Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

HUAI LAM SIN HYDROPOWER PROJECT

AMPHOE KONG RA CHANGWAT PHATTHALUNG

CONTRACT C2

ELECTRO-MECHANICAL EQUIPMENT

VOLUME 3

BID FORMS, SCHEDULES OF QUANTITIES

FRONTIER ENGINEERING CONSULTANTS CO., LTD.

JULY 2023

HUAI LAM SIN HYDROPOWER PROJECT

CONTRACT C2

SUPPLY AND INSTALLATION OF ELECTRO-MECHANICAL POWER PLANT EQUIPMENT

VOLUME 3 : BID FORMS, SCHEDULES OF QUANTITIES

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SECTION 1
BID FORM

SECTION 1 - BID FORM

Department of Alternative Energy Development and Efficiency
17 Kasatsuk Bridge, Rama I Rd., Pathumwan,
Bangkok 10330, Thailand

Gentlemen :

Bid for Contract _____

In compliance with your Invitation to bid for the total of the works under the above contract, we the undersigned hereby bid and offer to well and faithfully furnish all materials, machineries and equipments, to complete the several works named, shown, described, or referred to in the Drawings, Specification, Schedules of Quantities, Conditions of Contract and Bidding Documents and to supply and provide all plant, equipment, materials, labor, and other things requisite for or incidental to the said works, in strict accordance with the said Drawings, specification, Schedules of Quantities, Conditions of Contract and Bidding Documents for the sum of :
Baht .....
.....
(Baht .....) or such other sum as may be ascertained in accordance with the said Conditions and Specification.

If we receive a written notice of the acceptance of this bid within 120 days after the date of opening of the bids, we agree that we within 30 days thereafter (or such extended time as may be approved by the Department) will execute a Contract in accordance with the form shown in the Bidding Documents and submit a Performance Bond of the form equally shown in the Bidding Documents in a sum of 10 percent of the Contract amount.

We acknowledge receipt of the following Addenda to the Bidding Documents :

Addendum No.	Dated
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

A Bid Bond in the amount of Baht .....is forwarded herewith.

Enclosed are the priced Schedules of Quantities which have been filled in and signed by the undersigned. Dated this ..... day of ....., 20 .....

Authorized Signature of Bidder .....

Bidder .....
Address .....
Telephone No. .....
Witness .....

BID BOND FORM

Date .....

.....(name of Bank) .....situated at
.....
.....
hereinafter called the Bank hereby agrees to make a Bid Guarantee to the Department of Alternative Energy Development and Efficiency hereinafter called the Department, on the following terms;

1. That the Bid of ..... (Bidder) .....….
..... (hereinafter called the Bidder, is made in agreement with the invitation from the Department to bid for the construction of Contract C2, Electro-mechanical Power Plant Equipment.

   Project in accordance with the conditions set forth by the Conditions of Contract, Specification, Drawings and all other Bid Documents prescribed for this work.

   In submitting the Bid, the Bidder agrees to furnish a Bid Guarantee through the Bank amounting to Bath ..... (written words) .....
   (฿ .....).

2. The Bank hereby agrees to be a Guarantor for the Bid Guarantee for the sum of the above amount in the name of the Administration.

3. When the Bidder has submitted the Bid as stated under 1 above, but does not abide by the conditions of the Bid or any stipulation of the Invitation to Bid, the Bank agrees to pay the sum of Baht ..... (written words).....
   (฿ .....).

4. This Bid Guarantee becomes effective from ..... (date).....
   to ..... (date) …… (The period of guarantee shall in no case be less than one hundred and twenty (120) days and shall commence from the date of opening the Bid as set froth in the Invitation to Bid).

In witness whereof, the authorized representative of the Bank has hereunto signed and sealed this Guarantee.

GUARANTOR	WITNESS
.....……	.....……
(.....)	(.....)
Title	Title
.....	.....
.....	.....
	Office
	.....
	.....
	.....……
	(.....)
	Title
	.....
	.....
	Office
	.....
	.....

