

Annual Contract for Service and Maintenance of Air Conditioning and Mechanical Ventilation System at Menara Sarawak Energy, No. 1, The Isthmus, Kuching, Sarawak

Instructions to Tenderers

- 1.** Tenders are invited from UPK Registered Works Head V Sub-Head 3 Class F or above.

Tenderers must submit the offers which cover all labour charges, transport, employment of necessary plants/equipment and other expenses for the full satisfaction of the work.
- 2.** The Tender must be made on the accompanying Form of Tender with all the blanks therein and all the schedules duly filled up in inks and signed. The Tender Price must include all incidental and contingent expenses. In particular, the Form of Tender must be completed and signed without alteration.

Tenders are particularly directed that the amount entered on the Form of Tender shall be for performing the contract strictly in accordance with the bound document and shall be the sum total of all the amounts printed into and entered by the Tenderers upon the Summary of Tender.
- 3.** No alteration is to be made in the Form of Tender or in the Schedule thereto except in filling up the blanks as directed. If any such alteration be made or if these instructions be not fully complied with, the tender may be rejected.

The Tenderers, however, is at liberty to add any further details that he may deem desirable and, in the event of his doing so, must print or type such details and annex the added matter to the Tender submitted by him. Such additional details shall not be binding upon the Company unless they are subsequently incorporated in a contract.
- 4.** If the Tenderer has any doubt as to the meaning of any portion of the Specification of this tender, he shall, when submitting his tender, set up in his covering letter the interpretation on which he relies.
- 5.** Tenderers shall refer to the drawings attached for finishing works as building is still under construction. However, tenderers are encouraged to visit the site to ascertain for themselves the site conditions for the purpose of submitting a Tender. No claims will be entertained on the ground of lack of knowledge of site conditions.
- 6.** Tenderers shall complete the Schedule on past experience and give details of previous experience together with the name of the clients where references can be obtained.
- 7.** Tenderers shall submit with his tender resumes and manpower requirement of the supervisory staff and workers to be involved in his contract.
- 8.** Tenderers shall at all times observe and comply with all prevailing laws and regulations relating to the safety now and thereafter in force and shall bear all costs associated with the compliance of the same. Tenderers shall be responsible to take all safety precautions to eliminate danger to his workmen, the general public and property or clothes.

9. The validity period of the Tenders shall be 90 days from the closing date of Tender.

10. Within 21 days from the time of the receipt of notice of award, the successful tenderer will be required to assign an authorised representative to execute the contract with the Company.
11. Upon signing the contract, the successful Tenderer must submit a Performance Bond amounting to 10% of the total sum tendered if such sum exceeds RM 50,000.00. Such Bond will be released upon satisfactory completion of the contract.
12. The Company does not bind itself to accept the lowest or any Tender, nor to assign any reason for the rejection of any tender.
13. Every precaution is to be taken to protect the safety of workmen and also the structure and fitting on site. The tenderer must take full responsibilities due to accidents caused by reckless during the works.
14. Tenders are to be submitted in a sealed envelope marked:-

“CONFIDENTIAL – Annual Contract for Service and Maintenance for Air Conditioning and Mechanical Ventilation System at Menara Sarawak Energy, No. 1, The Isthmus, Kuching, Sarawak.” and to reach:-

**The Chief Executive Officer
Sarawak Energy Berhad
Menara Sarawak Energy
No. 1, The Isthmus
93050 Kuching**

Or hand deliver to :-

**The Officer-in-charge
Tender Box
Level 8
Sarawak Energy Berhad
No. 1, The Isthmus
93050 Kuching**

on or before 3:00PM on 4 December 2013.

Appendix G - Schedule of Equipment

Item	Equipment Tag	Brand	Model	Qty	Location
1.0	Water Cooled Centrifugal Chiller				
1.1	CH-1 & CH-2	YORK	YKFTFTQ75CLG	2	SB
2.0	Water Cooled Screw Chiller				
2.1	CH-3	YORK	YRVDVDT2555C	1	SB
3.0	Cooling Towers				
3.1	CT-1 & CT-2	NIHON SPINDLE	CTA 825 WAH-N	2	RF
4.0	Chilled Water Pumpset				
4.1	CHWP-1, 2 & 3	EBSRAY	125 - 32	3	SB
4.2	CHWP-4 & 5	EBSRAY	80 - 32	2	SB
4.3	CHWP-6, 7 & 8	EBSRAY	65 - 32	3	RF
5.0	Condenser Water Pumpset				
5.1	CWP - 1, 2 & 3	EBSRAY	150 - 32	3	SB
5.2	CWP - 4 & 5	EBSRAY	125 - 32	2	SB
6.0	Air Handling Units				
6.1	AHU-L1-1	SAIVER	A1-1610H-1950W	1	Level 1
6.2	AHU-L2-1	SAIVER	A1-1610H-1950W	1	Level 2
6.3	AHU-L2M-1	SAIVER	A1-1610H-2250W	1	Level 2M
6.4	AHU-L3-1	SAIVER	A1-1610H-2250W	1	Level 3
6.5	AHU-L3-2	SAIVER	A1-1610H-2250W	1	Level 3
6.6	AHU-L3-3	SAIVER	A1-1610H-2250W	1	Level 3
6.7	AHU-L4-1	SAIVER	A1-2250H-2250W	1	Level 4
6.8	AHU-L4-2	SAIVER	A1-2250H-2250W	1	Level 4
6.9	AHU-L5-1	SAIVER	A1-2250H-2250W	1	Level 5
6.1	AHU-L5-2	SAIVER	A1-2250H-2250W	1	Level 5
6.11	AHU-L6-1	SAIVER	A1-2250H-2250W	1	Level 6
6.12	AHU-L6-2	SAIVER	A1-2250H-2250W	1	Level 6
6.13	AHU-L7-1	SAIVER	A1-2250H-2250W	1	Level 7
6.14	AHU-L7-2	SAIVER	A1-2250H-2250W	1	Level 7
6.15	AHU-L8-1	SAIVER	A1-2250H-2250W	1	Level 8
6.16	AHU-L8-2	SAIVER	A1-2250H-2250W	1	Level 8
6.17	AHU-L9-1	SAIVER	A1-1610H-2250W	1	Level 9
6.18	PAHU-RF1	SAIVER	A1-2250H-2250W	1	RF
6.19	PAHU-RF2	SAIVER	A1-2250H-2250W	1	RF
7.0	Fan Coil Units				
7.1	L1-FCU-1	YORK	YSD80A	1	ELECTRICAL MUSEUM, L1
7.2	L1-FCU-2	YORK	DB40B	1	GALLERIA, L1
7.3	L1-FCU-3	YORK	DB40B	1	SECURITY DEPARTMENT, L1
7.4	L1-FCU-4A	YORK	YSD80A	1	CAFETERIA, L1
7.5	L1-FCU-4B	YORK	YSD80A	1	CAFETERIA, L1
7.6	L1-FCU-5	YORK	DB30B	1	SURAU, L1
7.7	L2-FCU-VIP	YORK	DCP18DC	1	STAGING AREA, L2

