V" if specified designated in ASTM C150.
4. The drawings and calculation of all buildings shall be verified with adequate details for intended application and submitted to EGAT for approval.
5. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
6. All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.
7. EGAT's Soil Investigation Report (attached to the Contract) which was conducted prior to the site preparation work 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. 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.
9. The Contractor shall perform a Static load test for 230 kV GIS Building and 230 kV Control Building foundations in accordance with ASTM D1143-latest edition.
10. Dynamic load test (DLT) according to ASTM D4945-latest edition shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
11. Seismic load test (sonic integrity test) according to ASTM D5882-latest edition shall be applied to all bored piles (if bored pile type is required).
12. Plate bearing test according to ASTM D1194- latest 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.m for conference room which shall both be air-conditioned and 4 sq.m for toilet. The Contractor shall supply two(2) sets of facilities specified in section G-3, please ensure that each item is provided in double quantity (e.g., six sets of desks and chairs, two refrigerator)

SOLAR ROOFTOP SYSTEM

1. Design and construction of
   1.1 The solar rooftop system for 230/115 kV Control Building
      1.1.1 The materials and equipment for solar rooftop system installation shall meet electrical criteria and standard qualifications in order to safely and properly install the system in buildings by professional installer.
      1.1.2 The Contractor shall design safe access for routine inspection and maintenance and there shall be accessible paths between solar cell arrays for operators to safely and conveniently work.
      1.1.3 The steel structure materials shall be hot dip galvanizing by following ASTM standard.
      1.1.4 The tools of construction shall be both properly assembled and disassembled.
      1.1.5 The equipment or mounting of the PV solar module attached to the construction shall be in proper size and shall be made from stainless steel or corrosion–prevented materials whose grade is not below 304 stainless steel or AL6005-T5 or equivalent.
      1.1.6 The system installation shall provide strong, stable and proper mounting for the roof profile and provide a solid mount that does not penetrate the roof surface.
      1.1.7 The PV module support structure shall be strongly, durably and securely fastened to the roof structure. All structural parts shall be designed for wind resistance not less than the maximum wind speed of tropical storm, and seismic (Earthquake) load requirement according to official declaration of Meteorology Department or regulations relevant to the area, if any.
      1.1.8 Water supply system with cable and conduit for cleaning solar roof top of the building shall have automatic pump with pressure tank and PE water tank at ground floor. The automatic pump with pressure tank shall have sufficient capacity and delivery head. The Contractor shall submit water supply design calculation to EGAT for approval.

Work not included in this Contract.

1. Supply of spare grass and weed killer and accessories. (Specification 3001-4.2.4)

Schedule2 115 KV KO SAMUI SUBSTATION

Work included in this Contract

WATER SUPPLY AND FIRE PROTECTION SYSTEM

1. Construction of

    1.1 Cabinets with 2x50 lbs wheel fire extinguisher.

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.
        1.1.1 115 kV Cable termination structure foundation
        1.1.2 115 kV Compact switchgear structure foundation
    1.2 115 kV XLPE cable trench.
    1.3 Fence
    1.4 Road and drainage system.
    1.5 Drainage system for cable trench.
2. Construction of
    2.1 Steel structure foundation.
    2.2 Equipment structure foundation with sub trench (if required).
    2.3 Cable trench.
    2.4 RC. Road.
    2.5 Crushed rock surfacing.
    2.6 Lamp post for fence and access road lighting LED type foundation.
3. The cement for Civil Work shall conform to the requirements of "Portland cement, Type V" if specified designated in ASTM C150.
4. The drawings and calculation of all buildings shall be verified with adequate details for intended application and submitted to EGAT for approval.

5. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
6. All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.
7. EGAT's Soil Investigation Report (attached to the Contract) which was conducted prior to the site preparation work 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. 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.
9. Dynamic load test (DLT) according to ASTM D4945-latest edition shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
10. Seismic load test (sonic integrity test) according to ASTM D5882-latest edition shall be applied to all bored piles (if bored pile type is required).
11. Plate bearing test according to ASTM D1194- latest shall be submitted to EGAT for approval (if pad type foundation is required).
12. The Contractor shall remove all debris from construction material and other works in order to make the site clean and be in the condition acceptable to EGAT.

Work not included in this Contract.

1. Supply of spare grass and weed killer and accessories. (Specification 3001-4.2.4)

2. 230 KV KHANOM SUBSTATION

GENERAL

The Scope of work comprises one schedule as follows:

Schedule 3

The additional 230 kV AIS substation shall consist of two (2) feeders as follows:

- Two (2) feeders for 230 kV Line No. 1 & No. 2 (Submarine Cable) to Ko Samui Substation

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

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

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

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

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

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

ELECTRICAL PART

Work included in this Contract

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

1. 230 kV AIS substation

1.1 Design, supply and installation of equipment and miscellaneous hardware required for a complete 230 kV substation with AIS.

1.2 Design, supply and installation of equipment required for a complete 33 kV /400 V power supply system, including all related equipment, raceway for complete operation.

1.3 The feeder nameplates as well as phasing, device, and switching numbers shown on the GIS module shall be painted or mounted (detachable type) on the enclosure of GIS whichever is appropriate according to the instruction from EGAT installation team. The color of the nameplates shall conform to Dwg. No.SE-ID-8-01. Their sizes and locations shall be appropriate for GIS module. EGAT reserves the right to request more details and clarification if deemed necessary.

1.4 The contractor shall supply identification plates for the both indoor and outdoor substation. The material, size and color shall conform to Dwg. No. Dwg. No. SE-ID-8-01 and SE-ID-0-01. EGAT reserves the right to request more details and clarification if deemed necessary.

