

CONCESSION CONTRACT

**FOR THE GENERATION
AND PUBLIC SUPPLY
OF ELECTRIC POWER**

IN TANNA ISLAND

(VANUATU)

This agreement is made the 14th day of July... 2000

BETWEEN: THE GOVERNMENT OF THE REPUBLIC OF VANUATU
(hereinafter called "the Government")

of the first part

AND : **THE HONOURABLE Maxime CARLOT KORMAN**, Minister of Lands, Geology, Mines, Energy, Urban and Rural Water Supply and also being the Minister responsible for Power for the purposes of the Electricity Supply Act (Cap 65) as amended (hereinafter called "the Grantor")

of the second part

AND : **UNION ELECTRIQUE DU VANUATU LIMITED** a local Vanuatu Company having its registered office situate at C/o Second Floor, Law House, Kumul Highway, Port Vila, Efate in the Republic of Vanuatu (hereinafter called "the Concessionaire")

of the third part

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NETWORK TO BE CONSTRUCTED**

FIRST PART - CONVENTION

ARTICLE 1. PURPOSE AND TERM OF THE CONCESSION

Section 1.01 PURPOSE OF THE CONCESSION

1. Under the conditions set forth in this agreement, the Grantor concedes to the Concessionaire the right to generate and supply electrical energy to the public for all purposes on the island of TANNA, within the limits of the area as shown on the plan attached in appendix N°1.

The Concession area is defined by the coastline and the straight line boundaries between the points shown on the plan, who's coordinates are :

Point	Longitude	Latitude
A	169° 16' 19.804" East	19° 34' 00.150" South
B	169° 18' 02.195" East	19° 32' 52.582" South
C	169° 15' 17.048" East	19° 29' 07.867" South
D	169° 13' 47.593" East	19° 30' 07.327" South

The concession area may subsequently be extended by an addendum to this contract if the parties agree to extend the geographical area to which the concession shall apply.

2. The Concessionaire has the exclusive right to supply and sell electricity within the limits of the Concession for all purposes to government bodies, the public and other corporate bodies or private individuals for the duration of this contract.

Therefore, the Concession shall confer upon the Concessionaire the exclusive right, within the said limits, to construct and to maintain on or under public thoroughfares and their easements, any lines, constructions and facilities necessary for a public supply of electricity, in accordance with this Contract and in compliance with current and future regulations.

Further, the Concessionaire may supply electricity to consumers outside of the concession area, provided that such supply is not detrimental to the supply within the concession.

Section 1.02 DURATION OF THE CONCESSION

3. The duration of the Concession is fixed at 20 years from the date of effect of this contract.

ARTICLE 2. CONCESSION EQUIPMENT

Section 2.01 CONCESSION EQUIPMENT

4. The concession equipment is deemed to include all of the equipment described in Section 2.02 hereunder as well as all connections and new works to be established during the period of the contract within the area of the concession in accordance with Article 20, Article 21 and Article 22 hereafter.
5. Only the Concessionaire shall have the right to use the Concession facilities. He may, subject if necessary to authorisations, use such facilities to supply electrical energy outside the boundaries of the Concession or for any subsidiary service, as long as these additional services and supply are not detrimental to the good operations of the Concession services as prescribed in the present Contract.

6. The Government and the Grantor hereby agree that they will use their best efforts to facilitate the grant of all consents and authorisations required to be given by all relevant authorities of Vanuatu with respect to the granting to or acquisition by the Concessionaire of land necessary for the construction of generation facilities and to likewise facilitate the grant of all necessary authorisations to construct and operate the equipment and networks above or under public or private roads, and in particular to facilitate the obtaining of all necessary landowners easements and the removal and lopping of trees for the distribution network, and it is hereby acknowledged that the commencement of works shall be subject and conditional upon the prior grant of all the foregoing consents approvals and easements.

Section 2.02 WORKS TO BE CONSTRUCTED BY THE CONCESSIONAIRE

A. Power plant

7. The Concessionaire undertakes to construct at his own expenses a power station of sufficient capacity to satisfy the demand in electricity of the concession and to increase its capacity as required to cater for the increase in consumption.
8. The power generating plant shall be equipped so as to ensure an electrical supply at all times, for all purposes and to all consumers connected to the network even when the most powerful generator is out of service.
9. In view of the uncertainty of the actual increase in demand for the concession over the first years, and considering the necessity of adjusting the capacity of the generation equipment according to the actual increase in demand, the Concessionaire shall not be committed to this requirement over the first five years of operation.

Compliance with this provision does not absolve the Concessionaire from his obligations towards meeting the penalties for default in supply.

10. The indicative brief description of the first works to be constructed at the expense of the Concessionaire are presented in appendix n°2 of this contract.
11. The Concessionaire shall keep an up to date design drawing of the power generating plant and provide to the Grantor a copy of such drawing upon each modification.

B. Distribution network

12. Subject to the obtaining of all necessary consents and authorisations, the Concessionaire undertakes to construct, within 12 months from the date of signature of this contract, the high and low voltage networks and transformers to supply the villages of Isangel, Lenakel, Isini, Bethel and Lownatom as described in appendix n° 3 to this contract.
13. The Concessionaire shall have accurate plans for the high voltage and low voltage networks and shall keep such plans up to date. A copy of these up-to-date plans shall be provided at least once a year to the Grantor.

ARTICLE 3. POWER PURCHASE AGREEMENT

14. The Concessionaire may conclude power purchase agreements with independent power producers subject to the supply in terms of guaranteed capacity, quality and price being coherent with the technical and economic constraints imposed to the Concessionaire by this contract.

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*PART A
Part C
also*

*PART A
Part C
also*

ARTICLE 4. SUBSTITUTION

15. For the duration of the Concession, the Concessionaire may sign leases for titles of land which may be required for erecting facilities necessary for the generation and public supply of electricity.
16. All these leases shall contain a clause reserving the right of the Grantor to replace the Concessionaire upon expiry of the Concession.
17. Any leasehold land held as part of the Concession assets shall be handed over to the Government at the end of the Concession.

ARTICLE 5. POWERS PERSUANT TO THE ELECTRICITY ACT

18. Pursuant to section 5(3) of the Electricity Supply Act (CAP. 65), the Concessionaire is authorised by the Grantor to exercise those powers as contained in section 5(1) (a), (b), (c), and (d) in its own right as the Concessionaire in this Contract.
19. The Concessionaire, in exercise of any of those powers provided for in section 5(1) (a), (b), (c), and (d) and mentioned in sub-paragraph 19, shall be solely responsible for any loss, damage or cost of removal or alteration of any work or the payment of any compensation, or as the case may be.

ARTICLE 6. CONCESSION FIXED ASSETS AND DEPRECIATION

20. Concession fixed assets, shall appear in the accounts of the Concessionaire under two headings
 - Concession Fixed Assets financed by the Concessionaire : this heading shall include all assets to be used for the generation and distribution of electricity which have been financed by the Concessionaire with funds procured or borrowed by himself or from profits derived from the concession which have not been distributed. These assets shall be entered at the value in Vatu for which they were acquired or constructed.
 - Concession Fixed Assets financed by third parties : this heading shall include all assets to be used for the generation and distribution of electricity which were supplied to the Concessionaire by the Grantor or third parties free of charge. These assets shall be entered at the value in Vatu for which they were acquired or constructed, if necessary as determined by an expert.
21. The part of the assets which were financed by the Concessionaire shall be subject to depreciation calculated on the straight line basis over the number of years of useful life of the equipment
22. The useful life of the equipment shall be as follows :

• Civil works	35 years
• High and low voltage distribution network	35 years
• Transformer stations and individual connections	20 years
• Electrical installations in power stations	15 years
• Medium speed generators (less than 1500 rpm)	15 years
• High speed generator (equal or greater than 1500 rpm)	8 years

ART B *
If in the future, new works which are not included in the above should be constructed, their useful life shall be determined by common accord between the Concessionaire and the Grantor.

23. At any time during the contract, the residual value of Concession fixed assets financed by the Concessionaire shall be equal to the value of such assets as entered in the books of the Concessionaire under the heading "Concession fixed assets financed by the Concessionaire" less the total amount of depreciation since their commissioning.

ARTICLE 7. MAJOR MAINTENANCE AND REPAIRS

- ART B *
24. For the duration of the contract, the Concessionaire shall bear the cost of routine and major maintenance and repairs to concession assets whether or not they were initially financed by him so as to keep them in good working order.
25. In the event of assets being financed by the Grantor or third parties, special agreements may be established, in particular when their useful life is shorter than the remaining duration of the contract at the time when they are integrated to the concession.

ARTICLE 8. TRANSFER OF THE OPERATION UPON EXPIRY OF THE CONCESSION

26. On the date set for the expiry of the Concession, the Government, may take over the rights and obligations of the Concessionaire and take possession of all the land and facilities necessary for the production and public distribution of energy.

PROVIDED HOWEVER THAT the Concessionaire shall give written notice to the Grantor not more than 37 months nor less than 36 months prior to the date of expiry of the Concession of the need to make arrangements for the transfer of the operations and upon receipt of such notice the Grantor and the Concessionaire shall commence negotiations for the orderly transfer of operations upon expiry and including the possible renewal of the Concession in favour of the Concessionaire and both parties shall use their best endeavours to conclude such negotiations as expeditiously as possible but in any event shall conclude all such negotiations within a period of twelve (12) months from the date of the Notice.

27. Should the Government exercise such right, the Concession fixed assets including land, power generating plants, sub-stations, transforming and switching stations, mechanical and electrical installations, conduits and individual connections being part of the Concession shall be handed over in a good working order.
28. For the above installations, compensation shall be paid to the Concessionaire equal to the residual value of the concession fixed assets financed by the Concessionaire and calculated as stipulated in Article 6, sub-paragraph 23.

This amount shall be paid to the Concessionaire within six months of the expiry of the Concession.

ARTICLE 9. FORFEITURE

- ART A *
29. Should the Concessionaire not meet his commitments towards the Grantor and especially if public safety were to be jeopardised by him and he refused to take the necessary steps to remedy such a situation, or if operations were partially or wholly suspended, the Grantor shall give notice to him fixing a reasonable time limit either to ensure the future safety of operations or to resume normal services.

30. If at the end of the given time limit in respect of the events indicated above, the Concessionaire has not complied with the requirements of the notice, the Grantor may declare the forfeiture of the Concession.
31. Forfeiture shall not be applicable if the Concessionaire has been unable to fulfill his obligations due to duly ascertained force majeure.
32. In the case of forfeiture, the Government shall take possession of the Concession fixed assets, including land, plant, sub-stations, transforming and switching stations, electrical and mechanical installations and connections being part of the Concession.
33. The Concessionaire shall receive as sole compensation, a sum equal to the residual value of the concession fixed assets financed by the Concessionaire and calculated as stipulated in Article 6, sub-paragraph 23, subject to a 20% deduction by way of agreed and ascertained liquidated damages.
34. This sum shall be paid within a six month period following the declaration of forfeiture.