SECTION 2
PRICE SCHEDULES AND DATA

SECTION 2 - PRICE SCHEDULES AND DATA

SCHEDULE OF QUANTITIES AND PRICES

NOTES

(1) The Schedule shall be read in conjunction with the Instructions to Bidders. Conditions of Contract, Specification and Drawings.

(2) The quantities given in the Schedule are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Department and valued at the rates and lump sums quoted in the Schedule where applicable, and otherwise at such rates and lump sums as the Department may fix within the terms of the Contract.

(3) The rates and lump sums in the Schedule shall, include all plant, transportation, labors, materials, erection, maintenance, supervision, office work, insurance, profit, together with all general risks, liabilities and obligations set out or implied in the Contract.

(4) A rate or lump sum shall be entered against each Item in the Schedule, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or lump sum shall be deemed to be covered by the Contract Price.

(5) The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the Schedule, and where no Items are provided shall be deemed to be distributed amongst the rates and lump sums for the related Items of work.

(6) General directions and descriptions of work and materials are not necessarily repeated in the Schedule. Reference to the relevant Clauses of the Conditions of Contract, Specification and Drawings shall be made when entering prices against each Item in the Schedule.

(7) The Sections of the Schedule are numbered in accordance with corresponding sections of the Specification. The Items in each Section of the Schedule shall be read in conjunction with the measurement and payment Clauses in the relevant Sections of the Specification.

(8) If there is a discrepancy between the rate and the Total Price entered for any Item in the Schedule, the rate will be taken as correct.

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SCHEDULE 1 - MANUFACTURERS AND SUB-CONTRACTORS

PART (A) - MANUFACTURERS

The manufacturer of any component or sub-contractor for any item of Plant shall not be changed from that stated in this Schedule without the approval of the Department.

Ref. No.	Description of Component of Plant	Name and Address of Sub-Contractor and Place of Manufacture and Testing

HUAI LAM SIN HYDROPOWER PROJECT

CONTRACT C-2

SCHEDULE 1 - MANUFACTURERS AND SUB-CONTRACTORS

PART (B) - SUB-CONTRACTORS

The manufacturer of any component or sub-contractor for any item of Plant shall not be changed from that stated in this Schedule without the approval of the Department.

Ref. No.	Description of Component of Plant	Name and Address of Sub-Contractor and Place of Manufacture and Testing

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CONTRACT C-2
SCHEDULE 2 - GUARANTEED PERIODS

The work listed below and described in the clause references shown shall be completed within the stated guaranteed periods in days from the Date of Acceptance.

Each item below marked '*' is subject to liquidated damages as provided for in Clause S4.07 of volume 1

The guaranteed period shall be accomplished by program of work (Clause S4.05 of volume 1)

Clause	Work	Guaranteed Period
S4.06 (4) (a) S4.06 (4) (b) S4.06 (4) (c) S4.06 (4) (d)	Supply of Drawings and Information Supply of Drawings and Information Supply of Drawings and Information Supply of Drawings and Information	
S4.05 (3)	Installation and handing over of pipe-work and anchor bolts for draft tubes to be embedded in first stage concrete Installation and handing over of anchor bolts for powerhouse crane Installation and handing over of spiral casing, spiral casing anchor bolts and inlet valve anchor bolts Installation and handing over of generator anchor bolts and baseplate	
S4.05 (4)	* Delivery to Site	
S4.05 (5)	* Taking Over	

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CONTRACT C-2
SCHEDULE 3 - Summary of Prices

Item No.	Details	Total Price (Baht)
1 2 3	Total Price of Equipment Total Price of Spare Parts Total Price of Maintenance Tools and Instruments	
	SUB - TOTAL VAT 7%	
GRAND TOTAL BID PRICE		

หมายเหตุ - ราคาที่เสนอจะต้องรวมค่าแรง ค่าติดตั้ง ค่าทดสอบ และค่าใช้จ่ายอื่นๆทั้งปวงแล้ว

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SCHEDULE 4 - SUMMARY PRICES OF EQUIPMENT

