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I. INTRODUCTION

A. USAID TECHNICAL LEADERSHIP TRAINING PROGRAM

1. Background

USAID energy programs assist developing countries in establishing the policy frameworks and institutional capacity necessary for the operation of financially viable, competitive energy markets that will mitigate the environmental impact of energy use while increasing access to energy services, and promoting economic growth. The heart of USAID's strategy is the reform of legislative and regulatory policies and institutions to allow private sector participation in energy and electric power development and to open markets for renewable energy, energy efficiency, and clean-energy technologies. USAID assistance has been crucial in more than 24 countries in the reform of the electric sector, improvements in energy efficiency and availability, stimulated investments in renewable energy projects, and improved economic performance in the power sector.

Free Market: A market in which there is an absence of intervention by government and where the forces of supply and demand are allowed to operate freely.

David W. Pearce, Ed., "The MIT Dictionary of Modern Economics, © 1992 Aberdeen Economic Consultants, (Cambridge, Mass.: The MIT Press) p. 163.

Economic Liberalism: The doctrine, which advocates the greatest possible use of markets and the forces of competition to coordinate economic activity. It allows to the state only those activities which the market cannot perform – e.g. the provision of public goods – or those which are necessary to establish the framework within which the private enterprise economy and markets can operate efficiently, e.g. by establishment of the legal framework on property and contract and the adoption of such policies as anti-monopoly legislation.

Ibid., p. 120.

Rapid transformations in the energy sector worldwide have changed the emphasis and focus of energy training needs, as well as the way USAID conducts training. Training needs have shifted over time from hardware & technology, to technology/project management and policy, and now to development and implementation of marketplaces and transactions for environmentally sound energy. Likewise, the Agency's shift in emphasis and operations has forced a change in modes of delivering training, moving away from a fixed curriculum of workshops, and toward having a ready capability on hand to provide custom training to meet Strategic Objective goals.

The developing world and the development field are awash with consultants able to custom design technology, policy, and financing solutions, virtually at a moment's notice, and with complete turnkey services. But can our in-country partners, the recipients of this assistance, manage and operate the technology, policy, and financing on their own after the installation process is complete?

Increased understanding, knowledge and skill of host country partners of the importance and benefits of liberalized markets to their local situations, as well as the political, legal, economic, and social infrastructure requirements for sustainable market liberalization is a requirement to achieve environmental, economic, and social sustainability in the energy sector. Thus, access to the right technology, policy, or financing is much less an issue today than is the ability of individuals in stakeholder institutions to develop and operate legal, regulatory, and market frameworks for implementation of technology, policy, and financing for environmentally sound energy.

Nothing starts (or stops) unless people take action. Lack of a sufficient knowledge and/or skill base among our partners is frequently a greater barrier to the implementation of environmentally sound technology, policy, and financing than in getting the specific interventions themselves "right." Human capacity is the awareness, knowledge, and abilities that allow individuals and institutions to cause positive changes in their circumstances. Capacity building is required when the barriers to success are human (i.e., when the technology, policy, and financing solutions alone do not seem to be working).

Ideally, solutions will depend on an analysis of specific problems. The analysis is now focused on the human dimension, and can be summed up in the following questions: "Who among our partners needs to know (or be skilled in) what in order to achieve what goals, and how and where do those people learn best?"

2. Training Within USAID – Technical Leadership Training

Within USAID, the way the Agency conducts business is forcing a change in how Energy and Environment Training Program (EETP) can conduct training. The traditional fixed curriculum of training that EETP has offered in the past is increasingly less viable as a centrally run program in today's USAID. Funding and staffing for capacity building has shifted away from building core competencies in staff and corporate capability in institutions in general, and toward increasing skills and knowledge in people closely correlated with technical assistance activities.

The Technical Leadership Training is designed and delivered under EETP, a program within the Global Bureau at USAID in Washington, D.C. The Global Bureau manages this program in partnership with the various USAID Bureaus and Missions, host country partners, and a number of cooperators and contractors.