1.5 Design, supply and installation of miscellaneous hardware for:

- The connection from the 230 kV XLPE cable termination bushings to
  - 230 kV Shunt reactor (SR1A, SR2A)
  - 230 kV Overhead line
- The connection 230 kV AIS substation.
- The grounding equipment and miscellaneous hardware for 33 kV/ 400 V distribution transformers (KW2A,KW4A) and 230 kV Shunt reactor (SR1A, SR2A)

1.6 The contractor shall supply miscellaneous hardware to complete the installation requirements between Substation side and Submarine side as shown in Dwg. No. KN-S-4-01/01.

1.7 Sag and tension of phase wires and overhead ground wires shall be designed and calculated by Contractor. The calculation shall be based on internationally-accepted standards. The said calculation shall be submitted to EGAT for approval.

2. Grounding system

2.1 Khanom substation can be divided into the existing area and the new area. The existing area also has its existing ground grid and grounding system. The Contractor's scope of work comprises the following:

The existing area:

- Evaluate whether the existing grounding system require modification to meet the safety criteria as per IEEE-80 standard.
- Design, supply, and installation the modification of the existing ground grid and grounding system (if deemed necessary)
- Connect the existing ground grid to the new ground grid.

The new area:

- Design, supply and installation of the new ground grid and grounding system of the following:
- 230 kV substation (including grounding connection for all equipment, facilities, structures within)
- Control building
- Warehouse building

2.2 Design, supply and installation of the grounding equipment and miscellaneous hardware. The type of grounding conductor for the substation grounding system shall be 4/0 AWG bare copper wire.

2.3 The Contractor shall conduct soil resistivity measurement. Based on the measured soil resistivity, the Contractor shall evaluate/design the ground grid by hand calculation using the equations in IEEE-80 standard, and submit the calculation report to EGAT for Approval. The parameters for the calculation are as follows:

- Fault current division factor (sf) value = 1

- Fault current = 40 kA or recommended by EGAT during Approval

- Fault clearing time (tf) = 1 second or recommended by EGAT during Approval

- The grounding conductor spacing for the grounding grid of the 230 kV substations shall be 5.00 m. (D0)

- The total number of ground rods for the 230/115/33 kV substations shall be 120 pieces.

The Contractor shall determine the size of grounding conductors for the substation grounding system and select the number of 4/0 AWG bare copper wires accordingly.

The price of the new ground grid in the new area evaluated based on the given parameters above shall be a price reference when considering the extra work or deducted work.

- If the grounding conductor spacing obtained by hand calculation, i.e. D1 is smaller than D0, the Contractor shall design a grounding grid using the software. The software shall be certified to be acceptable for commercial use.

2.4 The Contractor shall perform ground resistance measurement after the completion of grounding system installation. Prior to the measurement, the overhead ground wire shall be disconnected from the substation. The method of measurement shall follow IEEE 81-2012 standard "IEEE Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Grounding System" or the latest version. The result shall be submitted to EGAT for Approval.

3. XLPE Cable System

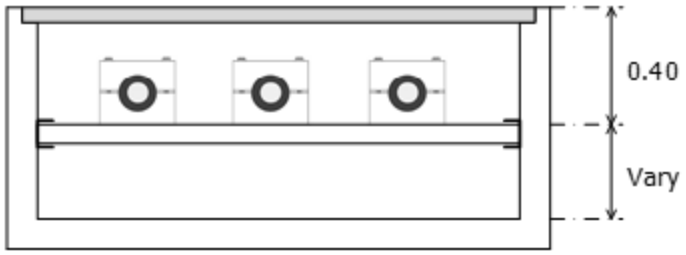
230 kV XLPE Cable System

3.1 Design, supply and installation of 230 kV XLPE cable system

- The design and calculation of the 230 kV XLPE cable system shall conform to IEC or IEEE standards.

- The 230 kV XLPE cable shall be 1/C-800 sq. mm. single-core with copper conductor.

- The 230 kV XLPE cable shall be installed in flat formation as shown in the figure below (for example).



- The bending radius of the XLPE cable shall be checked by Contractor for the XLPE cable installation and cable trench design.

- The cable trench for 230 kV XLPE cable system shall be with concrete trench covers.

- Ampacity calculation report to be submitted for approval:

- The Contractor shall design the 230 kV cable system such that one (1) 1/C-800 sq.mm. XLPE cable shall be able to carry the continuous current as follows:

  - no less than 800 A for 230 kV Submarine feeders Line No.1&2 to Ko Samui Substation

- given that the ambient temperature is not less than 45°C and the at least the following cases shall be considered for a comparative study.

  - In open air with the effect of solar heat

  - In trough without the effect of solar heat

- The calculation shall conform to IEC standard. The other parameters used in the design shall be practical, reasonable, and operational. The calculated continuous current rating shall be shown in the single-line diagram drawing.

- Sheath induced voltage calculation report to be submitted for approval:

- For the XLPE cable system with single-point bonding (if selected), the sheath induced voltage calculation report shall be submitted to EGAT for Approval. The calculation shall conform to IEEE standard. The assumptions and parameters for the calculation shall have reliable supporting references.

- The report shall clearly examine the sheath induced voltage under the following cases

- At rated current
- At faults (at least including 3-phase, Single-line-to-ground, Double-line fault types)
- Transients (Switching and Lightning surges)

- The sheath induced voltage under rated current shall not exceed 60 V
- The Contractor shall evaluate and clarify the following:
  - how the jacket of the cable is protected from the sheath induced voltage due to transients (Switching and Lightning surges). In case the information of Switching and Lightning surges is not available, use a conservative approach with reasonable representative surges for the design.
  - whether the Surge Voltage Limiter (SVL) is required to provide such protection.
- Without proper clarification or the clarification not having internationally-accepted and reliable supporting references, the Contractor is recommended to install the Surge Voltage Limiter (SVL).
- In case SVL is to be installed, it is the responsibility of the Contractor to design, supply, and install the SVL and all related hardware and accessories for a complete installation e.g. link boxes, disconnecting switches etc. This shall not be considered as the extra work.
- In addition, the clarification document for the SVL rating selection, drawings for SVL installation and maintenance manual shall be provided and submitted for approval.
- Details of sheath bonding for installation shall be provided and shown in drawings.
- EGAT reserves the right to request more details and clarification if deemed necessary.