Item No.	**Details**	**Total Price (Baht)**
1	Turbine and Governor	
2	Inlet Valve	
3	Mechanical Auxiliary Equipment	
4	Generator and Auxiliaries	
5	Switchboards	
6	Transformer Terminal Cubicles, Generator Terminal Cubicles, Bus Ducts and Neutral Cubicles	
7	DC Station Services	
8	Control, Protection and Alarm System	
9	Main Transformer	
10	Line Protection and Switchyard Equipment	
11	Communication System	
12	Grounding System	
13	Electrical Auxiliary Equipment	
14	Overhead Travelling Crane	
SUB - TOTAL		

หมายเหตุ - ราคาที่เสนอจะต้องรวมค่าแรง ค่าติดตั้ง ค่าทดสอบ และค่าใช้จ่ายอื่นๆทั้งปวงแล้ว

HUAI LAM SIN HYDROPOWER PROJECT
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SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Uint Rate Baht/Unit	Total (Baht)
1	Turbine and Governor				
	(1) Pelton Turbine	2	Set		
	(2) Hydraulic Governing System	2	Set		
	(3) PLC Governor Cubicle	2	Set		
	Sub - Total				
2	Inlet Valve				
	(1) Inet Valve and Bypass Valve	2	Set		
	Sub - Total				
3	Mechanical Auxiliary Equipment				
	(1) Unit Cooling Water System	2	Set		
	(2) Water Drainage System	1	LS		
	(3) Portable Fire Extinguishers	1	LS		
	(4) Diesel-driven Standby Electric Power System	1	Set		
	Sub - Total				
4	Generator and Auxiliaries				
	(1) Generator with Flywheel	2	Set		
	(2) Oil Lubrication System	2	Set		
	(3) Excitation System	2	Set		
	Sub - Total				
5	Switchboard				
	(1) 100 KVA, 3.3/0.4-0.23 KV Station Service Transformer	1	Set		
	(2) AC Distribution Board	1	Set		
	Sub - Total				

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SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Uint Rate Baht/Unit	Total (Baht)
6	Transformer Terminal Cubicle, Generator Terminal Cubicles, Bus Ducts and Neutral Cubicles				
	(1) Generator CB Cubicle	2	Set		
	(2) Generator CT, PT Cubicle	2	Set		
	(3) Generator Neutral Cubicles	2	Set		
	(4) Station Service DS Cubicle	2	Set		
	Sub - Total				
7	DC Station Services				
	(1) Battery Cells with Rack, 400 AH	1	Set		
	(2) Battery Charger	1	Set		
	(3) DC Distribution Panel Board	1	Set		
	Sub - Total				
8	Control, Protection and Alarm System				
	(1) Control, Protection and Alarm Equipment	1	Lot		
	Sub - Total				
9	Main Transformer				
	(1) Main Transformer-33KV / 3.3KV,1250kVA	2	Set		
	Sub - Total				
10	33 kV Line Protection Equipment and Switchyard				
	(1) 33 kV Drop Out fuse	9	Set		
	(2) 33 kV Lightning Arrester	9	Set		
	(3) 33 kV Voltage Transformer	3	Set		
	(4) 33 kV Current Transformer	6	Set		
	(5) 33 kV Disconnecting Switch	1	Set		
	(6) 33 kV SF6 Circuit Breaker	1	Set		
	(7) 33 kV Protection Cubicle	1	Set		
	(8) Switchyard, Fence, Concreate pole and others	1	LS		
	(9) Energy Meter With Auxiliary Equipment	1	Set		
	(10) 33 kV Remote Control Switch (PEA connecting Location)	1	Set		
	Sub - Total				

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SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Uint Rate Baht/Unit	Total (Baht)
11	Communication System				
	(1) Communication System	1	Set		
	Sub - Total				
12	Ground System				
	(1) Ground System	1	LS		
	Sub - Total				
13	Electrical Auxiliary Equipment				
	(1) Cable Trays and Support	1	Lot		
	(2) Conduit, Boxes and Fitting	1	Lot		
	(3) HV and MV Cable	1	Lot		
	(4) 750 V Wire and Cable	1	Lot		
	(5) Control Cable	1	Lot		
	(6) Station Clocks	4	Set		
	(7) Water Level Transmitter (Surge Tank)	1	Set		
	(8) Motor Control Center Panels	1	Lot		
	Sub - Total				
14	Overhead Travelling Crane				
	(1) Overhead Travelling Crane	1	Set		
	Sub - Total				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

The spare parts for the Plant shall be include those spsecified below plus the additional recommended spare parts which shall be listed individually for each item.