ARTICLE 10. EXPERT REFEREEES

35. All disputes or differences arising out of or in connection with the depreciation and book values required to be calculated, applied and determined under this Contract shall be determined by two referees, sitting as experts and not as arbitrators and the provisions of Article 13 shall not apply.
36. One expert referee shall be an accountant practising in Nouméa, New Caledonia nominated by the President of the "Chambre Professionnelle des Comptables Libéraux Agréés" in the event of there being no mutual agreement as to the choice of expert referee between parties.

The other expert referee shall be an Electrical Engineer nominated by the President of the Australian Institute of Engineers in the event of there being no mutual agreement as to the choice of expert referee between the parties.

Both expert referees shall have had at least ten (10) years relevant professional experience and knowledge in such matters and shall be independent.
37. The decision of the referees shall be final, but shall be subject to a right of appeal to the Supreme Court of Vanuatu on questions of law only, which right of appeal shall subsist for a period of thirty (30) days from the date of the referee's decision.
38. The making of such decision shall be a condition precedent to any right of action against or liability of the Grantor and/or the Concessionaire.
39. The fees and expenses of the referees shall be borne equally by the parties, who agree that the venue of the reference to the referees shall be port Vila, Vanuatu.

ARTICLE 11. SALE OF OR MODIFICATION TO THE CONCESSION

40. Neither total nor partial sale of the Concession or change of Concessionaire may occur without the approval of the Grantor, under penalty of forfeiture.
41. It is agreed, however, that this approval shall not be unreasonably withheld if the new Concessionaire offers all sufficient technical and financial guarantees, insofar as the services to be provided is concerned.

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ARTICLE 12. VERIFICATION

42. The Concessionaire shall prepare the accounts of the Concession in accordance with the provisions of the law of Vanuatu and of this contract.
43. Such accounts shall be subject to verification by the Company's Statutory Auditors at the Concessionaire's expense.

ARTICLE 13. JURIDICTION

44. The proper law of this agreement shall be the applicable laws of the Republic of Vanuatu but excluding French laws.
45. All differences or disputes arising out of or in connection with this Contract shall be submitted to two arbitrators, one appointed by the Grantor and the other by the Concessionaire. The person appointed as an arbitrator must have relevant experience and knowledge in the matter to be arbitrated upon.

The making of an award shall be a condition precedent to any right of action against or liability of the Grantor and/or the Concessionaire.
46. If the two arbitrators cannot reach agreement, they shall appoint a third arbitrator who shall have a casting vote.
47. If the two arbitrators cannot reach agreement as to the choice of a third arbitrator, the President of the International Chamber of Commerce shall be requested to appoint him.
48. Moreover, it is hereby specified that the parties shall comply with the following time limits:
 - a) If the parties have not been able to reach an agreement within three months following notice of litigation given by either party under the provisions of this Article, they shall proceed to the nomination of their arbitrators;
 - b) The arbitrators shall be appointed within one month;
 - c) The arbitrators shall announce their decisions within six months of the days of their appointment;
 - d) If the two arbitrators cannot reach an agreement they shall nominate a third arbitrator within one month of the date notice was given of their inability to reach agreement, which shall also be given during the six-month period prescribed above;
 - e) The third arbitrator shall announce his decision within two months of his appointment.
49. The arbitrator's award shall be final, but shall be subject to a right of appeal to the Supreme Court of Vanuatu on questions of law only, which right of appeal shall subsist for a period of thirty (30) days from the date of the award.
50. Each party shall pay the fees and expenses of its own expert, as well as half of all other expert appraisals and arbitration expenses.
51. The venue of any arbitration herein shall be Port-Vila, Vanuatu and the rules of Arbitration to be applied shall be those of the International Chamber of Commerce, Paris, France.

ARTICLE 14. REGISTRATION

52. If, for any reason, registration fees should become payable at any time during the term of the this contract, such fees and expenses shall be met by the Concessionaire.

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ARTICLE 15. TEXT OF REFERENCE

53. This Contract shall be signed in both French and English. Should a dispute arise, only the English text shall apply as evidence.

ARTICLE 16. GENERAL CONDITIONS

Section 16.01 ARBITRATION / JURISDICTION

54. The Government, the Grantor and the Concessionaire acknowledge and agree that in the event of any dispute hereunder the provisions of Article 13 shall apply and the parties hereto submit to the jurisdiction of an arbitrator appointed in accordance with the said Article 13.

55. The Government confirms, represents and agrees with the Concessionaire that:

- a) its obligations hereunder are wholly commercial in nature
- b) it waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any arbitration, action or proceeding, the defense of sovereign immunity, any claim that the Government is not personally subject to the jurisdiction of the arbitration tribunal or any court by reason of sovereign immunity or otherwise or that the Government's property is exempt or immune from execution or attachment by reason of sovereign immunity.

Section 16.02 CONSENT AND AUTORIZATIONS

56. The Government shall apply its best endeavors to ensure that all consents and authorizations required to be given by it or any department of the Government, is granted and remains in full force and effect throughout the period of this Contract and in particular so that the Concessionaire has the full right and power to effect remittances inside and outside the Republic for any purpose whatsoever including the repayment of loans, the retirement of capital and the payment of dividends, Management fees or distributions and to import or export plant, machinery, apparatus or equipment as the Concessionaire considers necessary.

Section 16.03 FORCE MAJEURE

57. When the obligations of any party under this Contract, other than the payment of any fees or expenses, cannot be performed in full or in part according to the agreed terms as a direct result of an event that is unforeseeable and of which the occurrence and consequences cannot be prevented or avoided, such as earthquake, typhoon, flood, fire and other national disasters, war, insurrection and similar military actions, civil unrest and strikes, slowdowns and other labor actions, including labour disputes under the Employment Act and trade disputes under the Trade Disputes Act. (an "Event of Force Majeure"), the Party that encounters such Event of Force Majeure (the "Hindered Party") shall not be deemed to be in breach of this Contract if the following conditions are met:

- a) the Event of Force Majeure was the direct cause of stoppage, impediment or delay encountered by the Hindered Party in performing its obligations under this Contract;
- b) the Hindered Party use its best efforts to perform its obligations under this Contract and to reduce the losses to the other party arising from the Event of Force Majeure; and
- c) at the time of the occurrence of the event of Force Majeure, the Hindered Party immediately inform the other party, providing written information on such event within fifteen days of its occurrence, including written statement of the reasons for the delay in implementing or partially implementing this Contract.

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d) The Concessionaire shall use its best endeavours to resolve any such Events of Force Majeure and shall notify the occurrence of any such events to the Vanuatu Government which shall use its best endeavours to resolve the matter and shall provide its full assistance towards resolution of such events urgently.

58. If an Event of Force Majeure shall occur, the parties shall decide whether this Contract shall be amended in light of the impact of the event upon the implementation hereof, and whether the Hindered Party should be partially or fully freed from its obligations hereunder.

Section 16.04 WAIVER

59. No waiver or relaxation partly or wholly of any condition of this Contract by the Grantor, the Government or the Concessionaire shall be valid or binding unless in writing and duly executed or signed by or on behalf of both the Grantor and/or the Government and the Concessionaire and any such waiver or relaxation shall apply (unless agreed otherwise and executed or signed as aforesaid) to the particular occasion in question and shall not be continuing and further shall not constitute a waiver or relaxation of any other Condition.

Section 16.05 SEVERABILITY

60. In the event that all or any part of any Condition of this Concession shall be determined invalid, unlawful or unenforceable to any extent such Condition shall be severed from the remaining Conditions which shall continue to be valid and enforceable to the fullest extent permitted by law unless such severance substantially alters the basis and intent of the Concession whether expressed or implied in which case the Grantor, the Government and the Concessionaire shall consult in good faith with a view to defining a replacement condition.

Section 16.06 REVOCATION

61. Subject to Section 16.08 if any of the following events occurs :

- a) the Concessionaire contravenes or fails to comply with any of the material terms, provisions or limitations of this Concession and does not take action to remedy such contravention or failure to comply within sixty (60) days following written notice from the Grantor requiring such remedy; or
- b) if the Concessionaire persistently contravenes or fails to comply with any of the non-material terms, provisions or limitations of this License and action to remedy such persistent contravention or failure to comply is not taken by the Concessionaire within sixty (60) days following written notice by the Grantor or
- c) an order is made for the winding up, or dissolution without winding up, or any resolution is passed for the winding up of the Concessionaire (otherwise than for the purposes of a reconstruction or amalgamation to which the Grantor has consented, such consent not to be unreasonably withheld) or a receiver, receiver and manager, official manager or like official is appointed over, or a holder of an encumbrance takes possession of, the whole or any substantial part of the undertaking and property of the Concessionaire or if the Concessionaire makes any arrangement or composition with its creditors generally or any similar event occurs in respect of the Concessionaire.

Then the Grantor may in his absolute discretion revoke and determine this Concession and this Concession shall thereupon cease accordingly but without prejudice to any covenant or provision contained in this Concession and on the part of either the Concessionaire or the Government to be observed and performed and any other rights and obligations of the Grantor hereunder PROVIDED ALWAYS HOWEVER THAT where registered security is held by a Vanuatu licensed bank and/or financial institution over the assets and/or undertaking of the Concessionaire then in such case the Grantor shall not be entitled to exercise the said right of revocation unless and until a further period of thirty (30) days notice in writing has expired,

such notice to be given by the Grantor to the bank or financial institution concerned prior to the expiry of the above sixty (60) day period.

Section 16.07 COMPENSATION TO THE CONCESSIONNAIRE

62. In the event that the Government, the Grantor or any agency or department thereof shall, prior to the expiration of the term of the Concession, take steps to terminate this Concession except when permitted to do so under the express terms of this Concession, the Government shall purchase the Concessionaire's Assets (which expression shall include all reasonable outstanding commitments incurred by the Concession in respect of the carrying on of the operation of the Concessionaire under this Contract) at a purchase price equal to the Current Non-Depreciated Value of the Assets at the date of such termination, and in addition, the Government shall pay to the Concessionaire the anticipated profits to the end of the Term lost as a result of the premature termination.

