



INSTITUTIONAL, REGULATORY AND COOPERATIVE FRAMEWORK MODEL FOR THE NILE BASIN POWER TRADE

DELIVERABLE 11: RESOURCES NEEDED TO ESTABLISH THE POWER TRADE FRAMEWORK - DRAFT

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INSTITUTIONAL, REGULATORY AND COOPERATIVE FRAMEWORK MODEL FOR THE NILE BASIN POWER TRADE

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I LIST OF ACRONYMS

| | |
|----------|--|
| ACCC | Australian Competition and Consumer Commission |
| AEMC | Australian Energy Market Commission |
| AER | Australian Energy Regulator |
| AFC | Available Flowgate Capability |
| ARR | Auction Revenue Rights |
| BA | Balancing Authority |
| CAT | Curtailment Adjustment Tool (in SPP) |
| CEB | Communauté Electrique du Benin |
| CEM | Common Energy Market |
| CIE | Compagnie Ivoirienne d'Electricité |
| CIS | Commonwealth of Independent States |
| CoAG | Council of Australian Governments |
| CR | Congestion Rights (SIEPAC) |
| CRIE | Regional Regulatory Agency (SIEPAC) |
| CVT | Variable Transmission Charges (SIEPAC) |
| DAM | Day Ahead Market |
| EAPP | Eastern African Power Pool |
| EAC | East African Community |
| ECOWAS | Economic Community of Western African States |
| EECI | Energie Electrique de la Côte d'Ivoire |
| EGL | Energie des Grands Lacs |
| EIS | Energy Imbalance Service |
| EOR | Independent system and market operator (SIEPAC) |
| EPC | Electricity Power Council (in CIS) |
| ESAA | Energy Supply Association of Australia |
| FCM | Forward Capacity Market |
| FERC | Federal Energy Regulatory Commission (US) |
| FTR | Financial Transmission Rights |
| GMS | Greater Mekong Sub Region |
| ICC | Information and Coordination Center (in WAPP) |
| ICE | Intercontinental Exchange (US) |
| ICT | Independent Coordinator of Transmission (SPP) |
| IDC | Interchange Distribution Calculator |
| IGA | Inter-Governmental Agreement on Power Trade in the Greater Mekong Sub-Region |
| IPP | Independent Power Producers/Project |
| IPSCIS | Interconnected Power System of Commonwealth of Independent States |
| JOA | Joint Operation Agreement |
| LIP | Locational Imbalance Prices (in SPP) |
| LMP | Locational Marginal Price |
| LOLE | Loss of Load Expectation |
| LSE | Load Serving Entities |
| LTTR | Long Term Transmission Rights |
| MCE | Ministerial Council on Energy (Australia) |
| MER | Regional Electricity Market of SIEPAC |
| MISO | Mid-West Independent System Operator |
| MO | Market Operator |
| MOI | Memorandum Of interest |
| NBI | Nile Basin Initiative |
| NBPTF | Nile Basin Power Trade Framework |
| NE - ISO | New England Independent System Operator |

| | |
|---------|--|
| NEM | National Electricity Market (Australia) |
| NEMMCO | National Electricity Market Management Company |
| NERC | National Electricity Reliability Council |
| NSI | Net Scheduled Interchange |
| OMVS | Organisation pour la Mise en Valeur du fleuve Sénégal |
| PAC | Participant Advisory Committee (Australia) |
| PJM | Regional Market of Pennsylvania, New Jersey and Maryland |
| PMU | Project Management Unit |
| PPA | Power Purchase Agreement |
| PRSG | Planned Reserve Sharing Group (in MISO) |
| PTC | Power Technical Committee |
| PTOA | Regional Power Trade Operating Agreement (in GMS) |
| RPM | Reliability Pricing Model in PJM |
| RPTCC | Regional Power Trade Coordination Committee (in GMS) |
| RPTP | Regional Power Trade Project |
| RRO | Regional Reliability Organization |
| RSC | Regional State Committee (in SPP) |
| RTEPP | Regional Transmission Expansion Planning Process in PJM |
| RTN | Regional Transmission Network (in GMS) |
| RTO | Regional Transmission Organization (US) |
| RTR | Regional Transmission Grid (SIEPAC) |
| SADC | Southern African Development Community |
| SADCC | Southern African Development Co-ordination Conference |
| SAP | Subsidiary Action Program |
| SAPP | Southern African Power Pool |
| SCED | Security-Constrained Economic Dispatch |
| SCUC | Security-Constrained Unit Commitment |
| SERC | Southeastern Reliability Council (US) |
| SIEPAC | Central American Regional Electricity Market |
| SMD | Standard Market Design (NE-ISO) |
| SONABEL | Société Nationale Burkinabè d'Electricité |
| SPP | Southwest Power Pool |
| SRMC | Short Run Marginal Cost |
| STEM | Short Term Energy Market (in SAPP) |
| SVP | Shared Vision Program |
| TSO | Transmission System Operator |
| TUOS | Transmission Use of System |
| UES | Unified Energy System |
| UPS | Unified Power System (in CIS) |
| USSR | Union of Soviet Socialist Republics |
| VOLL | Value of Lost Load |
| VRA | Volta River Authority |
| WAPP | Western African Power Pool |
| WSPP | Western Systems Power Pool |

Table 1: Acronyms

II FOREWORD

The purpose of this report, named “RESOURCES NEEDED TO ESTABLISH THE POWER TRADE FRAMEWORK”, is to present an estimation of the resources needed to establish the power trade framework in terms of human resources, infrastructure and consultancy services.

This report is the Deliverable 11 and corresponds to Activity 9: “Resources Requirements and Cost Estimates” and Activity 10: “Training Needs Assessment” of the project’s reviewed terms of reference agreed during the inception mission in Dar es Salaam.

III BACKGROUND AND CONTEXT OF THIS PROJECT

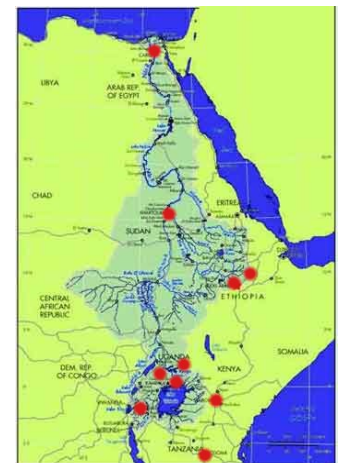
The Nile Basin Initiative (NBI): Formally launched in February 1999 by the Council of Ministers of Water Affairs of the Nile Basin States, the NBI provides a forum for the countries of the Nile to move forward, towards a cooperative process in order to achieve tangible benefits in the Basin and build a solid foundation of trust and confidence.

The NBI has two primary areas:

Basin-wide projects - “Shared Vision Program” (SVP) to help create an enabling environment for action on the ground

Sub-basin projects - “Subsidiary Action Program” (SAP) is aimed at the delivery of actual development projects involving two or more countries

The Regional Power Trade Project (RPTP) is one of the thematic projects to be implemented basin-wide, to help establish a foundation for trans-boundary regional cooperation and create an enabling environment conducive for investment and action on the ground, within an agreed basin-wide framework.



The RPTP aims to establish the institutional means to coordinate the development of regional power markets (such as a Power Pool) among the Nile Basin countries, through the creation of a power trade framework which can contribute to achieve poverty reduction including expanding access to reliable and low-cost power supply, in an environmentally sustainable manner.

The broad benefits envisaged from the NBI are poverty alleviation through improved, sustainable management and development of the shared Nile waters, and enhanced regional stability through increased cooperation and integration among the Nile states.

The project activities are coordinated by the Project Management Unit (PMU) at the regional level and by the PTC members at the country level. Activities include the establishment and operation of a power trade framework, the conduct of a comprehensive basin-wide analysis of long-term power supply, demand and trade opportunities, the identification of potential development projects within the NBI SAPs, the preparation of a public participation plan and stakeholder analysis, and the development of knowledge management tools. These activities are carried out through studies, consultations, workshops, seminars, and through other modalities, for which the project may seek assistance from national and regional research and training institutions, NGOs, consultants, and other public or private organizations from the Nile basin region.

The current project: "CONSULTANCY TO DEVELOP AN INSTITUTIONAL, REGULATORY AND COOPERATIVE FRAMEWORK MODEL FOR THE NILE BASIN POWER TRADE" falls within the RPTP framework. Among key project objectives are to:

1. Assist the RPTP and the NBI Power Technical Committee (PTC) in reviewing institutional arrangements adopted by regional power trade organisations, and submitting discussion papers to the RPTP, comparing and contrasting the different arrangements.
2. Conduct an information gathering tour so as to collect basic information of the countries in the region which will permit in the future develop recommendations and perform an informed decision making process.
3. Propose a model for developing Regional Power Trade at the Nile sub-basin and basin levels.
4. Draft Memoranda and legal documents as required.

IV CONTENTS

This report contains the TNA and an estimation of cost for the establishment of the power trade framework. Costs have been disaggregated per stage, per activity and in human resources (HR), infrastructure and consultancy services. Costs have been estimated for Stages I and II.

V INTRODUCTION

1. REVIEW OF METHODOLOGY

The overall goal of the Training Needs Assessment (TNA) is to evaluate the baseline of capacity among major stakeholders in the NBI member countries and to determine the capacity building activities that are needed to for the sustainable creation and implementation of a regional power forum and power trade.

During the Information Gathering stage of the project, the Consultant team travelled to each of the nine (9) NBI member countries and met with representatives of stakeholder institutions - Ministries, Regulators, Utilities, and Regional Bodies - to discuss the RPT project, its objectives, and the data gathering task. The institutional representatives were provided the information templates and guidelines, and requested to respond to the questions there-in, so as allow the Consultant team to develop a baseline set of data for the region. Within the information requested was a set of questions specifically related to current institutional capacities in regional trade, and the training needed to further develop this capacity. In broad terms, stakeholders were asked about the:

- Role of the organization in regional context.
- Current knowledge of and involvement in NBI and Regional Power Trade.
- Sector Drivers in the country.
- Effectiveness of current power sector structure.
- Effectiveness of institutional / company structure.
- Institutional capacity strengths and weaknesses within the entity.
- Staff Composition and Qualifications
- Existing capacity building in the entity.
- Existing staff capacity in internal and regional power trade.
- Understanding of the pros and cons of power trade.
- Perception of available resources for power export.
- Understanding of national or regional policies in power trade.
- Perception of barriers to regional power trade.
- Training facility belonging to the entity
- Training facility in the country, available to the staff of the entity
- Long-term staff training agreements with external institutions

This information was not considered “data” as much of the information gathered during this same exercise, but was meant to deepen the institutional assessment beyond facts and figures. In addition, this assessment addresses issues that are more specifically related to the development of Regional Power Trade, and institutional capacity building of the stakeholders involved. Some of these issues relate to leadership and level of participation in the regional cooperation process, since, as a part of this project, a champion(s) and driver(s) of the RPT should emerge. Thus the “information” collected is not only factual but subjective, and based partly on perception and understanding of this project. This type of valuable input is also, and perhaps most useful for determining the way to go about consensus building among stakeholders.

Ultimately, the information used to form this assessment came not only from the data gathering exercise, but also from subsequent discussions with stakeholders, additional research on activities in the region, and the consultants' previous experience working with these stakeholders and other regional trade development projects.

2. STRUCTURE OF THIS TNA AND RECOMMENDATIONS

This Training Needs Assessment (TNA) and its resulting recommendations are structured to meet the goals of the proposed RPT model, and reflect evaluation of barriers and regional institutions carried out in the previous project tasks. The overall goal is to strengthen the institutional groups proposed in the model to carry out the successful development of regional power trade.

