

ELECTRICITY GENERATING AUTHORITY OF THAILAND

Supplemental Notice No. 1

Invitation to Bid No. TIEC-S-11

**Supply and Construction of Static Synchronous
Compensator at 230 kV Chaiphum 2 Substation**

**Transmission System Improvement Project in
Northeastern, Lower Northern, Central Regions
and Bangkok Area to Enhance System Security**

(Two-Envelope)

The attached Supplemental Notice shall be considered as part of the bidding documents No. TIEC-S-11.

As acknowledgement of receipt that all additions, deletions and revisions contained in this Supplemental Notice are incorporated into the above bidding documents, Bidder is requested to sign and return this acknowledgement via email address : thana.kir@egat.co.th within three (3) days from the date of the announcement of this Supplemental Notice on <http://www4.egat.co.th/fprocurement/biddingeng/>.

The original acknowledgement which is manually signed in ink by a person or persons duly authorized shall be included in the proposal to be submitted on the bid opening date.

ELECTRICITY GENERATING AUTHORITY OF THAILAND

.....September 4, 2026.....

ACKNOWLEDGEMENT

This undersigned Bidder hereby certifies that the additions, deletions and revisions set forth in this Supplemental Notice to Invitation to Bid No. TIEC-S-11 are incorporated as part of the above bidding documents and will be fully included in any bids which he may submit.

Signed _____

Title _____

Company _____

Date _____

ELECTRICITY GENERATING AUTHORITY OF THAILAND

SUPPLEMENTAL NOTICE NO. 1

INVITATION TO BID NO. TIEC-S-11

SUPPLY AND CONSTRUCTION OF STATIC SYNCHRONOUS
COMPENSATOR AT 230 kV CHAIYAPHUM 2 SUBSTATIONTRANSMISSION SYSTEM IMPROVEMENT PROJECT IN
NORTHEASTERN, LOWER NORTHERN, CENTRAL REGIONS
AND BANGKOK AREA TO ENHANCE SYSTEM SECURITY

The following supplemental information is hereby given for the above described Invitation:

Volume I of IV

1. Section H : Scope of work

Replace page H1B-7 of Scope of Work with the revised page with (Rev. 1) attached.

Volume IV of IV

2. Section L : Drawings

Delete and substitute as follows :

<u>Deleted Dwg. No.</u>	<u>Substitute with Attached Dwg.No.</u>
<u>Design Drawings</u>	
1. CYP2-E-1.2 Rev.-	CYP2-E-1.2 Rev.1
<u>Standard Drawings</u>	
2. TP-E-21.1 Rev.2	TP-E-21.1 Rev.3

Bid submitted must be in accordance with this Notice. Receipt of this Notice shall be acknowledged by the Bidder on the proposal included in the Bidding Documents in the space provided on page Part 3 - C20, Article C-5 Supplemental Notices.

ELECTRICITY GENERATING
AUTHORITY OF THAILAND

.....September 4, 2026.....

be the responsibility of the Contractor. The said comparison report shall be submitted to EGAT for approval before commissioning. The scenarios which will be provided after the Award of Contract are as follows:

- For the STATCOM No.2 model in RMS time domain simulation, maximum ten (10) scenarios on one (1) AC reduced network which has minimum short circuit level.
- For the STATCOM No.2 model in EMT time domain simulation, maximum ten (10) scenarios on one (1) AC reduced network which has minimum short circuit level.

Five (5) copies of portable data storage device containing the said final STATCOM digital model and the details of the modified parameters in case there are some improvements during commissioning shall be delivered to EGAT at the completion.

11. The studies of control interaction between STATCOM No.2 control system, coordinated MSCs and the existing STATCOM No.1 shall prove that there is no negative result to EGAT's system. EGAT shall have access to all data necessary for complete understanding of the studies as well as the validity of the results.

Unless otherwise specified, the said control system studies shall be done by the offline simulation and shall be studied based on the existing STATCOM No.1 model data and the given four (4) AC reduced networks in DIgSILENT PowerFactory format which will be provided after the Award of Contract.

In case there are different formats between the data used in the studies and the given data, the verification reports shall be done by the Contractor and submitted to EGAT for approval. Moreover, the STATCOM No.2 voltage reference range of continuous operation as shown on Ratings and Features shall be comprehensively considered in the said control system studies.

