

1.11 แบบฟอร์มตัวอย่างเอกสารแสดง Design Data and Guarantee

หมายเหตุ

1. ข้อมูลของ Design Data and Guarantee อ้างอิงกับเอกสารดังต่อไปนี้
 - (1) SPECIFICATION NO.: RSUB-010/2560 (Rev. 1.0) SUBSTATION CONTROL AND PROTECTION SYSTEM (SCPS)
 - (2) ADDENDUM SPECIFICATION NO. RSUB-010/2560 (Rev. 1.0): SUBSTATION CONTROL AND PROTECTION SYSTEM (SCPS)
 - (3) SPECIFICATION NO.: RPRO - 011/2556 - Arc detection system
 - (4) เอกสารแนบท้ายเอกสารประกวดราคาอิเล็กทรอนิกส์ ข้อ 1.1 รายละเอียดและขอบเขตของงาน
2. เนื่องจากอุปกรณ์ Protective Relay ทั้งหมดของทุกสถานีไฟฟ้า และอุปกรณ์ระบบป้องกัน Arc Protection สำหรับ 22 kV Indoor Switchgear สำหรับสถานีไฟฟ้านานนคร 3 และสถานีไฟฟ้าบางปลา สำหรับการประกวดราคาครั้งนี้ กำหนดให้เสนอผลิตภัณฑ์ รุ่น และประเทศผู้ผลิต ตามที่ปรากฏอยู่ในเอกสารแนบท้ายเอกสารประกวดราคาอิเล็กทรอนิกส์ ข้อ 1.8 รายชื่อผลิตภัณฑ์อุปกรณ์ป้องกันสำหรับงานบำรุงรักษาสถานีไฟฟ้า (Acceptance Lists) ดังนั้น Design Data and Guarantee ในการประกวดราคาครั้งนี้จะไม่มีรายละเอียดของข้อกำหนดในส่วนที่เป็นเนื้อหาเดียวกันกับที่ได้พิจารณาไปแล้วในการขึ้นทะเบียนอุปกรณ์

DESIGN DATA AND GUARANTEE

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Specification No.: RSUB-010/2560 (Rev. 1.0) Substation Control and Protection System

Manufacturer:

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

Bidder:

Design data and guarantee of IEC 61850 Based SCPS Equipment

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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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 |
|---|------|---------------|---------------|
| 4.1 Engineering tool (Laptop) | - | 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 | |
| 4.2 Engineering tool (Software) | - | 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 |
|------------------------------------|------|---------------|---------------|
| 7.1 Relay Test Block Type01 | | | |
| Manufacturer | - | YES | |
| Country of origin | - | YES | |
| Type or model number | - | YES | |
| Standards | - | YES | |
| Catalog number (to be attached) | - | YES | |
| 7.2 Relay Test Block Type02 | | | |
| 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 | |
| All IEDs that need to maintain precise time for time-stamping shall be capable of supporting IEEE 1588 time-synchronization by the Time Data Server, maintaining acceptably low drift in time between synchronizations, and time-stamping events | millisecond | with a precision of +/-0.5ms relative to the GPS source. | |
| 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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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 | - | | |
| 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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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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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 |
|---|------|---------------|---------------|
| 15.1 115 kV Protection and Control Cubicle | | | |
| 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 | |
| 15.2 22 kV Indoor enclosures | | | |
| 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 | |
| 15.3 SCPS Station Cubicle | | | |
| 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 |
|---|------|---|---------------|
| 1) Fiber Optic cables and accessories | | | |
| 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 | |
| 2) Communication network Cable and accessories | | | |
| Manufacturer/Country of origin | - | YES | |
| Type or model number | - | YES | |
| Standards | - | YES | |
| Catalog number (to be attached) | - | YES | |
| 3) Optical Fibre Distribution Unit (FDU) and accessories | | | |
| Manufacturer/Country of origin | - | YES | |
| Type or model number | - | YES | |
| Standards | - | YES | |
| Catalog number (to be attached) | - | YES | |
| 4) Metallic cables and accessories | | | |
| Manufacturer/Country of origin | - | YES | |
| Type or model number | - | YES | |
| Standards | - | YES | |
| Catalog number (to be attached) | - | YES | |
| 5) Terminal blocks and accessories | | | |
| 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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| 6) Control Cable and External Cables accessories | | | |
|---|--|-----|--|
| 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 |
|---|------|---------------|---------------|
| 1) Conduit | | | |
| 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 | |
| | - | | |
| 2) Raceway | | | |
| 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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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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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 IED BCU& IED Protective Relay | - | Miniature Circuit breaker | |

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21. Accessory Part for Protection and Control Circuit

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