The sections of this TNA are:

- a) Identification of Common Capacity Building Needs in the Region: This section describes a “long list” of training needs identified during this process to help support sustainable, commercial power sector operations and management within each country. For each topic we discuss briefly how training in this area will build the capacity of utility, ministry, regulatory, or other relevant personnel to perform new tasks and analysis to support regional trade.
- b) Capacity Building Needed to Meet Regional Trade Goals: This section outlines capacity building needed to successfully implement the individual stages of the power trade model proposed by this project (Deliverable 7). We describe here the goals of each stage, their barriers, and the capacity building activities that may help to overcome those barriers. We also propose an “introductory” level of capacity building to help establish a common baseline of knowledge among regional stakeholders.
- c) Recommended Training Plan: This section describes the complete set of recommended capacity building activities in more detail, including the format of the activity, focus issues, training participants/beneficiaries, and timing for activities recommended for the Stage I period.
- d) Calendar of Activities per Participant Group: To better illustrate the activities recommended for each participant group, the activities of each are shown in a calendar format. The timeline for implementation parallels the milestones outlined in the RPT Model implementation roadmap. The activity implementation period is largely bound by the signing of the Treat, formation of the Working Groups, and the milestone dates for the Working Group deliverables (reports and trading rules).
- e) Incorporation of Regional Resources and Institutions: Significant institutional resources exist in the region that can and should be integrated into the Regional Power Trade capacity building program. These entities have been implementing similar capacity building activities for domestic and international beneficiaries, and have existing expertise and infrastructure to contribute to the NBI RPT Project.
- f) Resources Needed for Capacity Building: In addition to the institutional resources that can be utilised in the region, we estimate the additional financial and human resources that will be needed to coordinate and implement the proposed training plan (see next sections and Annex).

VI COMMON CAPACITY BUILDING NEEDS IN THE REGION TO MEET REGIONAL TRADE GOALS

During the course of this training needs assessment, the Consultant identified a number of issues common to the power sectors in most NBI member countries. Unaddressed, these issues can and do impede the development of commercial sector operations and cross border electricity trade. More importantly, however, when examined purely from the domestic perspective of the NBI member countries, the lack of ability in these areas is a significant barrier to the economically sustainable development of the countries' own energy sector development. The needs outlined below cannot all be adequately addressed at all levels under the RPT project. Individual countries will also need to invest in capacity building for the national sectors to meet these needs. A few activities are proposed later in this TNA for National level stakeholders, which should be seen as only scratching the surface of vast need for developing the human capacity in the region.

This “long list” of topics and issues and issues is organized in subsequent sections of the TNA around the stages of the model, as barriers to fully realizing the benefits to regional trade.

- Planning**
 - Energy Policy vs. Energy Planning
 - Demand Forecasting
 - Generation and Transmission Expansion
 - Economic & Market Simulation
 - Regional Cooperation in Planning

- Regulation**
 - Domestic and Regional Regulatory Needs
 - Drafting Trading Arrangements - Regulating Cross Border Exchanges
 - Standardizing Technical Codes through Regulation
 - Functions of a Regional Regulator
 - Performance Regulation
 - Legal Issues in Power Trade

- Commercial Sector Operations and Management**
 - Power Sector Economics
 - Commercial Agreements
 - Economic Dispatch
 - Commercial Utility Management – Revenue Cycle Management and Loss Reductions
 - Principles of Commercial Project Development and Finance
 - Project Management

- Tariffs and Pricing**
 - Cost-Based Tariff Setting (for Domestic Sectors)
 - Setting Cross Border Exchange Tariffs

| | |
|--|---|
| | <ul style="list-style-type: none">• Commercial Exchange Pricing• Commercial Settlement in Trading |
| Data and Information Management | <ul style="list-style-type: none">• Essential Data for Measuring Power Sector Performance• Systematized Data Collection Procedures and Systems• Information Technology Needs for Utilities and Regulatory Agencies• Standardising Data for Regional Use and Setting Up Regional Coordination Mechanism |
| Markets and Power Pools | <ul style="list-style-type: none">• Design of Power Markets and Power Pools, International Experience• Market Evolution (Functional transition from PPAs, Power Trade Agreements, Power Markets)• Design of Market Rules• Role of System and Market Operators (Large integrated power grid system operation) |

Table 2: Capacity building needs in the region

VII RECOMMENDED TRAINING PLAN

1. ACCORDING TO THE PROPOSED MODEL

The recommended training plan is structured around the proposed Regional Power Trade model and its specific characteristics in the region. The training plan is broken down into its stages and the elements of each – goals and barriers – that help to illustrate the need for recommended capacity building areas. Put more simply, the tables below illustrate the recommended training plan according to:

- Stage
- Targets and Key Institutional Features of each Stage
- Barriers to achieving the targets in each Stage
- Recommended topics/areas for capacity building to overcome these barriers and help reach the Stage targets and institutional goals.

We begin by describing the capacity building areas that will help stakeholders reach a common understanding on the basic building blocks to commercial sector operations, sustainable power sector management, and regional cooperation, and continue through the Stages of the model (I, II, and III).

1.1. INTRODUCTORY & TRAINING FOR SUSTAINABILITY

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|---|---|---|---|
| O. Introductory Training and Capacity Building for Sustainability | 0.1 Institution Building | 0.1.1 Difficulties in Regional Coordination 0.1.2 Regional Inexperience, lack of knowledge about Internal Markets or Regional Trading Arrangements | 0.1.A Project Management 0.1.B. International Experience in Internal Market Evolution 0.1.C. Harmonizing Market Structures in Regional Trading Arrangements |

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|--------------|---|--|--|
| | 0.2 Commercial Market Operations | 0.2.1 Lack of Experience among stakeholders in commercial energy/power sector operations (dominance of government in sector) | 0.2.A. Power Sector Economics 0.2.B. Commercial Agreements 0.2.C. Economic Dispatch 0.2.D. Principles of Commercial Project Development & Finance 0.2.E. Cost Based Tariff Setting 0.2.F. Commercial Exchange Pricing 0.2.G. Energy Policy Vs. Energy Planning 0.2.H. Generation and Expansion Planning 0.2.I. Demand Forecasting 0.2.J. Market Operations and Simulation |
| | | 0.2.2 Poor current performance of utilities (technical & non-technical) | 0.2.K. International Practices in Commercial Utility Management 0.2.L. Essential Data for Measuring Power Sector Performance |

Table 3: Recommended training: Introductory & training for sustainability

1.2. STAGE 1

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|----------------------|---|--|---|
| 1. Preparatory Stage | 1.1 Signature of Power Trade Treaty | 1.1.1 Lack of trust and consensus among participating countries. 1.1.2 Weak communications channels. 1.1.3 Varying country and sub-region priorities | 1.1.A. Ministerial Power Trade Treaty Conferences (I & II) 1.1.B. Nuts & Bolts of Regional Power Trade Treaty (Workshop) |
| | 1.2 Technical Standards Harmonization | 1.2.1 Lack of data and standards in some systems 1.2.2. Differing standards systems among countries | 1.2.A Technical Standards & Operational Procedures Harmonization for Interconnections (English - French) |

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|--------------|---|--|---|
| | 1.3 Development of Regional Database | 1.3.1 Lack of data available for reporting 1.3.2. Lack of understanding in the usefulness of the data 1.3.3 Lack of Agreement on Propriety vs. "Shareable" Information 1.3.4 Lack of information sharing and reporting systems and discipline | 1.3.A. Goals of Information Sharing and Standard Data Needed 1.3.B Information Management for Utilities and Regulators (National Level) - IT & Procedures 1.3.C. Drafting & Implementing the Regional Information Gathering & Reporting Procedures 1.3.D. Regional Data Management - IT & Procedures (for implementing agency) |
| | 1.4 Country-based reporting on Regulatory Frameworks | 1.4.1 Lack of information sharing and reporting systems and discipline | 1.4.A Regulatory and Legal Framework Reporting (English- French) |
| | 1.5 Country-based reporting on legal frameworks for contract enforcement and dispute resolution | 1.5.1 Lack of information sharing and reporting systems and discipline | |
| | 1.6 Drafting & Approval of (Bi-Lateral) Trading Rules | 1.6.1 Lack of Experience with Standard Trading Rules 1.6.2 Balancing National Interests in a Set of Standardized Rules | 1.6.A International Experience in Drafting Trading Rules 1.6.B. Harmonizing Current National Rules into a Regional Framework 1.6.C. Setting Cross Border Exchange Tariffs 1.6.D. Commercial Trading Settlement |
| | 1.7 Establishment of Secretariat and Working Groups | 1.7.1 Financing for Secretariat and Working Group activities 1.7.2 Commitment of Working Group Members to Progress of Regional Trade 1.7.3 Lack of experience of members in carrying out similar tasks as those assigned to the Working Group | 1.7.A Corporate Management for Regional Power Trade Bodies 1.7.B. Working Group Team Building and Goal Orientation |

Table 4: Recommended training – Stage I

1.3. STAGE 2

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|----------------------|---|---|--|
| 2. Bilateral Trading | 2.1 Systematize and Implement Bi-lateral trading agreements between countries (through TSO/SOs) | 2.1.1 Non-systematic practices and varying levels of experience with bi-lateral contracts among countries | 2.1.A. Commercial Contracts (PPAs and Standard Documents) 2.1.B. Incorporating Existing Agreements & Contracts in the RPT Framework |
| | 2.2 Implementing Bi-Lateral Trade and Development of Regional (Multi-Lateral) Market Regulation | 2.2.1 Lack of Experience with Regional Market Rules & Operations 2.2.2 Balancing National Markets in a Set of Regional Rules | 2.2.A. Regional Regulatory Cooperation 2.2.B. Drafting Regional Market Regulation 2.2.C Bi-lateral System Operator Coordination 2.2.D. Evaluating Cross Border Transmission Capacity. 2.2.E. Role of the Regional Regulator 2.2.F Role of the Regional System Operator |
| | 2.3 Development of Regional System Expansion Planning Procedures | 2.3.1 Lack of system planning experience in member countries 2.3.2 Lack of existing coordination among countries for investments to benefit the region | 2.3.A International Experience in System Expansion & Planning, National and Regional Levels. The task of regional expansions planning guidelines is indicated for Stage II, so in preparation, this training should take place in Stage I. (see also training recommended in 3.3 and 3.4) |
| | 2.4 Treaty Participation & Administration | 2.4.1 Lack of experience among parties in participating in a treaty arrangement 2.4.2 Lack of institutional experience in administering an international treaty. | 2.4.A International Treaty Enforcement and Dispute Resolution (English & French) 2.4.B. International Treaty Administration (On-going Communications with Treaty Participants, Conflicts, etc) |

Table 5: Recommended training – Stage 2

1.4. STAGE 3

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|--------------|---|-----------------|--|
| | | | |

| <i>Stage</i> | <i>Stage Targets & Key Institutional Features</i> | <i>Barriers</i> | <i>Capacity Building Recommendations</i> |
|-----------------------------|--|--|---|
| 3. Multi-Party Transactions | 3.1 Participation of various market participants in power trading agreements | 3.0.0 Overall lack of experience in the Region in all areas and difficulty in multi-party coordination | 3.1.A. Multi-Lateral Commercial Contracts 3.1.B. Multi-Lateral Transmission Capacity Assessment & Allocation |
| | 3.2 Multi-party transactions with possibility of transits | | 3.2.A. Multi-Lateral System Operator Coordination |
| | 3.3 Centralised System Expansion Planning | | 3.3.A Regional Power Sector Planning (same as 2.4.A) |
| | 3.4 Increased Promotion of Regional Investments | | 3.4.A. Regional Project Evaluation and Documentation |
| | 3.5 Establishment of Regional Regulatory Body | | 3.5.A Setting Up the Regional Regulatory Body (Management & Daily Operations) |
| | 3.6 Establishment of Regional System Operator | | 3.6.A Setting Up the Regional System Operator (Management & Daily Operations) |

Table 6: Recommended training – Stage 3

2. DETAILED DESCRIPTION OF RECOMMENDED TRAINING

2.1. EXPLANATION OF ACTIVITY TYPES AND PARTICIPANTS

2.1.1. ACTIVITIES

The Activities shown in the tables below per stage are those recommended per stage in section VII of the main report. They reflect the issues identified during the TNA as common issues across the region in which capacity needs to be built in order to support the development of regional trade. Section VII of the main report shows these topics in parallel to the barriers that capacity building is expected to overcome in the process of regional power integration. The rationale to training in each activity is described by the Type of Activity and the Participants, as well as by the Short Description of the Activity.