Section 16.08 EXCEPTIONS TO CONCESSIONAIRE OBLIGATIONS

63. The Concessionaire's obligations under this Concession shall have effect subject to the following exceptions and limitations:

- a) the Concessionaire is not obliged to do anything which is not practicable; and
- b) the Concessionaire shall not be held to have failed to comply with any obligation if and to the extent that the Concessionaire is prevented from complying with such obligation by any physical, topographical or other natural obstacle, by the malfunction or failure of any electrical or mechanical plant, machinery or equipment, by the act of any nation (including the Government), authority, local authority or international organisation or as a result of fire, flood, cyclone, storm, explosion, accident, emergency, riot or war or other circumstances enforceable and beyond its reasonable control

Section 16.09 NOT TO APPOINT A THIRD PARTY

64. The Grantor and/or the Government shall not issue to any person other than the Concessionaire any authority or permission to provide, at any time during the term of this Concession, the right to manufacture and supply electric current for lighting and power within the supply areas of Tanna held by the Concessionaire.

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SECOND PART – SPECIFICATIONS

ARTICLE 17. VOLTAGE AND FREQUENCY

65. Electrical energy shall be distributed at low voltage in the form of three-phase alternating 50 hertz current at a voltage rating of 220 Volts between the neutral and the phase and 380 Volts between phases.

The high voltage distribution rating is set at 5,500 Volts.

66. Tolerance shall be plus or minus 2% for frequency and plus or minus 7% for voltage.

ARTICLE 18. GENERAL CONDITIONS OF SERVICE

67. The Concessionaire shall deliver electricity on a permanent basis. He may nevertheless interrupt service for maintenance, connection works and for safety purposes for any works being undertaken in the vicinity of installations.

68. He shall endeavor to reduce such interruptions to a minimum and to make them, inasmuch as it is possible within the requirements of his operations, at periods and times which are likely to cause the least inconvenience to customers.

69. The dates and times of these interruptions shall be indicated at least 24 hours in advance to the Grantor and, by public notice, to the customers concerned.

70. However, in circumstances requiring immediate intervention, the Concessionaire shall be authorised to take the necessary emergency measures, without having to notify the Grantor prior to such emergency intervention.

ARTICLE 19. OBLIGATION TO SUPPLY

71. The Concessionaire shall, in compliance with this Contract and within the boundaries of the Concession, supply electricity to all persons requesting it, on the condition that these applicants guarantee to adhere to their contract for five years at high voltage and for one year at low voltage (these periods shall be reduced for temporary installations).

72. Electricity delivery shall be ensured within one month of receipt of the application by the Concessionaire, this period being extended by a reasonable period of time necessary for carrying out the connection, the extension and possible upgrading of the network or generating facilities. Such periods of time shall be specified in the quotation submitted to the applicant.

73. If current cannot be supplied and if the quotation cannot be submitted to the applicant within a month of the application, the Concessionaire shall in the said month notify the applicant of the date on which he shall be able to supply these documents and the date by which he shall be able to ensure the supply.

74. Should a dispute arise as to what is considered to be a reasonable period of time, the Grantor or his representative shall be called upon to make a decision.

75. The Concessionaire is not constrained to supplying in low voltage, consumers requiring more than 25kVA.

76. In order to prevent an imbalance between the phases of the network, the Concessionaire is not constrained to supply more than 6.6 kVA to single phase, low voltage installations.

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77. The Concessionaire is not constrained to supplying in high voltage, less than 40 kVA.
78. The conditions of supply for customers requesting power ratings exceeding 40 kVA in low voltage or 250 kVA in high voltage shall be determined by mutual agreement.

ARTICLE 20. EXTENSION OF THE NETWORK

79. Extension shall mean any distribution facility, line or equipment to be constructed to supply areas of the Concession not yet supplied with electricity. High voltage and low voltage supplies shall be considered separately. The Concessionaire may at his expense construct any extensions which he believes will benefit the development of the network
80. The Concessionaire shall construct all extension facilities of which a part of the initial cost, determined as prescribed hereinafter, shall be paid for by one or by several customers collectively and if necessary by the Grantor who would substitute the consumers, this participation being limited to facilities absolutely necessary to the supply of the consumers concerned.
81. Facilities constructed in accordance with this article shall form an integral part of the Concession.
82. The plans and quotations of the network extensions shall be prepared by the Concessionaire within a maximum period of three month of the application. The extension shall be put into service within a reasonable period of time which shall be indicated in the quotation. Disputes as to what is a reasonable period of time shall be submitted to the Grantor or his representative.

Section 20.01 NETWORK EXTENSIONS FOR DELIVERY TO HIGH VOLTAGE CUSTOMERS

83. As far as installations supplied at high voltage are concerned, the Concessionaire may demand repayment from all new consumers of 90% of the cost of upgrading the existing network as well as the initial cost of the new lines being part of the high voltage public distribution network, which must be constructed to ensure supply to new customers.
84. A new customer can only be connected to such an extension on the condition that he reimburses the initial customers for part of the establishment costs that they have met, such part shall be proportionate to the power used and to the proportion of the facilities used to convey such power, reduced by one eighth for each year that has elapsed since the extension was first put into use. The same would apply in the event of an increase in power rating by one of the initial customers or if the Concessionaire were to use the extension for his own general needs.
85. The technical and financial conditions resulting from the above provisions should be accurately expressed in a special agreement between the Concessionaire and the customer.

Section 20.02 NETWORK EXTENSION FOR DELIVERY TO LOW VOLTAGE CUSTOMERS

A. Isolated customers or buildings

86. Applicants shall participate to the initial costs of all new facilities (lines and transformers stations), which are required to be constructed to connect them to the existing network.

87. Applicants' contributions shall be set as follows :

Type of construction	Participation of the beneficiary to the initial establishment cost
<ul style="list-style-type: none"> ◦ Extension of High Voltage network ◦ Extension of low voltage network ◦ Transformer stations 	<ul style="list-style-type: none"> ◦ 90 % of total cost ◦ 70 % of cost for the first 300 meters and 90% for the rest over 300 meters. ◦ Supply of necessary land or building and 100% of the cost of civil works for the transformer. (*)

(*) the Concessionnaire shall bear the cost of equipping the transformer of which he shall have free use, in particular to supply the public distribution network or other consumers within the radius of action of the transformer station.

88. A new connection to such an extension may only be made if the applicant agrees to repay a part of the initial costs borne by preceding customers, proportionate to his power rating (or to the number of allotments being supplied) and the proportion of the facilities used by him; these costs, however shall be reduced by one fifth of their value for each year that has elapsed since the extension was set up for low voltage equipment and by one eighth of their value for each year that has elapsed since the extension was set up for high voltage equipment.

B. Subdivisions or groups of houses

a) Low Voltage network

89. The parties who constructed the sub-divisions shall bear the total cost of constructing the low voltage network required to supply the sub-divisions or groups of houses.

b) High Voltage network

90. The parties requesting the supply shall contribute 90% to the cost of constructing the new high voltage lines required to connect the subdivision or group of houses to the existing public network.

c) Transformer stations

91. When a low voltage supply to a subdivision or group of houses requires the construction of one or several transformer stations, the constructing parties shall provide the Concessionnaire with the necessary land or premises; such premises shall be enclosed, covered and suited to their purpose and shall enable the Concessionnaire's agents permanent access; the access shall be sufficient to enable at all times the passing through of equipment.

92. The Concessionnaire shall bear the cost of equipping the one or several transformer stations of which he shall have free use, in particular to supply the public distribution network or other consumers within the radius of action of the transformer station.

93. The Concessionnaire may establish specific agreements with the constructing parties for extensions supplying the subdivisions or groups of houses for the financing of the works providing that these agreements are beneficial to the constructing parties compared to the conditions above.

ARTICLE 21. UPGRADING

94. All upgrading of facilities necessary to ensure, within the prescribed limits, the supply to high and low voltage customers who are already connected shall be carried out at the concessionaire's expense. Such installations are said to include transport and distribution lines, transformers and corresponding civil works.
95. However, if a customer or group of customers request to upgrade their supply from low to high voltage, any upgrading of the existing network shall be considered as an extension and treated accordingly.

ARTICLE 22. CONNECTIONS

96. The following shall be considered as connections :

In high voltage : All power lines and accessories from the junction at the distribution network up to and including the isolating switch at the customer's point of delivery.

In low voltage : All power lines from the junction at the distribution network to an including the meter board except, in the case of a multiple connection, where the limit will be the master switch before the meters :

97. Nevertheless, if the part of the connection situated in the public domain exceeds 30 meters in length, it shall be considered as an extension of the network and treated as such as stipulated in Article 20.
98. Supply shall generally be made through a single line and to a single delivery point for each building supplied, the delivery point being situated generally close to the property boundary.
99. Connections shall be installed under the responsibility of the Concessionaire at the expense of the party requesting the connection, provided that the amount does not exceed the total amount of the establishment cost as defined in Article 23.
100. Connections shall be an integral part of the Concession. They shall be maintained by the Concessionaire at his expense, except, if it be the case for that part of the connection within the limits of the property being supplied.
101. Reinstatement, modifications or removal of connections necessary as a result of works carried out in the building or property being supplied shall be borne by the party having the works carried out.
102. The responsibility of the Concessionaire shall be substituted by that of public services or of individuals for all repair damage or prejudice resulting from works or actions carried out on the connections by parties other than the Concessionaire.

ARTICLE 23. COMMON PROVISIONS FOR EXTENSION OF THE NETWORK OR CONNECTIONS

103. Any disputes relating to the nature of works i.e. whether it is an extension or a connection, which may result in a claim, shall be submitted to the appraisal of the Grantor

104. The initial establishment expenses stipulated in Article 20 and Article 22, shall be considered as covering all direct expenses including outside supplies and services, labour, transport, site supervision, as well as a supplement of 15% to cover overheads, design, etc...

A scale of standard charges may be prepared in agreement between the Grantor and the Concessionaire, particularly for the most common works.

105. Those parts of extensions constructed outside of the public domain and existing easements can only be constructed following the establishment of new easements and/or the obtaining of rights of access. Such easements and authorisations shall be supplied to the Concessionaire and shall be valid for the duration of the Concession.

The obtaining of these documents shall be the responsibility of the consumer or group of consumers requesting the supply of electricity from the Concessionaire

ARTICLE 24. METERS

106. Apparatus for measuring and controlling energy and power shall be of a type approved by the competent authority of Vanuatu and supplied, installed and sealed by the Concessionaire

Section 24 01 LOW VOLTAGE

107. Low voltage control and measuring equipment include namely :

- One active energy meter
- One circuit breaker or set of calibrated fuses
- Metering transformer if required

108. Meters shall be installed in a dry place safe from all corrosive environment, or in a water proof meter box to facilitate their easy reading and maintenance.

Section 24 02 HIGH VOLTAGE

109. Measuring and controlling apparatus include in particular :

- active energy meter and reactive energy meter,
- indicators or recorders of power and their accessories
- clocks or relays, measuring transformers, etc ... when needed

110. The reactive energy meters must be equipped with a device such that the reactive energy, which would be supplied to the network by the customer's installation, cannot be recorded as a deduction from the reactive energy consumed.

