

Memorandum

To: Dr. Kevin Warr, USAID/Washington
Mr. Vinod Shrivastava, CORE International, Inc.

Subject: Report on CNELEC Meetings, January-February 2006

1. Scope of Work

The objective of this assignment was to provide advice to the Minister of Energy in Mozambique in the creation of a feasible and credible action plan to make the advisory electricity regulatory body, CNELEC, operational. To accomplish this objective, the scope of work lists the following set of activities:

1. Travel to Mozambique for a period of two weeks to assess the sector; meet with the Minister, other stakeholders, and key donors;
2. The contractor shall provide independent, expert advice on short term operational steps to help CNELEC transform itself into a strong advisory body;
3. This expert advice will be delivered through a combination of face-to-face meetings, telephone exchanges and mail messages. It is expected that the consultant, in this initial phase, will develop a sensible plan for meeting the Minister's technical assistance needs.

1.1 Key Findings

The consultant found that there is a real role for an advisory regulator in Mozambique. The unmet decision support needs for the initial organizational period of CNELEC, in months 1-18, including the following substantive areas of interest:

1. Tariff;
2. Performance Agreement between EdM and the Government;
3. Customer Service;
4. Competition- regulation, entry/exit, impacts of tariffs.

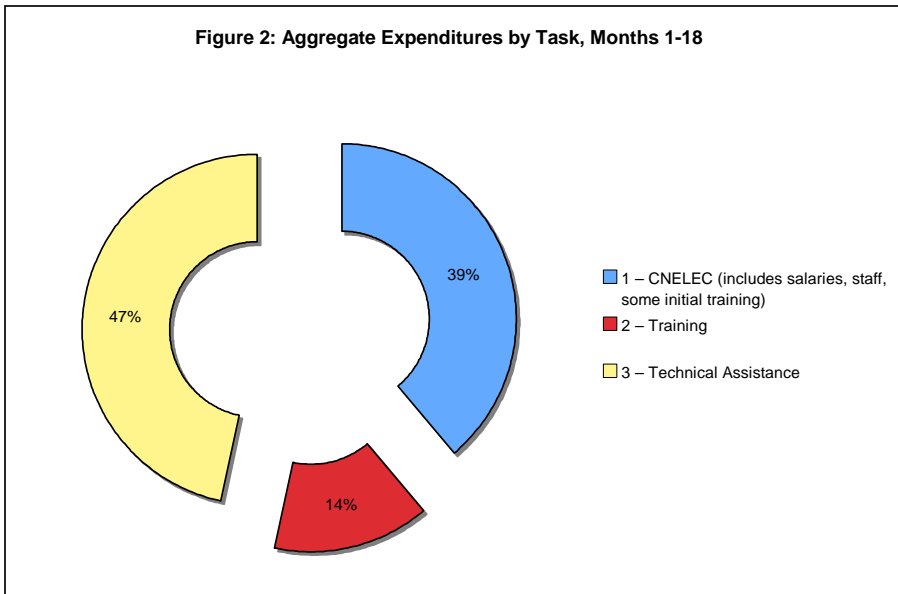
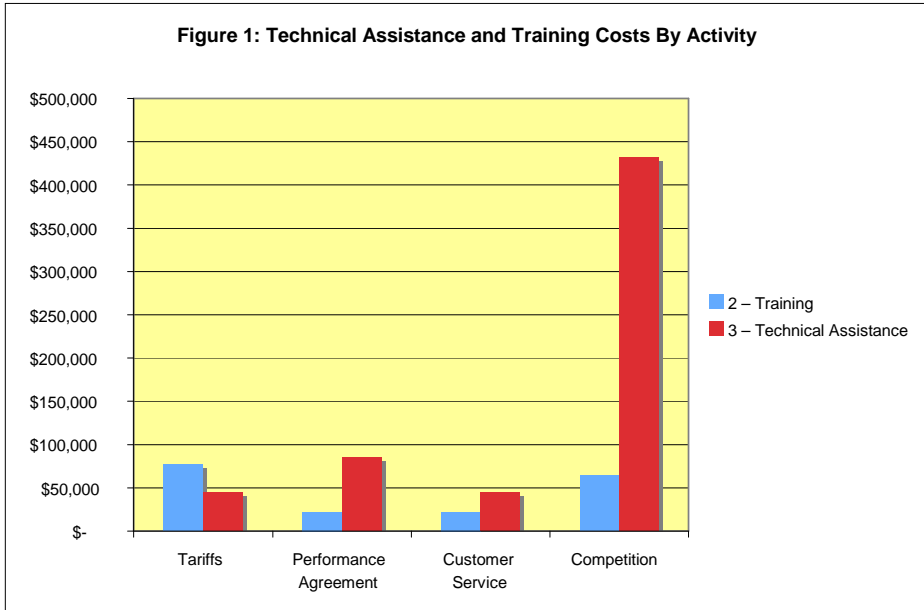
In order to provide high quality advice on these matters it will be necessary to appoint a small number of full-time commissioners (2 or 3), hire 2-3 professional staff, and undertake intensive training at appropriate venues inside and outside the country for the first 18 months.