Item	Equipment Tag	Brand	Model	Qty	Location
7.8	L2-FCU-WAN 1	YORK	YCE30CB	1	WAN ROOM, L2
7.9	L2-FCU-WAN 2	YORK	YCE30CB	1	WAN ROOM, L2
7.10	L2-FCU-SER 1	YORK	DB40B	1	DATA CENTRE, L2
7.11	L2-FCU-SER 2	YORK	DB40B	1	DATA CENTRE, L2
7.12	L2M-FCU-1A	YORK	DB40B	1	PRE - FUNCTION LOBBY, L2M
7.13	L2M-FCU-1B	YORK	DB40B	1	PRE - FUNCTION LOBBY, L2M
7.14	L2M-FCU-2A	YORK	DB40B	1	BALEH L2M
7.15	L2M-FCU-2B	YORK	DB40B	1	BARAM, L2M
7.16	L2M-FCU-2C	YORK	DB40B	1	MURUM, L2M
7.17	L2M-FCU-2D	YORK	DB40B	1	BAKUN, L2M
7.18	L2M-FCU-2E	YORK	DB40B	1	BATANG AI, L2M
7.19	L2M-FCU-3	YORK	DB30B	1	RECORD ROOM, L2M
7.20	L2M-FCU-4	YORK	DCP16	1	VIEWING GALLERY, L2M
7.21	SCADA-FCU-1	YORK	DB40B	1	SDC, L2
7.22	SCADA-FCU-2	YORK	DB40B	1	SDC, L2
7.23	L2-FCU-1	YORK	DB16B	1	RTDS SIMULATOR LAB, L2
7.24	L2-FCU-4	YORK	DB16B	1	RTDS SIMULATOR LAB, L2
7.25	L2-FCU-2A	YORK	YCE30CB	1	SIMULATION ROOM, L2
7.26	L2-FCU-2B	YORK	WM15GW	1	SIMULATION ROOM, L2
7.27	L2-FCU-2C	YORK	WM15GW	1	SPS ROOM, L2
7.28	FCU-L1-HUB1 to FCU-L9-HUB1	YORK	WM15GW	10	IT - HUB ROOM
7.29	FCU-L1-HUB1 to FCU-L9-HUB1	YORK	WM15GW	10	IT - HUB ROOM
8.0	Air Cooled Screw Chillers				
8.1	ACCH-1 & 2	YORK	YCA 115	2	RF
9.0	Air Cooled Split Units				
9.1	ACCU-B-LL-1 & 2	YORK	YSL15C3	2	SB
9.2	DXFCU-SEC-1 & 2	YORK	YWM15G	2	CONTROL ROOM, L1
9.3	ACCU-B-MDF-1 & 2	YORK	YSL18C3	2	MDF ROOM, SB
9.4	DXFCU-B-MDF-1 & 2	YORK	YWM15G	2	MDF ROOM, SB
9.5	ACCU-B-MDF-3 & 4	YORK	YSL18C3	2	MDF ROOM, SB
9.6	DXFCU-B-MDF-3 & 4	YORK	YWM20L	2	MDF ROOM, SB
9.7	ACCU-CR-1 & 2	YORK	YSL15C3	2	MDF ROOM, SB
9.8	DXFCU-CR-1 & 2	YORK	YWM15G	2	CONTROL RELAY ROOM, L1
9.9	ACCU-GH-1 & 2	PANASONIC	CU-PC18DB4H	2	GUARD HOUSE, L1
9.10	DXFCU-GH-1 & 2	PANASONIC	CS-PC18DB4H	2	GUARD HOUSE, L1
9.11	ACCU-GH-3	PANASONIC	CU-S12MB4Z-1	1	GUARD HOUSE, L1
9.12	DXFCU-GH-3	PANASONIC	CS-S12MB4Z-1	1	GUARD HOUSE, L1
9.13	ACCU-SMA-1	PANASONIC	CU-PC9MKH	1	SMATV ROOM, RF
9.14	DXFCU-SMA-1	PANASONIC	CS-PC9MKH	1	SMATV ROOM, RF
9.15	ACCU-L2M-GYM	YORK	YSL40D	1	GYMNASIUM, L2M
9.16	DXFCU-L2M-GYM	YORK	YCK40A	1	GYMNASIUM, L2M
10.0	Precision Air Handling Units				
10.1	CRAC-EQUIP-1 to 3	CITEC	GD35C	3	SCADA EQUIPMENT ROOM, L2

