

KLONG LAM PLOK HYDROPOWER PROJECT

YAN TA KHAO DISTRICT TRANG PROVINCE

CONTRACT C2

ELECTRO-MECHANICAL EQUIPMENT

VOLUME 3

BID FORMS, SCHEDULES OF QUANTITIES



P AND C MANAGEMENT CO., LTD.

MARCH 2016

SECTION 1

BID FORM

SECTION 1 - BID FORM

Department of Alternative Energy Development and Efficiency
17, Rama 1 Road, Patthumwan
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 forth in the Invitation to Bid).



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

GUARANTOR

WITNESS

.....
(.....)

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(.....)

Title

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Title

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Office

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(.....)

Title

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Office

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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, labour, 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.

KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****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



KLONG LAM PLOK HYDROPOWER PROJECT
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 C6.07 of Volume 1.

The guaranteed period shall be accomplished by program of work (Clause C6.05 of Volume 1)

Clause (volume 1)	Work	Guaranteed Period
C4.06 (4) (a)	Supply of Drawings and Information	
C4.06 (4) (b)	Supply of Drawings and Information	
C4.06 (4) (c)	Supply of Drawings and Information	
C4.06 (4) (d)	Supply of Drawings and Information	
C4.05 (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 casing, casing anchor bolts and inlet valve anchor bolts Installation and handing over of generator anchor bolts and baseplate	
C4.05 (4)	* Delivery to Site	540 Days
	* Taking Over	780 Days



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 3 - Summary of Prices

Item No.	Details	Total Price (Baht)
1	Total Price of Equipment	
2	Total Price of Spare Parts	
3	Total Price of Maintenance Tools and Instruments*	
4	Price of Factory Tests	
5	Price of Erection	
6	Price of Field Performance Tests	
	SUB - TOTAL	
	VAT 7%	
GRAND TOTAL BID PRICE		

Approximated price is 127,286,000 Baht

Note : * The Bidder shall breakdown the price of Maintenance Tools and Instruments as specified in Clause S 1.05 of Volume 2 in Schedule 6

KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****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	AC Station Service Transformers & 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	
SUB - TOTAL		

KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
1	<u>Turbine and Governor</u>				
	(1) Pelton Turbine	2	Set		
	(2) Hydraulic Governing System	2	Set		
	(3) PLC Governor Cubicle	2	Set		
	Sub - Total				
2	<u>Inlet Valve</u>				
	(1) Inlet Valve and Bypass Valve	2	Set		
	Sub - Total				
3	<u>Mechanical Auxiliary Equipment</u>				
	(1) Unit Cooling Water System	2	Set		
	(2) Compressed Air System	1	LS		
	(3) Portable Fire Extinguishers	1	LS		
	(4) Overhead Traveling Crane	1	Set		
	(5) Diesel-driven Standby Electric Power System	1	Set		
	Sub - Total				
4	<u>Generator and Auxiliaries</u>				
	(1) Generator with Flywheel	2	Set		
	(2) Oil Lubrication System	2	Set		
	(3) Excitation System	2	Set		
	Sub - Total				
5	<u>AC Station Service Transformers & Switchboard</u>				
	(1) Station Service Transformer 160kVA	1	Set		
	(2) AC Distribution Board	1	Set		
	Sub - Total				

KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Unit 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	<u>DC Station Services</u>				
	(1) Battery Cells with Rack, 400 AH	1	Set		
	(2) Battery Charger	1	Set		
	(3) DC Distribution Panel Board	1	Set		
	Sub - Total				
8	<u>Control, Protection and Alarm System</u>				
	(1) Control, Protection and Alarm Equipment	1	Lot		
	Sub - Total				
9	<u>Main Transformer</u>				
	(1) Main Transformer	2	Set		
	Sub - Total				
10	33kV Line Protection Equipment and Switchyard				
	(1) 33kV Drop Out fuse	9	Set		
	(2) 33kV Lightning Arrester	9	Set		
	(3) 33kV Voltage Transformer	3	Set		
	(4) 33kV Current Transformer	6	Set		
	(5) 33kV Disconnecting Switch	1	Set		
	(6) 33kV SF6 Circuit Breaker	1	Set		
	(7) 33kV Protection Cubicle	1	Set		
	Sub - Total				

KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 4 - PRICES OF EQUIPMENT

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
11	<u>Communication System</u>				
	(1) Communication System	1	Set		
	Sub - Total				
12	<u>Ground System</u>				
	(1) Ground System	1	LS		
	Sub - Total				
13	<u>Electrical Auxiliary Equipment</u>				
	(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				



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****SCHEDULE 5 - PRICES FOR SPARE PARTS**

The spare parts for the Plant shall include those specified 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. of Volume 2

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)
	<u>Specified Spare Part for Item 1(a) Turbines and Governors</u>				
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		



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
1.10	Replacable parts for unloader valve	1	set		
1.11	Governor oil pump and motor	1	set		
1.12	Piston and gland packings for servomotor	2	sets		
1.13	Packing seals and gaskets for the turbines, governors,	1	set		
1.14	Motor or solenoid for each type and size of electrically operated valve	1	set		
1.15	Limit switch of each type	1	set		
1.16	Temperature, level, pressure, and flow relays of each type	1	set		
1.17	Valves, complete of each size and type used of 50 mm. nominal bore and below including control valves and their actuators	2	sets		
1.18	Printed circuit card of each type	1	set		
1.19	1 auxiliary relay of each kind	1	set		
1.20	1 control device of each kind	1	set		
Total for Item 1 (a)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****SCHEDULE 5 - PRICES FOR SPARE PARTS**