1.2 Required Resources

The operation of CNELEC, including training and technical assistance for the first 18 months, will probably cost just under \$1.3 million.¹ Of this total, approximately \$175, 000 will be used to directly support CNELEC salaries. Other costs can be provided through a regulatory fee of 0.2% on electricity sales. Another \$30,000-50,000 can be supplied

¹ All financial figures in this document are in U.S. dollars.

by concession fees (up to \$350,000 annually if the concessionaire’s tax payments to the Government are used as well). The following figures show the approximate breakdowns of expenditures in the project:



2. Electricity Sector Background

Mozambique, with a population of about 19 million, is a relatively lightly populated country at the southeastern edge of the African continent. The country spans several climate zones as it stretches more than 2,000 km from tropical Tanzania to temperate South Africa. Several major river systems course through the country, including the

Zambezi and Lurio Rivers. The map below shows the major geographical features of the country, along with the main population centers.

2.1 Energy Resources²

Mozambique has a modest amount of natural gas, 4.5 tcf, and the country currently produces more than 300 mmcf per day, most of which is exported through a new pipeline to South Africa.³ No crude oil is currently produced and the country imports 100% of its 11 kbd refined oil product use.

Electricity generating capacity stands at 2.392 GW, about 90% of which is at the Cahora-Bassa Hydroelectric facility in Tete province on the Zambezi River. The country is a substantial exporter of electricity, generating 15.1 TWh in 2003 and consuming 10.5 TWh. More than 60% of current consumption and almost 100% of imports is for an aluminum plant at Mozal, south of Maputo. Most of the country's electricity exports go to South Africa, with smaller volumes exported to Zimbabwe. Current domestic demand for electricity in the country is just over 300 MW peak demand.



A substantial coalfield is located in Tete province and could conservatively support more than 2 GW of generating capacity.⁴

The country is lightly electrified and the grid covers large and medium-sized cities in the coastal plan of the southern two-thirds of the country. The state-owned utility Electricidade de Moçambique (EdM) is investing in new distribution, but lacks sufficient funding and manpower to meet the current unserved load.

2.2. Structure of the Energy Sector

Most of the energy used in Mozambique is supplied by state-owned entities. The state enterprise, EdM, provides most of the electricity to end users, with the very notable exception of the Mozal aluminum facility, which is supplied by a dedicated 900 MW HVDC line from South Africa. Most of the output of the Cahora-Bassa hydro plant (HCB) is exported directly to Zimbabwe and South Africa. A low capacity transmission line moves electricity from HCB to the coast for distribution to part of the country. HCB is a joint venture between Portuguese interests (82%) and the state electricity company, EdM. The government has agreed to buy out most of the Portuguese interest and is currently negotiating financing for that purchase.

² Unless otherwise noted, all figures in this section are taken from USDOE, Southern Africa Development Community Energy Brief 2005 or USDOE South Africa Country Energy Brief.

³ Republic of South Africa, Ministry of Mines and Energy Website, Natural Gas. Current exports of natural gas through the Petronet pipeline fall into the range of 325 mmcf/d.

⁴ Current coal reserves appear to be sufficient to support ~4 GW of generating capacity for 40 years of baseload service.

EdM distributes most of the electricity that reaches final consumers. However, there are several private distribution concessions in the country, as well as a vertically integrated concession in the city of Vilanjulo, where some natural gas is produced.

Refined oil products are imported by a state-owned company. There is an oil products regulator that establishes domestic prices for refined products. Upstream oil and gas exploration is in the hands of the government, represented by ENH, an exploration company, and INP, the licensor of exploration and production permits. INP is organized as an "Institute" so that it can pay salaries appropriate to its skill needs. Prior to 2004, INP was inside the Ministry of Energy as one of the two subdirectorates.⁵

The electricity regulator, CNELEC, was established by law in 1997. The provisions for CNELEC including the following:

1. Seven Member Board of Commissioners, with full-time responsibilities;
2. Representation of specific groups on the Board:
 - a. Government
 - b. Consumers
 - c. Labor unions
 - d. EdM
 - e. Industry
3. CNELEC to provide advice to the Minister of Energy on a regular basis.

In addition to the legal provisions for the electricity regulator, a World Bank condition precedent for its 2003 energy loan required CNELEC to be operational. USAID and the World Bank explored ways to put CNELEC on its feet with training, staffing, and technical assistance in 2003. Some of the Commissioners attended foreign training courses and a staff director was engaged for a few months. However, these initiatives seem to have dissipated and, as of this time, CNELEC is not operational, has not provided any advice to the Minister of Energy, and has no ongoing activities. Moreover, the terms of all of the Commissioners have expired, so that the Board Commissioners of CNELEC is no longer legally constituted.

Mindful of this background, the current CNELEC initiative has been undertaken.

2.3 New Activities and Initiatives in the Energy Sector

Several new projects have progressed in the recent past. HCB has plans to electrify an existing power station on the north bank of the Zambezi River, opposite its existing facility and potentially adding another 1,100 MW to HCB's generation capacity. Eskom of South Africa is interested in building a 2,400 MW hydro station about 65 km downstream from HCB. Other potential hydro projects include the Lurio River IPP, at 150 MW, among others.

On the demand side, BHP Billeton, the owner of the Mozal facility, plans to install a titanium sands separation plant. This planned facility, located about midway up the coast toward Tanzania, would require at least 400 MW. Other titanium sands facilities

⁵ The other subdirectorate, the National Directorate of Electrical Energy, is still inside the Ministry of Energy.

may also be feasible. Motraco and EdM are interested in constructing another HVDC line to serve the new minerals plants.