Item	Equipment Tag	Brand	Model	Qty	Location
10.2	CRAC-L2-UPS1 & 2	CITEC	D12C	2	SCADA UPS ROOM, L2
11.0	InRow Chilled Water Cooling System				
11.1		APC	ACRC103	6	DATA CENTRE, L2
11.2		APC	ACFD12-T	1	DATA CENTRE, L2
12.0	Variable Refrigerant Flow System				
12.1	VRF-RF-CU-1-1	mitsubishi	FDC1065KXE6	1	RF
12.2	VRF-RF-CU-1-2	mitsubishi	FDC615KXE6	1	RF
12.3	VRF-RF-CU-2-1	mitsubishi	FDC1130KXE6	1	RF
12.4	VRF-RF-CU-2-2	mitsubishi	FDC1065KXE6	1	RF
12.5	FCU-L9-1A	mitsubishi	FDUM90KXE6	1	Level 9
12.6	FCU-L9-1B	mitsubishi	FDUM112KXE6	1	Level 9
12.7	FCU-L9-2	mitsubishi	FDUM56KXE6	1	Level 9
12.8	FCU-L9-3	mitsubishi	FDUM56KXE6	1	Level 9
12.9	FCU-L9-3A	mitsubishi	FDUM56KXE6	1	Level 9
12.10	FCU-L9-4	mitsubishi	FDUM90KXE6	1	Level 9
12.11	FCU-L9-5A	mitsubishi	FDUM140KXE6	1	Level 9
12.12	FCU-L9-5B	mitsubishi	FDUM140KXE6	1	Level 9
12.13	FCU-L9-6	mitsubishi	FDUM112KXE6	1	Level 9
12.14	FCU-L9-7A	mitsubishi	FDU224KXE6	1	Level 9
12.15	FCU-L9-7B	mitsubishi	FDUM112KXE6	1	Level 9
12.16	FCU-L9-8	mitsubishi	FDUM90KXE6	1	Level 9
12.17	FCU-L9-9	mitsubishi	FDUM71KXE6	1	Level 9
12.18	FCU-L9-10	mitsubishi	FDUM56KXE6	1	Level 9
12.19	FCU-L9-11A	mitsubishi	FDUM71KXE6	1	Level 9
12.20	FCU-L9-11B	mitsubishi	FDU224KXE6	1	Level 9
12.21	FCU-L9-11C	mitsubishi	FDUM140KXE6	1	Level 9
12.22	FCU-L9-12	mitsubishi	FDUM112KXE6	1	Level 9
12.23	FCU-L9-13A	mitsubishi	FDU224KXE6	1	Level 9
12.24	FCU-L9-13B	mitsubishi	FDU224KXE6	1	Level 9
12.25	FCU-L9-13C	mitsubishi	FDU224KXE6	1	Level 9
12.26	FCU-L9-13D	mitsubishi	FDU224KXE6	1	Level 9
12.27	FCU-L9-14	mitsubishi	FDUM90KXE6	1	Level 9
12.28	FCU-L9-15	mitsubishi	FDUM140KXE6	1	Level 9
12.29	FCU-L9-16A	mitsubishi	FDUM140KXE6	1	Level 9
12.30	FCU-L9-16B	mitsubishi	FDUM90KXE6	1	Level 9
12.31	FCU-L9-17	mitsubishi	FDU224KXE6	1	Level 9
12.32	FCU-L9-18	mitsubishi	FDUM140KXE6	1	Level 9
12.33	FCU-L9-19A	mitsubishi	FDUM90KXE6	1	Level 9
12.34	FCU-L9-19B	mitsubishi	FDUM140KXE6	1	Level 9
12.35	FCU-L9-20	mitsubishi	FDUM56KXE6	1	Level 9
12.36	FCU-L9-21	mitsubishi	FDUM56KXE6	1	Level 9
12.37	FCU-L9-22	mitsubishi	FDUM71KXE6	1	Level 9
12.38	FCU-L9-23	mitsubishi	FDUM56KXE6	1	Level 9

Item	Equipment Tag	Brand	Model	Qty	Location
13.0	Smoke Spill Fans & Exhaust Fans				
13.1	EAF-B-1, 2, 3, 7, & 8	KRUGER	TDA 1250F	5	SB
13.2	EAF-B-4, 5 & 6	KRUGER	TDA 1250F	3	SB
13.3	SF-B-3A & 4A	KRUGER	TDA 1120F	2	SB
13.4	SF-B-3B & 4B	KRUGER	TDA 710F	2	SB
13.5	IJA-B-01 to 35	KRUGER	IJA 355	35	SB
13.6	EF-B-MSB	KRUGER	TDA - M 500	1	MSB ROOM, SB
13.7	EF-R-PRI	KRUGER	TDA 560 F	1	CHILLER PLANT ROOM, SB
13.8	EF-B-GHR	KRUGER	TDA 560	1	GARBAGE HOLDING ROOM, SB
13.9	EF-B-CHILLER PLANT ROOM	KRUGER	TDA 630	1	ROOF CHILLER PLANT ROOM, SB
13.10	SPF-RF-1 to 4	KRUGER	TDA 800F	4	STAIRCASE PRESS. FAN, RF
13.11	LPF-RF1	KRUGER	TDA1000F	1	LOBBY PRESS FAN, SB
13.12	TEF-R-1 & 2	KRUGER	TDA 630	2	TOILET EXHAUST FAN, RF
13.13	EF-B-PR1 & 2, EF-B-DCW 1	KRUGER	APK 355	3	PLANT ROOM, SB
13.14	EF-B-STP	KRUGER	APK 355	1	STP, SB
13.15	KEF-R1	KRUGER	BSB 710 T	1	RF
13.16	EF-RF-LMR-4	KRUGER	APK 400	1	LIFT MOTOR ROOM, RF
13.17	EF-RF-LMR-1 to 3	KRUGER	APK 400	3	LIFT MOTOR ROOM, RF

General Conditions of Contract

1.0 Definitions

In this Contract (as hereunder defined), the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:-

- a) **“Employer”** means the **Sarawak Energy Berhad (007199-D)** and includes the Employer’s successor in title, and permitted assign.
- b) **“Company”** means the **Sarawak Energy Berhad (007199-D)**.
- c) **“Engineer”** means the person appointed from time to time by the Employer and notified in writing to the Contractor.
- d) **“Contract”** means the Condition of Contract, Specification, Drawings, Tender and Contract Agreement.
- e) **“Contractor”** means the person or persons, firm or company whose tender has been accepted by the Company and includes the Contractor’s personal representative, successors and permitted assigns.
- f) **“Sub-contractor”** means any person (other than the Contractor) named in the Contract for any part of the Works or any person to whom any part of the Contract has been sub-let with the consent in writing of the Engineer.
- g) **“Site”** means the building premises and the surrounding compound on, under in or through which the works are to be executed or carried out.
- h) **“Works”** means all Plant to be provided and work to be done by the Contractor under the contract.
- i) **“Temporary Works”** means all temporary works of every kind required in or about the execution or maintenance of the works.
- j) **“Contract Price”** means the sum named in the Tender subject to such additions thereto or deductions therefrom as may be made under the provisions hereafter contained.
- k) **“Writing”** shall include any manuscript, type-written or printed statement under seal or hand as the case may be.

