The Lesotho Electricity Corporation: - improving its overall performance in preparation for privatisation –

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THE LESOTHO ELECTRICITY CORPORATION:
IMPROVING ITS OVERALL OPERATION IN PREPARATION FOR PRIVATISATION

Background

The right and obligation to supply electricity in Lesotho is vested in LEC, which was created by an Act of Parliament, The Electricity Act, No. 7 of 1969. This Act, despite a number of amendments and additions over time, still provides the legal basis for the supply of electricity in the country. The latter is the sole responsibility of the LEC, which has the right to undertake all tasks related to the generation, transmission, distribution and supply of electricity in the country. An important modification to the Electricity Act introduced a few years ago is the requirement that LEC should be financially self-sufficient and should be operated on a fully commercial basis. In terms of power generation, LEC's role is complemented by that of the Lesotho Highlands Development Authority (LHDA), responsible for the 'Muela hydropower plant developed as part of the Lesotho Highlands Water Project (LHWP).

Electricity is supplied to end-users by LEC, through a system of transmission and distribution lines operating at various voltages of 132 kV or lower. Until December 1998, when the 'Muela hydropower plant was commissioned, almost all the electricity supplied was purchased from Eskom. While LEC also operates four mini-hydro plants (less than 2 MW each) with diesel powered back-ups, less than 1% of total sales is accounted for by these plants, which operate from 12-24 hours daily.

The Government of Lesotho (GOL) has commenced the transformation of the electricity sector and intends to transfer responsibility for the supply of electricity to the private sector. The GOL will retain control of the strategic planning of the sector and will establish a regulatory body to regulate the sector.

One of the main challenges in the electricity sector is the need to increase access to electricity. At present, less than 3% of the population has access to electricity in their homes, and these electricity users are concentrated in the urban areas: some 75% of all electricity consumption takes place in Maseru.

Other challenges include the need to improve customer service and to address the financial problems existing in Lesotho Electricity Corporation (LEC). LEC's deteriorating performance over several years has imposed a heavy financial burden on the GOL and hampered sound business development in Lesotho.

To improve service delivery, the GOL embarked on a Utilities Sector Reform Project (LURP), supported by credits from the International Development Association (IDA – a member of the World Bank group) and the African Development Bank. The LURP was established in support of the privatisation process in order to ensure efficient and reliably functioning utilities. A key element of the GOL initiative was the appointment of the Interim Management Task Force (IMTF) to prepare LEC for privatisation. The World Bank, under an IDA credit, is providing funding for the IMTF Contract.

Interim Management Task Force

The principle objectives of the IMTF are to reverse the deteriorating performance of LEC in particular with regard to (i) ***limited access to electricity*** (ii) ***financial losses*** (iii) ***operating inefficiency*** (iv**) *non-competitive tariffs and*** (v) ***lack of customer data.***

In summary, the objectives of the IMTF assignment are:

(a) To manage, with remuneration based on performance, all aspects of the operations, maintenance and expansion of LEC for eighteen (18) months, applying normal electricity utility principles to improve financial, commercial and technical performance;

(b) Improve the operational efficiency and overall financial position of LEC;

(c) Increase competitiveness of the utility sector and thereby improve the business development environment in the country;

(d) To change at least six thousand (6,000) existing credit meters to pre-payment meters, and to connect at least 8,000 new pre-payment customers to LEC's distribution networks;

(e) To carry out:

- A detailed customer meter survey to build a geographically referenced (through use of GPS co-ordinates) LEC customer meter database;
- A study on 'Service Territory' to determine LEC's optimal service territory and the service territory to be covered by the future strategic investor after privatisation of LEC; and
- A study on 'Access to Electricity' to identify future potential consumers and growth centres within and outside of the service territory, and also establish a policy for rapidly expanding consumer access to electricity; and