In distribution a number of private firms have expressed interest in providing electricity to end users in areas not now served by EdM. Since EdM has been named as the manager of the nation's electricity grid, this means that potential competitors of EdM will also be its customers and will be regulated by EdM. Potential retail distributors of electricity find such arrangements highly unsatisfactory.

In 2003, the World Bank approved a new electricity project for the country, worth an estimated \$80 million, including co-financing. Most of the funds will be spent on new and renewable electricity generation. Included in the project is \$1.4 million for electricity sector regulation, including training, technical assistance, and general support.

Although the domestic residential and commercial electricity sector is small, and is likely to remain so for a number of years, the total electrical energy sector, including the demand-side "megaprojects" and new generation facilities, is substantial, and has the potential for significant growth in the near future. It is to ensure that the country obtains the greatest possible benefit from its large and growing externally-oriented electricity sector, that the Minister of Energy has requested the assistance of USAID in its efforts to "stand up" its electricity regulator, CNELEC.

3. Activities Undertaken by the Consultant

Appendix I details the activities of the consultant during the two-week travel to Mozambique. Briefly summarizing, a number of meetings were held in Maputo and a full spectrum of issues, view and approaches to electricity, regulation, investment and sector governance were discussed.

3.1 Meetings

Persons met included chief executives or representatives of the following local and international institutions:

- Ministry of Energy, Mozambique (MoE)- Minister of Energy Namburete
- Department of Electrical Energy, MoE
- Electricidade de Moçambique
- National Institute of Petroleum
- ENH (Hydrocarbons de Moçambique)
- National Water Regulatory Commission
- Motraco (joint venture company, owner of HVDC line to Mozal)
- Hydro Cahora-Bassa
- Embassy of Denmark
- Corridor Sands, Ltd. (BHP subsidiary)
- CTA (industrial trade association)
- National Energy Fund (FUNAE)
- USAID- Mission Director Jay Knott

3.2 Matters Discussed

The purpose of the meetings was to canvas the widest possible array of opinion on the following issues:

1. Should CNELEC exist- if CNELEC did not exist would it be advisable to create it?
2. What should be the role of CNELEC- advisory, juridical, other?
3. How should CNELEC be organized- staffing, budgets, number of commissioners?
4. What are the key issues facing the electricity sector?
5. Can CNELEC provide useful counsel for these key issues?

3.3 Key Issues and Findings

The consensus of the consultant's interviews found the following main points:

1. There is a role for CNELEC in the electricity sector given the:
 - a. Real and potential conflicts of interest by EdM in grid management and concession oversight;
 - b. Potential for significant new investment in generation in transmission by private investors;
 - c. Need to provide oversight of EdM performance;
 - d. Desire to ensure representation of consumers and civil society in electricity sector decisions.
2. CNELEC should retain its advisory role for now- a formal and juridical organization of CNELEC is out of line with the scale of the issues, resources and institutional capabilities currently found in Mozambique's power sector;
3. CNELEC should remain small for at least 18-24 months;
4. The MoE should provide CNELEC with additional organization and procedural decrees regarding the nature of its operations and advice to the Minister of Energy; and
5. There are four key tasks for the electricity regulator. These are:
 - a. Tariff oversight, adjustment, and formulation;
 - b. MoE-EdM performance agreement;
 - c. Resolution of customer problems;
 - d. Introduction of competition in electricity sector.

The next section describes the specific measures proposed by the consultant while in Mozambique to provide an appropriate array of organizational, training, and technical assistance activities that will meet the perceived needs of the electricity regulator. This program proposal was presented to the Minister of Energy on February 1, 2006 and to the USAID Mission Director on February 2, 2006.

4. Proposed Plan of Action

The consensus on the key substantive issues to be addressed by CNELEC was so strong, even among those hostile to the idea of CNELEC, that the consultant determined that all four would need to be addressed over the next 18 months. The follow plan of action proceeds on three parallel tracks, one for each of the tasks identified below. The actions by the Government of Mozambique, CNELEC itself, and USAID and other donors fall into one of the following three categories:

1. Internal organization and establishment of CNELEC- duties, organization, staffing resources;
2. Training for CNELEC staff and Ministry of Energy staff;
3. Technical assistance for specific regulatory activities.

These three proposed actions are described in somewhat great detail below. Crosscutting these three tasks are the four substantive activities for CNELEC and the technical assistance providers. Those activities are discussed primarily under Task 3.

4.1 Task 1: Organize CNELEC

The time line below indicates the general set of activities that are required to make CNELEC operational in a meaningful sense:

Date	Task 1: Organize CNELEC	
	Activity	Who
Month 1	Assess Resource Needs	MoE, USAID
	2-3 FTE Commissioners	MoE
	2 FTE Prof. Staff - 1 economist, 1 engineer (transmission preferred)	May be necessary to provide medium term foreign TA specialists
	Write Position Descriptions	MOE, USAID, CNELEC
	Obtain Funding	GoMZ, WB, USAID, Other (includes concession fees)
	Training	eng - FL, SA (UCT) econ - FL, SA (UCT) Comm. - SA (UCT) in-country on tariffs, performance indicators, customer procedures
Month 6	Hire one more engineer - generation specialist	CNELEC
	Staff develops additional expertise	Econ – tariffs Eng - current grid code
Month 12	Self-financing mechanism in place	CNELEC, MOE
Month 18	Staff Devises Incentive-based self-adjusting tariff mechanisms	Econ, foreign TA

Over the course of the first 12-18 months, CNELEC will need to attain the following organizational goals:

- Appointing commissioners,
- Hiring professional staff;
- Developing working procedures;
- Obtaining training in tariffs, regulatory practice, grid code and grid management;
- Devising a self-financing mechanism.