2.0 Extent of Contract

The Contract comprises the execution and completion of the Works and the provision of all labours, materials, equipment and everything required for the completion of the Contract work.

3.0 Assignment And Sub-Letting

The Contractor shall not assign this Contract or sub-letting any portion of the works without the written consent of the Company.

4.0 Site Inspection

Before tendering, the Contractors are advised to visit the sites to ascertain the condition to be encountered. The tender amount or rates will be held to include for the completion of all works indicated in the specification and no claim will be entertained on the ground of lack of acknowledge of the condition at any time during any aspect of the works, he should address subsequent enquiries to the Employer in writing before tendering.

5.0 Contractor To Inform Himself Fully

The Contractor when submitting his tender shall be deemed to have obtained necessary information regarding the Site and to have examined the General Conditions of Contract, Specification, drawings and Schedule, and to have obtained on his own responsibility and at his own expense any additional information which he considers necessary for the completion of his tender.

6.0 Works To The Satisfaction Of The Engineer

Save in so far as it legally or physically impossible, the Contractor shall execute and complete the Works in strict accordance with the Contract to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instructions and directions on any matter (whether mentioned in the Contract or not). The Contractor shall take instructions and directions only from the Engineer or his nominated representative.

7.0 Contract Period

The contract period shall commence seven (7) days after the order of Works has been officially given to the Contractor and shall cover the duration stipulated in the Form of Tender.

8.0 Supervision

The Contractor shall provide efficient supervision of the works, and keep constantly on the work a competent supervisor who can carry out instructions by the Engineer or his representative.

9.0 Contractor's Employee

The Contractor shall be held fully responsible for the behaviour of the personnel employed by him under this contract. The Contractor shall ensure that his employees maintain good discipline and shall at all time, properly attired and to be distinctively identified.

The Company shall be at liberty to object to and require the Contractor to remove forthwith from the works, any person employed by the Contractor in or about the execution of works, who, in the opinion of the Engineer, misconduct himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the works

without written permission of the Company. Any person so removed from the works shall be replaced by a competent substitute.

10.0 Storage Area

The Company shall allocate reasonable area for the Contractor in keeping the tools and washing compound exclusively intended for the execution of the works. However the Company shall not be liable for the loss or damage of such tools or compound stored therein. After the termination of the Contract, the Contractor shall clear all his belongings from the rooms and leave the area in a clean and tidy state.

11.0 Electricity and Water Supply

The Contractor shall be permitted to make use of the electricity and water supply provided on site for the execution of works under this Contract. However, such facilities shall not unreasonably utilize as to cause unnecessary wastage by the Contractor. Under all circumstances the usage shall not in any way whatsoever cause any interruption or disturbance to the usage by the Company's employees at any time.

12.0 Working Hours

The Contractor shall carry out the Contract work during normal office hours **(8:00a.m to 5:00p.m from Monday to Saturday)**.

In the event that the work has to be carried outside normal working hours or during Sunday or Public Holidays, the Contractor shall give adequate notice to the Company's representative. No work shall be carried out after normal office hours without the permission of the Company's representative. The supervisor must submit daily attendance of his workers to SEB's representative.

13.0 Injury or Damaged To Person and Property

The Contractor shall (except if and so far as the Contract provides otherwise) indemnify and keep indemnified the Company against all losses and claims for injuries or damage to any person or property whatsoever which may arise out of or in consequence of the carrying out of the works and against all claims, demands, proceeding, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

14.0 Third Party Insurance

Without limiting his obligations and responsibilities under Clause 13.0 hereof, the Contractor shall insure against any damage loss or injury which may occur to any property or to any person by or arising out of the execution of the Works or temporary works or in the carrying out of the Contract.

Such insurance shall be effected with a first class Insurance Agency or Office and in terms approved by the Company (which approval shall not be unreasonably withheld) and the sum insured shall not be less than the amount stated in the Contract and the Contractor shall whenever required produce to the Company the policy of insurance and the receipt for payment of the current premium.

15.0 Accidents Or Injury To Workmen

The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment or the Contractor or any sub-contractor save and except an accident or injury resulting from any act or default of the Employer, his agents or servant and the Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation (save and except as aforesaid) and against all claims demands proceeding costs charges and expenses whatsoever in respect thereof or in relation thereto.

16.0 Conforming With Law, Etc

The Contractor shall in respect of the Works and Temporary Works, conform to all laws and all statutory rules, regulations and by-laws in force from time to time in the place where work is being or is to be executed, and shall give all notices required to be given, and shall pay all fees that may be lawfully demanded by any public officer in respect of the Works and temporary Works, and he shall perform all duties, and pay all assessments and sums required to be paid in respect of employees and labourers employed by him on the site.

17.0 Labour

- i) All necessary arrangements shall be made by the Contractor for the provision of suitable skilled and unskilled labour required for the execution and completion of the Works, and he shall use diligence in obtaining a sufficient supply of suitable labour.

As far as possible, all labour, both skilled and unskilled, shall be engaged in Sarawak.

- ii) The Contractor shall pay all costs and charged for and shall make all arrangement in connection with the engagement, transport, accommodation and all matter whatsoever in connection with the recruitment of labour, all of which arrangements shall be subject to the relevant laws, regulations and orders of the Government in force from time to time, in the place where work is being or is to be executed.

18.0 Date For Access And Completion

Access to the Site will be given to the Contractor with the Engineer's order to commence works and the Contractor shall thereupon begin the Works forthwith and regularly and diligently proceed with the same and shall complete the same on or before the date for completion stated in the Contract.

19.0 Variation

The Contractor shall not alter any of the Works except as directed in writing by the Employer. The Employer may order the Contractor to alter, amend, omit, add to or otherwise vary any of the Works and no such variation shall in any way vitiate in ascertaining the amount of the Contract Price. The amount (if any) to be added to or deducted from the Contract Price shall be determined in accordance with the rates specified in the Contract so far as the same may be applicable. If the Contract does not contain any rates applicable the reasonable rates shall be agreed with the Employer.

20.0 Payment

Upon completion of the service and maintenance works for a complete month, the contractor shall submit the monthly claim to the Company. The amount of such claim shall be one-twelve (1/12) of the accepted annual contract sum.