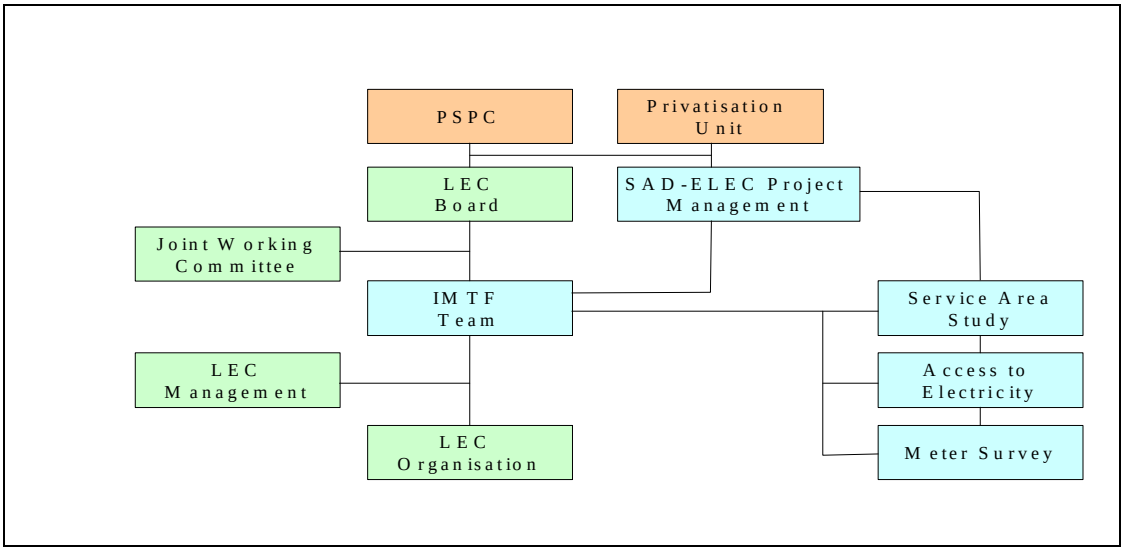
(f) To assist the GOL's Divestiture Advisors (hired under a separate contract) with data and information to facilitate the privatisation of LEC.

A SAD-ELEC led consortium was awarded the contract for the IMTF after a competitive tendering process, with the contract being signed on 21 December 2000. The members of the consortium are:

- SAD-ELEC (overall responsibility for the consortium);
- Power Planning Associates (UK);
- DIALOG (South Africa);
- ECON Centre for Economic Analysis (Norway);
- Utility Consulting Southern Africa (Namibia); and
- Sechaba Consultants (Lesotho).

The IMTF commenced its operations on 1 February 2001, with full line responsibility for the management of LEC and is accountable to the LEC Board for the day-to-day operations of the Corporation. The IMTF management team has been integrated in the existing LEC organisation. It consists of a Managing Director (MD) and four (4) Deputy Managing Directors (DMDs) – a solution that avoided the need for structural changes to LEC's organisation and minimised the implications on existing LEC staff at the early stages of the IMTF contract. The team is supported by a number of experts drawn from the consortium to provide specialist services on a 'call' basis.

The LEC Board is responsible to the Ministry of Natural Resources, and the IMTF, in turn, reports to the LEC Board. However, contractually the IMTF is responsible to the GOL represented by the Privatisation Unit (PU). The PU was established under the November 1995 Privatisation Act and has the institutional responsibility for the public utility reform and privatisation process. The Power Sector Policy Committee (PSPC) plays a role as a quasi-regulator of electricity sector matters, including aspects such as connection and tariff policies. The following chart illustrates the working relationship between the Client (represented by the PU), the LEC Board, the PSPC, the TCER, and the SAD-ELEC Project management team, the IMTF management team, the two special studies' teams, and the meter survey.



Overview of key issues at commencement of the IMTF contract

Key issues identified by the IMTF during the Inception Phase (February 2001) centred on:

- Weak top management lacking focus on its core business of supplying electricity on a commercial basis and expanding its customer base;
- Management systems generally lacking;
- Staff numbers (620) too high for the size of the utility's operations;
- Interfaces between divisions, particularly in terms of customer services, not well defined and causing operational inefficiencies;
- Severe skills shortages, particularly in finance and revenue management, planning and project management, marketing, financial planning and tariff analysis;
- Poor commercial performance; billing system collapsed (in 1997); no reliable customer database. High arrears (although the amount of the arrears was unknown);
- Lack of a credit control policy;
- Lack of a tariff policy;
- Shortcomings in the processes for connecting new customers;
- Poor financial management and performance; (no accounts finalised for the past five financial years and financial information generally lacking or non-existent, or otherwise of unsatisfactory quality (thus, the true level of financial losses was unknown);
- Poor control of expenditure;

- Poor maintenance of assets (plant, equipment, buildings, transport fleet, etc); no asset register; poor housekeeping in hydropower plants and breakdowns not addressed promptly resulting in higher bulk procurement costs than otherwise necessary;
- Non-existent safety practices exposing LEC to unnecessary operational and financial risks;
- Weak communications; and
- Generally low staff morale.