2.1.2. TYPE OF ACTIVITY

This TNA proposes 5 general types of activities to be included in the training plan. How each activity will be structured and organized, its location, and the trainers will be left to the discretion of the Secretariat, Capacity Building Working Group, and/or the Training Provider itself.

a) Conference or Seminar

When a Conference or Seminar is proposed, it is considered to be an event for the Ministerial Council or other high-level representatives lasting on average 2 days. The average number of participants is 24, to allow for representation from each country and the RPT Secretariat. A "Conference" is largely a discussion forum for the participants to reach agreements, such as that for the Regional Power Trade Treaty. A "Seminar" is a short, informative capacity building activity focused on an issue such as the creation of the Regional Regulatory Agency, which the Ministerial Council and other high-level officials will need to support. For these reasons, the Conferences and Seminars are considered more in the area of consensus-building activities to help regional officials reach a common level of understanding and agreement, yet are not expected to later carry out the related activities themselves.

b) Working Group (WG) Workshop

Since this training plan is focused on building the capacity of the NBI/RPT institution(s) that will be the driving force to implement the tasks required for the regional power trade development – such as the drafting of trading rules, etc. – the majority of the proposed training is dedicated to building the capacity of the Working Group members. Each recommended WG Workshop is focused on a specific issue related to their respective mandates. For instance, the training in contracts and exchange pricing is recommended for the Cross Border Trading Rules Group to enable them to have a broad understanding of all the issues involved when drafting the rules themselves. These workshops are proposed as one-week activities in the region. The average number of participants is 10, the working group plus one member of the secretariat if appropriate. When more than one WG Workshops are recommended, it indicates that the workshop should be conducted for more than one WG, and/or more than one language. In some cases, working groups could participate in the same workshop, in other cases the workshops should be conducted separately. Recommendations on these arrangements are made in the Short Description of the Activity. The WG Workshops are 3 to 5 days in length, depending on the complexity of the topic, or how many topics are combined into one workshop. The actual length of the workshop should be left to the decision of the trainer to determine so as to allow adequate time to properly address the issues.

c) National Workshop

National-level workshops are recommended for many issues in the "Introductory and Sustainability" stage to help key stakeholders reach a common level of understanding on regional trade issues, particularly as they relate in the beginning to commercial sector operations. These activities will likely be carried out in the timeline of Stage I but may also spill over into Stage II if all of the recommended topics are covered. Later, in Stages II and III, additional National Workshops are proposed to address the creation of new regional institutions – the Regional Regulator and Regional System Operator. The Capacity Building Working Group is responsible for coordinating stakeholder participation in these activities. National Workshops are estimated to last one week.

d) Study Tour

In a few, limited cases we recommend study tours to visit similar regional trade institutions so that the participants may see first hand how such bodies operate on a day-to-day basis. This is particularly important in the case of the regional regulatory body and regional system operator. Each study tour is proposed for an average of 10 participants lasting one-week. The budget amounts reflect destinations in Europe or other regions in Africa.

e) On-the-Job Training

Once the Regional Regulatory Body and Regional System Operator has been put in place in Stage III, those responsible for carrying out its mandate will need intensive, on-the-job training. Although this type of training falls outside of the structure of the RPT Secretariat and WG institutional structure, it is important to keep in mind as an integral part of future capacity building needs. The on-the-job training budgeted for in this report allows for 6-weeks of one-to-one training by an international expert at each regional institution (regulatory and system operator).

2.1.3. PARTICIPANTS

The participants of these activities are largely the RPT Secretariat and Working Groups, but also include the Council of Ministers (current Council comprised of National Ministers of Water), NBI Regional Power Trade (RPT) Council of Ministers (to be created by the Treaty), and other national-level participants when appropriate. There is some management and skill-related training for the RPT Secretariat, but the main purpose of its involvement in the training activities is to be able to guide the trade development process with constant contact with the other stakeholders. Some training for the new regional entities – Regional System Operator and Regional Regulatory Body – is recommended for Stage III.

The activities proposed for the NBI RPT Council of Ministers (or their representatives) and national stakeholders are intended to promote consensus building on both the regional and national levels. These workshops and seminars are mostly grouped in the “Introductory and Sustainability” stage since they approach issues with the goal of reaching a common knowledge and understanding of the prerequisites for successful regional trade.

For each Working Group (WG), an orientation workshop is recommended to focus the members on the tasks that they will carry out throughout the three stages. The NBI RPT WGs are referred to in the recommendations as the following:

a) Cross Border Trading Rules (CBTR) WG:

This WG is shown as the recipient of a large number of training activities given its central role in the rules-making process, which will dictate the terms of regional trade. The CBTR WG may also evolve into, or its members may participate in a future WG for the development of the regional market rules and regional regulatory body. Much of the training in Stages II and III are related to these very critical issues.

b) Operational Procedures and System Technical Standards (OPST) WG:

This WG plays a similarly important role as the CBTR, particularly in Stage I, and is recommended for intensive training in its key tasks. In addition, this WG or its members may be involved in the development of the Regional System Operator and regional planning issues carried out in the countries, and thus training in Stages II and III are focused on these areas. Some training is also recommended in conjunction with the CBTR.

c) Regional Data Base (RDB) WG:

The bulk of the RDB work is to be done in Stage I, and thus the recommended training is concentrated in this stage. The RDB is considered as the implementing body for the database itself, not only responsible for drafting the procedures and codes that govern it. Should this responsibility be transferred to another body, the new implementing will need similar training. The RDB members will also have the job of convincing national level stakeholders to report on the data required for the database, and so it is recommended to include national level stakeholders in some related training.

d) System Expansion and Planning (SEP) WG:

The SEP WG undertakes complex planning tasks in the second stage of the RPT Model in order to review and coordinate all of the NBI member country national system expansion plans and integrate them into the regional plan. The recommended training to assist the WG members in gaining the additional skills needed should be implemented in Stage I of the implementation roadmap, so that no time is lost at the start of Stage II for undertaking this laborious task. Additional training is planned in Stages II and III to assist the WG in carrying this responsibility over to the Regional System Operator in Stage III.

e) Capacity Building National Coordination Working Group:

This WG will be responsible for coordinating national level participation in the proposed training activities. Their members may also attend the WG workshops on an individual basis as space is available.

f) "Open WG"

This expression is used to indicate that some members of other WGs should also attend the subject workshop to promote continuity of the overall RPT goals across these institutional bodies. The Capacity Building working group and/or Secretariat may decide how to structure the cross-WG activities.

2.1.4. TIMING

For recommended Introductory and Stage I activities we have indicated a possible timing of capacity building activities during the Stage I timeframe (19 months). The timing of activities is suggested to indicate most importantly the order of activities as some activities build upon previous workshops and seminars. They are also timed keeping in mind the milestones indicated in the Roadmap for RPT Implementation (see Comprehensive Final Report) for the approval of the regional power trade treaty, drafting of the working group final reports (including drafting of the trading rules), as well as the establishment of the working groups themselves. In this way, the activities are bound to the central months of Stage I, essentially from May 2008 to April 2009 when the Working Groups must submit their final reports. The timings are also shown in the calendars per participant group below in section 2.7. The activities that we indicate as "optional" are not shown with timings or included in the calendars per participant group.

2.2. INTRODUCTORY & TRAINING FOR SUSTAINABILITY

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|---|--|--|----------------|---|
| 0.1.A Project Management | Workshop | RPT Secretariat | N/A | Optional workshop – to refine management tools that will assist the Secretariat members to organize the complex process of coordinating the number of stakeholders and issues involved in RPT development |
| 0.1.B. International Experience in Internal Market Evolution | Seminar, WG Workshop | NBI Power Trade Council of Ministers + Secretariat (Seminar), CBTR WG (Workshop) | August 2008 | - Seminar: High level review of the market structure options in use today in various parts of the world, and the evolutionary paths (Stages of market development) taken to arrive at the current operational states. - CBTR WG Workshop: issues as covered in the seminar, combined with the workshop on International Experience in Drafting Trading Rules (1.6.A) |
| 0.1.C. Harmonizing Market Structures in Regional Trading Arrangements | WG Workshop | CBTR WG | August 2008 | Issues in how the market structures of various countries – ranging from vertically integrated state-owned utility systems to competition in generation and distribution segments – can function in the same regional trading scheme. To be combined with CBTR WG Workshop on drafting regional trading rules. |
| 0.2.A Power Sector Economics | Seminar, National Workshop | All working groups (seminar), National Stakeholders (National-Regional Workshop) | N/A | Optional activities depending on level of interest from stakeholders in countries with power sectors dominated by state-owned, vertically integrated companies to demonstrate the impact of business decisions on the economic functioning of the sector. |
| 0.2.B. Commercial Agreements | National Workshops | National Stakeholders | N/A | Workshop to cover the main elements of commercial agreements used in the power sector, particularly PPAs, and their enforcement/dispute resolution mechanisms. If facing time constraints, the topics of this workshop may be covered in the subsequent workshop on Commercial Project Development and Finance (0.2.D) |
| 0.2.C Economic Dispatch | WG Workshops (2), National Workshops (2) | CBTR, OPST, SEP WGs (workshop), National Stakeholders (National-Regional Workshop) | December 2008 | Recommended for maximum number of stakeholders so as to emphasize the economic importance of merit order dispatch among hydropower plants, thermal plants and other energy resources, according to economic efficiency and costs to the system. |
| 0.2.D. Principles of Commercial Project Development & Finance | National Workshop | National Stakeholders | September 2009 | Workshop on the key elements of bankable projects that will appeal to private investors, with a particular focus on risk assessment and mitigation. May also include discussion of commercial agreements used in such transactions. |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|---|---|--|---------------|---|
| 0.2.E Cost Based Tariff Setting | National Workshop (1) | National Stakeholders (National-Regional Workshop) | March 2009 | Recommended for maximum number of stakeholders to cover the key features of cost-based tariff setting for energy pricing, while considering subsidy and other socio-economic issues for end-users. May also include issues related to Commercial Exchange Pricing used in cross border transactions (Workshop 0.2.F.) |
| 0.2.F Commercial Exchange Pricing | WG Workshop (1), National Workshop (1) | CBTR WG (workshop), National Stakeholders (National-Regional Workshop) | N/A | Principles of commercial pricing for cross border transactions based on actual costs and market demand features. Optional workshop whose topics may be covered in brief in the Cost-Based Tariff Setting Workshop (0.2.E) for National Stakeholders and 1.6.C. Setting Cross Border Exchange Tariffs for the CBTR WG. |
| 0.2.G Energy Policy Vs. Energy Planning | National Workshop | National Stakeholders | N/A | Workshop on the importance of national energy sector expansion planning and tools used to forecast demand, resource availability, transmission capacity expansion, etc. Differentiating yet based on the country's national energy policy. Optional workshop whose topics could be briefly covered in the workshop on Generation and Expansion Planning (0.2.H) |
| 0.2.H Generation and Expansion Planning | National Workshop | National Stakeholders | October 2008 | In-depth coverage of the forecasting and simulation methods used to plan for the expansion of the national power sector – ie. growth in generation to meet current and rising demand. Workshop should be implemented in coordination with the NBI regional power trade planning entity (proposed as NELSAP). Demand forecasting (0.2.I) and overview issues (0.2.G) may be covered as well. |
| 0.2.I Demand Forecasting | National Workshop | National Stakeholders | N/A | Data needed and tools used to determine current demand, including suppressed demand, and future demand growth in the national power sector. Optional workshop that could be covered in more detail by the planning entity of the NBI regional power trade (proposed as NELSAP) and in general terms in the workshop on Generation and Expansion Planning (0.2.H) |
| 0.2.J Market Operations and Simulation | WG Workshops (2), National Workshop (1) | CBTR & OPST WGs (workshop), National Stakeholders (National-Regional Workshop) | June 2009 | Workshop to cover the detailed procedures and management of a commercial electricity market, and simulation cases of various transactions – bilateral, multi-lateral, and power pooling. |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|---|--|--|---------------|---|
| 0.2.K. International Practices in Commercial Utility Management | WG Workshop (1), National Workshop (1) | Open WG (Workshop), National Stakeholders (National-Regional Workshop) | April 2008 | Commercial management objectives of power companies whether public or private – focused on efficient revenue cycle management (metering, billing, collections) and cash flow through the system as the foundation of a sustainable electricity sector. Most useful for utility and regulatory stakeholders. |
| 0.2.L. Essential Data for Measuring Power Sector Performance | WG Workshop (1), National Workshop (1) | Open WG (Workshop), National Stakeholders (National-Regional Workshop) | July 2008 | Review of the data needed from power plants, transmission and distribution segments to determine efficient (or acceptable) levels of operation. Some discussion of information technology needs, performance benchmarking and performance regulation may also be included. Most useful for utility and regulatory stakeholders. |