Each payment shall be made within 45 days from the date of approval of the Contractor's claim by the Engineer or his representative.

21.0 Penalty

The Company shall reserve the right to withhold and deduct payment in part or in full, if in his opinion that the Contractor has not complete his obligations and duties under this contract a reasonable part of the cycle and works for any calendar month.

If, in the Employer's opinion that the Contractor fails to complete the work due to negligence, the Employer shall at liberty to deduct an amount covering that part of the incomplete works in proportion to the overall scope of works.

22.0 Default Of Contractor

In case of default on the part of the Contractor in carrying out any such order under Clause 6.0 or if the Contractor shall neglect to execute the Works with due diligence and expedition or shall refuse or neglect to comply with any reasonable orders given to him in writing by the Engineer in connection with the Works or shall contravene the provisions of the Contractor, the Employer may give seven day's notice to the Contractor to make good the failure neglect or contravention complained of.

Should the Contractor fail to comply with the notice within seven days from the date of service thereof in the case of a failure, neglect or contravention capable of being made good within that time or otherwise within such time as may be reasonably necessary for making it good, then and in such a case the Employer shall be at liberty to employ other workmen and forthwith execute such parts of the works as the Contractor may have neglected to do and if the Employer shall think fit it shall be lawful for him without prejudice to any other rights he may have under the Contract to take the Works wholly or in part out of the Contractor's hand and employ any other person or persons to complete the Works or any thereof and in that event the Employer shall have the free use of all tools tackle stores and other things that may be at any time on the Site in connection with the Works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same and the Contractor shall pay to the Employer the cost of execution the said part of the Works or completing the Works as the case may be.

23.0 Forfeiture

If the Contractor shall become bankrupt or have a receiving order made against him or shall present his petition in bankruptcy or shall make an arrangement with or assignment in favour of his creditors or shall agree to carry out the Contract under a committee of inspection of his creditors or (being a company) shall go into liquidation other than a voluntary for the purpose of amalgamation or reconstruction or if the Contractor shall have an execution levied on his goods or in the Engineer's opinion the Contractor:

- (a) has abandoned the Contract or
- (b) without reasonable excuse has failed to commence the Works or has suspended the programme of the Works for 28 days after receiving from the Engineer written notice to proceed or
- (c) has failed to remove materials from the Site for 28 days after receiving from the Engineer written notice that the said materials had been condemned and rejected by the Engineer under these conditions or
- (d) is not executing the Works in accordance with Contract or is persistently or is flagrantly neglecting to carry out his obligations under the Contract or
- (e) has to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary sub-let any part of the Contract.

then the Engineer may after given 14 days' notice in writing to the Contractor enter upon the Site and the Works and expel the Contractor therefrom without thereby avoiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Engineer by the Contract and may himself complete the Works or may employ any other Contractor to complete the Works.

24.0 Valuation At Date Of Forfeiture

The Engineer shall as soon as practicable certify what amount (if any) had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the contract and what was the value of any unused or partially used materials.

25.0 Payment After Forfeiture

If the Engineer shall enter and expel the Contractor under this clause, he shall then pay the amount state in Clause 21.0 subject to the deduction of liquidated damages for delay in completion and all other expenses incurred by the Engineer.

26.0 Bankruptcy

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him or compound with his creditors or being a Company commence to be wound up not being a member's voluntary winding up for the purposes of reconstruction or amalgamation or carrying on its business under a receiver for the benefit of its creditors or any of them, the Employer shall be at liberty (a) to terminate the Contract forthwith by notice in writing to the Contractor or to the receiver or liquidator or to any person whom the Contract may become vested or (b) to give such receiver liquidator or other person the option of carrying out the Contract subject to his providing a guarantee for the due and faithful performance of the Contract up to amount to be agreed.

27.0 Arbitration

If any dispute or difference of any kind whatsoever shall arise between the Employer and the Contractor regarding the Contract, the two (2) parties should sit down together to resolve. If the difference cannot be resolved, refer to third party to mediate. Only when the decision of the mediator cannot be accepted by both parties, it shall be settled by Arbitration, the arbitrator being a person appointed jointly by the Employer and the Contractor.

28.0 Contract Subject To Laws Of Sarawak

The Contract shall be and be deemed to be a Malaysian Contract and shall accordingly be governed by and construed according to the laws for the time being in force in Sarawak.

29.0 Occupational Safety and Health Requirement

The contractor shall adhere and follow strictly all regulations concerning safety and security at site. In particular, he shall be responsible that the Occupational Safety and Health Act 1994 is strictly adhered to. The contractor shall comply with all instructions of the security personnel with respect to security at the premises.

The Contractor shall ensure that all relevant workers are properly trained and have valid competency certificates to perform those works/services stipulated by the law or issued by DOSH.

The Contractor shall establish and implement a formal written permit to work system for the purpose of controlling certain types of work which are identified as potentially hazardous.

The Contractor shall assess the need for PPE based on risk assessment. The Contractor shall provide adequate PPE to his workers and it shall be his responsibility to ensure that his workers wear PPE at all times.

30.0 Confidentiality

The contractor shall not disclose or pass confidential information received from the company or any information relating to the company's business to Third parties either in writing or verbally or otherwise without the prior written consent of the Company.

The provision of this clause shall survive until the expiry or termination of this contract.

Specification

1.0 General

The contract works of the service and maintenance covering the premises and surrounding compound of Menara Sarawak Energy, No.1, The Isthmus, Kuching, Sarawak.

2.0 Scope of Work

The scope of works comprises of the execution and completion of the following works inclusive of manpower, materials, consumables, equipment/tools, machineries, etc. The Schedule of Equipment is shown in **Appendix G**.

2.1 Service and maintenance of;

- i. Water cooled chillers.
- ii. Cooling towers.
- iii. Chilled water and condenser water pump sets.
- iv. Air handling units.
- v. Fan coil units.
- vi. Air cooled chillers.
- vii. Air cooled split units.
- viii. Precision air handling units.
- ix. InRow chilled water cooling system.
- x. Variable refrigerant flow system.
- xi. Smoke spill fans and exhaust fans.
- xii. Switchboards.

3.0 The Premises and Surrounding Area

The following drawings represent the indicative area coverage of the various types systems, equipment, surrounding compound of the said premises. The tenderers are responsible to ascertain the actual quantities and the tender sum so quoted is deemed to cover the same. Any claims on the deviation of the quantities stated under this clause and the actual site measurement will not be entertained.