The "Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector" is being provided under a Task Order – Private Sector participation in Clean Energy Development, Management & Operations – awarded by USAID to CORE International, Inc.

B. CORE INTERNATIONAL, INC. – CORPORATE BACKGROUND

CORE International, Inc. is a small minority owned and operated international management consulting firm with expertise in the energy and environmental sectors. The firm was founded in 1984 by its current President and since that time the firm has managed and/or participated in over 300 energy and environmental assignments in over 72 countries worldwide. One of the special areas of expertise of the firm is in developing and delivering tailor-made training programs, workshops, seminars, and conferences. CORE has designed and delivered training programs to developing country public and private sector officials in a number of areas including energy planning, energy pricing, economic and financial analysis of energy and environmental projects, financial evaluation of energy enterprises, environmental management, industrial cogeneration, DSM, IRP, ESCO development, project financing, and bid preparation and procurement. CORE's clients include a number of bilateral agencies, the World Bank, Asian Development Bank, European Bank for Reconstruction and Development, and the governments of over 40 countries.

CORE's experience in energy and environmental training includes the design and delivery of training to developing country public and private sector officials in a number of countries. Specific examples include (i) training in energy planning and tariff development to Ministry of Energy officials in Jamaica, (ii) training to over 60 energy conservation engineers, planners, and economists in Thailand, (iii) training to 30 staff members of the Korea Management Corporation in the environmental advantages and economic efficiency of gas-fired cogeneration systems, (iv) over a dozed short training sessions on the utilization of bagasse as a source of clean power in Guyana, India, the Philippines, Uganda, Kenya, Rwanda, Ghana, Zimbabwe, and Thailand, (v) training on technology choice, product specification, procurement and tendering for clean energy projects.

In the electricity sector, CORE has worked in over 60 countries worldwide in assessing the institutional and regulatory aspects of power sector management and the relationship between electricity prices, regulation, and markets. CORE has also developed strategies for consumer acceptance of tariff and regulatory changes and analyzed different models for market development with respect to the relationship between Gencos and Discos. Another area of CORE's expertise includes the development of customer relationship management (CRM) in a changing market environment that many developing countries are increasingly facing as part of the power sector reform.

Some examples of CORE's recent work in the area of energy sector capacity building and training are provided below:

Brazil: Institutional Capacity Building and Consumer Acceptance Approaches for New Electricity Regulations and the Sector Restructuring

Under a $2.2 million project for USAID, Mr. Shrivastava developed a detailed strategy for the implementation of a 1% utility fund, allocated by law within the

newly restructured electricity sector, for investments in utility and non-utility energy efficiency programs. The work involved the identification of barriers to new investment, barriers relative to the organizational relationships of the Ministry, the ESCO industry, energy consumer groups, and ANEEL, the regulator, and defining changes needed within ELETROBRAS, the national utility, to give the consumer a greater voice in electricity investment planning and tariff setting. In another assignment for USAID, Mr. Shrivastava organized a national solid waste management program involving 12 landfill sites in 11 major cities throughout Brazil. He developed the organizational structure for the cooperative association of the municipalities and city governments and structured the institutional process to affect change in the prevailing practice of solid waste management in Brazil. The process was agreed to by all the governments and the first methane-based power project was initiated.

Malaysia: Institutional Capacity Building in the Electricity Sector in Malaysia

In Malaysia he participated in the development of a change strategy resulting in the corporatization of the Tenaga Nacional Berhad (TNB), the national utility, which also included the break-up of TNB into different independent operating entities in order to serve the energy market and the consumer more efficiently.