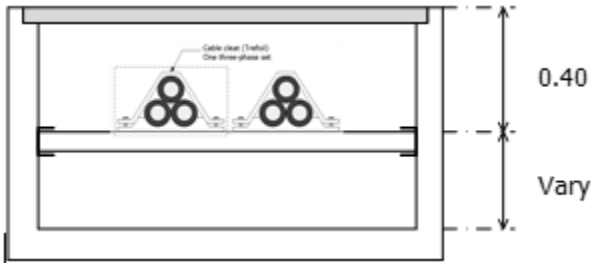
33 kV XLPE Cable System (Connection from tertiary side of Auto-transformer to Station service transformer)

3.2 Design, supply and installation of 33 kV XLPE cable system complete from the 33 kV buses at the 33 kV side of the auto-transformers KT2A and KT4A to the Station service transformers KW2A and KW4A

- The design and calculation of the 33 kV XLPE cable system shall conform to IEC and/or IEEE standards.

- The 33 kV XLPE cable shall be 1/C-50 sq.mm single-core with copper conductor.

- The 33 kV XLPE cable shall be installed in trefoil formation as shown in the figure below (for example).



- The bending radius of the XLPE cable shall be checked by Contractor for the XLPE cable installation and cable trench design.

- The cable trench for 33 kV XLPE cable system shall be with metallic trench covers.

- Ampacity calculation report to be submitted for approval:

- The Contractor shall design the 33 kV cable system such that one (1) 1/C-50 sq.mm XLPE cable shall be able to carry the continuous current no less than 50 A given that the ambient temperature is not less than 45°C and at least the following cases shall be carried out for a comparative study.

    - In open air with the effect of solar heat

    - In trough without the effect of solar heat

    - EGAT may request additional cases to be carried out if deemed necessary. The Contractor shall not consider this as additional cost and time to EGAT.

- The calculation shall conform to IEC standard. The other parameters used in the design shall be practical, reasonable, and operational. The calculated continuous current rating shall be shown in the single-line diagram drawing.

- Sheath induced voltage calculation report to be submitted for approval:

- For the XLPE cable system with single-point bonding (if selected), the sheath induced voltage calculation report shall be submitted to EGAT for Approval. The calculation shall conform to IEEE standard. The assumptions and parameters for the calculation shall have reliable internationally-accepted supporting references.

- The report shall clearly examine the sheath induced voltage under the following cases

    - At rated current

- At faults (at least including 3-phase, Single-line-to-ground, Double-line fault types)
- Transients (Switching and Lightning surges)
- EGAT may request additional cases to be carried out if deemed necessary. The Contractor shall not consider this as additional cost and time to EGAT.

- The sheath induced voltage under rated current shall not exceed 60 V
- In case that the calculation result indicates that the Surge Voltage limiter (SVL) is required to protect the jacket of the cable from the overvoltage, it is the responsibility of the Contractor to design, supply, and install the SVL and all related hardware and accessories for a complete installation e.g. link boxes, disconnecting switches etc. In addition, the clarification document for the SVL rating selection, drawings for SVL installation and maintenance manual shall be provided and submitted for Approval.
- Details of sheath bonding for installation shall be provided and shown in drawings.
- EGAT reserves the right to request more details and clarification if deemed necessary.

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) of

- 900 kV for 230 kV substation

shall be used for the calculation instead of Critical Flashover voltage (CFO).

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

4.2 The Lightning Protection Level (LPL) of Level 1 shall be used for the design of lightning protection system for the control building.

The overhead ground wire is not permitted for the lightning protection system for the Control building. Air terminal rods installed at the roof shall be used instead. The Contractor shall also supply and install test boxes as per bidding drawing.

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

5. Station service system

5.1 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:

- Load Center Unit Substation (LCUS)
- 33 kV equipment, and AC & DC distribution boards, stationary batteries, battery chargers, power cables, and all related equipment for a complete operation.

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

5.3 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 for at least 8 hours if normal station service fails.

The capacity of the battery shall not be less than 2600 Ah. 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.

The following factors that influence the capacity of the battery shall be used in the capacity of the battery design:

- The temperature coefficient of 1.10
- The design margin factor of 1.15
- The aging factor of 1.25

In addition, the size of the stationary battery shall be designed to support the operation of 230/115 kV (including future bays if any) as shown on the attached bidding document drawings.

The design calculation shall be submitted to EGAT for approval.

5.4 Foundation for station service transformer cable end box type 500 kVA (KW2A and KW4A) shall be design by contractor. The structure mark in design drawing is specified by DX

5.5 Relocate and reinstallation 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 (KW2A)
- 500 kVA, 33,000-400/230 V distribution transformer (KW4A)
- 33 kV Load break switch
- 600 V, 800 A safety switches

5.6 Design supply for connection of 400 V system from LCUS at the New 230/115 kV Control building to existing LCUS located at existing 230 kV control building complete with integral accessories to provide the complete system operation.

6. Telecommunication system

6.1 Design, supply and installation of the telecommunication tower. 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 telecommunication tower will be installed on the roof deck of the control building.

6.2 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. Facility system

7.1 Outdoor facility system:

- Design, supply and installation of a switchyard 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, one (1) lighting relay panels, raceways, and wiring cables for lighting circuits.

- Design, supply and installation of a switchyard lighting system complete with all integral accessories to provide a complete system operation. The lighting system of fence lighting and access road lighting shall be LED (SOLAR panel with built in battery) as per drawing no. LT-FX-0-03-01/01.