Table 7: Introductory & training for sustainability

2.3. STAGE 1

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|---|-------------------------|-----------------------------------|----------------|---|
| 1.1.A. Ministerial Power Trade Treaty Conferences (II) | Conference | Ministerial Council + Secretariat | May 2008 | One activity has been planned for the signing of the Ministerial Power Trade Treaty, however it is likely that two activities will need to be held: 1) for the initial discussion and drafting of the terms and 2) for the final review of the treaty document and signing. This capacity building activity serves as a place holder for the one not included in the overall description of Stage activities. This 2-day activity is for the parties to the Treaty. |
| 1.1.B. Nuts & Bolts of Regional Power Trade Treaty | WG Workshop | Secretariat + Open WG | N/A (May 2008) | Workshop for the Secretariat and Working Group heads/liaisons on the details of the regional power trade treaty and how it affects national power sector operations while preparing for the future development of the regional power market. (Optional but is included on the calendar) |
| 1.2.A Technical Standards & Operational Procedures Harmonization for Interconnections | WG Workshop | OPST WG | August 2008 | Overview of the minimum level of standardization of technical standards needed from cross-border trade, primarily at the inter-connectors. This workshop is intended as a working-session in which initial case studies of similar situations will be reviewed but participants will need to begin to draft the technical solutions for the planned power exchanges in the region. |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|--|-------------------------|--|----------------|---|
| 1.3.A. Goals of Information Sharing and Standard Data Needed | WG Workshops (2) | RDB WG + Open WG | N/A | <ul style="list-style-type: none"> - Optional Workshop for the RDB WG – issues can be covered in the workshop on Drafting and Implementing Regional Information Gathering Procedures (1.3.C) - Optional Workshop for other WG members – Review of international case studies and then discussion of the standards and procedures established by the RDB WG for the NBI RPT. Could be included in workshop on Information Management for Utilities and Regulators (1.3.B). |
| 1.3.B Information Management for Utilities and Regulators (National Level) - IT & Procedures | WG Workshops (2) | RDB WG + Open WG, National Stakeholders | June 2008 | Both workshops should cover the same issues – types of information needed for effective utility management (technical and commercial data), information technology needed for data collection, and essential information management systems. Workshops may also include national level stakeholders. The maximum number of participants should be included to promote information sharing procedures. Workshops conducted in English and French would be helpful. |
| 1.3.C. Drafting & Implementing the Regional Information Gathering & Reporting Procedures | WG Workshop | RDB WG | September 2008 | First part of the workshop should be training to review case studies of information sharing among regional power pools in other parts of the world. In the second part of the workshop, the RDB WG should draft the goals of NBI RPT information sharing, mechanisms & procedures to do so, and designate the national parties responsible. |
| 1.3.D. Regional Data Management - IT & Procedures (for implementing agency) | WG Workshop | RDB WG | December 2008 | Training for the entity that will manage the regional database (either the RDB WG or other) in the information technology needed to manage the data, management, collection and sharing procedures under the NBI RPT. |
| 1.4.A Regulatory and Legal Framework Reporting | WG Workshop | RDB WG + Open WG | April 2009 | In preparation for Stage II of the RPT, discussion of the regulatory and legal reporting framework to be established under the NBI RPT and how national institutions will interface with the regional entities (Secretariat and Regional Regulator). Ideally one workshop conducted in English and another in French. |
| 1.6.A International Experience in Drafting Trading Rules | Seminar, WG Workshop | NBI Power Trade Council of Ministers + Secretariat (Seminar), CBTR WG (Workshop) | August 2008 | <ul style="list-style-type: none"> - Seminar: Brief overview of international experience in regional or cross-border trading rules, important characteristics of the rules. Goal of the seminar is to gain high-level support for the work that will be undertaken by the CBTR to draft the rules, and ease subsequent approval of the rules. - Workshop is a continuation of the seminar just for the CBTR WG to discuss international case studies more in-depth and to draft the broad terms of the rules. |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|---|-------------------------|--|-------------------------|---|
| 1.6.B. Harmonizing Current National Rules into a Regional Framework | WG Workshop | CBTR WG | N/A | Review of the various structures for electricity exchange among parties in national sectors and how those national structures may be harmonized in a regional framework. Optional workshop whose topics may be covered in the International Experience in Drafting Trading Rules workshop (1.6.A) |
| 1.6.C. Setting Cross Border Exchange Tariffs | WG Workshop | CBTR WG | February 2009 | Commercial tariff issues – primarily related to costs and demand – considered in determining prices for cross border electricity transactions. Discussion on unnecessary duties and other price distortions included. |
| 1.6.D. Commercial Trading Settlement | Workshop | CBTR WG | N/A | Optional workshop that can be included in the Cross Border Exchange Tariffs workshop (1.6.C.) to cover optimal settlement periods, mechanisms and minimum IT requirements needed. |
| 1.7.A Corporate Management for Regional Power Trade Bodies | Workshop, Study Tour | Secretariat (Study Tour), Open WG (Workshop) | March 2008 (Study Tour) | <ul style="list-style-type: none"> - Study Tour for Secretariat members to an appropriate similar regional power trade institution for discussions with counterparts on management and coordination issues in the short and long term life of a regional power trade organization, including managing the RPT development process, coordination with stakeholders in the region and other similar institutions. - Optional workshop for the heads of the working groups (or liaisons) to review the governance procedures by which the Secretariat will operate, and to which the working groups will be subject. These issues can be combined with the WG Team Building workshops (1.7.B). |
| 1.7.B. Working Group Team Building and Goal Orientation | Workshops (5) | All Working Groups | May 2008 | - Workshops to build the cohesiveness of each working group and orient them to the goals and activities of their respective group within the larger RPT framework and process. Relationship with and responsibilities towards the Secretariat and National stakeholders should also be included (including issues covered in 1.7.A). May be added on to the first capacity building activity designated for each working group. |
| 2.3.A International Experience in System Expansion & Planning | Workshop | SEP WG | | Review of the system planning methodologies and tools used on national levels, and the experiences of various regional markets and power pools in the world in integrating those expansion plans. Key topics will include regional demand forecasting, coordination of national expansion plans, and modelling impacts of generation expansion scenarios on the regional energy balance. Training will also focus on the elements important for setting up the NBI RPT National System Expansion Plan-sharing and integration procedures, including, |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Timing</i> | <i>Short Description</i> |
|-----------------|-------------------------|---------------------|---------------|---|
| | | | | but not limited to: how the information will be collected and validated, what format the databases will have, what tools (software) should be used for expansion studies, how studies will be converted into a regional data base and re-evaluated to identify economic investments on a regional level, and finally how the information will be presented to the Secretariat and other Ministerial bodies. |

Table 8: Stage 1

2.4. STAGE 2

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Short Description</i> |
|---|----------------------------|--|---|
| 2.1.A. Commercial Contracts (PPAs and Standard Documents) | Workshop | CBTR WG | In depth analysis of commercial agreements used in bi lateral and multilateral agreements, and to develop standardized commercial documents for regional transactions. For execution during Stage II and in preparation for drafting trading arrangements for Stage III |
| 2.1.B. Incorporating Existing Agreements & Contracts in the RPT Framework | Workshop | CBTR WG | Optional workshop – A number of bilateral electricity exchange agreements already exist between NBI member countries. In this workshop, the CBTR WG will examine the elements of these existing agreements and ensure their harmonization with the new standardized documents, with the assistance of experienced international contracts experts. |
| 2.2.A. Regional Regulatory Cooperation | Seminar, National Workshop | NBI Power Trade Council of Ministers + Secretariat (Seminar), National Stakeholders (National-Regional Workshop) | Seminar and Workshop – Review of International Experience in developing and implementing regional regulation through a regional entity, and its interface with the national entities. A high-level briefing is recommended for executive representatives from the Ministries of Energy in order to smooth the way for regional regulatory development in Stages II and III. |
| 2.2.B. Drafting Regional Market Regulation | Workshop | CBTR WG | Workshop for the CBTR WG to learn about the key elements necessary to regulate regional power exchanges and markets, based on international experience, and cases applicable to the NBI RPT. |
| 2.2.C Bi-lateral System Operator Coordination | Workshop | OPST WG | Workshop to cover the issues related to bilateral system operator coordination in a regional market, including, day ahead operational planning, real-time monitoring dispatch and re-dispatch, system emergency management, and system recovery coordination (after failures in the network). |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Short Description</i> |
|--|-------------------------|---------------------------------------|--|
| 2.2.D. Evaluating Cross Border Transmission Capacity | Workshop | OPST WG | A clear and accurate measurement of cross border transmission capacity and availability is essential in order to allow for the trade of electricity itself. Distortions of this capacity will limit the scale of trade and distort the related costs and benefits. Issues to be covered in this workshop include: net transmission capacity as a result of stability limits; remaining transmission capacity after allocating long term contracts with priority of use of the network; and different scenarios considering actual availability of the network components, either per scheduled maintenance or from failures. |
| 2.2.E. Role of the Regional Regulator | Workshop | Secretariat + CBTR WG | In preparation for Stage III and the actual establishment of the Regional Regulator, and to have a reference while developing the rules of Stages II and III, this workshop will address the responsibilities of the Regional Regulatory Body, its jurisdiction and the mechanisms by which it will regulate cross border trade activities. Its relationship and interface with national regulators and government entities will also be covered. |
| 2.2.F. Role of the Regional System Operator | Workshop | Secretariat + OPST WG | Like the workshop on the Role of the Regional Regulator, this workshop will address the distinct activities of the national versus regional system operator, and its relationships with individual power generators in the NBI countries. The Regional System Operator's role in expansion planning, capacity assessment and allocation, and system stability will be discussed. |
| 2.4.A. International Treaty Enforcement and Dispute Resolution | Workshop | Secretariat | Optional although recommended for purposes of on-going communication regarding the Regional Power Trade Treaty among the signatories. This workshop or seminar should cover some relevant issue to the treaty such as the mechanisms and procedures in place for dispute resolution, and the responsible bodies, while citing successful international examples. |
| 2.4.B. International Treaty Administration | Workshop | Treaty Depository Staff + Secretariat | Training for the Secretariat and the entity designated at the depository of the Regional Power Trade Treaty in the on-going roles and responsibilities of treaty administration – including communication with stakeholders of any requests for modifications, monitoring of national policy and regulation to ensure on-going harmonization, reporting of disputes to the proper authorities, and on-going communication with the parties to the Treaty. |

Table 9: Stage 2

2.5. STAGE 3

Training in Stage 3 expands on several of the themes raised in Stage I and II capacity building activities, but examines the issues in a more detailed manner to enable the Secretariat, Working Groups, or other designated bodies to establish and operate the actual regional regulatory and system operator institutions that will manage regional trade well into the future.