111. The installation, sealing and maintenance of the measuring equipment shall be determined by the power supply agreements, under the control of the competent authority of Vanuatu.

112. For power ratings equal to or less than 250 kVA, the metering can be in low voltage, subject to the losses occurring in the transformer during the period for which it is connected to supply, (the duration of which could be measured if necessary), are estimated and taken into account in the consumer's invoice.

113. Special apparatus for controlling or limiting the level of available power according to the level of power subscribed as well as maintenance of such apparatus shall be at the expense of the customer.

114. The Concessionaire shall have the right to seal meters and the special apparatus described herein above, as well as the metering unit of high voltage customers.

115. Circuit-breakers, which limit the power consumed by the customer to the power rating contracted for, shall be sealed by the Concessionaire who reserves the right to check periodically the seals and setting of such apparatus.

116. Customers shall not interfere with such seals. Should the seal of a meter be found to be broken or should the measuring and controlling apparatus be manipulated, supply of electricity shall be immediately suspended, without prejudice to any other compensations and interests that may be payable to the Concessionaire by decision of the Court.

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ARTICLE 25. METER INSPECTION

117. The Concessionaire may inspect the meters as often as he deems fit, but this inspection shall not be charged to the customer.

The Concessionaire's authorized agents shall have access at any time to the measuring and controlling equipment.

118. Consumers may at all time request the checking of their measuring and controlling equipment, either by the Concessionaire, or by an expert chosen by mutual agreement, or, if no agreement can be reached, designated by the competent authority of Vanuatu. Inspection costs shall be payable by the customers if the meter is shown to be exact within plus or minus 5% or if the inaccuracy is to his benefit; they shall be at the expense of the Concessionaire if the inaccuracy greater than 5% and to the disadvantage of the consumer.

In any case, an inaccuracy shall only be taken into consideration if it exceeds the limit of the regulatory tolerance.

ARTICLE 26. CUSTOMER'S AGREEMENT

119. The agreement for the supply of electrical energy shall be established in the format of a subscription form in conformity with the model which will be agreed upon by the Concessionaire and the Grantor.

The provisions stated in that model may be amended only by a special convention between the Concessionaire and the customer.

120. Upon request of the Concessionaire and on signature of the agreement, the customer shall pay an advance on consumption which shall not exceed:

- Small Domestic Consumer agreement : 70 P
- Other Agreements - Low or high voltage : 150 P (per kVA of subscribed power)

P being the base price of electricity as defined in the tariffs applicable at the time of signing the customer agreement. In case of changing the amount of kVA contracted for, or of a change in the tariff category, advance on consumption shall be recalculated taking into account the new agreement and shall result in an adjustment either by an additional payment by the consumer or by a reimbursement by the Concessionaire.

121. Such deposit shall not earn interest and shall be refundable upon expiry of the agreement, with any outstanding payments due by the consumer to the Concessionaire being deducted.

122. Any redistribution of electrical energy by a customer to one or several third parties for any reason whatsoever is forbidden, except with the Concessionaire's prior written consent.

ARTICLE 27. CONTROL OF INSIDE INSTALLATIONS

123. Electricity shall be supplied to customers only if their own installations have been established in accordance with current regulations and standards to:

- avoid disruptions of the operation of the Concessionaire's networks and to guarantee the safety of his staff,
- prevent illegal or fraudulent use of electrical energy.

124. The customer will not operate any kind of autonomous means of producing electricity energy which might run in parallel with the network, unless it complies with the technical conditions arising from the relevant regulations, and only after having obtained the approval of the Concessionaire for the plans and specification of the switching and protection equipment .
125. In view of the objectives defined above, the Concessionaire shall be authorised to check consumers' inside installations before they are put into service and at any time thereafter. Should the installation be found to be defective or should the customer not allow the inspection, the Concessionaire may refuse to supply or continue to supply electricity.
126. Under no circumstances shall the Concessionaire be found liable for the defectiveness of inside installations which he has not established.
- PAC/A ** 127. In the event of disagreement as to the measures to be taken to remove any cause of disruption in the general distribution operations, the dispute shall be submitted to the competent authority of Vanuatu.

ARTICLE 28. DISPUTES WITH THE CUSTOMERS

- PAC/A ** 128. Disputes arising between the Concessionaire and the customers as to the execution and interpretation of this contract shall be submitted to the Grantor and shall, in the event of persistent disagreement, be judged by the Supreme Court of Vanuatu.

ARTICLE 29. PENALTIES

129. Should services be interrupted without justifications, the Concessionaire shall be liable to the following penalties:
- throughout the network : a fine equal to 500 P per hour of interruption,
 - at one transformer : a fine equal to 50 P per transformer per hour of interruption
130. Where the Grantor has requested the Concessionaire to remedy a default not resulting from force majeure and the Concessionaire has not complied with such request within an acceptable period of time, he may be liable for daily penalties not exceeding 15 P for every 5% variation between the voltage or frequency rating exceeding voltage and frequency contractual tolerances.

ARTICLE 30. INSURANCE

131. The Concessionaire shall take out insurance against third party risks arising from his operations.

ARTICLE 31. TARIFFS

Section 31.01 REFERENCE PRICE

132. The reference price per kWh for this contract is fixed at

Po = 30.06 Vatu/kWh

This price Po is based on the economic and fiscal conditions in force as at October 1999, and in particular on the total exemption of import duty and taxes on all goods, equipment and

MRS. [Signature]

consumables to be used in the generation and public supply of electricity within the Concession area of Tanna.

Section 31.02 QUARTERLY PRICE ADJUSTMENT FORMULA

133. The base price P used for billing of electricity and fixed charges, security deposit, penalties applicable to the Concessionaire, and the reconnection fee after interruption to supply, shall be calculated each quarter on the 1st of January, the 1st of April, the 1st of July, and the 1st of October each year by application of the following formula:

$$P = P_o (0,35 + 0,40 \times G/G_o + 0,10 \times M/M_o + 0,15 \times IM/IM_o)$$

Where :

- G** is the average price of a litre of diesel fuel purchased in Tanna, expressed in Vatu/litre calculated by dividing the total amount of invoices received by UNELCO by the corresponding amount of diesel fuel delivered during the first three months of the four months period preceding the date of adjustment of tariffs
- M** shall be the "Total consumer price index" as published by the Bureau of Statistics of Vanuatu for the month of December preceding the date of adjustment of tariffs, the value of which shall not be less than that used for the previous tariff adjustment.
- IM** is the average of the indices " Matériel " (equipment) published by the " Journal Officiel " (New Caledonia Gazette) under the reference "28IM" for the first three months of the four months period preceding the date of adjustment of tariffs.

134. The base indices used to determine the reference price P_o in Section 31.01 are as follows:

- G_o = 39.50 Vatu/litre
 M_o = 121.4
 IM_o = 108.41

135. In the event that certain indices should no longer be published or available, or no longer be representative of variations in economic conditions for which they are used, the Concessionaire and the Grantor shall define replacement indices by common accord.

136. In calculating the base price P, each variable shall be rounded off to the fourth decimal and the price P thus calculated shall be rounded off to 2 decimals.

The selling price of electricity based on the price P, shall be rounded off to the nearest one hundredth of a Vatu.

Invoices, shall be rounded off to the Vatu above for all parts of a Vatu equal or above 0.5 and to the Vatu below for all parts of a Vatu less than 0.5

137. In order to take into consideration construction time for the initial works as defined in Section 2.02, the tariffs which shall be applicable upon starting of the operation shall be determined by applying the adjustment of the quarterly price adjustment formula stipulated in this Article to the reference price P_o

Section 31.03 TARIFFS

138. Electricity shall be sold to consumers on the basis of a two component rate made up of a fixed fee and a charge proportionate to the quantity of electricity used.

139. Depending on the type of agreement signed, the fixed fee is equal to a certain number of units of the base price per kVA contracted for. It covers fixed charges, the rental of the meter and the cost of maintaining the connection.

E. Low Voltage Agreement – Other Uses (T.U.)

148. For low voltage Agreements which do not belong to any of the above 4 categories, electricity consumed will be invoiced as follows:

- Monthly fixed fee $19 \times P$ per kVA of subscribed power
- Electricity $0.96 \times P$ per kWh consumed.

149. Domestic Consumers supplied in Low Voltage who's consumption over the previous 12 months has not exceeded 120 kWh per month may request their agreement to be changed and they may subscribe a P.C.D. Agreement. The new tariffs will be applicable from the month following the change of Agreement and cannot be retroactive.

F. High Voltage Agreements (M.T.)

150. For consumers supplied in high voltage, electricity will be invoiced as follows:

- Electricity $0.70 \times P$ per kWh consumed.
- Monthly fixed fee $25 \times P$ per kVA of subscribed power (or per kVA of peak demand if subscribed power has been exceeded)

Section 31.04 VALUE ADDED TAX (VAT)

151. In accordance with the VAT Act n° 12 of 1998, the Concessionaire shall collect, in addition to the cost of electricity invoiced, a VAT equal to 12.5% of the amount of the invoice before tax. The VAT shall form an integral part of the invoice and any failure to pay the full amount of the VAT will result in the interruption to the supply of electricity by the Concessionaire as is the case in the event of non payment of the full amount of the part of the invoice corresponding to energy consumption.

Section 31.05 SUBSCRIBED POWER

152. For low voltage agreement, the chosen power rating expressed in terms of amperes, shall be one of the usual power ratings of low voltage switchboard circuit-breakers

* 153. The Concessionaire may recommend to the customer the power rating to be contracted for as equivalent to a certain fraction of the combined power of the various appliances (for example : lamps, refrigerators, ...) constituting his total installed power. The method to be used in calculating the recommended power rating shall be established and modified if necessary, in agreement with the Grantor in such a manner that it shall remain fair both to the consumers and to the Concessionaire..

It is nevertheless hereby stipulated that no power rating contracted for shall be lower than either 5 amperes or 1.10 kVA in single phase.

As long as this condition is respected, the customers may choose the power rating they contract for from the standard values of the circuit-breakers after consulting the Concessionaire.

Section 31.06 POWER FACTOR

154. The above prices are calculated on the basis of an average monthly power factor equal or superior to 0.80.

155. Should the average monthly power factor drop below 0.80, the base price of energy shall be increased by 1% per hundredth of the average power factor below 0.80.