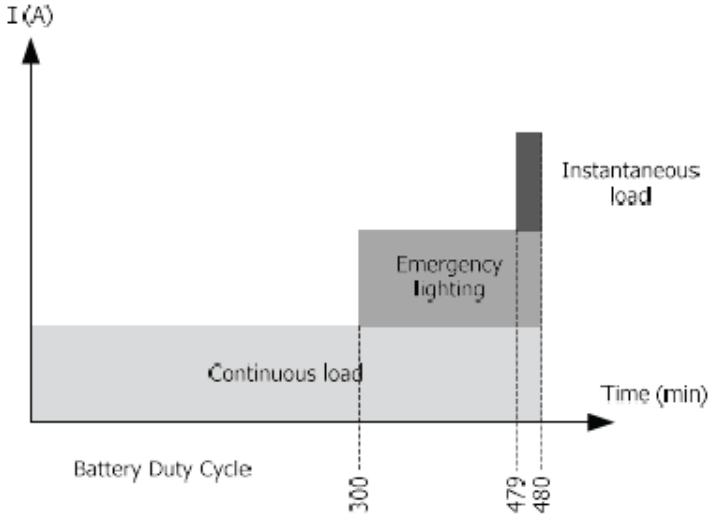
- Design, supply and installation of a switchyard lighting system complete with all integral accessories to provide a complete system operation. The lighting system of equipment lighting shall be LED as per drawing no. LT-FX-0-02-01/01.

7.2 Indoor facility system:

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

- 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.

- Design, supply and installation of emergency lighting system for the Control building in case of normal station service fails with the illuminance of 150 LUX for at least 3 hours as shown in Figure below.



- All steel hardware and accessories e.g. lip-channel, conduit, conduit fitting, conduit accessories, boxes and covers shall be hot-dipped galvanized. All listed hardware and accessories shall be submitted to EGAT for approval. In cases where hot- dip galvanization is not available for certain items, clarification and approval must be obtained from EGAT before construction, without incurring additional cost and time.

7.3 The size of the low-voltage cable shall be adequate to ensure that the voltage drop at the load point remains less than 5% under rated load current.

The voltage drop from the safety switch to the LCUS/AC board, and from the LCUS/AC board to the load, shall not exceed 2% and 3%, respectively.

The voltage drop shall comply with EGAT's requirements, and the voltage drop calculation must be submitted to EGAT for approval.

7.4 Design, supply, and installation of the equipment and hardware required to provide the installation of the GPS antenna and FRS antenna, and their cabling connection (in metallic conduits) to the associated panels in the control room.

7.5 The inverter for essential load shall meet the following requirements. The Contractor shall be responsible for sizing the inverter.

No.	Description	Requirement data	Unit	No.	Description	Requirement data	Unit
1	Environmental Condition			6	Control button		
	1.1 Minimum ambient temperature	0	Celsius		6.1 Inverter START and STOP	YES	
	1.2 Maximum ambient temperature	40	Celsius		6.2 Acknowledge alarm silent	YES	
	1.3 Relative Humidity	0-95	%		6.3 Lamp test	YES	
	1.4 Tropicalization	YES	-				
	1.5 Altitude	<1000	meters	7	Measurement scale 90 degree		
					7.1 AC output voltage cls 1.5	YES	
2	Cabinet						
	2.1 Protection Level	IP 20		8	Protection		
	2.2 Mounting	Removable			8.1 Overload shutdown	YES	
	2.3 Epoxy painting color	RAL7032			8.2 Low DC voltage shutdown (<105 V)	YES	
	2.4 Convection ventilation	Forced air			8.3 AC output fuse to prevent short circuit current and overload	YES	
	2.5 Steel sheet thickness	1.5	mm.		8.4 Overload temperature shut down	YES	
					8.5 Thermistor fan controlled (Inverter will shut down when temperature exceed 70 Celsius)	YES	
3	Main supply Voltage						
	3.1 Nominal Voltage	125	V.		8.6 DC circuit breaker	YES	
	3.2 Voltage variation	100-150	V.		8.7 AC circuit breaker	YES	
	3.3 Permissible ripple voltage on DC	< 5	% Vp-p		8.8 DC input fuse to prevent short circuit current and overload	YES	
	3.4 Self-precharge	YES					
				9	Monitor		
4	Output AC Voltage				9.1 Input DC voltmeter	YES	
	4.1 Nominal voltage	220	V.		9.2 Output AC voltmeter	YES	
	4.2 Supply system	1 ph+N					
	4.3 Static voltage regulation at 0-100% load variation and power factor 1.0	+/- 2	%	10	Alarm and LED lamp status indicator		
	4.4 Dynamic voltage regulation -At AC input fluctuation +/- 10 %	+/- 5	%		10.1 Inverter ON/OFF	YES	
					10.2 DC input status	YES	
	4.5 harmonic distortion	< 5	% THD		10.3 Load on inverter	YES	
	4.6 Output frequency	50	Hz		10.4 LED lamp alarm indicators (Alarm noise shall not less than 75 db)	YES	
	4.7 Frequency variable	+/- 0.5	%		10.5 AC output status	YES	
	4.8 Synchronized frequency	+/- 1	% Hz		(LED shall blink when Under/Over voltage +/- 10 %)		
5	Output capacity			11	Cable entry		
	5.1 Output continuous capacity	xx	kVA		11.1 DC incoming	YES	
	Note xx : Design by Contractor				11.2 AC Outgoing	YES	
	5.2 Overload capacity 100 % continuous	YES			11.3 Terminal	INSIDE	
	5.3 Overload capacity 125 %	10	min				
	5.4 Overload capacity 150 %	1	min				
	5.5 Efficiency at rated load and 1.0 power factor	> 85	%				

7.6 The Contractor should refer to Dwg. No. SD-CD-0-02L, SD-CD-0-02M, for guideline for facility system design of the control building.

8. Grid Connected Solar Photovoltaics (PV) Rooftop System

8.1 The Contractor shall design, supply, deliver, install, construct, test, commission and maintain the Grid-Connected Solar PV rooftop system, which shall be completed with all necessary accessories and minor items to facilitate the correct completion of the work. All requirements of relevant standards over these works shall be applied.

The 60 kWp Solar on Grid system with string inverters shall be installed at the rooftop of control building. All the Solar PV rooftop system should be metered and the energy generated from the PV rooftop system shall be recorded.