Work undertaken by the IMTF to address key issues

Streamlining of the organisation

In consultation with the LEC Board, LEC senior management and the National Union of Retail and Allied Workers (NURAW[1]), a new organisation structure was developed, and an in-depth skills audit was conducted. Surplus functions and skills gaps were identified.

In total 164 staff were retrenched in 2 phases, and the process was completed by 31 December 2001. Counselling services were extended to all retrenched employees to prepare them psychologically for the transition following a retrenchment decision, and where possible, assistance was also provided in finding new employment. Basic training was given in business enterprise and entrepreneurship development to train retrenchees in small business development, (this was also linked to initial outsourcing agreements), and specific skills enhancement/development financed under the LURP will be made shortly.

A number of non-core activities have been outsourced, e.g.: security, cleaning services. When investigating the cost-benefit of outsourcing, consideration was given to the introduction of 'empowerment' options, i.e. the establishment of small companies owned and staffed by former LEC personnel.

The new structure was implemented in October 2001, staffed from successful internal applicants and external recruitment of specific professional skills. An Evaluation and Grading Committee has been established to undertake grading of current positions that were expanded beyond their original scope, new positions in the future, as well as address any future disputes. The Committee consists of DMDs, senior managers and NURAW members. The Committee is expected to review the results of the initial job profiling and grading exercise conducted during 2001, and finalise the grading of all positions by the end of March 2002.

To create focus for the newly appointed staff and to improve productivity, proposals have been prepared for a performance management system as well as an incentive scheme that will form part of the performance management system. Regular meetings have been held with staff throughout LEC (head office and all Districts) to provide

[1] The labour movement in Lesotho is in its fledging stages. More than 50% of LEC's labour force were signed-up members of NURAW. The IMTF negotiated a recognition agreement between LEC and NURAW. The parties concerned formally signed the Procedural Recognition Agreement in April 2001. Subsequently, procedures and criteria concerning the retrenchment programme were also negotiated and formalised. The Recognition Agreement serves as a roadmap for all stakeholders when critical issues such as retrenchments, privatisation, etc. are discussed and decided.