This condition shall apply only to those consumers whose meter board include a reactive energy meter, that is, those consumers either supplied in high voltage or those supplied in low voltage but to whom high voltage tariffs apply

Part C also

*PART B **

Section 31.07 REVISION OF THE REFERENCE PRICE AND PRICE ADJUSTMENT FORMULA

156. The reference price P_0 , the quarterly price adjustment formula, and the tariff structure may be revised at the request of either the Grantor or the Concessionaire in the following cases:

- a) If more than 5 years have elapsed since the date of effect of this Contract or since the last revision,
- b) If the price P , as calculated by application of the price adjustment formula, has increased or decreased by more than 15% as compared to the reference price P_0 defined in Section 31.01 or if one of the parameters of the quarterly price adjustment formula increased or decreased by more than 25 % as compared to the values of the base indices defined in Section 31.01
- c) If the fiscal conditions used for the establishment of the reference price in Section 31.01 have been modified,
- d) If a revision appears necessary to allocate sufficient funds to the « depreciation and maintenance fund », depending on the level of expenses to be debited from the fund.
- e) If some new event should cause a major variation in the costs to the Concessionaire such that a review of tariffs appears necessary to pass on the variation in cost due to the new conditions of power generation and distribution in an equitable manner on to the price of electricity.
- f) Or if the Grantor and the Concessionaire agree to modify the tariff structure, either by creating new categories of consumers or canceling existing ones, or by revising the coefficients to be applied to the base price used to calculate the price of energy for the various categories of supply, provided that such modifications cause neither extra profit nor loss for the Concessionaire.

Section 31.08 TAXATION

157. Without limiting the generality of Section 31.07, the parties hereto mutually agree that a review of tariffs shall be undertaken in the event of any increase or decrease of tax payable by the Concessionaire.

158. "Tax" means income tax (including capital gains tax), company tax, franking deficit tax, franking additional tax, pay-as-you-earn remittances, prescribed payments, withholding tax (including deductions pursuant to a royalty withholding obligation), fringe benefits tax, customs duty, sales tax, payroll tax, land tax, stamp duty, financial institutions duty, debits tax, municipal rates and all other taxes, charges, imposts, duties and levies

ARTICLE 32. ACCOUNTS AND STATISTICAL STATEMENTS

*PART A **

159. Every time a tariff revision must be carried out, under the provisions of Section 31.07 or Section 31.08, the Concessionaire shall provide upon request from the Grantor, in addition to the certified annual accounts (balance sheet and profit and loss statements which must be supplied at the end of each financial year), all technical and financial information either past or provisional which could be useful in justifying a request to review tariffs.

Part C also.

Such information may be requested for the previous 5 years or, at the most, for each of the years passed since the last revision. and shall be supplied within three months of the request for revision by the Grantor or Concessionaire.

160. In the event of a disagreement as to what is considered as being reasonable and in the event that a common accord cannot be reached with respect to either the information to be supplied or the revision of tariffs, the conditions relative to arbitration would be applied in accordance with Article 13.

ARTICLE 33. DATE OF EFFECT

162. This contract shall take effect at the time of signature.

ARTICLE 34. ADDITIONAL PROVISIONS

163. Prior to the commencement of works, the Concessionaire shall carry out a detailed inventory of the existing facilities.

164. The Concessionaire shall maintain an up to date inventory of all concession assets as well as the status of their book value at all times, and shall make such inventory open for inspection by the Grantor.

165. The Grantor may appoint a quantity surveyor to validate the inventory supplied by the Concessionaire.

166. One year before the end of the Contract, the Concessionaire and the Grantor shall establish the conditions of transfer of the concession, including the validation of the book value of the concession assets, as stipulated in Article 6.

167. In case of a dispute with respect to book values, the conditions relating to expert referees in Article 10 shall apply.

168. All items to be depreciated shall be deemed to have commenced depreciation upon the date of installation by the Concessionaire thereof.

169. The Concessionaire shall take out insurance against Third Party risks arising from its operations.

PR
*
E
PR

MR 12. DEC

IN WITNESS WHEREOF the parties have hereunto set their hands and affixed their seals at Port Vila on the 14th of July, 2000.

SIGNED SEALED AND DELIVERED for and on behalf of THE GOVERNMENT OF THE REPUBLIC OF VANUATU, by its PRIME MINISTER, the HONOURABLE BARAK TAME SOPE MAUTAMATE, acting in accordance with the previous resolutions of the Council of Ministers :


A large, stylized handwritten signature in black ink, appearing to read 'Barak Tame Sope Mautamate', is written over a circular official seal.

BARAK TAME SOPE MAUTAMATE,
THE PRIME MINISTER


A handwritten signature in black ink, appearing to read 'Tom Jacob', is written over a circular official seal.

in the presence of
TOM JACOB
PRESIDENT OF TAFEA PROVINCE
WITNESS

SIGNED SEALED AND DELIVERED by the HONOURABLE MAXIME CARLOT KORMAN, Minister of Lands, Geology, Mines, Energy, Urban and Rural Water Supply and also being the Minister responsible for Power for the purposes of the Electricity Supply Act


A handwritten signature in black ink, appearing to read 'Maxime Carlot Korman', is written over a circular official seal.

MAXIME CARLOT KORMAN,
MINISTER RESPONSIBLE FOR ENERGY,
THE GRANTOR


A handwritten signature in black ink, appearing to read 'Joe Narua', is written over a circular official seal.

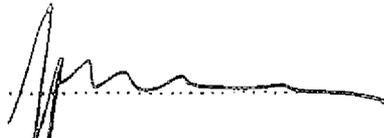
in the presence of
JOE NARUA
SECRETARY GENERAL OF
TAFEA PROVINCE
WITNESS

Handwritten marks and initials at the bottom of the page.

THE COMMON SEAL OF UNION ELECTRIQUE DU VANUATU LIMITED was hereunto
affixed by previous authority of its Board of Directors and in the presence of :



JEAN FRANCOIS BARBEAU
DIRECTOR



GEORGE VASARIS
COMPANY SECRETARY

Handwritten initials and numbers

APPENDIX 1 - LIMITS OF THE TANNA CONCESSION AREA

The Concession area is defined by the coastline and the straight line boundaries between the points shown on the plan, whose coordinates are :

Point	Longitude	Latitude
A	169° 16' 19.804" East	19° 34' 00.150" South
B	169° 18' 02.195" East	19° 32' 52.582" South
C	169° 15' 17.048" East	19° 29' 07.867" South
D	169° 13' 47.593" East	19° 30' 07.327" South

Tanna Concession Area

Tanna Contract

MAI 16. 2011

APPENDIX 2 - DESCRIPTION OF THE TANNA POWER STATION TO BE CONSTRUCTED

Section 2.03 of the contract stipulates :

quote :

"A. Power plant

7. *The Concessionaire undertakes to construct at his own expenses a power station of sufficient capacity to satisfy the demand in electricity of the concession and to increase its capacity as required to cater for the increase in consumption.*
8. *The power generating plant shall be equipped so as to ensure an electrical supply at all times, for all purposes and to all consumers connected to the network even when the most powerful generator is out of service.*
9. *In view of the uncertainty of the actual increase in demand for the concession over the first years, and considering the necessity of adjusting the capacity of the generation equipment according to the actual increase in demand, the Concessionaire shall not be committed to this requirement over the first five years of operation.*

Compliance with this provision does not absolve the Concessionaire from his obligations towards meeting the penalties for default in supply.

10. *The indicative brief description of the first works to be constructed at the expense of the Concessionaire are presented in appendix n°2 of this contract."*

In view of these conditions, the description of the power station to be constructed is limited to an indicative design only and may change in time as the requirements change, bearing in mind that at all times, the power station must perform to the specifications herein.

The indicative design of the power station is as follows :

Sizing of the power station

In order to cater for the demand over the first years of operation, the power station would be initially equipped with three diesel generators, two of which would be 230 kVA and the other would be the existing 60 kVA generator at the Tafea Coop power station.

Location of the power station

The best suited site for the construction of the power station is half way between the two centres where consumption is the greatest as indicated in the plan below :

The site selected for the power is approximately half way between Lenakel and Lowkatai, in a disused coconut plantation along the main road. We have already negotiated an accord in principle for the purchase of land from the custom owner.

Civil Works

Two types of structures can be considered, either a metal hangar on a reinforced concrete slab or a masonry structure with block walls and a concrete slab for a roof.

The design will comprise an electrical control room (high and low voltage) which will be thermally and acoustically insulated from the engine room to protect the electronic equipment from sound hazard and heat interference. A small workshop will be constructed past the end of the engine room.

The power station will be sized to accommodate 3 generating units for the first stage with the possibility of an extension for a fourth generator.

Technical equipment

The generators

Engines will be high speed types (1 500 RPM) mounted on skids and fixed to the slab of the building.

They will be equipped with three phase alternators in 400 Volt designed to operate in parallel between each other and with the existing 60 kVA generator

Synchronization of the units will be done in low voltage and the electrical cubicles will be designed to synchronise and transfer loads without interruption to supply.

Engines will be cooled by radiator cooling systems installed on the chassis itself.

Low voltage bus bars

The low voltage bus bars will include the following :

- 1 cubicle per generator, including for each :
 - visual indicators for operation and faults
 - mechanical and electrical measuring equipment
 - generator controls : start, stop, synchronisation, load transfer
 - electrical and mechanical safety devices
 - low voltage protection and synchronisation switch breaker
- A main cubicle with :
 - Copper bus bar 1200 Amps
 - Power input connection from each generator cubicle
 - A low voltage circuit breaker protecting the step up transformer.
 - A low voltage circuit breaker protecting the isolation transformer for the power station auxiliaries
 - Main metering of power supplied to the network
- An auxiliaries cubicle to protect the various items of equipment in the power station (diesel fuel pumps, lighting, battery chargers, etc..)

Step up transformer

The low voltage bus bars and the high voltage bus bars will be connected by a 400 kVA, 400V/5.5kV step up transformer fitted with a DGPT2 protection relay.

A spare transformer will be permanently held in stock for quick repairs in case of incidents.

High voltage bus bars

> Voltage

Supply voltage will be 5500 volts

> Components of the high voltage bus bars

The 5 500 Volts bus bars will be made up of 3 SM6 type high voltage cubicles (Merlin Gerin) with :

- 1 switch/fuse cubicle QM type for protection of step up transformers.
- 2 motorised switches EM type for isolation of feeders.

Electrical and mechanical auxiliary equipment

The electrical auxiliaries include all control cubicles for generators

The mechanical auxiliaries comprise the equipment necessary for the operation of the power station (battery charger, air compressor, diesel transfer pump, ...).

Fire fighting equipment

Initially, all fire fighting equipment shall comprise extinguishers and a water pump with fire hose.

Diesel oil supply

The fuel storage will consist of a main tank of about 30 000 litres capacity (*). It will be installed inside a reinforced concrete bund wall to avoid any risk of accidental pollution.

