

## DESIGN DATA AND GUARANTEE

ร่างเอกสารประกวดราคา

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**Design Data and Guarantee**

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ร่างเอกสารประกวดราคา

Invitation to Bid No.: PAT-SCPS01/2022

Specification No.: RSUB-010/2564 (Rev. 1.0) Substation Control and Protection System

And Addendum RSUB-010/2560 (Rev. 1.0)

Design data and guarantee of IEC 61850 Based SCPS Equipment

Manufacturer:

Bidder:

### 1. SCPS (Server) System

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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Bidder:

## 2.Engineering Work Station (EWS)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
Certified copy of type test certificates and test results are attached	-	YES	

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### 3.Station-operator HMI or station level operator interface (SLOI)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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#### 4. Engineering tool (Laptop & Software)

Description	Unit	Required Data	Proposed Data
<b>4.1 Engineering tool (Laptop)</b>	-	YES	
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
<b>4.2 Engineering tool (Software)</b>	-	YES	
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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#### 5. Printing Facility

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Catalog number (to be attached)	-	YES	

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## 6. IED Bay Control Unit (BCU)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
IEDs certified document, reference number	-	YES	
High-resolution time tagging capability	-	YES	
Typical location	-		
- MV switchgear	-	Low voltage compartment	
- HV switch gear	-	Marshalling cubicle/junction box/control switch board/relay cabinet marshalling box/remote control cabinet	
- HV/MV power transformer	-		
Acquisition any I/O data via an interface to IEC devices	-	YES/NO	
Integrated BCU and Protective relay are proposed	-	YES/NO	
If integrated solution are proposed, processors boards for control system and for protection system shall be completely independent	-	YES	
Certified copy of type test certificates and test results are attached	-	YES	

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### 7. Relay Test Block

Description	Unit	Required Data	Proposed Data
<b>7.1 Relay Test Block Type01</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
<b>7.2 Relay Test Block Type02</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	

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#### 8. Time Data Server (TDS) or Time Reference Unit (TRU)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Expected accuracy ( $\pm$ ) between Network devices	millisecond	1) 0.1ms (Expected Time Synchronizing of IED Clocks – one order of magnitude better than IED time stamp resolution) 2) Note: Typical Accuracy 3) 1-2 ms (NTP) 4) 1 microsec (IEEE 1588 or IRIG-B)	
Outline drawing number (to be attached)	-	YES	
Synchronization time between SCPS internal clock and GPS via TDS	millisecond	Within $\pm 0.5$ millisecond	
Time protocol format	-	NTP/SNTP, and IRIG-B or similar such as IEEE 1588	
Independent SCPS real time clock drift	millisecond	Not exceed 20 millisecond per hour	

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### 9. Communication Gateway (CGW)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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#### 10. Digital Fault Recorder

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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### 11. Network Management System

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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Manufacturer:

Bidder:

## 12. Cyber Security Management System

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
IEDs certified document, reference number	-	YES	
High-resolution time tagging capability	-	YES	
Typical location	-		
- MV switchgear	-	Low voltage compartment	
- HV switch gear	-	Marshalling cubicle/junction box/control switch board/relay cabinet marshalling box/remote control cabinet	
- HV/MV power transformer	-	YES/NO	
Acquisition any I/O data via an interface to IEC devices	-	YES/NO	
Integrated BCU and Protective relay are proposed	-	YES/NO	
If integrated solution are proposed, processors boards for control system and for protection system shall be completely independent	-	YES	

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### 13. Industrial Ethernet Switch (IES)

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
Certified copy of type test certificates and test results are attached	-	YES	

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Manufacturer:

Bidder:

#### 14. Operator console furniture with chair

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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Manufacturer:

Bidder:

#### 15. SCPS software and licenses

Description	Unit	Required Data	Proposed Data
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	

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#### 10. Equipment Cabinet Enclosures

Description	Unit	Required Data	Proposed Data
<b>15.1 115 kV Protection and Control Cubicle</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
<b>15.2 22 kV Indoor enclosures</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
<b>15.3 SCPS Station Cubicle</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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### 17. Interconnecting Cables and Wiring

Description	Unit	Required Data	Proposed Data
<b>1) Fiber Optic cables and accessories</b>			
Manufacturer/Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Fiber optic cables	-		
- Type	-	Glass or plastic	
- Construction	-	Rodent proof	
<b>2) Communication network Cable and accessories</b>			
Manufacturer/Country of origin		YES	
Type or model number		YES	
Standards		YES	
Catalog number (to be attached)		YES	
<b>3) Optical Fibre Distribution Unit (FDU) and accessories</b>			
Manufacturer/Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
<b>4) Metallic cables and accessories</b>			
Manufacturer/Country of origin		YES	
Type or model number		YES	
Standards		YES	
Catalog number (to be attached)		YES	
<b>5) Terminal blocks and accessories</b>			
Manufacturer/Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Type	-	Heavy-duty removable link type, and with by pass bridge for ac current input	

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<b>6) Control Cable and External Cables accessories</b>			
Manufacturer/Country of origin		YES	
Type or model number		YES	
Standards		YES	
Catalog number (to be attached)		YES	

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### 18. Conduit and Raceway

Description	Unit	Required Data	Proposed Data
<b>1) Conduit</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
<b>2) Raceway</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attach	-	YES	

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Manufacturer:

Bidder:

### 19.Power Supply System

Description	Unit	Required Data	Proposed Data
Inverter			
Manufacturer/Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	

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Manufacturer:

Bidder:

## 20.Power Distribution System

Description	Unit	Required Data	Proposed Data
Manufacturer	-		
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	
Protection device of each main DC supply circuit, in DC distribution boards	-	Circuit breaker	
Protection device of tapped DC supply feed to each <b>IED BCU&amp; IED Protective Relay</b>	-	Miniature Circuit breaker	

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## 21. Accessory Part for Protection and Control Circuit

Description	Unit	Required Data	Proposed Data
<b>21.1 27X (Under Voltage Relay) for DC Circuits</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
<b>21.2 Trip Circuit Supervision Relay for 115 kV</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
<b>21.3 Lockout Relay for 115 kV Busbar Protection and 115 kV Transformer Protection</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
<b>21.4 Lockout Relay for 22 kV 50BF Protection</b>			
Manufacturer	-	YES	
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	

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Bidder:

## 22. Protection Management System (PMS)

Description	Unit	Required Data	Proposed Data
Manufacturer	-		
Country of origin	-	YES	
Type or model number	-	YES	
Standards	-	YES	
Catalog number (to be attached)	-	YES	
Outline drawing number (to be attached)	-	YES	