The spare parts listed below shall be supplied in accordance with Clause S1.06.

The prices for recommended spare parts shall not be included in the prices stated in Schedule 3.

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Part for Item 1(a)Turbines and Governors				
1.1	Spear Valve	1	sets		
1.2	Shaft sleeves and seals	2	sets		
1.3	Complete set of governor actuator	1	set		
1.4	Wearing parts for governor regulating valves and pilot valve	1	set		

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
1.5	Replacable parts for unloader valve	1	set		
1.6	Governor oil pump and motor	1	set		
1.7	Piston and gland packings for guide vane servomotor	2	sets		
1.8	Packing seals and gaskets for the turbines, governors,	1	set		
1.9	Motor or solenoid for each type and size of electrically operated valve	1	set		
1.10	Limit switch of each type	1	set		
1.11	Temperature, level, pressure, and flow relays of each type	1	set		
1.12	Valves, complete of each size and type used of 50 mm. nominal bore and below including control valves and their actuators	2	sets		
1.13	Printed circuit card of each type	1	set		
1.14	1 auxiliary relay of each kind	1	set		
1.15	1 control device of each kind	1	set		
Total for Item 1 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 1(b)Turbines and Governors (To be Completed by Bidder)				
Total for Item 1 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Part for Item 2(a)				
	Inlet Valves				
2.1	Packing seals and gaskets	2	sets		
2.2	Motor or solenoid for each type and size of electrically operated valve	2	sets		
2.3	Limit switch of each type	2	sets		
	Total for Item 2 (a)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 2(b) Inlet Valves (To be Completed by Bidder)				
	Total for Item 2 (b)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Parts for Item 3(a) Mechanical Auxiliary Equipment				
3.1	Cooling water strainer	1	set		
3.2	Replaceable parts for reducing valve and relief valve (if fitted)	1	set		
3.3	Air compressor valves	1	set		
3.4	Air compressor piston rings and bearings	1	set		
3.5	Air compressor gaskets	1	set		
3.6	Air filters for air conditioning plant	1	set		
3.7	1 set of lined shoes for each brake crane	1	lot		
3.8	1 set of brushes complete with brush holder for each wound rotor motor	1	lot		
3.9	Inserts for collectors for longitudinal travel	1	set		

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
3.10	1 complete contactor of each size and type	1	lot		
3.11	1 limit switch of each type	1	lot		
3.12	1 set of piston ring, oil ring	1	lot		
3.13	1 set of fuel injection valve	1	lot		
3.14	Diesel packing and spring	1	lot		
3.15	Diesel bearing metal	1	lot		
3.16	Generator bearing metal	1	lot		
3.17	Generator collector ring brush and brush holder	1	lot		
3.18	Motor for cooling water motorized valve	1	set		
Total for Item 3 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 3(b) Mechanical Auxiliary Equipment (To be completed by Bidder)				
Total for Item 3 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Spare Spart for Item 4(a) Generator and Ancillaries				
4.1	Lubrication Pump	1	set		
4.2	Single line distributor	1	set		
4.3	Generator bearing of each type	1	set		
4.4	Temperature relay, vapor pressure type thermometer and other relays	1	set		
4.5	Valves of each kind	1	set		
4.6	Speed signal generator	1	set		
4.7	O-rings for circuits of the bearings	1	set		
4.8	Limit switch of each type	1	set		
4.9	1 current transformer of each type and rating	1	lot		

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
4.10	Excitation System (all of each kind)				
	- Breakers	1	set		
	- Silicon diode	6	set		
	- Thyristor	6	set		
	- printed circuit cards of each type	2	set		
	- Current transformers	1	set		
	- Relays	2	set		
	- Control motor	1	set		
4.11	Miscellaneous Items				
	- Auxiliary relays of each kind	1	lot		
	Total for Item 4 (a)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 4(b) Generators and Ancillaries (To be completed by Bidder)				
	Total for Item 4 (b)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Part for Item 5(a) AC Station Service Transformer and Ac Switchboard				
5.1	3-33 kV fuse	1	set		
5.2	1 main and auxiliary contacts for air circuit breaker of each type	1	lot		
5.3	1 coils or motors for air circuit breaker of each type (closing and tripping)	1	lot		
5.4	1 current transformer of each type and rating	1	lot		
5.5	1 voltage transformer of each type and rating	1	lot		
5.6	2 fuse carriers of each type and size	1	lot		
5.7	1 protection relay of each type	1	lot		