8.2 General Requirement

8.2.1 The grid- connected rooftop solar power system shall consist of the following equipment/components but not limited to:

- Photovoltaic modules (PV modules) with grid- connected rooftop solar power support structure
- Grid-connected inverter
- DC combiner panel
- AC panel
- DC fuse or DC circuit breaker & AC circuit breaker
- DC & AC surge arrester
- DC & AC cable
- Conduit & Cable tray
- DC & AC connector
- Identification plate
- Monitor equipment
- Tools required for operation and maintenance

- Any other item(s) that may be required to successfully commission, operation and maintain the grid-connected solar PV rooftop system.

8.2.2 All equipment/ components parts used in the grid- connected solar PV rooftop system shall conform to the single line diagram and Technical Specifications of systems as shown in Dwg.No. SE-PV-0-01-01/01 & SE-PV-0-02-01/02 – 02/02 or internationally-accepted standards.

8.2.3 Submittals for documents, drawings, catalogs and manuals of equipment, warranty cards and spare parts shall conform to Technical Specifications of systems as shown in Dwg.No. SE-PV-0-02-01/02 – 02/02.

8.2.4 All documents and drawings shall be certified and signed by the Contractor' s authorized senior professional engineers certified by Thailand's Council of Engineers.

8.2.5 The contractor or subcontractor shall have experience in executing at least two (2) contracts as the contractor for design and installation of Solar PV rooftop system in Thailand which has the capacity of PV system more than 60 kWp, with successful operation of at least two (2) consecutive years.

8.2.6 Testing and commissioning of the grid-connected solar PV rooftop system shall conform to the internationally-accepted standards.

8.2.7 Mentoring and training to EGAT' s operating staff for operation and maintenance

8.2.8 The insurance period for workmanship and Materials shall conform to Technical Specifications of systems as shown in SE-PV-0-02-01/02 – 02/02.

9. Other work

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

9.2 Modification to Junction box supporting structure (JB001) for the installation of the 600 V, 800 A safety switches.

9.3 Modification to Junction box supporting structure (JB003) for the installation of Outdoor receptacle box (ORB1 and ORB2) and Common control cubicle for maintenance (CCM).

9.4 Modification of 33 kV XLPE cables, 33 kV cable terminations, 33 kV surge arresters, 33 kV power fuses, 33 kV disconnecting switches, as indicated in Bidding documents.

9.5 Installation of suspension and post insulators and all hardware for suspension and post insulator assembly.

9.6 The removal of the equipment in the existing conventional substation. Details of removal are shown on the Bidding Document Drawing. All removed equipment shall be carefully packed by the Contractor and returned to EGAT at the construction site at Bandon Substation warehouse (70 km from KN Substation)

9.7 Design, supply, and installation of identification plates for all additional equipment and other necessary plates.

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

9.9 Removal of existing 230 kV Take off structure (TOS1-1), 230 kV Beam Structure (B1), 230 kV disconnecting switch (D1) , disconnecting operating platform (OP1) , and Concrete Pole 22.

9.10 Modification of 33 kV bus supporting structures (BS203) for installation of 33 kV XLPE cables, 33 kV cable terminations as indicated in Bidding documents.

9.11 Design and supply the 2x4/0 AWG ground system for communication tower of cable monitoring system.

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 connection between the 230 kV Submarine cable termination and 230 kV Disconnecting switch except to supply miscellaneous hardware required to complete the connection.

2. Supply and installation of 230 kV Shunt reactor except cabling from the control Cubicle for Shunt reactor to the associated equipment.

3. Supply of suspension insulators and post insulators

4. The construction and installation of 230 kV Submarine cable termination and surge arrester from seashore's Submarine cable.

5. AIS tower station at Khanom substation (By transmission department).

6. The connection of 2x4/0 AWG. Grounding system to communication tower of cable monitoring system.

CONTROL AND PROTECTION PART

Work included in this Contract

for 230 kV KHANOM Substation (New Control Room)

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.

     Panel No. 105R: PRIMARY PROTECTION 230kV LINE NO.1 TO KOH SAMUI

     Panel No. 106R: SECONDARY PROTECTION 230kV LINE NO.1 TO KOH SAMUI

     Panel No. 107R: REACTOR PROTECTION 230kV LINE NO.1 TO KOH SAMUI

     Panel No. 108R: PRIMARY PROTECTION 230kV LINE NO.2 TO KOH SAMUI

     Panel No. 109R: SECONDARY PROTECTION 230kV LINE NO.2 TO KOH SAMUI

     Panel No. 110R: REACTOR PROTECTION 230kVLINE NO.2 TO KOH SAMUI

   - Transducer panel(TDR11)
   - Interposing Panel(IP11)
   - E-1 Converter Panel(E1-CONV.)
   - Fault Recording System(FRS)
   - Marshalling panels for the Fault Recording System(MP-FRS11)
   - Outdoor antenna and GPS receiver panel
   - Marshalling panels for the remote terminal unit(MP-RTU11, MP-RTU12)
   - Marshalling panels for the control system(MPC11)
   - 400/230 VAC, 125 VDC power panel and 125 VDC power distribution boards.
   - Loose equipment as specified in price schedule.

- Related accessory equipment which is required for interfacing between the equipment in existing control room and the equipment in new control room.

- Cable and accessories as well as connection of cables among all of the boards, the new equipment, the existing panels and the associated equipment in order to complete the function of the control and protection system in both existing control room and new control room.

2. Design, installation, wiring, test and commissioning of EGAT Remote Terminal Units (RTUs) 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.

3. Design, supply, installation, wiring, test and commissioning of the complete Controlled Switching Device (CSD) or Point-On-Wave (POW) switching system, and all required system software and hardware in order to successfully run the CSD or POW switching system. The CSD or POW switching system shall be suitably designed to utilize for selective and controlled tripping of circuit breakers in case of single line ground fault (1LG) occurred on cable section. Actual scheme shall be immediate tripping of faulted phase and delayed tripping of sound phases.