Starting about 4-6 months into the establishment of CNELEC as a working entity the professional staff will need to become familiar with the following subject areas:

1. Current tariff structure, adjustment issues, strengths and weaknesses of current tariff and adjustment mechanisms;
2. Previous EdM-MoE performance agreement, proposed new PA;
3. Customer service issues- what are they, their progress in resolution by EdM;
4. Competition- issues, players, potential benefits, risks, relation to overall electricity sector strategy.

For the current role of CNELEC and, given the resources, available, the commission does not now need seven full time commissioners. It is expected that each of the full-time commissioners will develop one or more specific subject areas of expertise- tariffs, competition, grid, customer issues- and work closely with the relevant professional staffers and consultants. The commissioners will be trained in their appropriate areas of specialization.

Required Resources: The estimated cost of this phase of the activity is just over \$500,000. Almost all of this will be salaries for staff (~\$490,000) with the remainder going for training in regulatory practice at the University of Cape Town Graduate School of Business. If local staff is difficult to recruit initially and an external advisor must be provided, then the cost of this task will go up in line with the amount of long term advisor time that is required by CNELEC.

Some of these resources can be supplied from concession fees paid to the government of Motraco and other concessionaries. In addition, the ongoing expense of CNELEC can be supported by a relatively modest levy on electricity sales. It has been estimated that a levy of 0.2% on electricity tariffs will provide more than \$800,000 annually, more than enough to pay the normal running costs of CNELEC in the form suggested in this memorandum.

4.2 Task 2: Provide Training to CNELEC Commissioners, Staff and MoE

Training activities are expected to take three main forms as CNELEC is established. These are:

1. Regional training in general regulatory practice (probably at UCT);
2. Training in specific areas of expertise (e.g. grid management, tariffs, competition);

3. In-country training and workshops for specific regulatory tasks (e.g. tariffs, grid code, customer service).

The specific training activities are shown below as elements in the four substantive activities. The approximate training schedule would be planned as follows:

Date	Task 2: Training Activities	
	Subject	Type of training
Month 1	Assess Resource Needs	MoE, USAID
	General Training – regulatory practice, management	engineer - FL, SA (UCT) economist - FL, SA (UCT) Commissioners - SA (UCT) CNELEC staff & commissioners to attend 1-2 week courses in South Africa (UCT) and Florida (PURC)
Month 6	tariffs, performance indicators, customer procedures	in-country training for CNELEC staff and commissioners, MoE staff, EdM as appropriate, other as requested
	Additional staff expertise developed in line with ongoing technical assistance	Econ – tariffs Eng - current grid code
Month 12	Tariffs, competition, customer procedures	In-country training and foreign training (probably PURC)
	Additional courses on competition, performance indicators, benchmarking	MoE, Commissioners, staff - In-country with TA specialists, foreign at PURC and UCT
Month 18	Grid code and grid management	MoE, EdM, engineering staff - In-country with TA specialists, foreign at PURC
	Additional training on incentive-based tariffs	MoE, EdM, economic staff - In-country with TA specialists, foreign at PURC

Required Resources: The table below shows the expected costs of training for the CNELEC staff and commissioners, as well as staff from the MoE and perhaps, EdM. There are no line items for degree programs, though this option has been highly recommended by the president of INP to build up long term staff expertise.

Task 2: Training Costs		
What	Who	How Much
UCT Courses - Tariff, regulation	Commissioners, staff	\$13,875
PURC Course - Tariff	staff, MoE, EdM	\$44,850
In-country - Cust Procedures, tariff	Staff, EdM	\$44,750
In country – Competition, grid	Commissioners, staff, MoE	\$42,800

UCT Comp	Commissioners, staff	\$9,250
PURC Course - Competition	staff, MoE	\$44,850
Total - training		\$200,375

Note that these costs do not cover the salaries of CNELEC staffers or commissioners during training. In addition, this training budget does not cover the cost of degree programs for professional staff. It may be desirable for CNELEC to produce its own experts in one or another of the substantive areas if suitable experienced candidates cannot be found. Each M.S. degree could add about \$100,000 to the training budget.⁶

4.3 Task 3: Technical Assistance

It is expected that a considerable amount of technical assistance will be needed during months 1-18 to help the CNELEC commissioners and MoE in the substantive matters that they will need to address. For the four areas identified above technical assistance is covered in four separate tables. The relationships and linkages between training, staff expertise and technical assistance are considerable and are shown in greater detail in Annexes 2 and 3.

Tariff Adjustment and Advice: The current tariff mechanism is a largely self-enforcing one, typical of those used by monopoly providers. The tariff provides for inflation, fuel costs, purchased power and has an end goal of 9.1 cents/kWh as the average retail yield for EdM.