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
5.10	1 auxiliary relay of each type	1	lot		
5.11	50 pieces of indicating lamp	1	lot		
5.12	1 no fuse breaker of each type	1	lot		
Total for Item 5 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 5(b) AC Station Service Transformer and Ac Switch board (To be completed by Bidder)				
Total for Item 5 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Part for Item 6(a) Generator Terminal Cubicles, Bus Ducts, Neutral Cubicles				
6.1	Generator circuit breaker	1	set		
6.2	Main and auxiliary contacts for generator circuit breaker	1	lot		
6.3	1 coil or motor for generator circuit breaker (closing and tripping)	1	set		
6.4	1 current transformer of each type	1	lot		
6.5	1 voltage transformer of each type	1	lot		
6.6	3 insulator for bus duct of each type	1	lot		
6.7	1 no fuse breaker of each type	1	lot		
6.8	2 fuse carriers of each type and size with replacement fuse	1	lot		
6.9	50 pieces of indicating lamp	1	lot		
	Total for Item 6 (a)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 6(b) **Generator Terminal Cubicles, Ducts and Switchgears** (To be completed by Bidder)				
Total for Item 6 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Part for Item 7(a) DC Station Services				
7.1	1 battery charger rectifier of each type	1	lot		
7.2	Battery	5	sets		
7.3	1 no fuse breaker of each type	1	lot		
7.4	2 fuse carriers of each type and size	1	lot		
7.5	2 replacement fuse cartridge for every fuse	1	lot		
7.6	20 pieces of indicating lamp	1	lot		
7.7	1 protective relay of each type	1	lot		
	Total for Item 7 (a)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 7(b) DC Station Services (To be completed by Bidder)				
Total for Item 7 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Parts for Item 8(a) Control Protection and alarm				
8.1	Each type of CPU module used	2	sets		
8.2	Each type of power supply module used	2	sets		
8.3	Each communication cards used	2	sets		
8.4	Each type of I/O cards used	2	sets		
8.5	Each type of AVR set used	1	sets		
8.6	Each type of relay used	1	sets		
Total for Item 8 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 8(b) Control, Protection and Alarm Systems (To be completed by Bidder)				
Total for Item 8 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Parts for Item 9(a) Main Transformers				
9.1	Gaskets	1	set		
9.2	1 temperature, level, pressure and flow relay of each type	1	lot		
9.3	1 indicating instrument of each type including associated transducers	1	lot		
9.4	Breathing device	1	set		
9.5	1 thermostate at of each type	1	lot		
Total for Item 9 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 9(b) Main Transformers (To be completed by Bidder)				
	Total for Item 9 (b)				

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Parts for Item 10(a) Line Protection Equipment				
10.1	2 lightning arrester	2	sets		
10.2	1 no-fuse breaker of each type	1	lot		
10.3	2 fuse carriers of each type and size with relpacement fuse	1	lot		
10.40	40 pieces of indicating lamp	1	lot		
Total for Item 10 (a)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 10(b) Line Protection Equipment (To be completed by Bidder)				
Total for Item 10 (b)					

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Specified Spare Parts for Item 13(a)				
	Electrical Auxiliary Equipments				
13.1	100 meters of spare cable (0.75 kV type)	1	lot		
13.2	Cable terminations of each type	1	lot		
13.3	1 no-fuse breaker of each type	1	lot		
Total for Item 11 (a)					

HUAI LAM SIN HYDROPOWER PROJECT

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SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	Additional Recommended Spare Parts for Item 13(b) Miscellaneous Electrical Equipments (To be completed by Bidder)				
Total for Item 11 (b)					

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SCHEDULE 6 – PRICES OF MAINTENANCE TOOLS AND INSTRUMENTS

Maintenance tools and instruments for all Plant shall be provided in accordance with Clause S1.05.