4. Design the CSD or POW switching system and all required system software that interface with control & protection system.

5. Contractor shall be responsible for connecting the signal and data of Distributed Temperature Sensing (DTS), Distributed Acoustic Sensing (DAS) and Automatic Identification System (AIS) from the online monitoring system display to the Operator's Console desk monitor in new control room with connection cable.

6. 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 control room.

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

8. Contractor shall be responsible for providing complete signal list of Remote Terminal Unit (RTU) and Fault Recording System (FRS). The said drawing shall be submitted to EGAT for approval.

9. 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.

Works included in this Contract

for 230 kV KHANOM Substation (Existing Control Room)

1. Design, modification, wiring, test and commissioning of the existing equipment which comprises at least the following equipment in order to incorporate the new equipment.

   - Modify 230kV Line to NO.1 to NAKHON SI THAMMARAT (Panel Nos. 42R and 43R) and Line to No.1 to SURAT THANI protection (Panel Nos. 31R and 32R) from bus No.2 breaker to middle breaker and modify related equipment (FRS and TDR) in Line to No.1 to SURAT THANI from current transformer core Z to core W.

   - Modify the function control of equipment bay No.3 & No.4 from existing Control and Interposing panel in Existing control room (Panel Nos. 4C and IP230-1) to New Interposing panel in New control room (Panel No. IP11).

   - Remove existing Breaker failure relay (50BF-32, 50BF-33, 50BF-42 and 50BF-43) and related accessory equipment in existing control room (Panel Nos. 18R and 27R) and all related panel.

   - The existing panels in existing control room such as 400/230 VAC and 125 VDC power distribution boards, existing control and protection panels and marshalling panels. (e.g. for the Remote Terminal Unit, Tele-Protection, Existing Control System, etc.)

   - 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.

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

3. Design, modification of the schematic and wiring diagram of the additional Remote Terminal Units (RTUs) inputs to the existing Computerized Control System (CCS) in Existing Control Building, including test and commissioning of the complete CCS. Providing completed EGAT RTU I/O list in both hardcopy and electronic file.

4. 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.

5. 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.

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

7. 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.

Works not included in this Contract

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

COMMUNICATION PART

230 KV KHANOM SUBSTATION

Work included in this Contract

CCTV system

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

Work included in this Contract

ARCHITECTURAL WORK

1. Design and construction of
   - 1.1 Warehouse.
     - 1.1.1 Architecture of the whole building.
     - 1.1.2 The contractor shall construct the building in accordance with "IEEE STD- 979-1994 (R2004)" (IEEE Guide for Substation Fire Protection).
     - 1.1.3 Warehouse shall be designed with reference to Standard drawing (Dwg.No. KN-WH-0-01A). Other facilities layouts shall conform to requirements with reference to architectural drawings and scope of work.
     - 1.1.4 The design of building shall analyze and take the following aspects into consideration: Site, Environment, Context, Function, Climate (sunlight, wind, rain, heat etc.), Energy efficiency, Safety and including aesthetic of architecture to encourage EGAT corporate identity.
     - 1.1.5 For exterior surface of the building, there shall be at least 20% of total building area which uses yellow color that represents corporate image of EGAT.
     - 1.1.6 Building facilities
       - Electricity and illumination system including cable work for illumination, ventilation system, and power supply.
       - Plumbing system for building drain and vent, and storm water drainage.
       - Miscellaneous including grounding and labeling.
       - 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).
2. Construction of
   - 2.1 230/115 kV Control Building.
     - 2.1.1 For exterior surface of the building, there shall be at least 20% of total building area which uses yellow color that represents corporate image of EGAT.

2.1.2 The specification and characteristics of metal sheet roofing and walling shall be as follows:

- The boltless system with galvanized clip.
- Aluminium-zinc alloy coated not less than 200 g/m² (AZ200).
- The base metal thickness (BMT) shall not be less than 0.42 mm.
- The Minimum yield strength of 550MPa (G550).
- Finish Coating
    a. Front Side: Primer not less than 5 micron and not less than 17-20 micron polyester resin on the top coat.
    b. Back Side: not less than 10 micron polyester resin on the back side.
- Color is specified later.
- With 10 years guarantee of material and installation.
- Therefore, the specification and characteristics of metal sheet roofing and walling in the architectural drawing shall be cancelled.

2.1.3 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 access floor system material in the Specification No.3001 (Civil and Architectural work) No.3001-10.8.3.5 Access Floor System (Raised Flooring System) shall be cancelled

WATER SUPPLY AND FIRE PROTECTION SYSTEM

1. Design and construction of

1.1 Fire protection system for 230/115 kV Control Building.

1.1.1 Control area shall consist of Total Flood Clean Agent Fire Suppression System with heat detector, addressable type smoke detector and aspirated smoke detector.

1.1.2 Fire protection system of 230/115 kV Control Building shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected device, shown and recorded at control room in 230/115 kV Control Building. The installation practice shall be in accordance with the last edition of NFPA 72.

1.1.3 There shall be sounder and beacon on the roof of the building.

1.1.4 For system requirements for indoor fire protection system as shown on specification 3001-10.13.1 part e, item no.1 and 6 shall be changed to the new details as follow

(1) System description and operation: Supply and Installation of a Total Flood Clean Agent Fire Suppression System utilizing IG-100 shall cover all these zones:

Zone 1: Equipment (Control/Relay) Room;
Zone 2: Electrical Room;
Zone 3: Under Raised Floor;
Zone 4: Battery Room;
Zone 5: Cable Room;
Zone 6: Inert Gas Room;
Other zone (If required)

Each protected zone shall have its own set of IG-100 cylinders.

(6) Detectors shall be cross-zoned detection requiring 2 detectors to be in alarm before discharge. A zone of A or B of addressable smoke detector/heat detector and a zone C of all ASD shall be crossed or two zone of A and B are crossed.