The tariff lacks several elements common to contemporary tariff practice and is not suited to any unbundling of services or opening of the system to competition. In particular, the current tariff does not provide for the following key items:

1. High voltage bulk power tariff (customer to provide connection);
2. Generator connection to grid;
3. Incentives/penalties for performance;
4. Grid system impacts- e.g., impacts on system costs of bulk supply from or sales to foreign systems.⁷

All four of these items should be included in a modern tariff, and it will be the job of CNELEC and its advisors to devise such a tariff over the next 18 months.

⁶ This will have implications for the TA budget as well, since additional TA resources will be needed if CNELEC staff cannot perform certain tasks during the first year.

⁷ This is an essential transmission tariff feature if private parties transmit power through the system and cause congestion and redispatch costs in parts of the system that they do not own or control.

Task 3a: Technical Assistance on Tariffs	
Date	Activity
Month 1	Assess Resource Needs with regard to tariffs
	In-country training on tariffs
	Tariff diagnostic
	Adjustment mechanism procedure devised
Month 6	Adjustment mechanism procedure approved
	Staff develops additional expertise on tariffs
Month 12	Recommend changes/modifications of tariff formula, adjustment intervals, as appropriate & lawful
Month 18	Staff Devises Incentive-based self-adjusting tariff mechanisms

Required Resources: The total cost of technical assistance for the tariff component is expected to run about \$122,000. Roughly 65% of this cost is already accounted for in the training component, some of which will be done in the country. Therefore, the pure technical assistance component on tariffs is probably going to run in the range of \$44,000, with in-country training costs accounting for an additional \$25,000 or so.

Performance Agreement Between Government and EdM: In the past the government has had a performance agreement with EdM. This document specifies certain conditions for service and performance and *implies* that incentives and penalties for performance are appropriate elements of a tariff. The previous agreement has expired, and a new draft agreement, not yet in force, has been drafted by EdM. Many power sector participants in the country are anxious to see a more neutral party draft the next performance agreement. Since this document covers many of the items that should be included in a more modern tariff, and since the consumer services task leads naturally to certain performance standards, this work would seem to be a natural one for CNELEC.

By the completion of this TA, CNELEC should be able to broker, assess, and benchmark EdM's performance and to recommend mitigation measures in both performance and reporting. The key components of CNELEC's role in a performance agreement include the following:

- Understand the previous agreement;
- Understand the draft agreement;
- Modify the draft agreement to reflect current priorities and capabilities;
- Assess compliance with terms of agreement;
- Assess reporting of data for completeness, accuracy, and quality by CNELEC and MoE by EdM and/or other parties;
- Benchmark performance of EdM and other parties with regard to regional and international standards, incorporate benchmarks into incentive tariff structure;
- Recommend changes in performance agreement;
- Draft new PA.

The table below shows how these tasks would fall in time over the next 18 months:

Task 3b: Technical Assistance on Performance Agreement	
Date	Activity
Month 1	Assist CNELEC staff in assessment of previous and draft PAs Modify draft PA for interim implementation
Month 6	Assess compliance by affected parties: EDM, MOTRACO, HCB Assess reporting for accuracy & quality
Month 12	Benchmark performance indicators with regional information (IFI-funded) Benchmark information system needs & data quality issues Recommend corrective measures and needed and as appropriate, including new/revised performance indicators
Month 18	Assess performance with respect to existing and new indicators Assess revised performance reporting

Required Resources: This task is expected to cost about \$110,000, of which roughly \$85,000 is technical assistance and \$25,000 is training. The work should commence in month 4 or 5 and will continue throughout the first 18 months. It is expected that the consultants performing the other technical assistance will be part of the same team in order to provide the services at the least cost.

Customer Services and Complaint Resolution: Another one of the matter raised throughout the consultant’s meetings was the difficulty in obtaining effective resolution of service problems with EdM. A regulator should be an appropriate forum for such resolutions.

The proposed activities for consultants, working with CNELEC staff and EdM should result in a functioning consumer complaint and resolution office at CNELEC. The proposed TA activities include the following:

Task 3c: Technical Assistance on Customer Service Issues	
Date	Activity
Month 1	In-country training on customer service
	Assess and compile performance indicators on customer matters
Month 6	Adjustment mechanism procedure approved
	Staff develops additional expertise on tariffs
Month 12	Comment on current EdM customer complaint situation Provide EdM with response forum Develop standards for quality and timeliness of response
Month 18	Define additional performance indicators and suggest incentive measures for tariff to promote improved resolution of problems

Required Resources: Total outlays for this task should fall in the range of \$70,000, of which approximately two-thirds will be technical assistance. Most of the training will be provided by the TA consultants in-country.

Competition: The final technical assistance category is competition. All potential market entrants expressed a specific desire to see the regulator address the competition issue. In two cases potential market entrants stated flatly that without a regulator they could not see entering the Mozambican market. Specific issues with EdM include its perceived conflicts of interest, discriminatory pricing of bulk power, and lack of incentives to spread its system throughout the country.

The expected outcomes of this technical assistance are a grid code, a set of competition rules, and appropriate modifications to the tariff. Key activities in the TA are found in the table below and include:

- Assessment of unserved load and willingness to pay for additional service;
- Assistance to CNELEC and MoE on contracting out decisions for underserved regions;
- Grid code and unbundling regulations;
- Assistance with appropriate modifications of tariff.