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Short Description</i> |
|--|--------------------------------|---|--|
| 3.1.A. Multi-Lateral Commercial Contracts | Workshops (2) | CBTR WG + Open WG | Starting with the base of knowledge gained in workshop Commercial Contracts (2.1.A), this workshop addresses the increased complexity of multi-party contracts, third-country electricity transits & electricity wheeling, and provides guidelines for the creation of standard documents. One workshop is strongly recommended for the CBTR WG, a second workshop for other relevant WG (OPST) members is optional. |
| 3.1.B. Multi-Lateral Transmission Capacity Assessment & Allocation | Workshops (2) | OPST WG + Open WG | This workshop briefly reviews the key elements of the issues covered in the workshop on “simple” capacity assessment (2.2.D) but then expands the topics’ complexity for transit coordination and according to the rules for Stage III. One workshop is strongly recommended for the OPST WG, a second workshop for other relevant WG (CBTR) members is optional. |
| 3.2.A. Multi-Lateral System Operator Coordination | WG Workshops (2) | OPST WG + Open WG | Like the workshop on Multi-Lateral Transmission Capacity Assessment & Allocation (3.1.B), this workshop assumes that OPST WG members participated in the related stage II workshop on bi-lateral SO operation (2.2.C), this workshop expands the complexity of those topics for multi-party coordination and also adds the scenario of a regional system operator, and the rules for Stage III. One workshop is strongly recommended for the OPST WG, a second workshop for other relevant WG (CBTR) members is optional. |
| 3.3.A Regional Power Sector Planning | WG Workshop | SEP WG | Same as activity 2.3.A. It could optionally be repeated in Stage III for the new regional system operator staff who will have to continue to carry out the task of regional system expansion planning in the future. |
| 3.4.A. Regional Project Evaluation and Documentation | WG Workshop, National Workshop | SEP WG (Workshop), National Stakeholders (National-Regional Workshop) | In follow-on to the workshop on Regional Power Sector Planning (2.3.A/3.3.A), this workshop should also be conducted in coordination with the regional planning entity. It may incorporate the modelling of generation expansion scenarios on the regional energy balance in order to prioritize the most beneficial, and economically efficient generation (and transmission) investments, and cover issues in the techno-economic feasibility evaluation of the project, as well as the proper documentation for investor review. This workshop could be conducted during Stage II or III. |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Short Description</i> |
|---|--|---|---|
| 3.5.A Setting Up the Regional Regulatory Body | Seminar, WG Workshop, Study Tour, On-the-Job Training (6 weeks) | NBI Power Trade Council of Ministers + Secretariat (Seminar), CBTR WG (Study Tour, Workshop), New Regional Regulatory Body (on-the-job) | <ul style="list-style-type: none"> - Seminar: High-level seminar on the role of the regional regulatory body and regional system operator for representatives of the country Ministries of Energy to facilitate the agreement on the overall terms and mandates of the two institutions. - Study Tour: for the CBTR WG (or the body responsible for establishing the new institution) to visit a Regulatory Agency that oversees a Regional Electricity Market in Europe, the US or other relevant location, in order to discuss in person and gain hands-on experience in issues of its establishment, operation and management. Members of the new regulatory body may also participate if they have been identified by that point. - Workshop: for the CBTR WG (or the body responsible for establishing the new institution) to discuss in-depth details about establishing the structure for management and daily operations of the regional regulator, its governance, by-laws, staffing requirements, and oversight, among other issues. - On-the-job Training: The new regulators and staff of the regulatory body will need on-the-job training and mentoring in the various new responsibilities that they must carry out. One possibility is that the new regional regulator be paired with a similar regional body whose staff could mentor through activities on-site (at the new regulatory body location). Six weeks of activities are proposed over the first year of operation - one-to-one meetings between parallel staff, group discussions and presentations on specific issues, mentor-review of new rules, regulation, licenses, tariff structures, etc. |
| 3.6.A Setting Up the Regional System Operator | Workshop, Study Tour, On-the-Job Training (6 weeks) | OPST WG (Study Tour, Workshop), New Regional Regulatory Body (on-the-job) | <ul style="list-style-type: none"> - Seminar: The high-level seminar on the role of the regional regulatory body and regional system operator is combined with the seminar in activity 3.5.A, so that there is only one seminar covering both issues for representatives of the country Ministries of Energy to facilitate the agreement on the overall terms and mandates of the two institutions. - Study Tour: for the OPST WG (or the body responsible for establishing the new institution) to visit a Regional System Operator that manages a Regional Electricity Market in Europe, the US or other relevant location, in order to discuss in person and gain hands-on experience in issues of its establishment, operation and management. Members of the new system operator may also participate if they have been identified by that point. This study tour may be combined with the Study Tour in activity 3.5.A if applicable. - Workshop: for the OPST WG (or the body responsible for establishing |

| <i>Activity</i> | <i>Type of Activity</i> | <i>Participants</i> | <i>Short Description</i> |
|-----------------|-------------------------|---------------------|---|
| | | | <p>the new institution) to discuss in-depth details about establishing the structure for management and daily operations of the regional system operator, its governance, by-laws, staffing requirements, and oversight, among other issues.</p> <p>- On-the-job Training: The staff of the new system operator will need on-the-job training and mentoring in the various new responsibilities that they must carry out. One possibility is that the new entity be paired with a similar regional SO whose staff could mentor through activities on-site (at the new SO location). Six weeks of activities are proposed over the first year of operation - one-to-one meetings between parallel staff, group discussions and presentations on specific issues, mentor-review of new dispatch procedures, system monitoring, standards enforcement, planning activities, etc.</p> |

Table 10: Stage 3

2.6. PRIORITY CAPACITY BUILDING ACTIVITIES

The full list of recommendations would be difficult, if not impossible, to implement given the Secretariat and Working Group members' multiple responsibilities and tasks that they are charged with carrying out during this same period. For this reason, we have selected a priority list of activities for each participant group, as shown in the tables below. These are also shown in calendar format for the period covering Stage I in the subsequent section.

| Participant Group - RPT Secretariat | | |
|---|---|------------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.1.B International Experience in Internal Market Evolution | Seminar |
| 1. Preparatory Stage | 1.1.A. Ministerial Power Trade Treaty Conferences (II) | Seminar |
| | 1.1.B. Nuts & Bolts of Regional Power Trade Treaty | Workshop |
| | 1.6.A. International Experience in Drafting Trading Rules | Seminar |
| | 1.7.A. Corporate Management for Regional Power Trade Bodies | Study Tour |
| 2. Bilateral Trading | 2.2.A. Regional Regulatory Cooperation | Seminar |
| | 2.2.E. Role of the Regional Regulator | Workshop |
| | 2.2.F. Role of the Regional System Operator | Workshop |
| | 2.4.A. International Treaty Enforcement and Dispute Resolution | Workshop |
| | 2.4.B. International Treaty Administration | Workshop |
| 3. Multi-Party Transactions | 3.5.A. Setting up the Regional Regulatory Body and Regional System Operator | Seminar |

| Participant Group – Council of Ministers | | |
|--|--|---------|
| Stage | Activity | Type |
| 1. Preparatory Stage | 1.1.A. Ministerial Power Trade Treaty Conferences (II) | Seminar |

| Participant Group - NBI Power Trade Council of Ministers | | |
|---|--|---------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.1.B. International Experience in Internal Market Evolution | Seminar |
| 1. Preparatory Stage | 1.6.A. International Experience in Drafting Trading Rules | Seminar |
| 2. Bilateral Trading | 2.2.A. Regional Regulatory Cooperation | Seminar |

| | | |
|-----------------------------|---|---------|
| 3. Multi-Party Transactions | 3.5.A. Setting up the Regional Regulatory Body and Regional System Operator | Seminar |
|-----------------------------|---|---------|

| Participant Group - Cross Border Trading Rules (CBTR) WG | | |
|---|---|----------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.1.B. International Experience in Internal Market Evolution | Workshop |
| | 0.1.C. Harmonizing Market Structures in Regional Trading Arrangements | Workshop |
| | 0.2.C. Economic Dispatch | Workshop |
| | 0.2.J. Market Operations and Simulation | Workshop |
| 1. Preparatory Stage | 1.6.A. International Experience in Drafting Trading Rules | Workshop |
| | 1.6.C. Setting Cross Border Exchange Tariffs | Workshop |
| | 1.7.B. Working Group Team Building and Goal Orientation | Workshop |
| 2. Bilateral Trading | 2.1.A. Commercial Contracts (PPAs and Standard Documents) | Workshop |
| | 2.1.B. Incorporating Existing Agreements & Contracts in the RPT Framework | Workshop |
| | 2.2.B. Drafting Regional Market Regulation | Workshop |
| | 2.2.E. Role fo the Regional Regulator | Workshop |
| 3. Multi-Party Transactions | 3.1.A. Multi-Lateral Commercial Contracts | Workshop |
| | 3.5.A. Setting Up the Regional Regulatory Body | Workshop |

| Participant Group - Operational Procedures and System Technical Standards (OPST) WG | | |
|---|---|----------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.2.C. Economic Dispatch | Workshop |
| | 0.2.J. Market Operations and Simulation | Workshop |
| 1. Preparatory Stage | 1.2.A. Technical Standards & Operational Procedures Harmonization for Interconnection | Workshop |
| | 1.7.B. Working Group Team Building and Goal Orientation | Workshop |
| 2. Bilateral Training | 2.2.C. Bi-lateral System Operator Coordination | Workshop |
| | 2.2.D. Evaluating Cross Border Transmission Capacity | Workshop |
| | 2.2.F. Role of the Regional System Operator | Workshop |

| | | |
|-----------------------------|--|----------|
| 3. Multi-Party Transactions | 3.1.B. Multi-Lateral Transmission Capacity Assessment & Allocation | Workshop |
| | 3.2.A. Multi-Lateral System Operator Coordination | Workshop |
| | 3.6.A. Setting Up the Regional System Operator | Workshop |

| Participant Group - Regional Data Base (RDB) WG | | |
|---|---|----------|
| Stage | Activity | Type |
| 1. Preparatory Stage | 1.3.A. Goals of Information Sharing and Standard Data Needed | Workshop |
| | 1.3.B. Information Management for Utilities and Regulators (National Level) - IT & Procedures | Workshop |
| | 1.3.C. Drafting & Implementing the Regional Information Gathering & Reporting Procedures | Workshop |
| | 1.3.D. Regional Data Management - IT & Procedures (for implementing agency) | Workshop |
| | 1.4.A. Regulatory and Legal Framework Reporting (English-French) | Workshop |
| | 1.7.B. Working Group Team Building and Goal Orientation | Workshop |

| Participant Group - System Expansion & Planning (SEP) WG | | |
|---|---|----------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.2.C. Economic Dispatch | Workshop |
| 1. Preparatory Stage | 1.7.B. Working Group Team Building and Goal Orientation | Workshop |
| | 2.3.A International Experience in System Expansion & Planning | Workshop |
| 3. Mutli-Party Transactions | 3.4.A. Regional Project Evaluation and Documentation | Workshop |

| Participant Group - "Open WG" | | |
|---|---|----------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.2.K. International Practices in Commercial Utility Management | Workshop |
| | 0.2.L. Essential Data for Measuring Power Sector Performance | Workshop |
| 1. Preparatory Stage | 1.1.B. Nuts & Bolts of Regional Power Trade Treaty | Workshop |

| | | |
|-----------------------------|--|----------|
| | 1.4.A. Regulatory and Legal Framework Reporting (English-French) | Workshop |
| 3. Mutli-Party Transactions | 3.1.A. Multi-Lateral Commercial Contracts | Workshop |
| | 3.1.B. Multi-Lateral Transmission Capacity Assessment & Allocation | Workshop |
| | 3.2.A. Multi-Lateral System Operator Coordination | Workshop |

| Participant Group - New Regional Entities | | |
|---|--|-----------------|
| Stage | Activity | Type |
| 3. Multi-Party Transactions | 3.3.A Regional Power Sector Planning (for Regional SO) | Workshop |
| | 3.5.A. Setting up the Regional Regulatory Body | On-the-Job & ST |
| | 3.6.A. Setting Up the Regional System Operator | On-the-Job & ST |

| Participant Group - National Stakeholders | | |
|---|---|----------|
| Stage | Activity | Type |
| 0. Introductory Training and Capacity Building for Sustainability | 0.2.C. Economic Dispatch | Workshop |
| | 0.2.D. Principles of Commercial Project Development & Finance | Workshop |
| | 0.2.E. Cost Based Tariff Setting | Workshop |
| | 0.2.H. Generation and Expansion Planning | Workshop |
| | 0.2.J. Market Operations and Simulation | Workshop |
| | 0.2.K. International Practices in Commercial Utility Management | Workshop |
| | 0.2.L. Essential Data for Measuring Power Sector Performance | Workshop |
| 2. Bilateral Trading | 2.2.A. Regional Regulatory Cooperation & Regional Dispatch | Workshop |
| 3. Multi-Party Transactions | 3.4.A. Regional Project Evaluation and Documentation | Workshop |