3.1 The following drawings indicate the floor areas and layout of Menara Sarawak Energy: -

Drawing Title	Drawing No.
ACMV Services Chilled Water System Schematic Diagram	SEBHQ/PPC/SEE/ACMV/015
ACMV Services Chilled Water System Schematic Diagram	SEBHQ/PPC/SEE/ACMV/016
ACMV Services Air Cooled Chilled Water System Schematic Diagram	SEBHQ/PPC/SEE/ACMV/017
ACMV Services VRF System Schematic Diagram	SEBHQ/PPC/SEE/ACMV/018

4.0 Manpower and Equipments

The contractor shall provide manpower, materials, equipment and machineries etc. necessary for the high standard of service and maintenance to the satisfaction of the Company.

The contractor shall provide, prior to commencement of the contract, an organization chart stating the manpower requirement to undertake the works for the approval of the Company's representative.

The contractor is required to attend to faults and failures in the said equipment which may occur between the inspections when requested to do so by the SEB within 24 hours upon receiving written notice. This work shall be undertaken during ordinary working hours i.e. Monday to Saturday 8:00AM to 5:00PM.

Should the contractor be required to carry out any work beyond the stipulated ordinary working hours, the contractor shall charge SEB with the following man hour rates as stipulated in the **APPENDIX F** schedule.

5.0 Schedule of Works

5.1 The contractor shall carry out the following works **Monthly**:-

5.1.1 Water cooled chillers

- i. Check refrigerant and compressor oil levels, and replenish refrigerant and compressor oil as necessary.
- ii. Check the operation of all refrigerant controls and clean and adjust as necessary.
- iii. Check the operation of all safety devices, clean, adjust and lubricate as per manufacturer's recommendation.
- iv. Check the evaporator and condenser pressure of all chillers and if abnormal, identify the faults and rectify immediately.
- v. Check all seals and gaskets for leaks and rectify as necessary.

- vi. Check the tightness of all bolts and nuts, and tighten as necessary.
- vii. Check the operation of purge unit and rectify as necessary.
- viii. Check and clean all strainers.
- ix. Check and test all pressure relief valves.
- x. Check all air vents and purge air at manual air vents.
- xi. Check all drain pipes and clear the blockage.
- xii. Inspect and adjust all valves.
- xiii. Check three-phase voltage and current balance.
- xiv. Check all safety switches and alarms for proper operation.

5.1.2 Cooling Towers

- i. Record running hours.
- ii. Check water level, bleed off, ball valve, fans and motors and adjust as necessary.
- iii. Record motor speed, running and starting current and fan speed.
- iv. Check all fan bearings, gearbox oil level and lubricate with grease as per manufacturer's recommendation. Replenish gearbox oil if required.
- v. Check the drive shaft against excessive vibration and adjust as required.
- vi. Check and adjust the V-belt tension. Inspect the belt for normal wear and cracking.
- vii. Check and tighten all bolts for mechanical equipment support.
- viii. Inspection and clean louvers.
- ix. Clean and flush water distribution system.
- x. Check all safety switches and alarms for proper operation.

5.1.3 Chilled Water and Condenser Water Pump Set

- i. Check pumps motor operation and measure running ampere. Adjust or rectify as necessary.
- ii. Check pumps and motor bearings for excessive noise, temperature and observe the operation. Rectify any abnormal operation.
- iii. Check all, seals, gland packaging for leaks and rectify as necessary.
- iv. Check the tightness of all bolts and nuts, and tighten as necessary.
- v. Check alignment and adjust as necessary.
- vi. Check associated valves for leaks and service glands as necessary.

5.1.4 Air Handling Units

- i. Check fan belt condition and tension and replace or adjust if necessary.
- ii. Clean and wash filter media.
- iii. Check and clean drain pipes.
- iv. Check the condition of access door hinges and lubricate if necessary.

- v. Check all fan bearings, and lubricate with grease as per manufacturer's recommendation.
- vi. Check the operation of motorized valves. Clean, adjust and lubricate as per manufacturer's recommendation.
- vii. Check the operation of automatic control system and correct as necessary. Record ambient temperature, "ON/OFF" coil temperature, return air temperature.
- viii. Check and tighten all electrical terminals at starter panel and cabling.

5.1.5 Fan Coil Units

- i. Check fan belt condition and tension and replace or adjust if necessary.
- ii. Clean and wash filter media.
- iii. Check and clean drain pipes.
- iv. Check the operation of motorized valves. Clean, adjust and lubricate as per manufacturer's recommendation.
- v. Check and tighten all electrical terminals at starter panel and cabling.

5.1.1 Smoke Spill Fans and Exhaust Fans

- i. Check the general running condition of the fan. Rectify if any abnormality.
- ii. Check there are no physical obstructions likely to impede performance.
- iii. Check motor and all bearings for noise, overheating and excessive vibration.
- iv. Check flexible connections, where fitted, for leaks, tearing or fraying.
- v. Check fan belt condition and tension and replace or adjust if necessary.
- vi. Check the running ampere of the fan and record for reference.
- vii. Grease the bearings of the fans whenever necessary.

5.2 The contractor shall carry out the following works **Quarterly**:-

5.2.1 Water cooled chillers

- i. Check and adjust controls and inspect for correct operation of chillers.
- ii. Inspection of refrigerant piping between two or more pieces of equipment (excluding chilled water piping) and the insulation of the piping.
- iii. Inspection of electric wiring from the line side starter to its respective motor.
- iv. Lubricate and adjust equipment as required by manufacturer's recommendations.
- v. Inspect all pressure and temperature controls, thermometers, gauges, linkages, control devices and thermostats located at equipment.
- vi. Inspection of the starters.
- vii. Check all safety switches and alarms for proper operation. This shall include, but not limited to: High-pressure cutoff, Low-pressure cutoff, Low oil pressure switch, oil pump

timers, flow switches, pump interlocks, system monitor timers, system freeze stats, vane closing switches.