Task 3d: Technical Assistance on Competition	
Date	Activity
Month 1	Assess unserved load & willingness-to-pay for more/better service
Month 6	Assess willingness to pay of unserved areas and industries Staff develops additional expertise on tariffs
Month 12	Grid code and unbundling regulations started Grid code and unbundling regulations completed
Month 18	Assist CNELEC to modify tariff as required to promote competition & new entrants

Required Resources: This task will be the most expensive TA activity, costing more than \$460,000, of which about \$25,000 is training. There will be additional in-country training as a part of both the grid code and competition regulation efforts. Preparing a grid code, with attendant local training, is likely to cost approximately \$200,000, while the competition regulations will require a similar amount. The economic assessment of willingness-to-pay studies and surveys of unserved industries and regions will take the remainder of the TA funds for this activity.

5. Summary

Meetings with energy officials, company executives, and regulators of other industries produced a remarkably unified view of an appropriate way forward for making CNELEC functional in the country. The way forward consists of a three-pronged program in CNELEC staffing and organization, training, and technical assistance.

To move forward, the Ministry of Energy and other organs of the Mozambican Government, along with the donor community will need to provide a plan of action. That plan has three main elements:

1. Organizing CNELEC;
2. Organizing the donors;
3. Providing training and technical assistance.

A brief outline of the first and third elements has been discussed in the previous pages. It is not yet possible to have a good idea of how to organize the donor resources without further specific task planning.

5.1 Budgets and Resources

The estimate cost of this program over the first 18 months is \$1.294 million. The proposed program expenditures are broken down as follows:

Estimated Cost for CNELEC Months 1-18					
Task	Tariffs	Performance Agreement	Customer Service	Competition	Total
1. CNELEC (includes salaries, staff, some initial training)					\$502,125
2. Training	\$77,438	\$22,375	\$22,400	\$64,288	\$186,500
3. Technical Assistance	\$44,350	\$84,850	\$44,400	\$432,275	\$605,875
Total	\$121,788	\$107,225	\$66,800	\$496,563	\$1,294,500
<p>Note: Some of the technical assistance will probably include a significant training component, so that the training cost is underestimated to some degree. If suitable staff cannot be found readily, then the TA costs will rise initially, as donor-provided experts replace CNELEC staff and training costs will also go up if degree-program training is required to obtain the desired skill mix.</p>					

The World Bank's budget for regulatory activities, including CNELEC, TA, and training in the 2003 electricity project is \$1.4 million. The activities discussed in this memo will fit comfortably within this budget, especially if the Government of Mozambique is able to fund the salaries of CNELEC commissioners and staff from concession payments and regulatory fees as discussed in Section 3.1. By the end of the first year of this program, CNELEC should be able to fund its share of salaries and expense, roughly \$175,000, almost entirely.

5.2 Proposed Plan of Action

The activities and tasks discussed previously have been organized in a time line graphic, Figure 3, which is on the next page. This figure shows the approximate time for initiation to completion of each of the discrete activities and tasks proposed in this memorandum.

To start the process, the following activities must take place over a two or three month period prior to the actual start-up of CNELEC:

Initial Plan of Action for CNELEC

What	Who
Detailed action plan for first 18 months of CNELEC	USAID, MoE
Interview proposed new commissioners	MoE
Job descriptions for staff	MoE, USAID
Legal provisions for "strong advisory" regulator	MoE, USAID

Initial budgeting for CNELEC	MoE, USAID, WB, other
Discussions with proposed commissioners regarding training, TA, subject area priorities	MoE, USAID, WB