The individual tools and appliances provided for each Item shall be listed below with the corresponding prices stated for each and the total prices shall be included against Item 3 in Schedule 1.

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
1	**Maintenance Tools and Instruments for all Items**				
1.1	**Portable oil centrifuge unit** (list to be provided below)				

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SCHEDULE 6 – PRICES OF MAINTENANCE TOOLS AND INSTRUMENTS

Maintenance tools and instruments for all Plant shall be provided in accordance with Clause S1.05.

The additional recommended of maintenance tools and instruments shall be listed below and shall not be included in the prices stated in Schedule 1.

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
2	**Additional Recommended of Maintenance Tools and Instruments for all Items** (list to be provided below)				
Total for Schedule 6					

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SCHEDULE 7 - DRAWINGS, ILLUSTRATIONS, TECHNICAL AND OTHER INFORMATION

REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
		Item 1 - Turbine, Governors, Inlet Valves and Ancillaries		
1.1		General arrangement of turbine, governor, inlet valve, and ancillaries relative to the station, with guaranteed dimensions.		
1.2		Sectional arrangement of turbine and inlet valve.		
1.3		Curves of turbine output, efficiency and discharge at net head		
1.4		Speed rise, Pressure rise and GD2 calculation		

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SCHEDULE 7 - DRAWINGS, ILLUSTRATIONS, TECHNICAL AND OTHER INFORMATION

REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
		Item 4 - Generator & Ancillaries		
4.1		General arrangement of generator relative to the station with guaranteed dimensions.		
4.2		VPI Insulation evidence in manufacturer's catalogs Capability Curves and Performance Curves of Generator		

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SCHEDULE 7 - DRAWINGS, ILLUSTRATIONS, TECHNICAL AND OTHER INFORMATION

REF. NO.	SPEC. CLAUSE NO.	PARICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
		Item 8 - Control, Protection and Measures Overall Main Single line Diagram with protection fuctions		

SCHEDULE 8 - GUARANTEED AND INFORMATIVE DATA

The Bidder shall fill in all the following lists of Guaranteed and Informative Data.

The Department reserves the right to reject any Bid which does not include all the pertinent lists duly filled in.

The following Guaranteed Data shall conform to the Technical Specifications and, when accepted by the Department shall prevail over the Technical Specifications.

The Department reserves the right to reject any Bid which include guaranteed Data not in accordance with the Technical Specifications.

Informative Data are intended to give reference information and shall not prevail over the Technical Specifications.

TABLE OF EQUIPMENT CHARACTERISTIC

Item	Description	DEDE Specification	Bidder Specification
1	**Turbine**		
	- Type		
	- Manufacture		
	- Series		
	- Country		
	- Design Head (m)		
	- Turbine Discharge		
	(At Design Head) (cms)		
	- Design Output (kW)		
	- Efficiency At 100%		
	Output		
	- Speed		
2	**Governor**		
	- Type		
	- Manufacture		
	- Series		
3	**Inlet Valve**		
	- Type		
	- Manufacture		
	- Standard		
	Bypass Valve		
	- Close & Open By		
4	**Generator**		
	- Type		
	- Manufacture		
	- Series		
	- Country		
	- Output (kVA)		
	- Voltage (V)		
	- Efficiency at 100% Output		
	- Power Factor		
	- Speed (rpm)		
	- Stator And Rotor Winding		
	Insulation		
	- Temperature rise (C)		

TABLE OF EQUIPMENT CHARACTERISTIC (Cont'd)

Item	Description	DEDE Specification	Bidder Specification
5	**Main Transformer**		
	- Type		
	- Manufacture		
	- Rating		
	- Voltage		
	- Connection		
	- Impedance		
	- No-Load Loss		
	- Load Loss at 75° C		
6	**Service Transformer**		
	- Type		
	- Manufacture		
	- Rating		
	- Voltage		
	- Connection		
	- Impedance		
	- No-Load Loss		
	- Load Loss at 75◦ C		