1.1.5 For air sampling smoke detector as shown on specification 3001- 10.13.2 part i item no.1, 7, 13 and 14 shall be changed to the new details as followings :

i. Air Sampling Smoke Detector.

(1) Shall consist of a high sensitivity type detector, using light scatter technology.

(7) Detection system for all cabinet shall be omitted.

(13) The minimum sensitivity settings for a single sampling hole are so that the detection system alarm at 1.5% obs/ft (4.95% obs/m). A sampling hole maximum coverage area is 400.0 sq.ft (37.2 sq.m).

(14) Maximum transport time from the most remote port to the detection unit of an air-sampling system shall be a maximum of 90 seconds.

1.1.6 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.
- NFPA 76: Standard for the Fire Protection of Telecommunications Facilities.
- 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.

1.1.7 There shall be one control panel which controls fire detection system and IG-100 fire suppression system in the building.

1.1.8 There shall be a protective clear polycarbonate cover which can be immediately lifted or opened for all IG-100 manual release stations.

1.1.9 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.

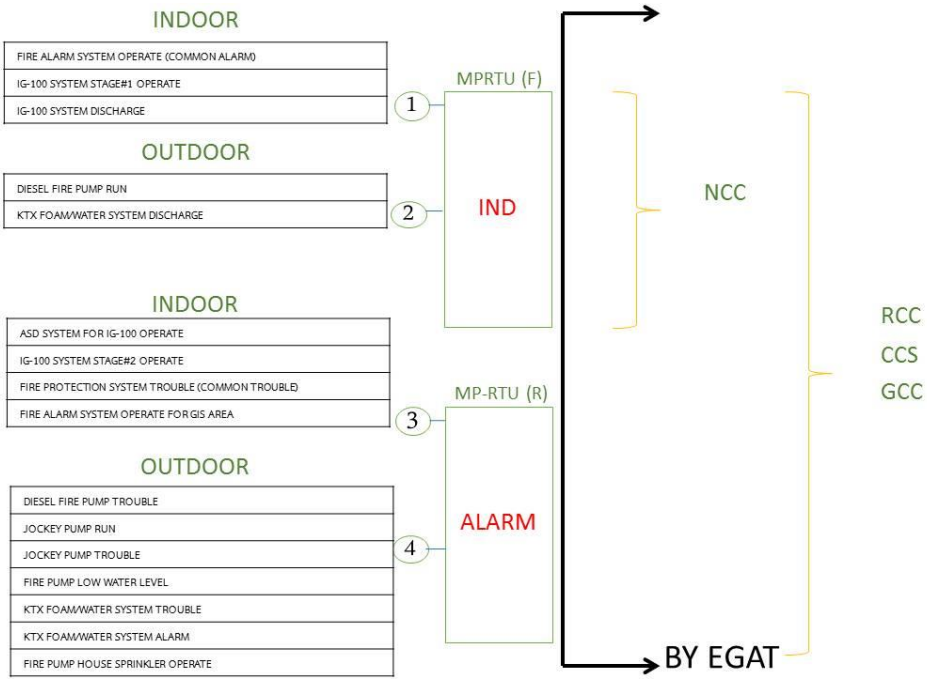
1.2 Fire protection system for the switchyard to meet the requirement as specified in IEEE Guide for Substation Fire Protection: IEEE Std 979, all requirements of NFPA 850.

1.3 Fire protection system of warehouse Building shall have trouble and operation visual and audible signals (environmental monitoring), which indicate change of state of any connected devices, shown and recorded at control room together with graphic annunciator in 230/115 kV Control Building. The installation practice shall be in accordance with the latest edition of NFPA 72.

1.4 There shall be one fire alarm system graphic annunciator at each building to enable responding personnel to identify the location of a fire accurately and to indicate the status of emergency equipment or fire safety functions.

1.5 Fire protection system circuits for buildings and switchyards: notification appliance circuits, and signaling line circuits, shall be class A circuit. Initiating device circuits can be class B circuit.

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



1.7 There shall be only one subcontractor engaging in design, supply and installation of Fire Protection System for Buildings and Switchyard.

1.8 Water supply system.

1.9 All building wall openings for fire protection dampers shall be provided with stainless steel louvers and insect screens to install inside of building.

1.10 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 (CO2) conforming to TIS 881 and/or dry chemical conforming to TIS 332 , minimum capacity 10 lbs/set. Dry chemical fire extinguishers fire rating shall not less than 4A:40B. The fitting accessories shall be provided.
- The portable fire extinguishers shall be installed according to the latest NFPA 10.

1.11 There shall be safety signs for fire extinguisher, manual release station and fire alarm device.

1.12 Contractor shall warranty the fire protection system for two full years starting the date after contract final completion. Fire protection system shall be inspected and maintained for 2 years, not less than 4 times per year and not less than manufacturers' recommendation, at contractor's cost and expense.

1.13 Notwithstanding the expiration of any warranty period described in this contract, the warranty period for any fire protection system or equipment and maintenance period shall be extended by a period equal to the sum of any periods during the warranty period when such system or equipment cannot be used for the purposes for which they were intended or the delays in maintenance, starting from the date EGAT has given contractor notice.

1.14 Consumable materials for fire protection system, for example, filters, liquids, and seals shall be provided according to manufacturer's instructions for a period of two years.

1.15 For all buildings, piping or cable penetrating the wall/floor and block out at wall/floor shall be enclosed with fire stop material. Fire stop material shall be approved by UL Listed/FM Approved and comply with NFPA 80 (Standard for Fire Doors and Other Opening Protectives) and other relevant standards. The installer shall be certified by manufacturer and have experience in installation of material for at least 5 years, of at least 10 projects.

1.16 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, Storage room 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
13. Warehouse	OBSD

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

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

1.18 Underground water piping shall have indicator sign.

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

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

1.21 All firestops for penetration from outside cable trenches to cable room and from cable room to under raised floor area shall be multi cable transit fire stop. Other firestops shall be block type being able to be removed and reinstalled conveniently. Firestop catalog and installation detail drawings shall be submitted to EGAT for approval. The cables penetrating from outside the building into building shall be coated with firestop cable coating with the length of 50 cm. measuring from building's exterior wall outward.