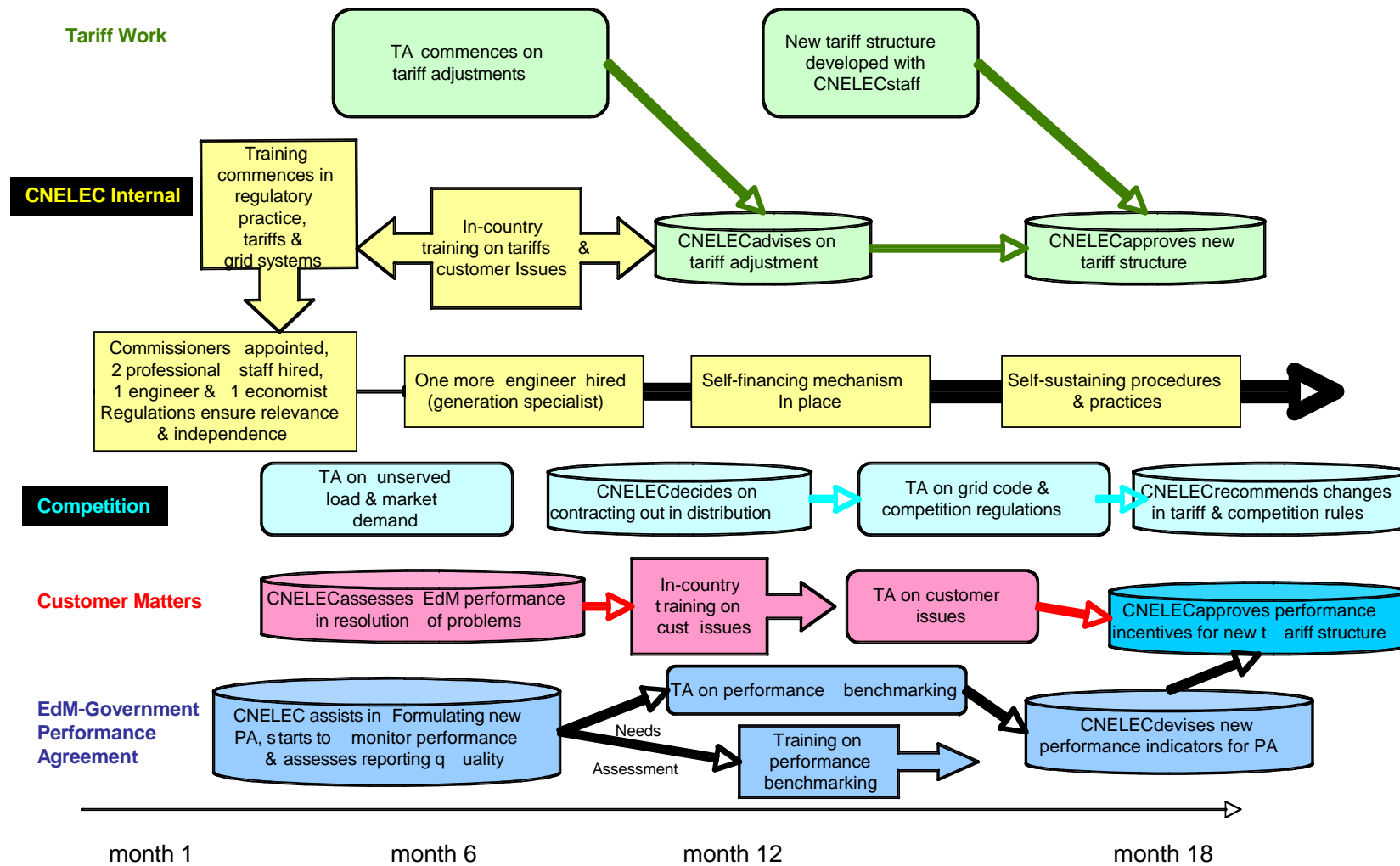
It is expected that this initial phase will take 2-3 months and will require some technical assistance from USAID. The Minister of Energy has requested the USAID assist his advisor in the detailed plan of action and set-up of CNELEC. At the end of this stage it should also be clear whether suitable candidates for technical staff can be found readily or whether a different approach, relying initially on more TA along with degree-program training, will be more appropriate.

Once the initial organizational and personnel work is completed, the following formal steps will be required in Months 1 and 2 of the new CNELEC organization:

- Minister names new commissioners;
- Minister approves payment of salaries;
- CNELEC hires 2 professionals;
- Regulatory training commences;
- Terms of reference for technical assistance for tariff and PA work is written.

Under this proposed schedule it is possible for CNELEC to have 2-3 commissioners and a formal charter of activities by the end of the second quarter of 2006.

Figure 3: Proposed Time Line of Activities and Tasks for CNELEC, Months 1-18



Annex 1: Meetings and Activities

Date	Person	Organization	Important Points of Discussion
22 nd Jan	Hertzmark		Departure for AMS/JNB
24 th Feb	Hertzmark		Arrival in MPM
24 th Jan	Ilidio Xavier Bambo	Minister's Advisor, MoE	Plan for Mission, expected outputs, suggestions on important meetings
25 th Jan	Tim Born, Jules Schlotthauer,	USAID	Plan for Mission, expected outputs, suggestions on important meetings, political background
25 th Jan	Francis Masawi	MOTRACO	Experienced electricity hand, and executive at JV power transmission company, stressed importance of regulator to establishing better investment climate in country
25 th Jan	Angela Davu, Ernesto Fernandes	Electricidade de Moçambique, Director of Transmission	Saw only very limited role for CNELEC, market is too small for regulator, who will drive up costs, there are not enough trained personnel in country to staff a regulator.
25 th Jan	Ashok Menon, Chief of party, Stelia Narotra	Nathan Assoc	Meeting schedule, translation issues, document request
26 th Jan	Pascoal Bacela, Ivonne Manganhela	National Directorate of Electrical Energy	Need for regulator to enforce performance agreement, DNEE overwhelmed with normal duties, difficulties in recruiting, CNELEC can get more resources into sector
26 th Jan	Pondeca	Hidro Cahora-Bassa	Pondeca represents HCB in negotiations with Eskom on power sales. HCB might like to become more active in domestic market, but will need clear regulatory framework to do so. Performance Agreement and grid code are key issues
26 th Jan	Anne Schouw —	Royal Embassy of Denmark	Denmark is a major energy donor. She suggested using an existing regulator instead of establishing CNELEC <i>de novo</i>
26 th Jan	Jim La Fleur, chief of party	CTA	This organization promotes private investment in energy using and