The study reports shall at least clearly show the following details:

- Study cases.
- All used data such as parameters, equations, standards, tools, and etc.
- Study methods.
- Study results such as interested variables shown in time-domain simulation.
- Conclusion.

The study cases shall include but not be limited to the following case:

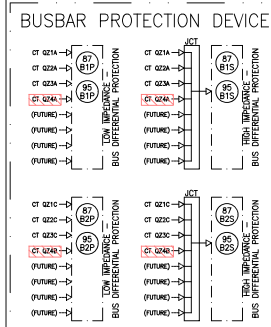
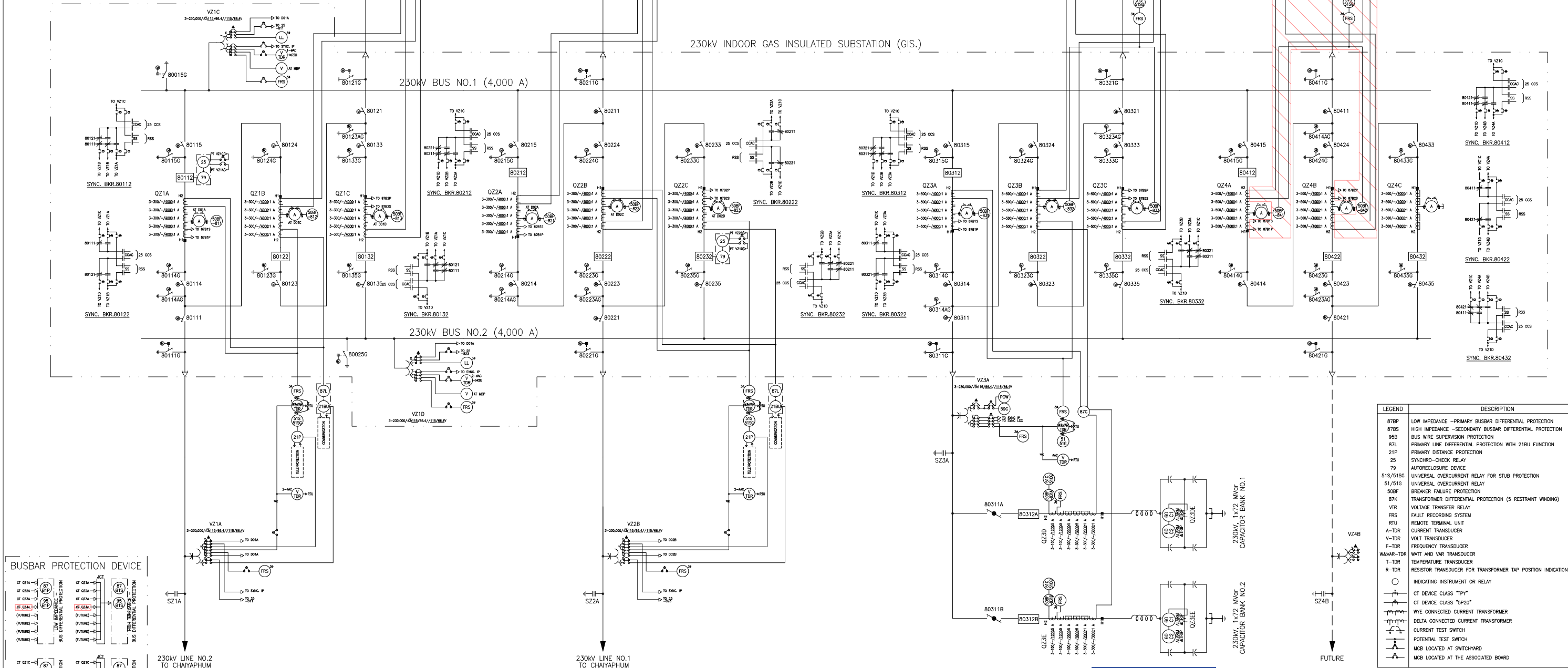
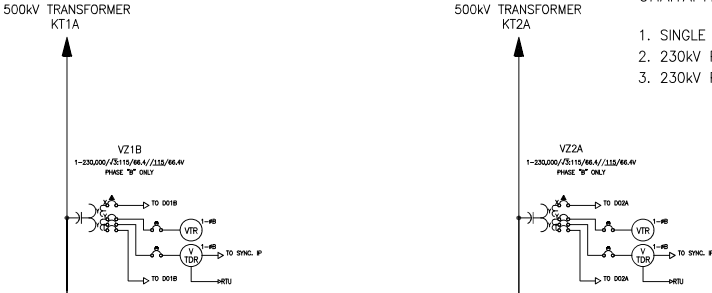
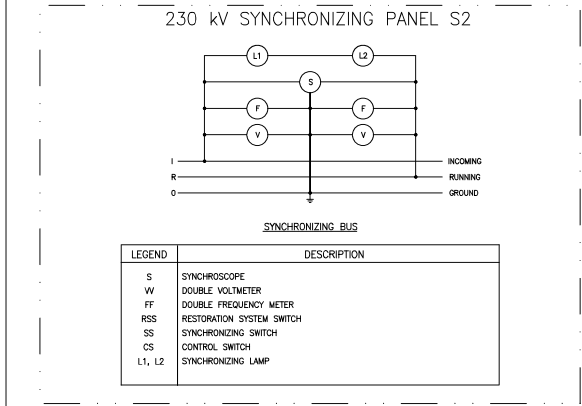
- POD function
This study is to design the STATCOM No.2 POD controller and find out the proper setting values for which the effects of the POD controller of other FACTS devices and other power system stabilizer of nearby generators are properly considered. The STATCOM No.2 POD function and its performance shall be tested and verified using RTDS during FAT. In addition, the maximum ten (10) scenarios per each AC reduced network for the study will be provided after the Award of Contract.
- Gain test (if any)
This study is to confirm the proper control setting under the following 3 scenarios:
 - STATCOM No.1 is in service ***including degraded mode***: to confirm the proper coordination between both STATCOMs.