1.22 There shall be weather proof type linear heat detector (cable type) system with the approval of UL and/or FM and/or VDS standard for rooftop solar PV system of each building. The system shall send signal of fire alarm to EGAT's RTU and fire protection control panel together with graphic annunciator of each building.

CIVIL WORK

1. Design and construction of

   1.1 Warehouse

      1.1.1 The main structure shall be structural steel for the design and construction and shall be submitted to EGAT for approval.

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

      1.1.1 Shunt reactor foundation

      1.1.2 Cable tray for transformer, underground cable in HDPE duct (if required)

      1.1.3 230 kV Cable Termination structure foundation

      1.1.4 Load break switch structure foundation

   1.3 Fire wall

   1.4 22kV XLPE cable trench.

   1.5 Road and drainage system.

   1.6 Drainage system for cable trench.

   1.7 Site office.

2. Construction of

   2.1 230/115 kV Control Building.

   2.2 Steel structure 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.

2.9 Crushed rock surfacing.

2.10 Garage house.

2.11 Lamp post for fence and access road lighting LED type foundation.

3. The Contractor shall remove existing structure with reference to Dwg.no. KN-C-1, KN-C-3, KN-C-6 and KN-C-9.
4. The cement for Civil Work shall conform to the requirements of "Portland cement, Type V" if specified designated in ASTM C150.
5. The drawings and calculation of all buildings shall be verified with adequate details for intended application and submitted to EGAT for approval.
6. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
7. All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.
8. EGAT's Soil Investigation Report (attached to the Contract) which was conducted prior to the site preparation work 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. 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 Contractor shall perform a Static load test for 230/115 kV Control Building foundations in accordance with ASTM D1143-latest edition.
11. Dynamic load test (DLT) according to ASTM D4945-latest edition shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
12. Seismic load test (sonic integrity test) according to ASTM D5882-latest edition shall be applied to all bored piles (if bored pile type 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.m for conference room which shall both be air-conditioned and 4 sq.m for toilet. The

Contractor shall supply two(2) sets of facilities specified in section G-3, please ensure that each item is provided in double quantity (e.g., six sets of desks and chairs, two refrigerator)

SOLAR ROOFTOP SYSTEM

1. Design and construction of
   1.1 The solar rooftop system for 230/115 kV Control Building
      1.1.1 The materials and equipment for solar rooftop system installation shall meet electrical criteria and standard qualifications in order to safely and properly install the system in buildings by professional installer.
      1.1.2 The Contractor shall design safe access for routine inspection and maintenance and there shall be accessible paths between solar cell arrays for operators to safely and conveniently work.
      1.1.3 The steel structure materials shall be hot dip galvanizing by following ASTM standard.
      1.1.4 The tools of construction shall be both properly assembled and disassembled.
      1.1.5 The equipment or mounting of the PV solar module attached to the construction shall be in proper size and shall be made from stainless steel or corrosion–prevented materials whose grade is not below 304 stainless steel or AL6005-T5 or equivalent.
      1.1.6 The system installation shall provide strong, stable and proper mounting for the roof profile and provide a solid mount that does not penetrate the roof surface.
      1.1.7 The PV module support structure shall be strongly, durably and securely fastened to the roof structure. All structural parts shall be designed for wind resistance not less than the maximum wind speed of tropical storm, and seismic (Earthquake) load requirement according to official declaration of Meteorology Department or regulations relevant to the area, if any.
      1.1.8 Water supply system with cable and conduit for cleaning solar roof top of the building shall have automatic pump with pressure tank and PE water tank at ground floor. The automatic pump with pressure tank shall have sufficient capacity and delivery head. The Contractor shall submit water supply design calculation to EGAT for approval.

Work not included in this Contract.

1. Supply of spare grass and weed killer and accessories. (Specification 3001-4.2.4)

3. FACILITY AREA AT KO SAMUI SUBSTATION

GENERAL

The Scope of work comprises one schedule as follows:

Schedule 4

Design, supply and installation of electrical system for living/facility area to complete system operation.

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

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

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

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

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

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

CIVIL AND ARCHITECTURAL PART

Work included in this Contract

WATER SUPPLY AND FIRE PROTECTION SYSTEM

1. Design and construction of
   - 1.1 Water supply system
   - 1.2 Deep well system
   - 1.3 Water treatment system
   - 1.4 Water treatment house
   - 1.5 Booster pump house
2. Construction of
   - 2.1 Underground water tank 24 cu.m.

CIVIL WORK

1. Design and construction of
   - 1.1 Road and drainage system.
   - 1.2 Slab for water treatment system.
2. Construction of
   - 2.1 Duplex house.
   - 2.2 Guard house
   - 2.3 RC. Road.
   - 2.4 Lamp post for fence and access road lighting LED type foundation.
3. The cement for Civil Work shall conform to the requirements of "Portland cement, Type V" if specified designated in ASTM C150.
4. The drawings and calculation of all buildings shall be verified with adequate details for intended application and submitted to EGAT for approval.
5. All design works and the fabrication drawings for all steel structures shall be submitted to EGAT for approval.
6. All design, construction and testing shall be in accordance with Specification No.3001: Civil and Architectural Work.

7. EGAT's Soil Investigation Report (attached to the Contract) which was conducted prior to the site preparation work 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. 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.
9. Dynamic load test (DLT) according to ASTM D4945-latest edition shall be applied to at least 2% of driven piles (if driven pile type is required) except for driven pile of fence and lamp post.
10. Seismic load test (sonic integrity test) according to ASTM D5882-latest edition shall be applied to all bored piles (if bored pile type is required).
11. 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.

Work not included in this Contract.

1. Supply of spare grass and weed killer and accessories. (Specification 3001-4.2.4)