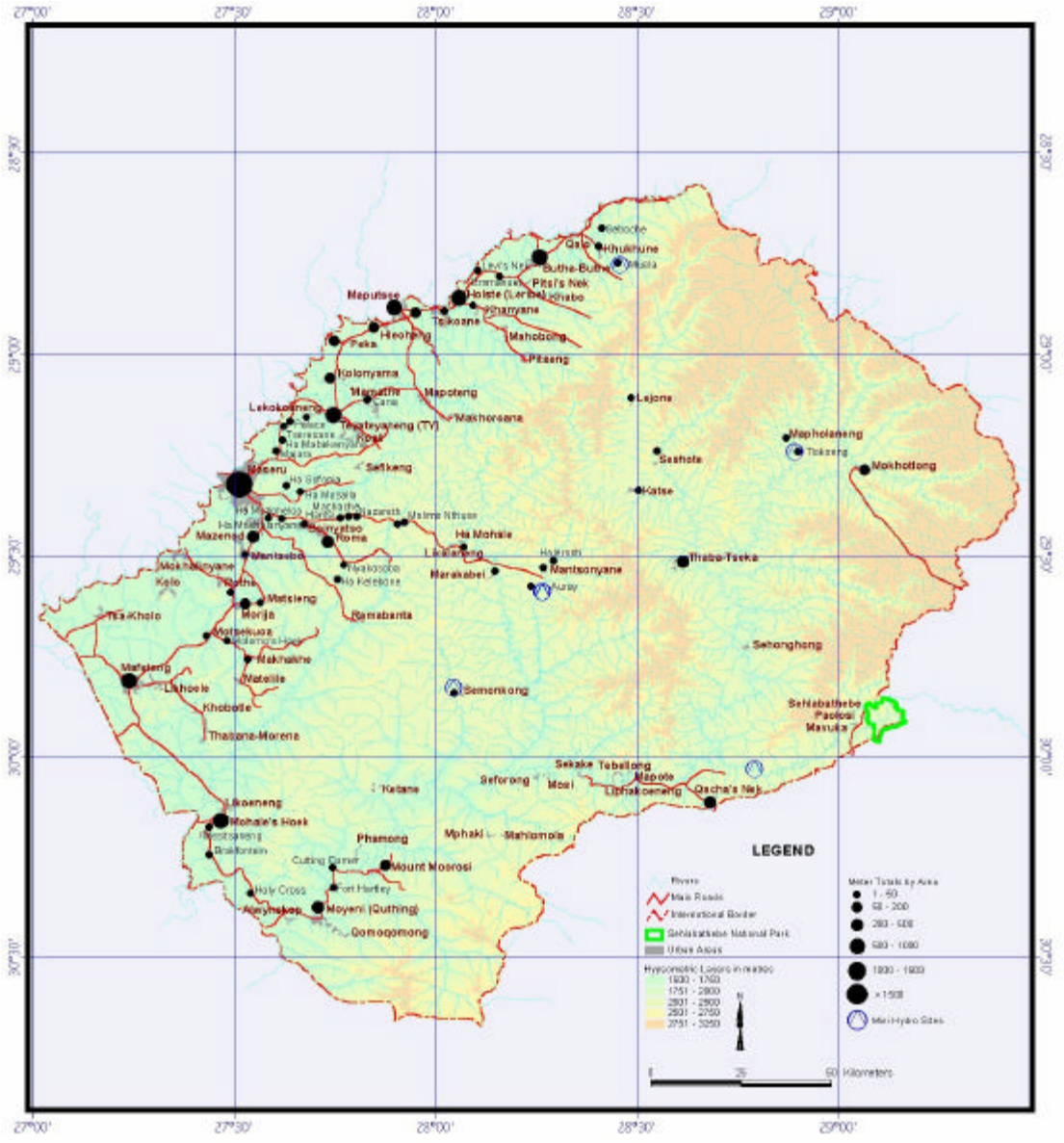
information on LEC's streamlining, the criteria and process for retrenchments, the performance management and incentive scheme, and progress on the job evaluation and grading scheme. NURAW was represented in all the meetings. In addition, a monthly newsletter is distributed to all staff.

Meter survey, meter exchange and customer database

The meter survey was an essential prerequisite to establishing an accurate understanding of LEC's existing customer base and to reintroduce sound commercial practices. Conradie & Venter (consulting engineers) was sub-contracted by SAD-EELC for the meter survey, and sub-contracted part of the work to Grid Management Solutions (Namibia) and Netlab. Information collected during the survey served to:

- facilitate the geographical positioning of all consumers on aerial photographs;
- identify all faulty and tampered meter installations to be rectified; and
- provide the basis for a new customer database.

The areas surveyed are shown on the map below.



The new customer database established from the meter survey had 21,708 records (as of June 2002), of which 356 were large power users on maximum demand meters, 7,493 single-phase and three-phase credit meters, 2,191 Plessey prepayment meters, and 9,524 EML/CashPower prepayment meters. In addition came 2,134 ‘not-at-home’ connections identified by the meter survey and 10 prepayment connections of unknown origin. The ‘not-at-home’ connections were subsequently followed up by LEC and reconciled into the database. The largest discrepancies between the information established from the meter survey and the previous LEC customer records (showing in excess of 29,000 customer entries) were in the prepayment meter datasets. Subsequent to the completion of the meter survey, about 3,000 new customers have been connected to the system, implying a total customer number of close to 25,000 customers as at January 2002.

Meter exchange
Prior to the IMTF contract, indications were that substantial revenue losses were due to corruption, tampering and illegal connections because of dysfunctional management systems and a lack of control measures. LEC had taken the policy decision to phase out credit metering altogether with the exception of large customers on maximum demand tariff. One of the tasks of the IMTF is the replacement of all Domestic and General Purpose customer credit meters with prepayment meters. This amount to about 8,000 credit meters to be replaced (also taking into account credit meters included in the 'not-at-home' customer numbers identified by the meter survey.