REFERENCE DRAWINGS
CHAIYAPHUM 2 SUBSTATION

1. SINGLE LINE DIAGRAM.....DWG.NO. CYP2-S-1 SH.3
2. 230KV PROTECTIVE RELAY SWITCHBOARDS EQUIPMENT LAY-OUT.....DWG.NO. CYP2-E-2.2
3. 230KV PROTECTIVE DEVICE FUNCTION.....DWG.NO. CYP2-E-3.2

NOTES

1. ADDITION FOR JOB NO. TIEC-02-S03 (BY CONTRACTOR).
2. STATCOM METERING AND RELAYING DIAGRAM SHALL REFER TO THE DRAWING NO. TP-E-21.1.
3. DESIGN OF PROTECTIVE RELAYS WHILE DS.80411A IS OPEN SHALL BE ACHIEVED.



LEGEND	DESCRIPTION
87BP	LOW IMPEDANCE - PRIMARY BUSBAR DIFFERENTIAL PROTECTION
87BS	HIGH IMPEDANCE - SECONDARY BUSBAR DIFFERENTIAL PROTECTION
95B	BUS WIRE SUPERVISION PROTECTION
87L	PRIMARY LINE DIFFERENTIAL PROTECTION WITH 21BU FUNCTION
21P	PRIMARY DISTANCE PROTECTION
25	SYNCHRO-CHECK RELAY
79	AUTORECLOSURE DEVICE
51S/51SG	UNIVERSAL OVERCURRENT RELAY FOR STUB PROTECTION
51/51G	UNIVERSAL OVERCURRENT RELAY
50BF	BREAKER FAILURE PROTECTION
87K	TRANSFORMER DIFFERENTIAL PROTECTION (5 RESTRAINT WINDING)
VTR	VOLTAGE TRANSFER RELAY
FRS	FAULT RECORDING SYSTEM
RTU	REMOTE TERMINAL UNIT
A-TDR	CURRENT TRANSDUCER
V-TDR	VOLT TRANSDUCER
F-TDR	FREQUENCY TRANSDUCER
W&VAR-TDR	WATT AND VAR TRANSDUCER
T-TDR	TEMPERATURE TRANSDUCER
R-TDR	RESISTOR TRANSDUCER FOR TRANSFORMER TAP POSITION INDICATION
○	INDICATING INSTRUMENT OR RELAY
CT DEVI CLASS "TP"	CT DEVI CLASS "TP"
CT DEVI CLASS "SP20"	CT DEVI CLASS "SP20"
WYE CONNECTED CURRENT TRANSFORMER	WYE CONNECTED CURRENT TRANSFORMER
DELTA CONNECTED CURRENT TRANSFORMER	DELTA CONNECTED CURRENT TRANSFORMER
CURRENT TEST SWITCH	CURRENT TEST SWITCH
POTENTIAL TEST SWITCH	POTENTIAL TEST SWITCH
MCB LOCATED AT SWITCHYARD	MCB LOCATED AT SWITCHYARD
MCB LOCATED AT THE ASSOCIATED BOARD	MCB LOCATED AT THE ASSOCIATED BOARD