- viii. Check operation of all operating controls: Temperature control stats, motor load limit controls, vane operation controls, variable frequency drive units (if applicable).
- ix. Check compressor operation: Performance evaluation, Check ampere average balance, check terminal lug torque, check lubricating system, oil levels, and temperatures, check vane operation under various loaded conditions, check operation of expansion valve, superheat settings, check and evaluate performance of purge compressor unit (if applicable).
- x. Check operation of chiller unit: Leak check compressor fittings and terminals, leak check purge compressor (if applicable), leak check oil pump and fittings, leak check relief valves and rupture disk.
- xi. Check operation of main starter: Examine contacts on all electrical connections, verify overload and trip settings, test all electrical connections.
- xii. Perform additional condenser tube brushing as required. FMD approval required and to be billed as the additional brushing rates).
- xiii. Perform additional clean/wash of any air cooled coils including chemical solution as required. FMD approval required and shall be billed as the additional brushing/coil cleaning rate.)

5.2.2 Cooling Towers

- i. Clean infill and water basin.
- ii. Check security of all electrical connection and rectify.
- iii. Check and tighten all bolts for mechanical equipment support.
- iv. Lubricate motor base.
- v. Lubricate fan shaft bearings.
- vi. Seal up all leaks and perform touch up painting on all exposed and rectified rusted surface.

5.2.3 Chilled Water and Condenser Water Pump Set

- i. Check security of all electrical connections and rectify.
- ii. Check all safety switches and alarms for proper operation.

5.2.4 Air Handling Units

- i. Check for abnormal bearing or moving components noise level, rectify or replace as necessary.
- ii. Check alignment of belting and pulleys.

- iii. Check coils and associated piping connections for leakage and purge air from coils.
- iv. Check drips trays and drains and cleans as necessary.
- v. Check and clean strainers to the cooling coil
- vi. Check security of all electrical connections and rectify.
- vii. The temperature gauges shall be removed and checked against certified instruments.
- viii. Check and re-calibrate all transmitters, thermostats, gauges and controllers to ensure accurate indication, recording and control.
- ix. Check condition of secondary and final filters and replace as necessary.

5.2.5 Fan Coil Units

- i. Check and recalibrate all transmitters, thermostats and controllers to ensure accurate indication, recording and control.
- ii. Check condition of secondary and final filters and replace as necessary.

5.2.6 Air Cooled Chillers

- i. Check programmable operating set points and safety cutouts. Assure they are correct for the application.
- ii. Check compressor and evaporator heater operation.
- iii. Check for dirt in the panel. Check door gasket sealing integrity.
- iv. Check all safety switches and alarms for proper operation.

5.2.7 Air Cooled Split Units

- i. Clean and wash filter media.
- ii. Check and clean drain pipes.
- iii. Inspect and check copper refrigerant piping for leaks or defective insulation and rectify.
- iv. Check all coils at evaporator and condenser for leaks and rectify.
- v. Record compressor's running current.
- vi. Check the pressure of the refrigerant. Top up the refrigerant whenever required.
- vii. Check and tighten all electrical terminals at the MCBs.

5.2.8 Precision Air Handling Units

- i. Check temperature set point.
- ii. Check humidity set point.
- iii. Check the heater current reading.
- iv. Check the compressor current reading.
- v. Check the blower fan motor current reading.
- vi. Blower fan Inspection.
- vii. Blower motor and bearing inspection.

- viii. Check and clean air filter.
- ix. Condenser fan motor inspection.
- x. Condenser coil inspection and cleaning.
- xi. Check and clean the drainage.

5.2.9 InRow Chilled Water Cooling System

- i. Check for environmental damage (dirt, dust, debris, liquid stains) around the installation area. Clean dust from door perforations. Clean dust from fan bezels.
- ii. Record the room temperature/humidity near the return of the cooling unit.
- iii. Check the condition of the return air filters. Change if necessary. Clean or replace filters.
- iv. Check the condition of the drain pan and accumulation of debris in the pan. Clean as required. Clean condensate pans. Clean condensate drain line. Remove any debris from condensate floats. Verify that the condensate line is flowing freely.
- v. Verify the chilled water supply temperature for the cooling unit. Verify the operation of the chilled water actuator. Verify the cooling operation mode.
- vi. Check the fans. All components should be moving freely with no signs of binding or damages. Verify that the fan hardware is tight.
- vii. Inspect the electrical panel for tight connections or overheated connections from loose contact terminal.
- viii. Confirm the incoming main power matches the requirements listed on the cooling unit nameplate. The measurement should be within 10% of the nameplate listing.

5.2.10 Variable Refrigerant Flow System

- i. Check and clean air filter. Replace if damaged.
- ii. Check fan and motor for running noise. Clean blade and measure winding resistance.
- iii. Check condensate drain system for blockage and dirt. Clean as necessary. Check pump and float switch operation.
- iv. Check compressors for running noise and measure winding resistance.
- v. Check tightness of terminals for electrical system and tighten as necessary.

5.3 The contractor shall carry out the following works **Half Yearly**:-

5.3.1 Water Cooled Chillers

- i. Check and rectify insulation and sheathing for deterioration and damage. Perform touch up painting on sheathing.
- ii. Check and rectify phase current to within 5% variation and test all motors and starters.

5.3.2 Chilled Water and Condenser Water Pump Set

- i. Check and rectify phase current within 5% variation and test all motors and starters.
 - ii. Perform touch up painting to rusty surface after proper surface treatment.
- 5.3.3 Air Handling Units
- i. Check the fan motor running current.
 - ii. Check function controls and their effect on components.
 - iii. Check fan and motor bearings.
 - iv. Add water and flush condensate drain pan, trap and drain line.
 - v. Check circulating pump and motor in air washer.
 - vi. Check the condition of inlet strainers.
 - vii. Check the condition of chilled/condenser water.
- 5.3.4 Fan Coil Units
- i. Check cooling coil and strainer, clean as necessary.
 - ii. Check for proper functioning of ON/OFF valve and thermostat, adjust or replace as necessary.
- 5.3.5 Air Cooled Chillers
- i. Perform leak test and top up refrigerant as necessary.
- 5.3.6 Air Cooled Split Units
- i. Clean all coils with compressed air.
- 5.3.7 Smoke spill fan and exhaust fans
- i. Check lubrication of bearings.
 - ii. Check couplings for tightness.
 - iii. Check for correct tension.
- 5.4 The contractor shall carry out following works **Annually**:-
- 5.4.1 Water Cooled Chillers
- i. Drain and replace the oil in the compressor oil sump. Inspect and clean water strainers of the evaporator and condenser.
 - ii. Remove end water box for each condenser opposite the header end and brush cleaned the condenser in accordance with manufacturer's recommendation.
 - iii. Annual analysis of oil and refrigerant samples by an independent chemist who shall produce a report on the internal condition of the machines.
 - iv. Check chilled water reset settings and function for approved sequence of operation.
 - v. Check chiller lockout set point. Check settings for approved sequence of operation.