The supply to and the return from each generator shall initiate from a common day tank in the powers station. This tank shall have a capacity of 500 litres and shall be fitted with an automatic filling pump, a main meter and a retention basin.

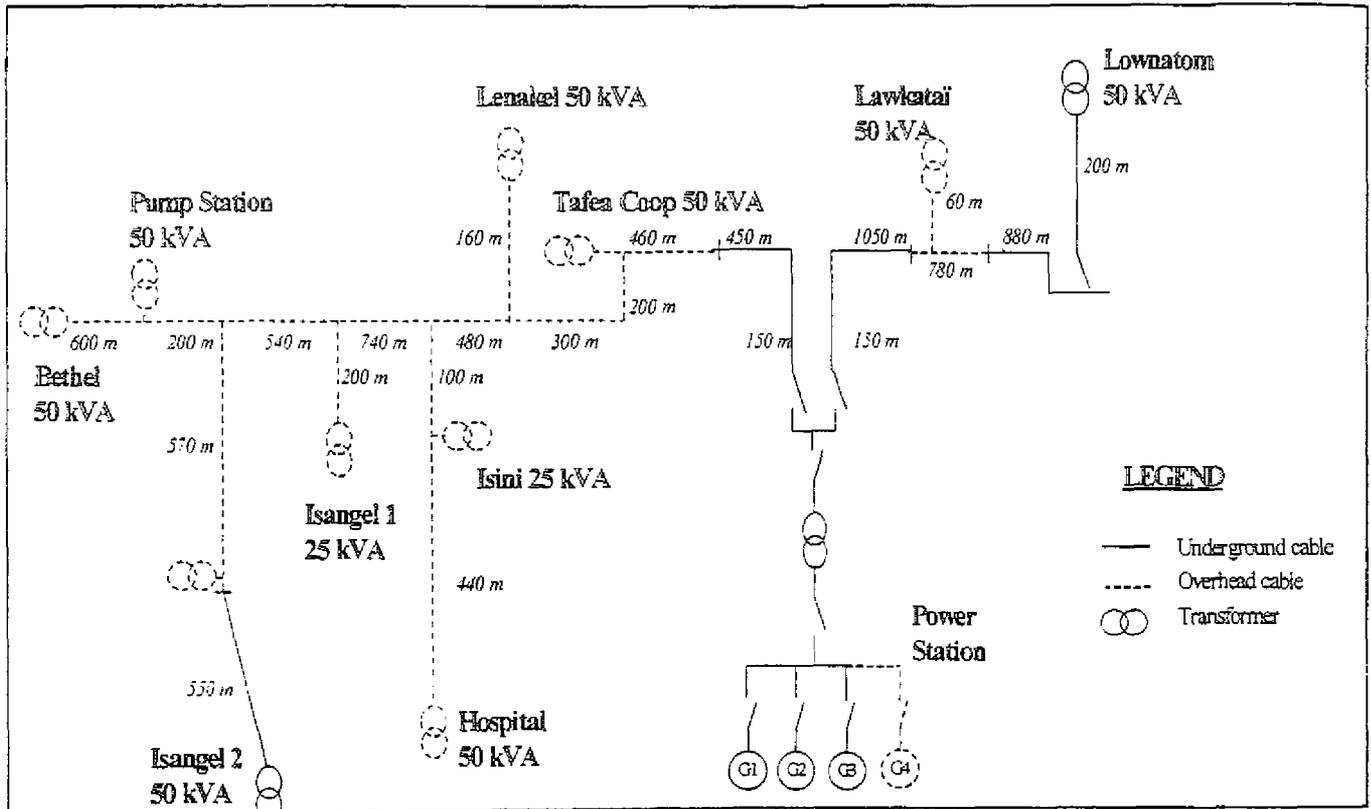
(*) The storage capacity shall be adapted to the actual demand and to the mode of supply from the fuel operators.

APPENDIX 3 - DESCRIPTION OF THE TANNA DISTRIBUTION NETWORK TO BE CONSTRUCTED

High voltage distribution network (HV)

Plan of the network

The plans below represent the schematic layout of the future HV network.



Schematic layout of HV network

Characteristics of the network

The network is divided into two feeders ; one towards Lowkatali and Lownatom and the other towards Lenakel, Isanghel, Isini and Bethel.

Each feeder can be considered as a separate network, in 5 500 volts and is constructed using HN33S23 cable and Aerial Almelec cable.

Feeder for	Length (m)	Type of cable	Section
Lowkatali and Lownatom	2 280	HN33S23	3×95 mm ²
	860	Almelec	54.6 mm ²
Lenakel , Isanghel and Bethel	600	HN33S23	3×95 mm ²
	500	HN33S23	3×50 mm ²
	4 750	Almelec	54.6 mm ²
Total	8 990		

HV network

Transformer Stations

Type of unit

There are two models of transformer stations to consider :

- Pole mounted 25 kVA et 50 kVA transformers
- prefabricated units for 50 kVA transformers

Location and capacity of transformer stations

Location	Type of unit	Capacity (kVA)
Lenakel 1 : Tafea Coop	Pole mounted	50
Lenakel 2	Pole mounted	50
Isini	Pole mounted	25
Hospital	Pole mounted	50
Isangel 1 : 1 st branch towards Isangel	Pole mounted	25
Isangel School	Pole mounted	25
Isangel 2 : Public Works	prefabricated	50
Pump Station	Pole mounted	50
Bethel	Pole mounted	50
Lowkatal	Pole mounted	50
Lownatom	prefabricated	50
Total		475

Characteristics of transformers

Low voltage distribution network (lv)

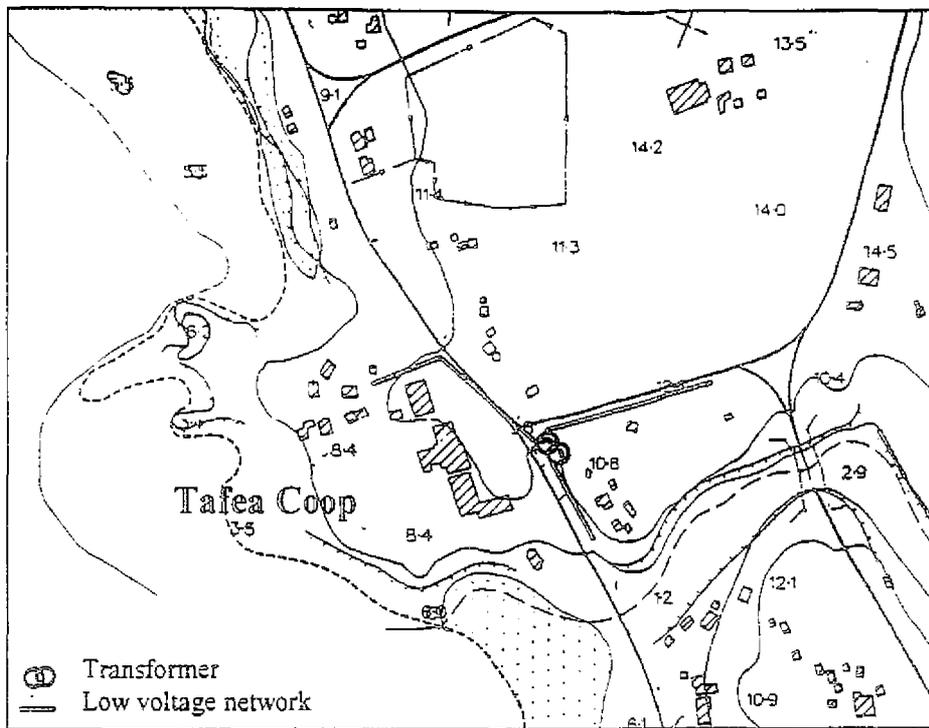
Inspections of the existing distribution networks, of both Public Works and Tafea Co-op have shown that they are sub-standard and UNELCO does not propose to reuse any of them..

The low voltage network will be designed as follows:

A - Lenakel 1 (Tafea Coop)

From the 50 kVA transformer (Lenakel 1) sited near Tafea Coop there is :

- A first low voltage underground line in 3x95mm² + 50 aluminium to the Tafea Coop.
- Two other aerial line in 3x70mm² aluminium supplying houses in the sector

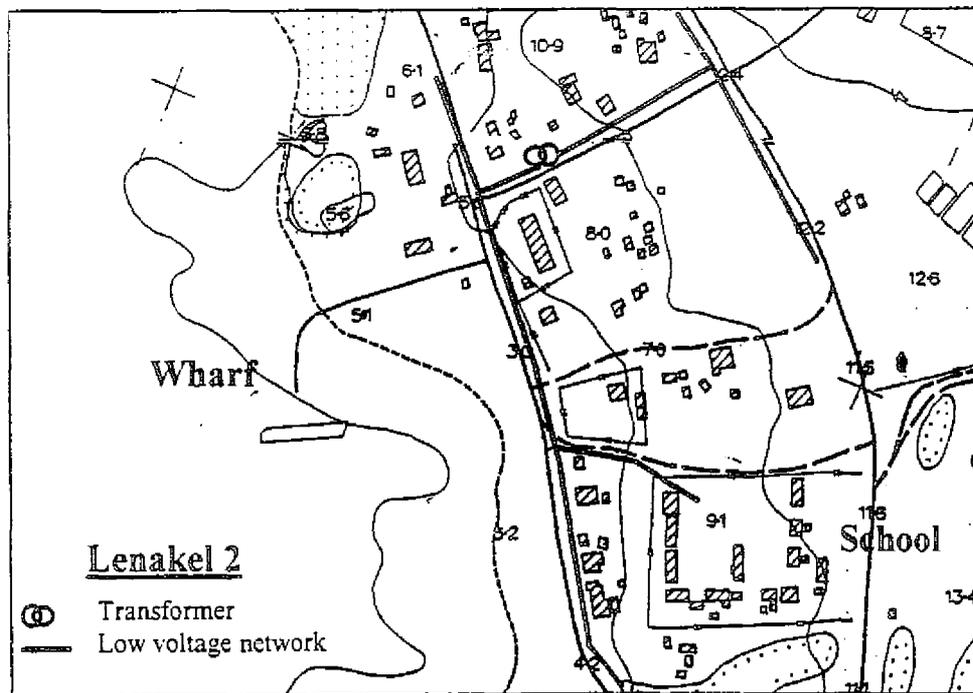


Low voltage network of Lenakel 1

B - Lenakel 2 (near the wharf)

From the 50 kVA transformer (Lenakel 2) sited near the wharf there is :

- 3 aerial lines in $3 \times 70 \text{ mm}^2$ to supply the school and the houses in the vicinity.