ได้ตรวจสอบแล้ว
ลงชื่อ.....
(นายสุพจน์ สุริยธาดา)
วันที่ 21 Jul 2026
กองวิศวกรรมระบบควบคุมและป้องกัน

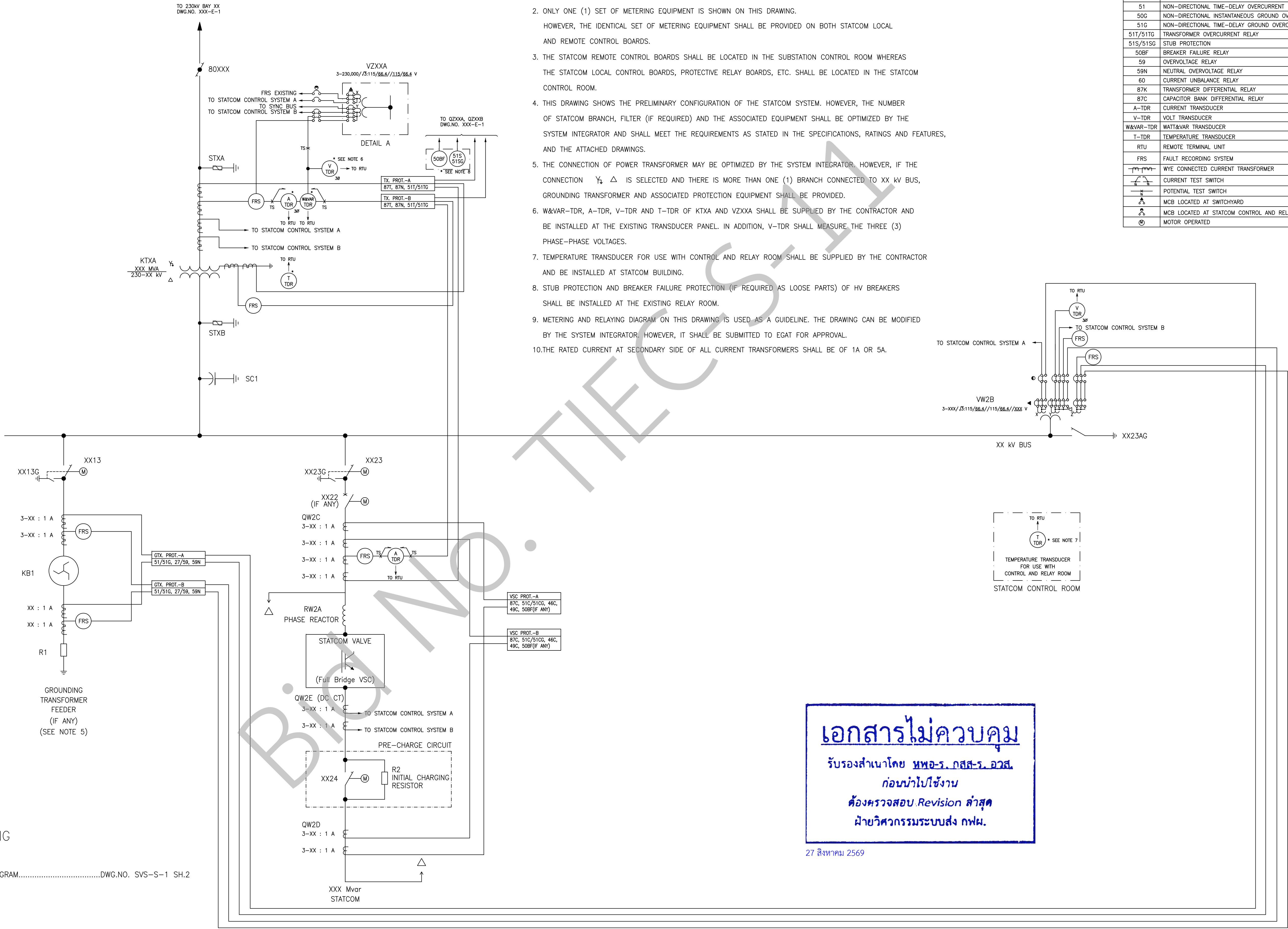
FOR BIDDING ONLY

1	TIEC-02-S03	REVISE MODIFICATION WORK OF 87B2 PROTECTION AND PROTECTION ZONE OF 51S/51SG	21 JUL 2026	RECOMMENDED AND VALIDATED	R. RUKHAR	CHIEF, CONTROL AND PROTECTION SYSTEM ENGINEERING DEPARTMENT	DRAWING NAME CHAIYAPHUM 2 SUBSTATION DESCRIPTION OF DETAIL DRAWING 230KV METERING AND RELAYING DIAGRAM	APPROVED DATE 21 JUL 2026	SIZE A1	SCALE NTS	JOB NO. TIEC-02-S03	REPLACING DWG.NO. -	DWG.NO. CYP2-E-1.2	REV. 1
0	TIEC-02-S03	ADDITIONAL OF RELATED EQUIPMENT FOR STATCOM NO.2 (+300/-300 Mvar)	8 DEC 2025	CONCURRED	C. CHATCHAWAN	ASSISTANT DIRECTOR, TRANSMISSION SYSTEM ENGINEERING DEPARTMENT								
REV.NO.	JOB NO.	JOB DESCRIPTION	DATE	APPROVED	C. SOMCHAI	DIRECTOR, TRANSMISSION SYSTEM ENGINEERING DEPARTMENT								

NOTES

1. THE FUNCTIONS OF CONTROL, ANNUNCIATION, INDICATION AND METERING OF THE STATCOM SYSTEM SHALL BE INCORPORATED INTO BOTH STATCOM LOCAL AND REMOTE CONTROL BOARDS.
2. ONLY ONE (1) SET OF METERING EQUIPMENT IS SHOWN ON THIS DRAWING.
- HOWEVER, THE IDENTICAL SET OF METERING EQUIPMENT SHALL BE PROVIDED ON BOTH STATCOM LOCAL AND REMOTE CONTROL BOARDS.
3. THE STATCOM REMOTE CONTROL BOARDS SHALL BE LOCATED IN THE SUBSTATION CONTROL ROOM WHEREAS THE STATCOM LOCAL CONTROL BOARDS, PROTECTIVE RELAY BOARDS, ETC. SHALL BE LOCATED IN THE STATCOM CONTROL ROOM.