The meter exchange programme commenced during the second half of August 2001 and has been completed in most parts of the country. The outstanding exchanges are those that relate to Government buildings where there is need to undertake re-wiring of the premises. These exchanges will only be completed once the necessary wiring has been made. Although a systematic approach by geographic location was preferred for logistical reasons, the meter exchange programme also aimed to improve revenue collection. Therefore, damaged and faulty meters, as well as those that had been tampered with - particularly among commercial customers - received high priority.

Rationalisation and integration of meters and vending systems
Prior to the meter exchange programme, the scope for the rationalisation of prepayment meters was investigated, as was the integration of the different existing meters. Prepayment metering in Lesotho began in 1993 with the installation of about 3,000 Plessey single-phase meters and 3 vending stations in Maseru. Over the period 1994 to 1996 about 10,000 CashPower single and three phase meters and 3 additional vending stations were installed[2]. In addition to the vending machines, two system master stations (one for Plessey and one for CashPower) were installed. However, due to telecommunication problems, transfer of data between the vending stations and the master stations was done via floppy disks about once a week inside Maseru and once a month from outlying areas. Existing vending stations were upgraded to include Standard Transfer System (STS) software and secure modules to ensure that all vending stations can vend to their existing proprietary meter base as well as to any new STS meters. System operators and vendors have been trained to understand the differences between proprietary and STS vending. The new meters procured as part of the IMTF contract follow the STS protocol.

Customer service and marketing

The Maseru Customer Service Centre premises have been renovated and upgraded, and a 'faults desk' has been established to receive all customer fault reports, direct the problem to the correct department/s for resolution, and to be responsible for providing feedback to the customers. Investigations were undertaken in smaller centres to establish the location and priority requirements for additional customer services facilities to receive applications, resolve billing/payment queries, handle general information and enquiries. The investigations included the extension of prepayment vending facilities to presently un-serviced key areas. Three new service centres and a number of new vending points have been established.

[2] As can be seen from these numbers when compared to the result of the meter survey, some of the previously installed prepayment meters were no longer operational at the time of the IMTF taking over responsibility for LEC.

A small specialist department has been created to focus on promotion, education (e.g. customer safety and energy efficiency), customer care, and collection of statistical data for corporate and tariff planning purposes. In co-operation with the Engineering Division, the marketing department is undertaking a concerted marketing drive in the electrification project areas. During December 2001, for example, the team covered 1,307 households in Tsolo and 1,030 households in Tsiu area.

Financial management

The financial management of LEC had been virtually non-existent with a severe lack of normal reconciliation procedures and an inability to provide both internal and external parties with basic information required. LEC had no regular management reporting procedures in place at the time the IMTF took up its position. The latest available management accounts referred to September 2000 and these were subject to major uncertainties as no reconciliations had been undertaken. The establishment of daily cash flow reporting combined with three-month projections was introduced during the first week of February 2001 and provided basic information regarding revenue collection and cash expenditure as well as control over liquidity.

At the beginning of February 2001 LEC had, for no apparent reason, outstanding suppliers' invoices dating back as far as early 2000. This had not only incurred interest liability, but also communicated to suppliers that they were not important to LEC. Consequently LEC could not expect to get attention or 'best' prices from them. The IMTF entered into dialogue to find appropriate solutions to clear suppliers' debt within a few months and to lay the foundations for a satisfactory future commercial relationship.

Management accounting system and revenue management

At the commencement of the IMTF's contract, none of the financial systems in use had IT support, and both the general ledger and supporting ledgers were kept manually. Although manual systems can be effective if well structured and kept up to date, this was not the case in LEC, as exemplified by the four-year backlog in the preparation and auditing of financial accounts. Hence, the introduction of a modern computerised management accounting system was a high priority. The ACCPAC software was identified as the preferred user-friendly system (and is supported locally in Maseru). With the introduction of a new accounting system, the existing stores system was also overhauled.