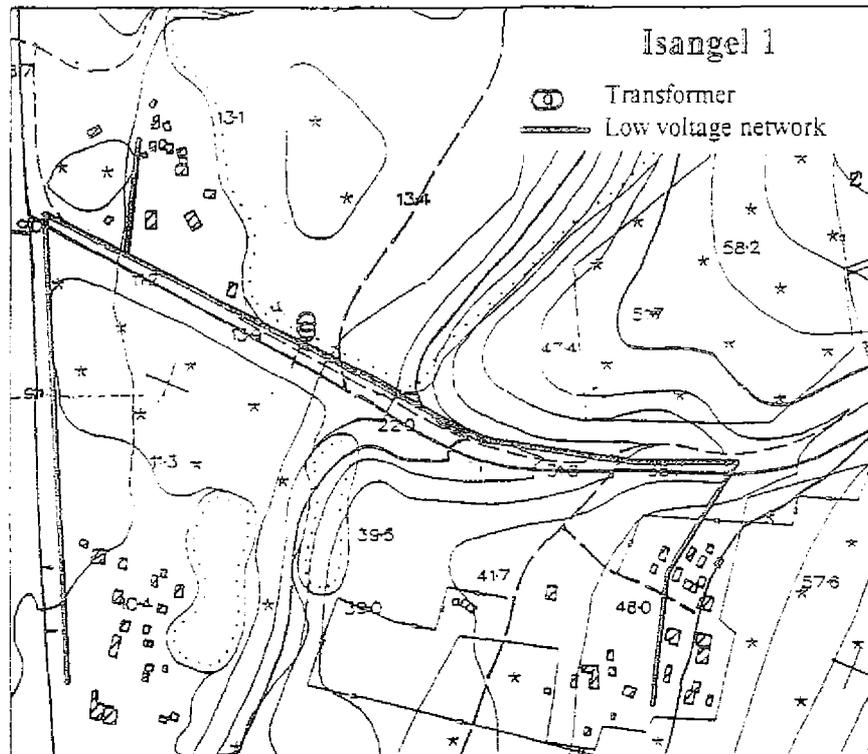
Low voltage network of Lenakel 2

M.T. 12-10-11

C - Isangel 1 (1st branch towards Isangel)

From the 25 kVA transformer (Isangel 1) :

- 2 aerial lines in $3 \times 70 \text{ mm}^2$ to supply the restaurant, shop and houses in the vicinity.

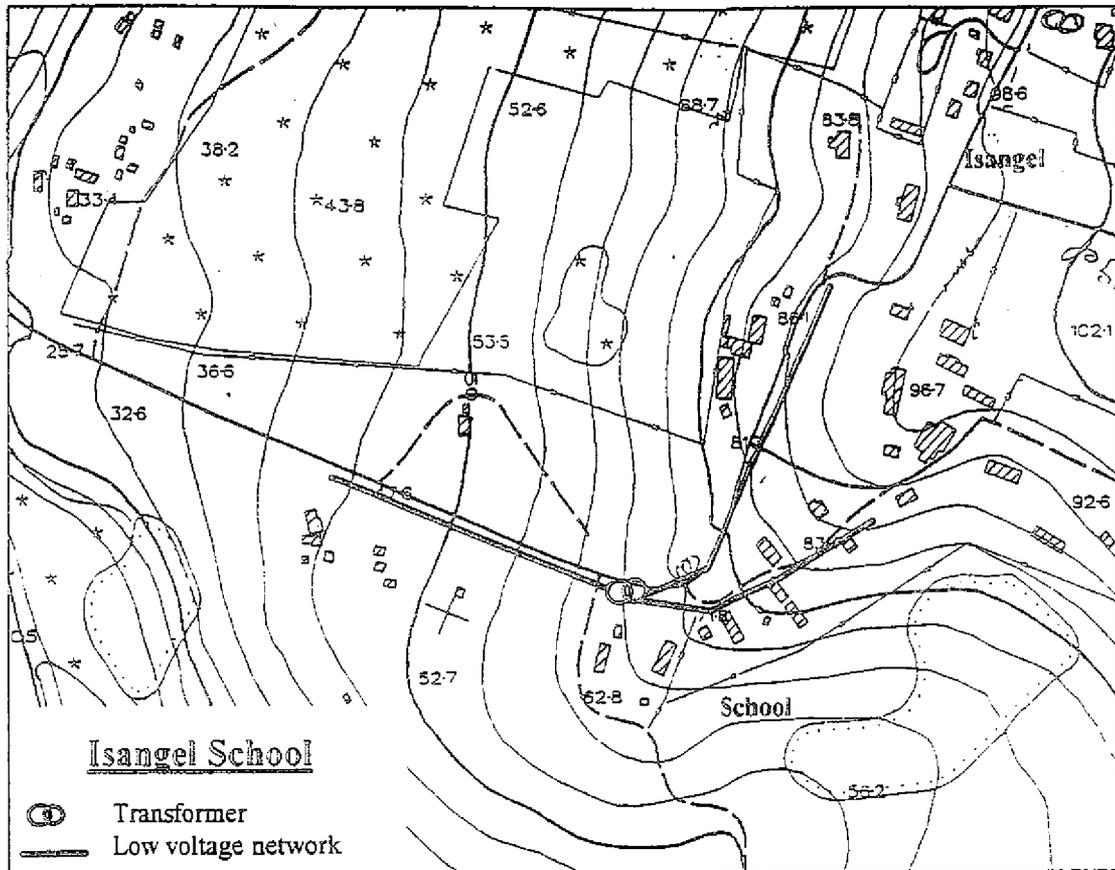


Low voltage network of Isangel !

D - Isangel school (2nd road up the hill towards Isangel)

From the 25 kVA transformer (Isangel school) which sited near the school at the top of the hill :

- 2 underground lines towards the centre of Isangel
- 1 aerial line down towards the sea to supply a few houses.



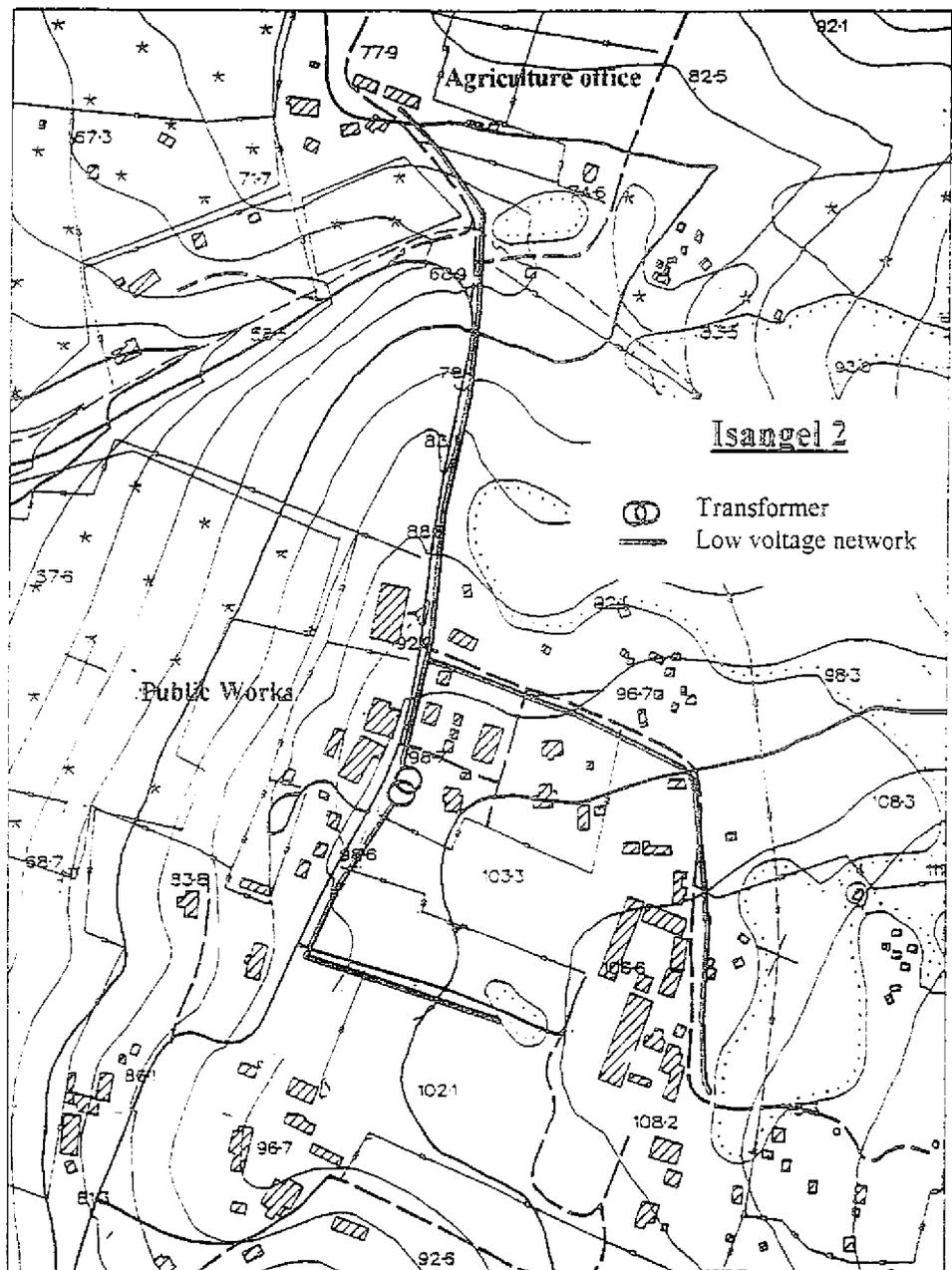
Low voltage network of Isangel school

E - Isangel 2 (public works)

From the 50 kVA transformer (Isangel 2) sited near Public Works there is :

- A first underground line to the agriculture office
- A second underground line towards the high part of Isangel and the school
- A third underground line to the administrative offices

M.T. # 870



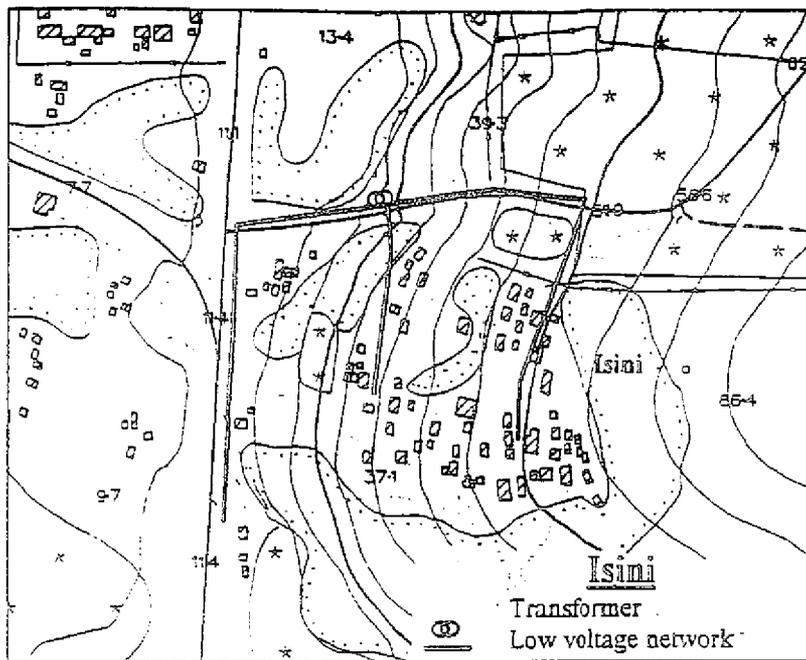
Low voltage network of Isangel 2

F - Isini

From the 25 kVA transformer (Isini) :

- Two LV aerial lines to supply all of the houses in the village
- A third aerial line to supply houses and shops along the main road

M.T.S. W. S.A.