- vi. Verify motor amperage load limit motor amperage should not exceed manufacturer's specification.
- vii. Compressor motor and assembly conduct vibration analysis: Check all alignments to specifications. Check all seals. Lubricate where necessary.
- viii. Perform analysis on oil and filter compressor oil system. Change if necessary. Check oil pump and seals. Check oil heater and thermostat. Check all strainers, valves, etc..
- ix. Perform oil Analysis: The spectrochemical analysis will test for wear and corrosion elements in the oil sample. This will include, but not limited to: iron, chromium, aluminum, lead, silicon, tin, and zinc. Reported results shall be in parts per million (ppm). The Karl Fisher method shall determine the water content of the oil.
- x. Check all electrical connections and terminals for full contact and tightness.
- xi. Check refrigerant condition Add refrigerant if low. Record amounts and address leakage problems.
- xii. Clean off corrosion and paint with anti-corrosive coating.
- xiii. Inspect and clean evaporator and condenser tubes. Indicated when pressure drop across the barrel (tube bundle) exceeds manufacturer's recommendations.
- xiv. Check for condenser and evaporator tube corrosion and clean as needed. Indications include: poor water quality, excessive fouling, and age of chiller. Eddy current testing may be done to assess tube.
- xv. Clean / wash any air cooled coils including chemical solution as required.
- xvi. Megger Insulation Test on compressor motor.
- xvii. Complete leak check of chillers.
- xviii. Inspect starter panel and main contacts for pitting/burring. Torque all connections and clean starter.
- xix. Clean or back flush heat exchanger (VSD, SSS Applications). Replace oil filter and oil return filter/driers (external & internal). Replace oil reclaim filter/strainer (when applicable).
- xx. Replace coolant (After cleaning Hxer, VSD, SSS Applications).
- xxi. Replace or clean starter air filters if applicable.
- xxii. Supplying, changing or cleaning air filters.

5.4.2 Cooling Towers

- i. Check general condition of tower and associated equipment.
- ii. Clean inside of water sump; scrape, brush, and wipe as required; heavy deposits of scale should be removed.

- iii. Inspect and clean spray nozzles.
- iv. Clean tower drive belts and guard. Re-install belts and check proper tension and alignment. Replace belt guard and check for clearance.
- v. Bearings, all type - Check for proper operation and for unusual operation, lubricate.
- vi. Lubricate motor-base-adjusting screw.
- vii. Check operation of unit for leaks, noise or vibration.
- viii. Remove, clean and reinstall strainers.
- ix. Check electrical wiring and connections; make appropriate adjustments.
- x. Check for proper operation and temperature setting of tower fan controls.
- xi. Drive dampers to full open and full close positions. Observe for leakage and conditions that prohibit opening and closing. Lubricate.
- xii. Inspect and clean around cooling tower.

5.4.3 Air Handling Units

- i. Check the operation of dampers.
- ii. Check the filter frame for proper sealing.
- iii. Replace synthetic media in panel filters.
- iv. Check the access doors for easy operation and proper locking.
- v. Check the controls and operation of Roll Filters.
- vi. Check the coils and fin condition. Wash with water spray, if necessary.
- vii. Check the condition of all insulating, regulating valves etc in the system.
- viii. Vent the water coils.
- ix. Check motor and fan bearing lubrication.
- x. Replace belts.
- xi. Check all wiring, controls, isolating devices, terminal connections etc.

5.4.4 Air Cooled Chillers

- i. Conduct an oil analysis to determine the acidity. Record the results and replace if necessary.
- ii. Disconnect power source and lock out. Check tightness of
- iii. Power wiring connections.
- iv. Inspect valves and piping. Clean the filters if necessary clean the condenser tubes.
- v. Clean the chilled water piping filters.
- vi. Clean any corroded surfaces and repaint them.
- vii. Inspect the chilled water circuit for any signs of leakage.
- viii. Check operation of the water circulating pump and its ancillaries.

- ix. Perform compressor vibration test.
 - x. Check the contacts of motor contactors and control devices.
 - xi. Check the adjustment and operation of each control device.
 - xii. Replacement of filter-drier cartridges if necessary
- 5.4.5 InRow Chilled Water Cooling System
- i. Check the cleanliness of the evaporator coil. Clean if required.
 - ii. Check the operation of all system alarms.
- 5.4.6 Smoke Spill Fans and Exhaust Fan
- i. Check pulley wheels and couplings for alignment.
 - ii. Check casing, guards and impeller for corrosion.
 - iii. Check electrical connections, isolators and terminal box.
- 5.4.7 Switchboards
- i. Record readings of all hour run meters, voltmeters and ammeters.
 - ii. Check all starters, contactors and relays for bad contact, clean or replace as necessary.
 - iii. Check control sequence operation. Adjust sequential timing as necessary.
 - iv. Check operation of all test switches and automatic devices and adjust as necessary.

6.0 Monthly Report

As the end of every month during the term of this contract, the contractor shall produce a report stating the works done during the period includes breakdown of manpower during the month, service report of work done. The report shall be attached with the invoice for the purpose of verification.

7.0 Review Meetings

The manager is required to attend monthly meetings with the Engineer to review monthly report and any issues arising, innovation and quality improvement suggestions and results of performance measurement.

8.0 Safety Requirement

The contractor shall at all times observe and comply with all prevailing laws and regulations relating to the safety now and thereafter in force and shall bear all costs associated with the compliance of the same.

The contractor shall be responsible to take all safety precautions to eliminate danger to his workmen, the general public and property or clothes.

Proper warning sign stands and barriers are to be placed or erected and maintained during the progress of work which may danger the safety of the staff or others. The warning signs shall be sufficiently large and clear and shall include words such as "Danger", "Caution" etc. as appropriate.