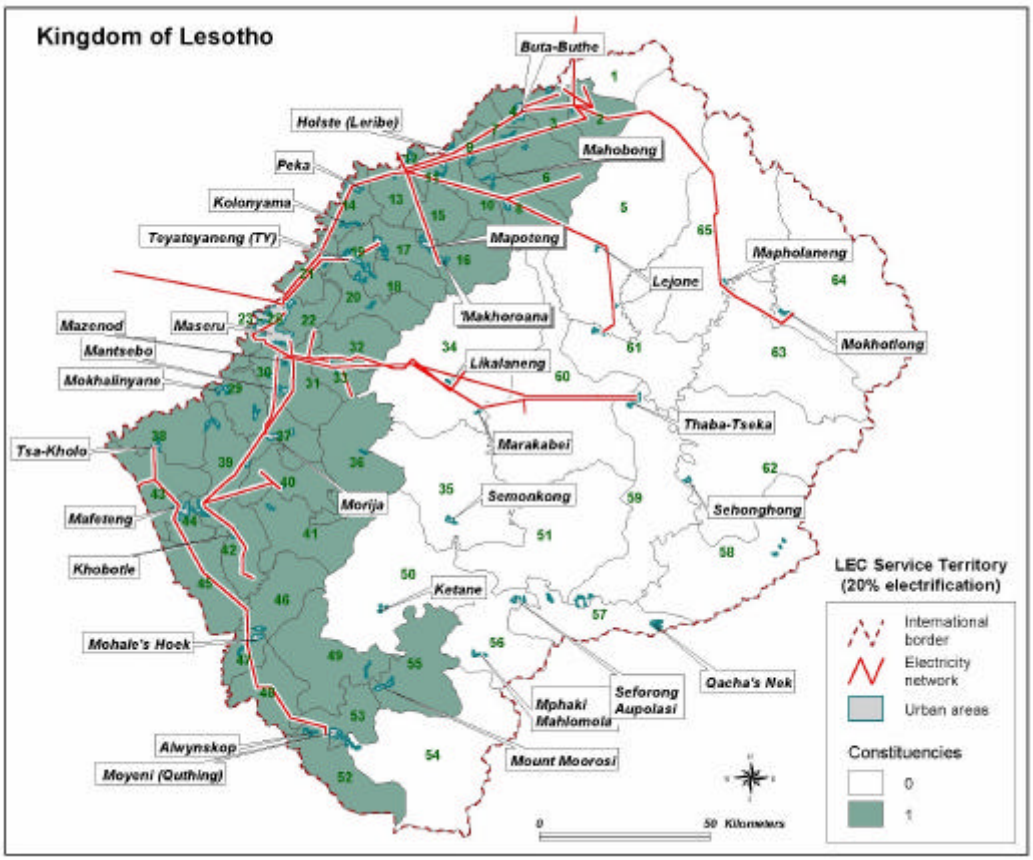
As the meter exchange programme is progressing, the existing credit metered Domestic and General Purpose customer accounts in ABAKUS are being reconciled and closed. This process will lead to the identification of a number of 'ghost' accounts that had been included in LEC's revenue reporting since the commencement of the IMTF assignment. It is clear that this has led to an overstatement of LEC's revenue on a monthly basis. Final reconciled revenue figures will be produced on completion of the meter exchange programme and the subsequent 'decommissioning' of ABAKUS as LEC's main billing system. When the restated revenue figures are clear, the IMTF will initiate a process to restate LEC's management accounts and other financial reports influenced by the restated revenue figures. It is hoped that this process can be completed before the end of the financial year 2001/02 (ending 31 March 2002).

A specific requirement under the IMTF's contract concerned the accounts backlog for 1997-2000. The work of preparing these accounts and having them audited by LEC's external auditors was completed in November 2001. The process is now with the LEC Board before final submission to the Auditor General for certification.

Completion of Service Territory study and the Access to Electricity study

The Service Territory study was sub-contracted to ECON Centre for Economic Analysis. The consultants explored the premise that the principal factor that drives the financial performance of a future LEC is the commitment to electrification, and the financing obligations associated with this. The expansion of the network is limited by the level of debt that LEC's revenue base is able to support.

In the mountainous areas of Lesotho, the costs of extending the network are high, and the low population density together with the limited demand for electricity in these areas mean that revenues will be low. As a result of this, the study recommended that a commercially viable LEC be largely limited to the lowland areas of the country to include the area indicated in the map below.