			energy producing industries. Discussion centered on market entry and subsidies to EdM
27 th Jan	Miquelina Menezes, President	Fundo de Energia (FUNAE)	This organization builds small energy systems. Key concerns for FUNAE are grid code and grid management, tariffs and concession agreements. Want strong role for CNELEC
30 th Jan	Manuel Alvarinho, President	CRA (water regulator)	Believes that CNELEC has been held back by too-expansive a vision of role and organization. Strong Advisory role (as at CRA) can be effective. Only need 3 commissioners, not 7. Advice should be public and go to cabinet, when appropriate
30 th Jan	Ilidio Xavier Bambo	Minister's Advisor, MoE	Drew up preliminary plan for CNELEC organization and TA and training implementation, established time line for activities and budgetary priorities
31 st Jan	Peter Mulder	Advisor, Ministry of Planning	Discussed role of competition in energy sector. Believes that competition will lead to Eskom control of sector and should be approached gingerly.
1 st Feb	Tim Born	USAID	Discuss presentation to Minister of Energy
1 st Feb	Jim Leggatt, commercial director	Corridor Sands (BHP subsidiary)	Discussed long term regional energy market and role of HCB and other generation projects in providing electricity for smelting and processing industry.
1 st Feb	Salvador Namburete, Minister	Ministry of Energy	Presented proposal for CNELEC and regulation of electricity sector
2 nd Feb	Issufo Abdula, Chairman and Victor Julien COO	ENH – Hidrocarbonetos de Moçambique (parastatal oil company)	Top priorities are to provide for effective competition and management of performance agreement for EdM. Should focus on non-hydro sources for electricity for competitive supply.
2 nd Feb	Arsenio Mabote, Chairman	Instituto Nacional de Petroleo (Upstream oil	Should not harm ability of EdM to attract concessional finance for its activities, so focus on other regions,

		regulator)	or energy sources. Start small and train in-house staff. Long term association with Norwegian Petroleum Directorate has been helpful to provide training and technical expertise.
2 nd Feb	Fernando Costa	CAT Member	Essential task of CNELEC is to provide for level competitive field vis-à-vis EdM. Strong regulator is vital to competitive health of electricity sector.
2 nd Feb	Jay Knott, Mission Director	USAID	Presented proposal for CNELEC and regulation of electricity sector, also discussed strategic issues of overall electricity sector development.
3 rd Feb	Hertzmark		Departure from Maputo to JNB/AMS
4 th Feb	Hertzmark		Return to USA via AMS

Annex 2: Detailed Activity Plan, TA, Training Linkages and Proposed Budgets

Activities and Resources: CNELEC 2006-07										
Date	CNELEC Activities		Tariff	Performance Agreement(s)		Customer Services		Competition		
	Activity	Who	Formula & Adjustments	Monitoring	Reporting	Complaints	Resolution	Studies/Plans	Activities/Outputs	
Month 1	Assess Resource Needs 2 FTE Commissioners 2 FTE Prof. Staff - 1 economist, 1 engineer (transmission foreign TA specialists preferred) Write Position Descriptions Obtain Funding Training	MoE, USAID, CNELEC, GoMZ, WB, USAID, Other (includes concession fees) eng - FL, SA econ - FL, SA (UCT) Comm - SA (UCT)	Tariff courses & in-country training CNELEC understands mechanism, data & impacts of tariff formula and adjustment options	CNELEC understands, law, agreement & data Modify draft PA for interim implementation		Assess current situation Foreign TA on Customer Issues	Look at performance indicators on resolving complaints	Assess unserved load & willingness-to-pay for more/better service		
Month 6	Hire one more engineer - generation specialist Staff develops additional expertise	CNELEC Econ - tariffs Eng - current grid code	Adjustment mechanism procedure approved CNELEC advises MOE on tariff adjustment using new procedure Consultation with stakeholders on tariff formula	Assess compliance by affected parties: EDM, MOTRACO, HCB	Assess reporting for accuracy & quality Focus on customer & financial information			Commission trade group to provide proof of wtp for new/additional services TA to assess wtp		
Month 12	Self-financing mechanism in place	CNELEC, MOE	Recommend changes/modifications of tariff formula, adjustment intervals, as appropriate & lawful	Benchmark performance indicators with regional information (IFH-funded) Recommend corrective measures and needed and as appropriate, including new/revised performance indicators	Benchmark information system needs & data quality issues Time to acknowledge Time to resolve	Comment on current EdM customer complaint situation Quality of resolution Determine whether customer issues reflected appropriately in tariff	Grid Code contracted out Grid Code completed	Up/down decision on contracting out or franchises Unbundling & competition regulations started		
Month 18	Staff Devises Incentive-based self-adjusting tariff mechanisms	Econ, foreign TA		Assess performance with respect to existing and new indicators	Assess revised performance reporting	Assess key areas of complaint & poor resolution Define additional performance indicators Suggest incentive measures for tariff to promote improved resolution of problems	Tariff & cost implications of new entrants Proposal to modify tariff as required to promote competition & new entrants			
Required Resources for Initial 18-month Period										
	Salaries & Office	\$ 488,250	TA	\$ 44,350	TA	\$ 84,850	TA	\$ 44,400	TA	\$ 432,275
	Training	\$ 13,875	Training	\$ 77,436	Training	\$ 22,375	Training	\$ 22,400	Training	\$ 64,288
	Subtotal	\$ 502,125	Subtotal	\$ 121,786	Subtotal	\$ 107,225	Subtotal	\$ 66,800	Subtotal	\$ 496,563
								Grand Total	\$	1,294,500

Note: contingent Foreign TA on tariff & Performance Agreement could add \$140-200k to total, foreign degree training an additional \$100k.