Table 11: Priority capacity building activities

2.7. CALENDAR OF ACTIVITIES FOR STAGE I

The calendars below show the activities recommended per participant group and in a calendar format. The timing is suggested to correspond with the activities that the participants will undertake to meet the stage milestones indicated in the implementation roadmap.

| Participant Group - RPT Secretariat | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| Stage | Activity | Type | | | | | | | | | | | | | | | | | | | | | | | | |
| 0. Introductory Training and Capacity Building | 0.1.B International Experience in Internal Market evolution | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Preparatory Stage | 1.1.A. Ministerial Power Trade Treaty Conferences (II) | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.1.B. Nuts & Bolts of Regional Power Trade Treaty | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.6.A. International Experience in Drafting Trading Rules | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.7.A. Corporate Management for Regional Power Trade Bodies | Study Tour | | | | | | | | | | | | | | | | | | | | | | | | |

| Participant Group - Ministerial Council | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| Stage | Activity | Type | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Preparatory Stage | 1.1.A. Ministerial Power Trade Treaty Conferences (II) | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |

| Participant Group - NBI Power Trade Council of Ministers | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| Stage | Activity | Type | | | | | | | | | | | | | | | | | | | | | | | | |
| 0. Introductory Training and Capacity Building | 0.1.B. International Experience in Internal Market Evolution | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Preparatory Stage | 1.6.A. International Experience in Drafting Trading Rules | Seminar | | | | | | | | | | | | | | | | | | | | | | | | |

| Participant Group - System Expansion & Planning (SEP) WG | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| Stage | Activity | Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| 0. Introductory Training and Capacity Building | 0.2.C. Economic Dispatch | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Preparatory Stage | 1.7.B. Working Group Team Building and Goal Orientation | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.3.A International Experience in System Expansion & Planning | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |

| Participant Group - "Open WG" | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| Stage | Activity | Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| 0. Introductory Training and Capacity Building | 0.2.K. International Practices in Commercial Utility Management | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.L. Essential Data for Measuring Power Sector Performance | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Preparatory Stage | 1.1.B. Nuts & Bolts of Regional Power Trade Treaty | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.4.A. Regulatory and Legal Framework Reporting (English-French) | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |

| Participant Group - National Stakeholders | | | Month | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 2008 | | | | | | | | | | | | 2009 | | | | | | | | | | | |
| Stage | Activity | Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | | Stage 1 | | | | | | | | | | | | Stage 2 | | | | | | | | | | | |
| 0. Introductory Training and Capacity Building for Sustainability | 0.2.C. Economic Dispatch | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.D. Principles of Commercial Project Development & Finance | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.E. Cost Based Tariff Setting | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.H. Generation and Expansion Planning | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.J. Market Operations and Simulation | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.K. International Practices in Commercial Utility Management | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.2.L. Essential Data for Measuring Power Sector Performance | Workshop | | | | | | | | | | | | | | | | | | | | | | | | |

Table 12: Calendar of activities Stage I

3. RESOURCES NEEDED FOR TRAINING IMPLEMENTATION

3.1. HUMAN RESOURCES

A small coordinating body will be needed to organize the intensive schedule of training needed among the working groups and national stakeholders in order to successfully develop sustainable power trade in the region. This group will initially be the Secretariat until the Capacity Building Working Group is established and operational. The Secretariat should have one staff person dedicated to organizing the capacity building activities, and that should work in collaboration with the Capacity Building Working Group to identify the proper participants for the national stakeholder workshops. The Secretariat and Working Group will need to define their respective responsibilities in terms of organizing the logistics, etc., however overall management of the training program should be the responsibility of the dedicated staff member in the Secretariat.

3.2. REGIONAL TRAINING CENTER RESOURCES

Several training centers and facilities are operating in the region and should be the first ones considered as potential venues and sources of training personnel. Those that have come to light during this assessment are discussed briefly here, however, a more thorough cataloguing of these institutions should be done when developing the final training plan. For example, utilities in the region in addition to those mentioned here have training facilities that could be used as venues (such as those in Uganda and Kenya).

3.2.1. NATIONAL ELECTRICITY CORPORATION (NEC)

The NEC in Sudan established the Uhm Haraz Training Centre in 1990 through World Bank financing. Its primary goal is the on-going training of NEC staff, however the Centre intends to become more involved in international training initiatives. Facilities include Electronic, control & instrumentation laboratories; power systems and steam power simulators; mechanical and electrical workshops; and practical work with transmission towers & distribution lines.

The Centre is staffed by a General Training Manager, Technical Training Manager, and Divisional Managers on staff that oversee and carry out the various training activities for NEC employees.

Although this center focuses on the more technical side of power system operation, it would be useful for its continued life to integrate more market oriented training capacities into the services that it can offer. Additional expertise may be available from Juba University's Energy Research Center.

3.2.2. EGYPTIAN ELECTRICITY HOLDING COMPANY

The EEHC has developed a training center over the years that has evolved into a large network of facilities and course offerings. Both the Power Plant Training Management Unit and the Leadership Development Center are relevant capacity building resources for the NBI regional trade initiative to consider.

a) Power Plant Training Management Unit (PPTMU)

The Power Plant Training Management Unit (PPTMU) has been providing capacity building for employees of EEHC since 2002. The Unit provides a set of training and consulting services aimed at developing the human resource potential of the electricity industry in Egypt, and in parallel sectors of industry and services. Rather than only focusing on the technical aspects

of power systems, the PPTMU teaches the process of capacity building in its programs, and can also provides the associated services for utility and government clients.

The PPTMU covers five general areas of capacity building for power sector stakeholders, and within each area is a long list of specific technical, commercial and management skills that can be built through their training services.

- Power Generation
- Transmission and Distribution Networks
- Energy Management
- New and Renewable Energy
- Management and Leadership

In addition to actual training services, the full range of PPTMU services include:

- Evaluation of work force capacity
- Training Needs Identification
- Development of training programs and curricula
- Delivery of training programs
- Evaluation of training results
- Technical expertise and knowledge exchange in the development of capacity building programs
- Implementation of the “Dual Vocational Training System” at all EEHC plants, among others.

The PPTMU facilities include electrical and mechanical workshops with state-of-the-art calibration labs and simulators; market studies and data bases; accommodation for training participants; and the professional trainers with experience in multicultural environments.

The 20 PPTMU Training Centers are located at Generation, Transmission, Distribution and other EEHC facilities across the country.

In addition to providing services for EEHC and other Egyptian clients, the PPTMU considers the Arab and African countries as its natural market for capacity building services. The Unit has trained personnel from the electric utilities located in Libya, Syria, Saudi Arabia, UAE, Jordan, Palestine, Kuwait, CIS countries, and the member countries of the Arab Union for Power Producers, Transmitters and Distributors, as well as from other East African countries. Next Table shows the number of training participants and courses offered to international participants from July 2003 to March 2007.

| Country | No. Courses | No. Participants |
|------------------------|-------------|------------------|
| Eastern Nile Countries | 2 | 6 |
| Sudan | 359 | 1669 |
| Saudi Arabia | 1 | 1 |

| Country | No. Courses | No. Participants |
|-----------------------------------|-------------|------------------|
| Jordan | 1 | 20 |
| Comoros | 1 | 6 |
| Palestine | 3 | 30 |
| Syria | 2 | 40 |
| Iraq | | |
| With JICA assistance | 4 | 46 |
| With GTZ assistance | 7 | 79 |
| With UNDP assistance | 3 | 33 |
| In cooperation with private firms | 2 | 61 |

Table 13: training and courses offered

b) Leadership Development Center

The Leadership Development Center (LDC) was established under the Ministry of Electricity and Energy (MOEE) in 1995, initially in collaboration with the US Agency for International Development (USAID) and the Leadership Development Program. This program combined formal training, internships, and change management ideas in an intensive 10-month curriculum designed to turn motivated electricity sector managers into the next generation of effective leaders and decision makers. The LDC continues to offer this intensive program, as well as a series of short courses in Management and Leadership, as well as computer and language skills. In addition to creating this core group of leaders, the LDC works to extend the impact of its activities through the involvement of current senior management, and linking training results to the strategic objectives of the sector.

The LDC is located in Cairo. Its facilities include four classrooms for 30-50 participants, language and computer labs, and a library containing multimedia resources on management, economics, languages and information technology.

One of the most salient weaknesses in the NBI region power sector is the lack of management capacity among sector leaders. With its long history in preparing sector stakeholders for change and leadership capacity, the LDC has valuable experience to offer stakeholders in the RPT initiative – most valuable of which being the staff expertise in this area of training and the case studies that may be applied to the region.

3.3. FINANCIAL RESOURCES

The estimated financial resources needed to implement the proposed training plan are described in section VIII 1.6 below.

VIII ESTIMATION OF RESOURCES REQUIREMENTS

1. STAGE I

1.1. ACTIVITY: NEGOTIATE TEXT AND APPROVAL OF TREATY

This activity consists of negotiating with the different countries the final text for the Treaty (or Agreement) to establish the power trade framework. It will be a responsibility of the PTC / PMU since no organisation of the power trade framework will be created yet.

The resources estimated are:

- 2 trips to each of the countries of 2 persons each trip, 3 days in each country to negotiate.
- A meeting with representatives off each country (one per country) at Dar Es Salaam (Head quarters NBI).
- Consultancy services for writing the final version of Treaty.

| Negotiate text & get approval of Treaty | | |
|---|------------------------------------|----------------|
| Trips | | |
| | Air tickets (#) | 32 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 106 |
| | Average per day (US\$) | 250 |
| | Total (US\$) | 45700 |
| | | |
| Meeting | | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 24 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total (US\$) | 12800 |
| | | |
| | Consultancy services (US\$) | 120000 |
| | | |
| | TOTAL ACTIVITY (US\$) | 178.500 |

Table 14: Budget "Negotiate text & get approval of Treaty"

1.2. ACTIVITY: CREATION OF POWER TRADE SECRETARIAT

The Power Trade Secretariat will be created by the signature of the Treaty. It will need human resources, office space communications, etc. In the next table these needs are estimated.

| | US\$/month | US\$/year |
|--|------------|-----------|
|--|------------|-----------|

| | | |
|--|-------|----------------|
| Human Resources | | |
| General coordinator | 6000 | 72000 |
| 3 senior staff | 13500 | 162000 |
| 1 IT expert | 1500 | 18000 |
| 1 secretary | 500 | 6000 |
| Driver | 300 | 3600 |
| Allowances staff (30% over salaries) | 27300 | 327600 |
| General expenses (communications, office material, services) | 5000 | 60000 |
| Expenses (regional trips, meetings, etc) | | 30000 |
| Infrastructure | | |
| Office space (rent) | 1000 | 12000 |
| IT | | |
| Hardware (6 PC, server, printer, scanner) | | 15000 |
| Software (network soft, licenses, etc) | | 7000 |
| Office equipment | | 15000 |
| TOTAL BUDGET FIRST YEAR (US\$) | | 728.200 |

Table 15: Budget "Power Trade Secretariat"