The study further recommended that within the recommended service territory, ***LEC should have a service obligation***, i.e. an obligation to supply a customer if this customer is willing to pay the costs of providing the service. Associated with this service obligation should be a commitment to invest in network extension, either expressed as a financial sum invested per annum, or as explicit targets in terms of numbers of connections or physical assets installed. While the analysis has indicated an approximate financial level for such a commitment, it will certainly be one of the parameters negotiated (or bid) in any privatisation exercise.

The study demonstrated that LEC should be able to undertake a network extension programme in the first 10 years involving an investment of around M30 – 35 million per annum, including ongoing investment in network replacement and rehabilitation. Forcing an investment programme in excess of this level would drive LEC into a commercially unviable position with debt reaching untenable levels. In later years, once LEC's revenue base has expanded, it is expected that the investment programme could be extended. Having identified the financial limits of LEC, the decision facing GOL is then whether this investment programme should be more intense in a smaller area, or less intense in a larger area. Choosing a smaller area intensifies the expansion programme, but excludes certain areas from the programme. Choosing a larger area spreads the investment across a larger area and population.

Within the recommended service territory, and within the maximum level of investment considered commercially viable, there will still be many areas that LEC will be unable to electrify in the medium to long-term. In fact, the analysis indicates that the network could reach only 20% of currently un-electrified households in the service territory within 15 years. Consequently, the study recommended that LEC's exclusive rights to supply be restricted within its service territory, for example by limiting any exclusivity to a certain distance from existing infrastructure. This will allow communities and individual customers to seek alternative supply arrangements in cases where supply from the LEC network is too expensive.

It can be mentioned that the recommended service territory does not include any of the areas where LEC's four mini-hydro plants are located. However, this should not be interpreted to mean that a future privatised LEC should not own and/or operate such mini-hydro stations. The recommended service territory is purely related to the areas where a privatised LEC would be undertaking distribution and supply of electricity. Generation by LEC can very well be outside of this service territory area. Decisions about the future of LEC's mini-hydros are presently with the LEC Board, based on recommendations provided by the IMTF[3].

The Access to Electricity study was sub-contracted to Utility Consulting Southern Africa (UCSA). The work was undertaken in close co-operation with the team engaged on the Service Territory study, and also made extensive use of the output of the Meter Survey.

The number of potential customers was estimated, based on 1996 census household figures, extrapolated to 2010 with an assumed national population growth rate of 2% per annum. (LEC's present customer classification was used).

	Domestic	**General Purpose**	**Commercial**	**Industrial**	**TOTAL**
Existing, within LEC area	17,659	1,201	1,389	199	**20,448**

[3] The stations generally operate for about five months per year – from December to April – when there is adequate water. Melting of snow from the mountains may also provide for generation in June/July. Two of the stations – Mantšonyane and Tsoelike (Qachas Nek) - are connected to the grid. The other two – Semonkong and Tlokoeng - are isolated and have the customers totally rely on the power generated by the hydro plants, supported by back-up diesel generators. Studies conducted by the IMTF confirm that Mantšonyane and Semonkong are fairly well maintained. Tsoelike and Tlokoeng are generally more 'delicate' plants and shutting / decommissioning could be considered once grid electricity is available. The possibility of selling the plant is also being investigated.

Existing, outside LEC area	548	82	253	21	**904**
Potential, within LEC area (2010)	354,991	2,469	18,996	117	**376,573**
Potential, outside LEC area (2010)	131,556	862	6,633	13	**139,064**

Typical loads per consumer type were used to determine the load. Load growth calculations took account of population growth (2%), take-up rate (30% for households outside LEC's future service territory and 70% within the service territory, 75% for commercial outlets, 100% for general purpose customers), and a linear normal load growth increasing from an initial 'after diversity maximum demand' (ADMD) of 0.43kVA to a final saturation ADMD of 0.59kVA outside LEC's service territory, and from 0.79kVA to 1.22kVA inside the service territory, over a ten year period.