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Parts for Item 3(a)</u> <u>Mechanical Auxiliary Equipment</u>				
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		



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****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)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Spare Spart for Item 4(a) Generator and Ancillaries</u>				
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 oil and water 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		



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
4.10	<u>Excitation System (all of each kind)</u>				
	- 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	<u>Miscellaneous Items</u>				
	- Auxiliary relays of each kind	1	lot		
Total for Item 4 (a)					



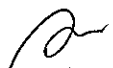
KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Part for Item 5(a) AC Station Service Transformer and Ac Switchboard</u>				
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		



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
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)					



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****SCHEDULE 5 - PRICES FOR SPARE PARTS**

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Part for Item 6(a) Generator Terminal Cubicles, Bus Ducts, Neutral Cubicles</u>				
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)					

KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Part for Item 7(a) DC Station Services</u>				
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)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****SCHEDULE 5 - PRICES FOR SPARE PARTS**

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Parts for Item 8(a) Control Protection and alarm</u>				
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)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Parts for Item 9(a) Main Transformers</u>				
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)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Parts for Item 10(a) Line</u>				
	<u>Protection Equipment</u>				
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 replacement fuse	1	lot		
10.40	40 pieces of indicating lamp	1	lot		
Total for Item 10 (a)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

Item No.	Details	Quantity	Unit	Unit Rate Baht/Unit	Total (Baht)
	<u>Specified Spare Parts for Item 13(a)</u>				
	<u>Electrical Auxiliary Equipments</u>				
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)					



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 5 - PRICES FOR SPARE PARTS

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



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 6 – PRICES OF MAINTENANCE TOOLS AND INSTRUMENTS

Maintenance tools and instruments for all Plant shall be provided in accordance with Clause S1.05. of Volume 2.

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	<u>Maintenance Tools and Instruments for all Items</u>				
1.1	Portable oil centrifugal unit (List to be provided below)				



KLONG LAM PLOK HYDROPOWER PROJECT
CONTRACT C-2
SCHEDULE 6 – PRICES OF MAINTENANCE TOOLS AND INSTRUMENTS

Maintenance tools and instruments for all Plant shall be provided in accordance with Clause S1.05. of Volume 2.

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	<u>Additional Recommended of Maintenance Tools and Instruments for all Items</u> (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
		<u>Item 1 - Turbine, Governors, Inlet Valves and Ancillaries</u>		
1.1	S2.01	Document indicated in S2.01		
1.2	S2.02	Document indicated in S2.02 (3), (b), (c), (d), (e), S2.02 (5), (b)		
1.3	S2.03	Document indicated in S2.03 (1), (d), (e) S2.03 (2), (d)		
1.5	S3.06	Document indicated in S2.06 (2)		
1.6	S4.02	Document indicated in S4.02		



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REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
		<u>Item 3 - Mechanical Auxiliary Equipment</u>		
3.1	S5.01 (Volume 2)	Drawings and description of unit cooling water system Drawings and description of Overhead travelling crane		
3.2	S5.07 (Volume 2)	Description of diesel-driven standby electric power system.		



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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
		<u>Item 4 - Generator & Ancillaries</u>		
4.1	S7.01	Document indicated in S7.01 (9), (11), (18)(d),		
4.2	S7.02	Document indicated in S7.02 (1)(b), (3)©(l),		
4.3	S7.04	Document indicated in S7.04 (3)(d)(i) Document indicated in S7.05 (1), (5)		



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****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
5.1		<u>Item 5 - Ac Switchboard</u> Manufacturer's literature describing of the following equipment offered : Reference list of pelton turbines, governors and inlet valves (1) Protection relays (2) Indication instruments and meters (3) Electrical devices		



KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****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
6.1		<u>Item 6 - Generator Terminal Cubicles, Bus Ducts and Neutral Cubicles</u> Description of generator circuit breaker construction and operation.		

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REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
		<u>Item 7 - DC Station Service</u>		
7.1	S10.03 (Volume 2)	Description of batteries.		
7.2	S10.06 (Volume 2)	Description of battery chargers.		



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REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
8.1	S11.01	<u>Item 8 - Control, Protection and Measures</u> Document indicated in S11.01 (1)©, (2)(d), (3)(a)(e)		
	S11.03	Document indicated in S11.03 (4)		



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REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
9.1	S12.02	<u>Item 9 - Transformers</u> Document indicated in S12.02		



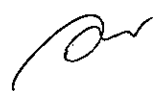
KLONG LAM PLOK HYDROPOWER PROJECT**CONTRACT C-2****SCHEDULE 7 - DRAWINGS, ILLUSTRATIONS, TECHNICAL AND OTHER INFORMATION**

REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
10.1		<u>Item 10 Line Protection Equipment</u> Drawings and description of Recloser		
10.2		Drawings and description of Electronic Controls		



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REF. NO.	SPEC. CLAUSE NO.	PARTICULARS OF DRAWINGS, ETC. REQUIRED	TITLES OF DESCRIPTIONS OF DRAWINGS, ETC. SUBMITTED BY BIDDER	REFERENCE
13.1		<u>Item 13 - Electrical Auxiliary Equipment</u> Drawings and description of cables.		
13.2		Description of HV cable end treating material.		



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	Turbine	Pelton
	- 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		