4. THIS DRAWING SHOWS THE PRELIMINARY CONFIGURATION OF THE STATCOM SYSTEM. HOWEVER, THE NUMBER OF STATCOM BRANCH, FILTER (IF REQUIRED) AND THE ASSOCIATED EQUIPMENT SHALL BE OPTIMIZED BY THE SYSTEM INTEGRATOR AND SHALL MEET THE REQUIREMENTS AS STATED IN THE SPECIFICATIONS, RATINGS AND FEATURES, AND THE ATTACHED DRAWINGS.
5. THE CONNECTION OF POWER TRANSFORMER MAY BE OPTIMIZED BY THE SYSTEM INTEGRATOR. HOWEVER, IF THE CONNECTION Y_{Δ} IS SELECTED AND THERE IS MORE THAN ONE (1) BRANCH CONNECTED TO XX kV BUS, GROUNDING TRANSFORMER AND ASSOCIATED PROTECTION EQUIPMENT SHALL BE PROVIDED.
6. W&VAR-TDR, A-TDR, V-TDR AND T-TDR OF KTXA AND VZXXA SHALL BE SUPPLIED BY THE CONTRACTOR AND BE INSTALLED AT THE EXISTING TRANSDUCER PANEL. IN ADDITION, V-TDR SHALL MEASURE THE THREE (3) PHASE-PHASE VOLTAGES.
7. TEMPERATURE TRANSDUCER FOR USE WITH CONTROL AND RELAY ROOM SHALL BE SUPPLIED BY THE CONTRACTOR AND BE INSTALLED AT STATCOM BUILDING.
8. STUB PROTECTION AND BREAKER FAILURE PROTECTION (IF REQUIRED AS LOOSE PARTS) OF HV BREAKERS SHALL BE INSTALLED AT THE EXISTING RELAY ROOM.
9. METERING AND RELAYING DIAGRAM ON THIS DRAWING IS USED AS A GUIDELINE. THE DRAWING CAN BE MODIFIED BY THE SYSTEM INTEGRATOR. HOWEVER, IT SHALL BE SUBMITTED TO EGAT FOR APPROVAL.
- 10.THE RATED CURRENT AT SECONDARY SIDE OF ALL CURRENT TRANSFORMERS SHALL BE OF 1A OR 5A.