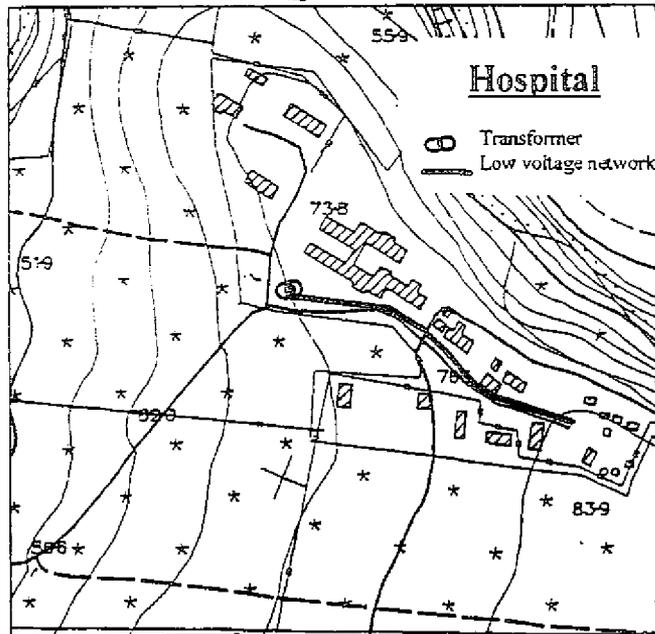


Low voltage network of Isini

G - Hospital

From the 50 kVA transformer (Hospital), the Lenakel hospital shall be supplied by :

- An underground LV line along the road over a distance of 140 meters



Low voltage network of the Lenakel Hospital

H - Pump Station

From the 50 kVA transformer (Pump station), the pump station is supplied by :

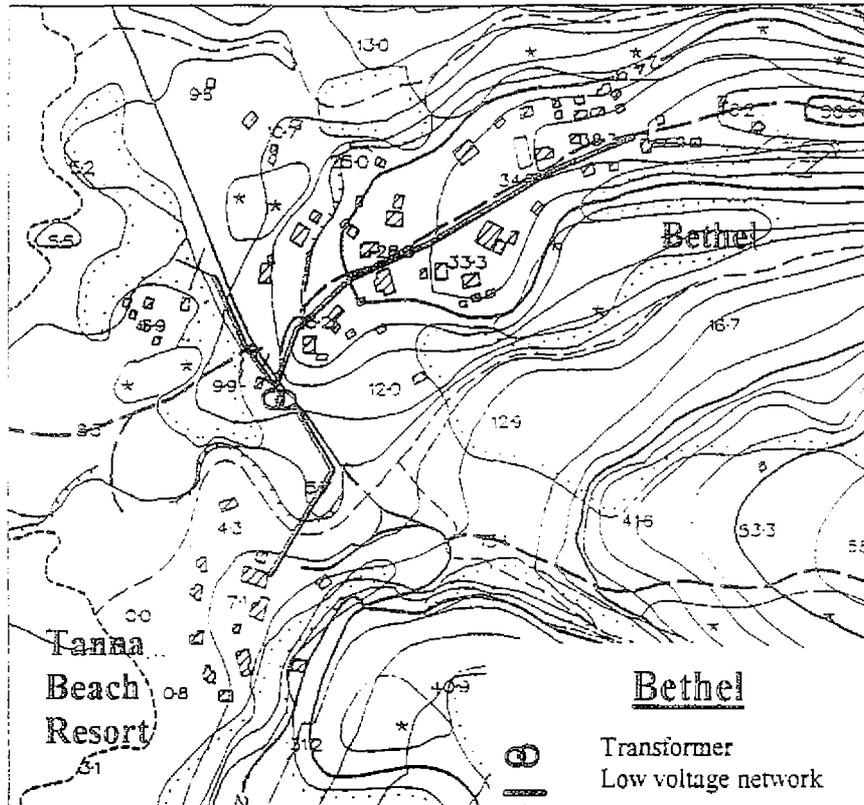
- An aerial line to the pump station

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I- Bethel

From the 50 kVA transformer (Bethel) which will be sited next the main road:

- A aerial first line to Bethel village
- A second aerial line to Tanna Beach Reasort

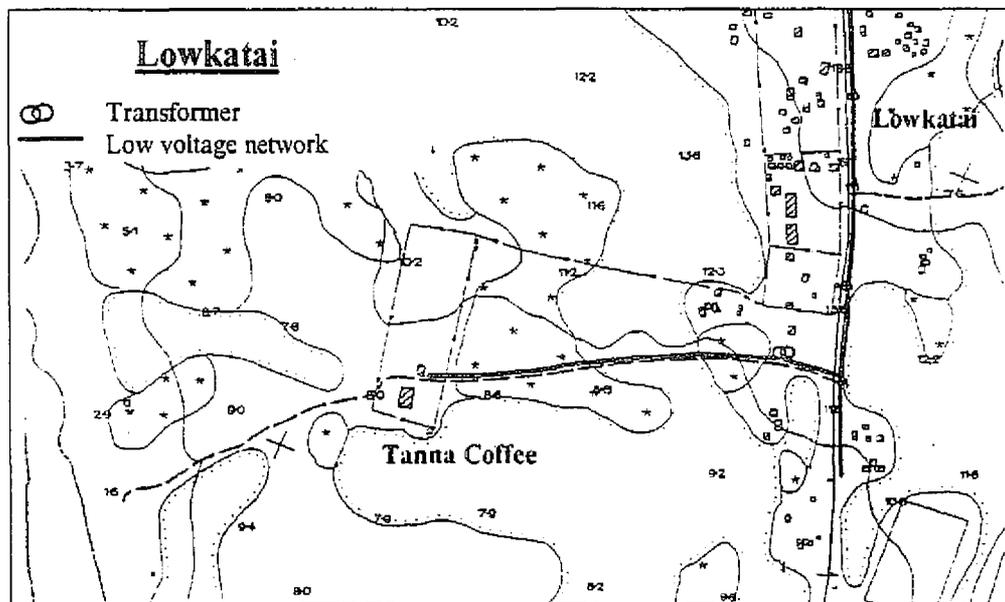


Low voltage network of Bethel

J- Lowkatal

From the 50 kVA transformer (Lowkatal) sited close to the main road along the road to Tanna Coffee:

- An aerial line to the Tanna Coffee factory
- Another aerial line to Lowkatal village

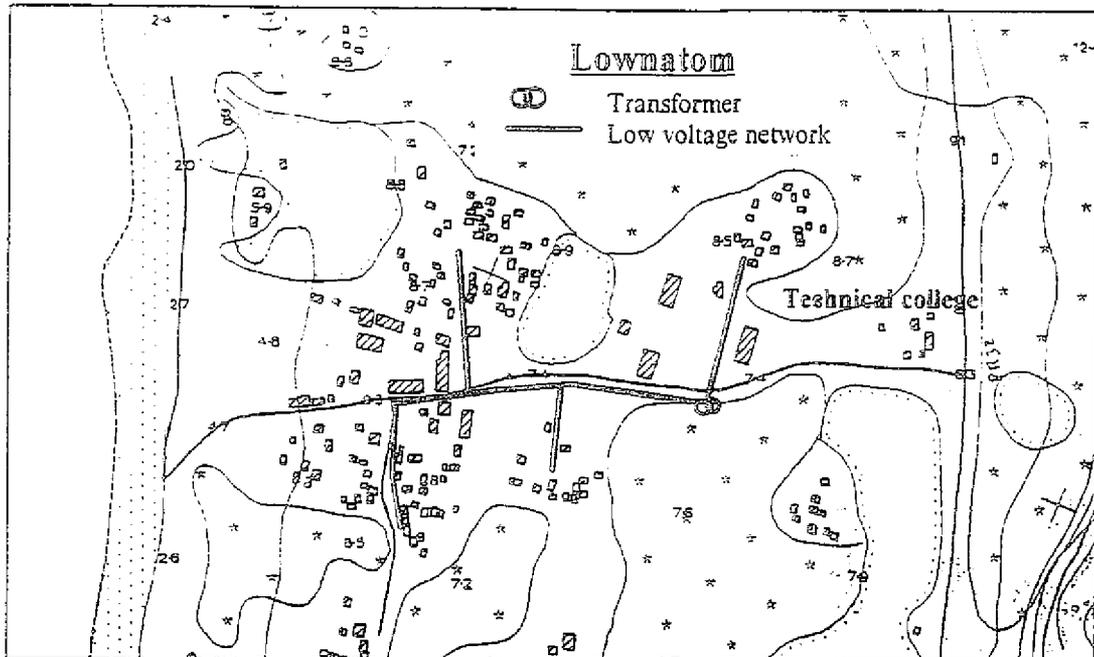


Low voltage network of Lowkatal

K - Lownatom

From the 50 kVA transformer (Lownatom) sited close to the technical college :

- Three LV aerial lines branching off from the main line to the village and the water front
- A supply line for Lownatom technical college



Low voltage network of Lownatom

Summary of the characteristics of the network

Feeder to	Length (m)	Type of cable	Section
Lenakel 1 and 2	120	Alu HN33S33	3×95 + 50 mm ²
	1 850	bundled	3×70 mm ²
Isini	1 000	bundled	3×70 mm ²
Hospital	140	Alu S33	3×95 + 50 mm ²
Isangel 1, 2 and school	1 720	Alu HN33S33	3×95 + 50 mm ²
	1 550	bundled	3×70 mm ²
Pump station	200	bundled	3×70 mm ²
Bethel	650	bundled	3×70 mm ²
Lowkatalai	1 480	bundled	3×70 mm ²
Lownatom	720	bundled	3×70 mm ²
Total	9 430		

Characteristics of low voltage network

Tanna Concession Area