1.3. ACTIVITY: CROSS BORDER TRADING RULES WORK GROUP

This work group will have the responsibility of proposing the trading rules for the power framework. This objective is expected to be met through actual work from this working group and consultancy services. It is estimated that it will be **needed 4 meetings (4 days each) of representatives of the countries (one per country)** during one year of work and engaging consultancy services as established in the terms of reference of this working group (Draft Final Report).

| Cross border trading rules | | |
|------------------------------|--------------------------|----------------|
| Meetings (4) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting (US\$) | 14800 |
| | Total meetings (US\$) | 59200 |
| Consultancy services (US\$) | | 500000 |
| TOTAL ACTIVITY (US\$) | | 559.200 |

Table 16: Budget "Cross border trading rules"

1.4. ACTIVITY: OPERATIONAL PROCEDURES & TECHNICAL STANDARDS

This work group will have the responsibility of proposing the operational procedures for power trading and the regional technical standards as established in the terms of reference of this working group (Draft Final Report). This objective is expected to be met through actual work from this working group and consultancy services. It is estimated that it will be **needed 4 meetings (4 days each) of representatives**

of the countries (two per country) during one year of work and engaging consultancy services.

| Operational procedures & Technical standards | | |
|--|--------------------------|----------------|
| Meetings (4) | <i>Per meeting</i> | |
| | Air tickets (#) | 16 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 64 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting (US\$) | 27600 |
| | Total meetings (US\$) | 110400 |
| Consultancy services (US\$) | | 250000 |
| TOTAL ACTIVITY (US\$) | | 360.400 |

Table 17: Budget: "Operational procedures & technical standards"

1.5. ACTIVITY: REGIONAL DATA BASE

This work group will have the responsibility of collecting the information in each member country, according to the procedures established by the Secretariat and using specific forms for that purpose. The Secretariat will be in charge of updating the Regional Data Base and publishing it in the NBI Power Trade Web Site.

Discussing periodically the improvement of the data base and web site structure to incorporate additional information or delete information that has proved to be of no use.

This objective is expected to be met through actual work from this working group and consultancy services. It is estimated that it will be **needed 2 meetings per year (4 days each) of representatives of the countries (one per country)**. Additionally at the establishment of the work group it will be needed to engage consultancy services and purchase IT systems to support the data base.

| Regional Data Base | | |
|------------------------------|--------------------------|----------------|
| Meetings (2) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting (US\$) | 14800 |
| | Total meetings (US\$) | 29600 |
| Consultancy services (US\$) | | 150000 |
| IT hardware (US\$) | | 3500 |
| IT software (US\$) | | 5000 |
| Total IT (US\$) | | 8500 |
| TOTAL ACTIVITY (US\$) | | 188.100 |

Table 18: Budget "Regional Data Base"

1.6. ACTIVITY: TRAINING

Budgeting for training during the different stages is taken directly from the TNA. In previous sections (TNA) the budget and assumptions are detailed. Here below it is presented a summary of the costs corresponding to Stage I

| For Secretariat, Working Groups, Etc. | | US\$ |
|---------------------------------------|-----------------------|------------------|
| Stage I | Stage sub-total | 2.040.000 |
| | Conference / Seminars | 210.000 |
| | Workshops | 1.680.000 |
| | Study Tours | 150.000 |
| | On-the-job Training | 0 |
| | | |
| For National Participants | | US\$ |
| Stage I | Stage sub-total | 735.000 |
| | Workshops | 735.000 |
| | | |
| TOTAL | | 2.775.000 |

Table 19: Budget "Training Stage I"

1.7. ACTIVITY: STEERING COMMITTEE

It is foreseen **2 meetings per year** of the Steering Committee, (**one representative per country**) of **4 days each meeting**.

| Steering Committee | | |
|-----------------------|-------------------------|---------------|
| Meetings (2) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting | 14800 |
| | Total meetings | 29600 |
| | | |
| TOTAL ACTIVITY | | 29.600 |

Table 20: Budget "Steering Committee"

1.8. ACTIVITY: ANNUAL MEETING OF MINISTERS

It is foreseen that an annual meeting of Ministers will be held to overview the process, make decisions, etc.

For the sake of budgeting it is considered that the Minister from each country assist with a team of 3 other officials per country. These meetings are considered two days meetings.

| Annual meeting of Ministers | | |
|----------------------------------|--|---------------|
| Budget Ministers | | |
| Air tickets (#) | | 9 |
| Average cost (US\$) | | 1200 |
| Expenses (days) | | 18 |
| Average per day (US\$) | | 400 |
| Total Ministers (US\$) | | 18000 |
| Team | | |
| Air tickets (#) | | 27 |
| Average cost (US\$) | | 600 |
| Expenses (days) | | 54 |
| Average per day (US\$) | | 250 |
| Total team (US\$) | | 29700 |
| Expenses meeting | | |
| Rent facility (US\$) | | 1500 |
| Service Secretaries (US\$) | | 1000 |
| Material & office Materia (US\$) | | 2000 |
| Dinner (US\$) | | 2500 |
| Drivers & cars (US\$) | | 2000 |
| Translation services (US\$) | | 1000 |
| Total expenses (US\$) | | 10000 |
| TOTAL ACTIVITY (US\$) | | 57.700 |

Table 21: Budget: "Annual meeting of Ministers"

1.9. SUMMARY OF COSTS

The following table shows the total cost of stage I separated for year 1 and for the following 9 months that correspond to the second year. The cost has been separated in "Consultancy Services" needed and as expenses the rest of the costs involved.

The separation in year one and next nine months of second year is an estimation according to the road map proposed, but it may vary according to the actual implementation of the different activities, especially the establishment of the working groups and their actual commencement of activities.

| Activity | Total Stage (US\$) | Year 1 (US\$) | Year 2 (*) (US\$) |
|---|--------------------|---------------|-------------------|
| Negotiate text & get approval of Treaty | 178500 | 178500 | 0 |
| Expenses | 58500 | 58500 | 0 |
| Consultancy services | 120000 | 120000 | 0 |
| Creation PTS | 1246600 | 728200 | 518400 |
| Expenses | 1246600 | 728200 | 518400 |
| Consultancy services | 0 | 0 | 0 |
| Cross border trading rules | 559200 | 559200 | 0 |
| Expenses | 59200 | 59200 | 0 |
| Consultancy services | 500000 | 500000 | 0 |
| Operational procedures & Technical standards | 360400 | 360400 | 0 |
| Expenses | 110400 | 110400 | 0 |
| Consultancy services | 250000 | 250000 | 0 |

| Activity | Total Stage (US\$) | Year 1 (US\$) | Year 2 (*) (US\$) |
|------------------------------------|--------------------|------------------|-------------------|
| Regional Data Base | 226200 | 188100 | 38100 |
| Expenses | 76200 | 38100 | 29600 |
| Consultancy services | 150000 | 150000 | 0 |
| Training | 2775000 | 1850000 | 925000 |
| Expenses | 2775000 | 1850000 | 925000 |
| Consultancy services | 0 | 0 | 0 |
| Steering Committee | 44400 | 29600 | 14800 |
| Expenses | 44400 | 29600 | 14800 |
| Annual meeting of Ministers | 57700 | 57700 | 0 |
| Expenses | 57700 | 57700 | 0 |
| Consultancy services | 0 | | 0 |
| TOTAL | 5.439.500 | 3.951.700 | 1.487.800 |
| Expenses | 4.419500 | 2.931.700 | 1.487.800 |
| Consultancy services | 1.020.000 | 1.020.000 | 0 |

(*) Corresponds to first 9 months of the Year 2 which are the end of Stage I.

Table 22: Summary of costs Stage I

Next table shows the same information as the previous one, but aggregated per activity.

| Activity | Total Stage (US\$) | Year 1 (US\$) | Year 2 (*) (US\$) |
|--|--------------------|------------------|-------------------|
| Negotiate text & get approval of Treaty | 178500 | 178500 | 0 |
| Creation PTS | 1246600 | 728200 | 518400 |
| Cross border trading rules | 559200 | 559200 | 0 |
| Operational procedures & Technical standards | 360400 | 360400 | 0 |
| Regional Data Base | 226200 | 188100 | 38100 |
| Training | 2775000 | 1850000 | 925000 |
| Steering Committee | 44400 | 29600 | 14800 |
| Annual meeting of Ministers | 57700 | 57700 | 0 |
| TOTAL | 5.439.500 | 3.951.700 | 1.487.800 |

(*) Corresponds to first 9 months of the Year 2 which are the end of Stage I.

Table 23: Summary costs activities Stage I

2. STAGE II

2.1. ACTIVITY: TRANSMISSION CAPACITY AND ALLOCATION

This activity consists of defining the methodology for the determination of the transmission capacity for cross border trading and the allocation of this capacity.

This activity should be achieved in one year coordinated by technical team with the contribution of an international consultancy.

From the budgetary point of view, this would represent **2 meetings of representatives of each country (one per country; 4 days each meeting)** and the costs of the consultancy services.

| Transmission capacity & allocation | | |
|------------------------------------|-------------------------|----------------|
| Meetings (2) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting | 14800 |
| | Total meetings | 29600 |
| | | |
| Consultancy services | | 200000 |
| | | |
| TOTAL ACTIVITY | | 229.600 |

Table 24: Budget "Transmission capacity & allocation"

2.2. ACTIVITY: STUDY FOR ESTABLISHMENT OF REGIONAL SO/MO

This is a task for preparing the establishment of the regional SO/MO. It consists basically in determining in detail the requirements in terms of human resources, training, infrastructure to establish the SO/MO.

From the budgetary point of view, this would represent **3 meetings of representatives of each country (one per country; 4 days each meeting)** and the costs of the consultancy services.

| Studies for establishment of regional SO/MO | | |
|---|-------------------------|----------------|
| Meetings (3) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting | 14800 |
| | Total meetings | 44400 |
| | | |
| Consultancy services | | 150000 |
| | | |
| TOTAL ACTIVITY | | 194.400 |

Table 25: Budget "Studies for establishment of regional SO/MO"

2.3. ACTIVITY: DISPUTE RESOLUTION MECHANISM

This is a task whose objective is to define in detail the procedures for dispute resolution.

From the budgetary point of view, this would represent **2 meetings of representatives of each country (one per country; 4 days each meeting)** and the costs of the consultancy services.

| Dispute resolution mechanism | | |
|------------------------------|-------------------------|----------------|
| Meetings (2) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting | 14800 |
| | Total meetings | 29600 |
| | | |
| Consultancy services | | 100000 |
| | | |
| TOTAL ACTIVITY | | 129.600 |

Table 26: Budget "Dispute resolution mechanism"

2.4. ACTIVITY: STUDY FOR ESTABLISHMENT OF REGIONAL REGULATOR

2.4.1. BUDGET ACTIVITY

This is a task for preparing the establishment of the regional regulator. It consists basically in determining in detail for the regional regulator: organisational structure, mission, vision, objectives, activities, responsibilities, staffing, description of positions, procedures, manual of ethics, etc.