LEGEND	DESCRIPTION
27	LOSS OF POTENTIAL ALARM RELAY
46	NEGATIVE PHASE SEQUENCE RELAY
49	THERMAL OVERLOAD RELAY
50	NON-DIRECTIONAL INSTANTANEOUS OVERCURRENT RELAY
51	NON-DIRECTIONAL TIME-DELAY OVERCURRENT RELAY
50G	NON-DIRECTIONAL INSTANTANEOUS GROUND OVERCURRENT RELAY
51G	NON-DIRECTIONAL TIME-DELAY GROUND OVERCURRENT RELAY
51T/51TG	TRANSFORMER OVERCURRENT RELAY
51S/51SG	STUB PROTECTION
50BF	BREAKER FAILURE RELAY
59	OVERVOLTAGE RELAY
59N	NEUTRAL OVERVOLTAGE RELAY
60	CURRENT UNBALANCE RELAY
87K	TRANSFORMER DIFFERENTIAL RELAY
87C	CAPACITOR BANK DIFFERENTIAL RELAY
A-TDR	CURRENT TRANSDUCER
V-TDR	VOLT TRANSDUCER
W&VAR-TDR	WATT&VAR TRANSDUCER
T-TDR	TEMPERATURE TRANSDUCER
RTU	REMOTE TERMINAL UNIT
FRS	FAULT RECORDING SYSTEM
	WYE CONNECTED CURRENT TRANSFORMER
	CURRENT TEST SWITCH
	POTENTIAL TEST SWITCH
	MCB LOCATED AT SWITCHYARD
	MCB LOCATED AT STATCOM CONTROL AND RELAY BOARDS
	MOTOR OPERATED



REFERENCE DRAWING

STATCOM TYPICAL DRAWING

1. STATCOM SINGLE LINE DIAGRAM.....DWG.NO. SVS-S-1 SH.2

เอกสารไม่ควบคุม
รับรองสำเนาโดย พหอ.ร.กสส.ร.อวส.
ก่อนนำไปใช้งาน
ต้องตรวจสอบ Revision ล่าสุด
ฝ่ายวิศวกรรมระบบส่ง กฟผ.

27 สิงหาคม 2569

REV.NO.	JOB NO.	JOB DESCRIPTION
3	-	REVISE 230 kV CVT TO IVT AND ADD FRS AT CT LINE TO GROUNDING TRANSFORMER.
2	-	CHANGE PROTECTION FUNCTION FROM INDIVIDUAL FUNCTION TO REDUNDANT MULTIFUNCTION
1	-	UNSPECIFIED THE TYPE OF TRANSFORMER, RELOCATE THE PRE-CHARGE CIRCUIT AND ADD NOTE NO.11
-	-	STATCOM TYPICAL DRAWING

DRAWN	P.RAKNEUNG
DESIGNED	P.RAKNEUNG
VERIFIED	W.ANEK
RECOMMENDED AND VALIDATED	R.RUJHARN
CONCURRED	C.CHATCHAWAN
APPROVED	C.SOMCHAI

 ELECTRICITY GENERATING AUTHORITY OF THAILAND									
DRAWING NAME									
TYPICAL DRAWING									
DESCRIPTION OF DETAIL DRAWING									
STATCOM METERING AND RELAYING DIAGRAM									
APPROVED DATE	SIZE	SCALE	JOB NO.	REPLACING DWG.NO.		DWG.NO.	REV.		
17 Feb 2026	A1	NTS	—	—		TP-E-21.1	—	—	