The existing electricity networks were modelled with network analysis software, from transmission level (132kV) down to distribution level (33kV). Possible future load constraints on distribution station capacity, as a result of electrification, are summarised in the following table:

33kV Distribution Station	**Current Capacity (MVA)**	**Existing load**		**Inside buffer - Year 5**		**Outside buffer - Year 5**	
		Load (MVA)	% Spare Capacity	Load (MVA)	% Spare Capacity	Load (MVA)	% Spare Capacity
Boesman's Nek	Eskom	N/A	N/A	-	-	9.3	-
Mabote / Highway	80	47	41	65.7	18	94	-
Khukune	40	4.7	88	9.9	75	40.9	-
Letseng	20	2.7	86.5	17.6	12	44.8	-
Likhoele	20	9.5	52.5	83.3	-	145.8	-
Maputso	20	5.8	71	-	100	36.5	-
Mazenod	20	11	45	45.8	-	120.3	-
Muela	10	1	90	1.1	89	6.2	38
Quacha's Nek	Eskom	2.7	N/A	-	-	14.8	-

Two grid electrification scenarios were analysed:

- total grid electrification of the entire country; and
- grid electrification of all potential customers within a 10km buffer around existing 33kV infrastructure.

The first scenario provides an indication of the total budget requirements for electrification, while the second scenario represents a more realistic estimate of the grid electrification costs over the next 10 years or so. Areas outside the 10km buffer zone are considered off-grid areas (as contemplated in the 1998 policy statement on the electricity sector). An annual electrification budget of M20 million was assumed for areas outside the future LEC service territory, while M32.5 million are available annually for the future LEC service territory. With these budgets the time it will take to achieve the scenario targets, based on a set of standard electrification cost rates, is calculated.

Summary and conclusions

The IMTF has made considerable progress towards improving LEC's operational efficiency and overall financial position[4], inter alia through:

- streamlining human resources and completing the retrenchment process;
- developing skills enhancement plans and undertaking urgently required formal and on-job training;
- providing mechanisms for performance management;
- completing a meter survey and putting the structures in place for the restoration of the customer database, revenue collection and the reduction of non-technical losses;
- connecting over 5,000 new customers and instituting measures to facilitate the connection of a further 3,000 during the contract period;
- providing strong financial management through the introduction of ACCPAC and the provision of training, recruitment of new professional skills, clearing the accounts backlog, undertaking an asset valuation and rebuilding the asset register;
- completing a study and recommendations for an optimal service territory for the private company that will be formed through the divestiture of LEC; and
- carrying out a study of measures to be used to improve access to electricity in areas both inside and outside the service territory of the private company.

Despite the progress, there are still many problems to tackle, and many of these were outlined in this paper.

Also, the IMTF has also not always covered itself in glory. It is true that the situation 'on the ground' was worse than indicated in pre-bidding documentation and briefings, or had appeared from previous interactions with LEC. While the IMTF had assumed that the rectification of the long-accumulated problems would be a gradual process, more problems kept cropping up, and it became evident that the time frames envisaged in the original work plans had been underestimated. This was compounded by the low level of skills found in LEC – also contrary to the impressions gained and assumptions made prior to the IMTF assignment. Although a great deal was achieved in the first three-four months to provide the foundations for LEC's recovery, the Client was anxious that there was insufficient visible sign of the progress being made. To this extent, certain amendments to the IMTF's contract were made to further strengthen the focus on tangible deliverables.

In this context it should be mentioned that an area that has impacted on the speed of delivery has been the emphasis placed, in terms of the IMTF contract, on recovery of historical information. To this day, considerable management time is required for identifying and explaining events that took place in years past. Clearly, this reduces the time available to deal with present and future issues.

One important area concerns the delegation of authority required to discharge the contractual obligation of full responsibility for LEC's management. Due to LEC's poor past performance, the Board had assumed a more hands-on role than is generally

[4] LEC has been cash positive since February 2001.

the case. It took some time for the IMTF to find the appropriate modus operandi, a process that has been assisted by the establishment of a number of Board subcommittees.

The arrival in November 2001 of the Sales Advisory team appointed to advice GOL, and prepare the privatisation of LEC, signals a further chapter in LEC's history. The IMTF will make the contributions expected of it. Problems still continue to arise and we will make mistakes. But progress is now visible and is acknowledged. The structures are in place and LEC is well on the way to becoming an entity capable of attracting private investment.