From the budgetary point of view, this would represent **2 meetings of representatives of each country (one per country; 4 days each meeting)** and the costs of the consultancy services.

| Studies for establishment of regional regulator | | |
|---|-------------------------|----------------|
| Meetings (2) | <i>Per meeting</i> | |
| | Air tickets (#) | 8 |
| | Average cost (US\$) | 600 |
| | Expenses (days) | 32 |
| | Average per day (US\$) | 250 |
| | General expenses (US\$) | 2000 |
| | Total per meeting | 14800 |
| | Total meetings | 29600 |
| | | |
| Consultancy services | | 200000 |
| | | |
| TOTAL ACTIVITY | | 229.600 |

Table 27: Budget "Studies for establishment of regional regulator"

2.4.2. ESTIMATION OF COST REGIONAL REGULATOR

As it was established in the previous point, the detailed estimation of costs for the establishment of the regional regulator as well as its operative costs and investments should be determined by a specific consultancy. Here below it is

presented an estimation of those costs with the available information up to the moment. It must be considered that today there is no structure agreed, nor specific mission defined of the organisation, therefore the estimation presented is a rough estimation.

| | US\$/unit | # | US\$/month | US\$ |
|--|-----------|----|------------|------------------|
| Human Resources | | | | |
| Board | 6000 | 9 | 54000 | 648000 |
| General Manager | 5000 | 1 | 5000 | 60000 |
| Staff (average) | 3500 | 10 | 35000 | 420000 |
| 1 IT expert | 1500 | 1 | 1500 | 18000 |
| Secretary | 500 | 3 | 1500 | 18000 |
| Driver | 300 | 2 | 600 | 7200 |
| General expenses (communications, office material, services) | 5000 | 1 | 5000 | 60000 |
| Infrastructure | | | | |
| Office space (rent) | 1500 | 1 | 1500 | 18000 |
| IT | | | | |
| PCs | 2000 | 24 | | 48000 |
| Server | 2500 | 1 | | 2500 |
| Printers | 700 | 2 | | 1400 |
| Other hardware (scanner, flash disks, etc) | 1000 | 1 | | 1000 |
| Software local area network | 2000 | 1 | | 2000 |
| Licenses soft (Office or similar) | 500 | 24 | | 12000 |
| Office equipment (average per person) | 1000 | 24 | | 24000 |
| Expenses installation | 15000 | 1 | | 15000 |
| TOTAL BUDGET FIRST YEAR (US\$) | | | | 1.340.100 |

Table 28: Budget Regional Regulator

2.5. ACTIVITY: TRAINING

Budgeting for training during the different stages is taken directly from the TNA. In previous sections (TNA) the budget and assumptions are detailed. Here below it is presented a summary of the costs corresponding to Stage II.

| For Secretariat, Working Groups, Etc. | | US\$ |
|---------------------------------------|-----------------------|------------------|
| Stage II | Stage sub-total | 1.365.000 |
| | Conference / Seminars | 210.000 |
| | Workshops | 1.155.000 |
| | Study Tours | 0 |
| | On-the-job Training | 0 |
| For National Participants | | US\$ |
| Stage I | Stage sub-total | 105.000 |
| | Workshops | 105.000 |
| TOTAL | | 1.470.000 |

Table 29: Budget "Training Stage II"

2.6. ACTIVITY: POWER TRADE SECRETARIAT

See detail of costs in Stage I Activity: Creation of Power Trade Secretariat.

| |
|--|
| Total budget Activity (US\$): 691.200 |
|--|

2.7. ACTIVITY: STEERING COMMITTEE

See detail of costs in Stage I Activity: Steering Committee.

| |
|---|
| Total budget Activity (US\$): 29.600 |
|---|

2.8. ACTIVITY: ANNUAL MEETING OF MINISTERS

See detail of costs in Stage I Activity: Annual Meeting of Ministers.

| |
|---|
| Total budget Activity (US\$): 57.700 |
|---|

2.9. SUMMARY OF COSTS

The following table shows a summary of cost for the second stage aggregated per activity.

| Activity | Year 2 (*) | Year 3 |
|--|------------|---------|
| Transmission capacity & allocation | 57400 | 172200 |
| Expenses | 7400 | 22200 |
| Consultancy services | 50000 | 150000 |
| Studies for establishment of regional SO/MO | 48600 | 145800 |
| Expenses | 11100 | 33300 |
| Consultancy services | 37500 | 112500 |
| Dispute resolution mechanism | 32400 | 97200 |
| Expenses | 7400 | 22200 |
| Consultancy services | 25000 | 75000 |
| Studies for establishment of regional regulator | 57400 | 172200 |
| Expenses | 7400 | 22200 |
| Consultancy services | 50000 | 150000 |
| Training | 367500 | 1102500 |
| Expenses | 367500 | 1102500 |
| Consultancy services | | |
| Annual meeting of Ministers | | 57700 |
| Expenses | | 57700 |
| Consultancy services | | |
| Regional Data Base | | 29600 |
| Expenses | | 29600 |

| Activity | Year 2 (*) | Year 3 |
|--------------------------------|----------------|------------------|
| Power Trade Secretariat | | 691200 |
| Expenses | 172800 | 691200 |
| Steering Committee | | |
| Expenses | 14800 | 29600 |
| TOTAL | 750.900 | 2.498.000 |
| Expenses | 588.400 | 2.010.500 |
| Consultancy services | 162.500 | 487.500 |

(*) Corresponds to last 3 months of Year 2. First 9 months of Year 2 are still Stage I.

Table 30: Summary costs per year Stage II

The following table presents the same information as the previous one but aggregated by activity.

| Activity | Year 2 (*) | Year 3 |
|---|----------------|------------------|
| Transmission capacity & allocation | 57400 | 172200 |
| Studies for establishment of regional SO/MO | 48600 | 145800 |
| Dispute resolution mechanism | 32400 | 97200 |
| Studies for establishment of regional regulator | 57400 | 172200 |
| Training | 367500 | 1102500 |
| Annual meeting of Ministers | | 57700 |
| Regional Data Base | | 720800 |
| Power Trade Secretariat | | 691200 |
| Steering Committee | 14800 | 29600 |
| TOTAL | 750.900 | 2.498.000 |

Table 31: Summary cost activities Stage II

3. STAGE III

3.1. TRAINING

Budgeting for training during the different stages is taken directly from the TNA. In previous sections (TNA) the budget and assumptions are detailed. Here below it is presented a summary of the costs corresponding to Stage II.

| For Secretariat, Working Groups, Etc. | | US\$ |
|---------------------------------------|-----------------------|------------------|
| Stage I | Stage sub-total | 1.570.000 |
| | Conference / Seminars | 210.000 |
| | Workshops | 1.050.000 |
| | Study Tours | 300.000 |
| | On-the-job Training | 115.000 |
| | | |
| For National Participants | | US\$ |
| Stage I | Stage sub-total | 105.000 |
| | Workshops | 105.000 |
| | | |
| TOTAL | | 1.675.000 |

Table 32: Budget "Training" Stage III

Additionally it must be considered budgets for the following items:

- Power Trade Secretariat: US\$ 691.200 estimated per year
- Steering Committee: US\$ 29.600 estimated per year.
- Annual meeting of Ministers: US\$ 57.700 estimated per year
- Regional Regulator: US\$ 1.340.00 estimated for first year (though this budget will be estimated precisely by the corresponding consultancy).
- Regional System / Market Operator: this budget will be estimated by the foreseen consultancy.

4. TOTAL RESOURCES REQUIREMENTS PER YEAR

The following table summarises the total resources for stages I and II for years one, two and three of the project. Amounts are expressed in US\$.

| Activity (US\$) | Stage I | | Stage II | |
|---|----------------|---------------|---------------|----------------|
| | Year 1 | Year 2 | Year 2 | Year 3 |
| | | (9 months) | (3 months) | |
| Negotiate text & get approval of Treaty | 178500 | | | |
| Expenses | 58500 | | | |
| Consultancy services | 120000 | | | |
| Power Trade Secretariat | 728200 | 518400 | 172800 | 691200 |
| Expenses | 728200 | 518400 | 172800 | 691200 |
| Consultancy services | | | | |
| Cross border trading rules | 559200 | | | |
| Expenses | 59200 | | | |
| Consultancy services | 500000 | | | |
| Operational procedures & Technical standards | 360400 | | | |
| Expenses | 110400 | | | |
| Consultancy services | 250000 | | | |
| Regional Data Base | 188100 | 29600 | | 29600 |
| Expenses | 38100 | 29600 | | 29600 |
| Consultancy services | 150000 | | | |
| Training | 1850000 | 925000 | 367500 | 1102500 |
| Expenses | 1850000 | 925000 | 367500 | 1102500 |
| Consultancy services | | | | |
| Steering Committee | 29600 | 14800 | 14800 | 29600 |
| Expenses | 29600 | 14800 | 14800 | 29600 |
| Annual meeting of Ministers | 57700 | | | 57700 |
| Expenses | 57700 | | | 57700 |
| Consultancy services | | | | |
| Transmission capacity & allocation | | | 57400 | 172200 |
| Expenses | | | 7400 | 22200 |
| Consultancy services | | | 50000 | 150000 |
| Studies for establishment of regional SO/MO | | | 48600 | 145800 |
| Expenses | | | 11100 | 33300 |
| Consultancy services | | | 37500 | 112500 |
| Dispute resolution mechanism | | | 32400 | 97200 |
| Expenses | | | 7400 | 22200 |
| Consultancy services | | | 25000 | 75000 |

| Activity (US\$) | Stage I | | Stage II | |
|--|------------------|----------------------|----------------------|------------------|
| | Year 1 | Year 2 (9 months) | Year 2 (3 months) | Year 3 |
| Studies for establishment of regional regulator | | | 57400 | 172200 |
| Expenses | | | 7400 | 22200 |
| Consultancy services | | | 50000 | 150000 |
| TOTAL | 3.951.700 | 1.487.800 | 750.900 | 2.498.000 |
| Expenses | 2.931.700 | 1.487.800 | 588.400 | 2.010.500 |
| Consultancy services | 1.020.000 | | 162.500 | 487.500 |

Table 33: Total resources requirements per year

5. ANNEX – BREAKDOWN OF CAPACITY BUILDING BUDGET

| Stage I | | | | | | |
|------------------|--------------------------|----------|----------------------|------------|---------------------|-----------|
| Type of Activity | | Workshop | Seminar / Conference | Study Tour | On-the-Job Training | |
| No. Activities | NBI Institutional Bodies | 16 | 2 | 1 | -- | |
| Sub-total | | 1680000 | 210000 | 150000 | -- | 2.040.000 |
| No. Activities | National Participants | 7 | -- | -- | -- | |
| Sub-total | | 735.000 | -- | -- | -- | 735.000 |
| Stage Subtotal | | 2415000 | 210000 | 150000 | -- | 2.775.000 |

| Stage II | | | | | | |
|------------------|--------------------------|----------|----------------------|------------|---------------------|-----------|
| Type of Activity | | Workshop | Seminar / Conference | Study Tour | On-the-Job Training | |
| No. Activities | NBI Institutional Bodies | 11 | 2 | -- | -- | |
| Sub-total | | 1155000 | 210000 | -- | -- | 1.365.000 |
| No. Activities | National Participants | 1 | -- | -- | -- | |
| Sub-total | | 105000 | -- | -- | -- | 105.000 |
| Stage Subtotal | | 1260000 | 210000 | -- | -- | 1.470.000 |

| Stage III | | | | | | |
|------------------|--------------------------|----------|----------------------|------------|---------------------|-----------|
| Type of Activity | | Workshop | Seminar / Conference | Study Tour | On-the-Job Training | |
| No. Activities | NBI Institutional Bodies | 9 | 2 | 2 | 2 | |
| Sub-total | | 945000 | 210000 | 300000 | 115000 | 1.570.000 |
| No. Activities | National Participants | 1 | -- | -- | -- | |
| Sub-total | | 105000 | -- | -- | -- | 105.000 |
| Stage Subtotal | | 1050000 | 210000 | 300000 | 115000 | 1.675.000 |

| Assumptions per Activity | | | | |
|--|----------|----------------------|------------|---------------------|
| Type of Activity | Workshop | Seminar / Conference | Study Tour | On-the-Job Training |
| Estimated Cost per Activity (Training + Travel Expenses) | 105000 | 105000 | 150000 | 57500 |
| Participants per Activity (average #) | 24 | 30 | 10 | 1 ¹ |
| Duration of each Activity (average) | 5 days | 2 days | 5 days | 6 weeks |
| Number of Activities calculated in budget | | | | |
| Stage 1 | 23 | 2 | 1 | 0 |
| Stage 2 | 12 | 2 | 0 | 0 |
| Stage 3 | 10 | 2 | 2 | 2 |
| Total | 45 | 6 | 3 | 2 |

¹ On-the-Job Training is budgeted by number of trainers who travel to the client's site to provide services to an unspecified number of participants. In this case, budget represents the cost of the time for 1 international trainer-experts over six-weeks