Indonesia: Technical Assistance to USAID Jakarta for Institutional Strengthening of NGOs in the Energy Sector and the Development of the USAID Energy Sector Assistance Strategy

Mr. Shrivastava led a TAG Mission to Indonesia to develop a detailed paper in support of the USAID Mission Strategy for Energy Sector Assistance in Indonesia. In addition, he managed the efforts of CORE International that included an evaluation of numerous local NGO's involved in the energy sector in Indonesia. Due to (i) recent energy price increases and (ii) coupled with the country's economic downturn resulting from the country's fiscal crisis, energy conservation and energy efficiency issues are rising to new levels. All energy sector end users in the country (households, industrial, government, etc.) are looking seriously at options for decreasing their energy usage and costs. The CORE mission was to evaluate the current institutional capabilities of local NGOs in the energy efficiency and conservation field and to make specific recommendations for institutional strengthening and capacity building for identified NGOs.

One of the most complex institutional capacity building and change management project's led by CORE International, Inc. was the institutional and economic reconstruction in Bosnia and Herzegovina (BiH) under the leadership of the White House and Ambassador Robert Gelbard, the then Chief Envoy for Bosnia Implementation and Dayton Peace Accord Implementation. Mr. Shrivastava supported the Administration's objective to introduce significant institutional restructuring and changes throughout the three presidencies in BiH. His responsibilities included residency in BiH and the development of change management plans and government and utility restructuring throughout Bosnia in

all sectors of the economy. He supported the work of the Office of the High Representative and coordinated all donor investments including participating in the donor meetings in Paris and reporting regularly to Ambassador Gelbard at the State Department.

Zambia: Power Sector Regulatory Restructuring and Reform and Institutional Development of ERB, ZPA, and ZESCO, the National Utility Company

CORE International is prime contractor for a major power sector restructuring and capacity building project in Zambia. Under this projected funded by USAID under the Energy training IQC, CORE plans to design and deliver a number of training courses. The first course is designed is to provide ERB and ZPA with the ability to analyze the financial and economic consequences of introducing different levels of market competition into the existing Zambia generation subsector. Such analysis will allow estimation of market determined wholesale electricity prices for specific electricity demand levels and predication of the financial performance of specific private sector owned generating companies. It will also allow determination of any capture of economic rent by private sector generating station owners. The course will also review international experience with design, implementing, and operating and regulating wholesale electricity markets. It will identify the main issues related to implementing wholesale competition in Zambia. These include the following.

SADC Countries: Power Sector Restructuring Institutional Development in Southern Africa Development Community (SADC) Countries

CORE International is a prime contractor for an ongoing institutional development project in SADC countries. As the first exercise under this project CORE organized and conducted a workshop. The Southern Africa Electricity Regulation Workshop consisted of over 75 attendees from the Southern African Development Community (SADC) countries plus invited officials from Kenya and Uganda. In addition, eleven international consultants and the USAID Regional Mission (Gaborone) were in attendance. Most attendees at the Workshop were from the countries power sector regulatory entities. Senior managers of the Southern Africa Power Pool (SAPP) also participated in the workshop.

The workshop was divided into two parts: (i) a series of presentations by international consultants on power sector regulatory and reform and restructuring topics, and (ii) the enactment of a plan for the eventual regulation of SAPP. The workshop continued the consideration of topics that had been discussed at a similar workshop held approximately two years previously. Most of the presentations by international consultants dealt with conditions and/or regulations in developed countries or regions possessing sophisticated wholesale or wholesale and retail electricity markets. CORE's presentation focused on the following topics:

- the role of Independent System Operators

- transmission tariffs principles
- regional wholesale electricity market regulation in the Nordic region
- optional approaches to electricity regulation
- the role of NARUC in supporting U.S. utilities regulators

The second part of the Workshop demonstrated the resolve of the existing Southern Africa regulators, particularly the regulators for South Africa and Zambia, to regulate the emerging SAPP wholesale market. SAPP announced at the Workshop that they planned to initiate a spot power contract on May 1, 2000. The Workshop resulted in the following actions for furthering the establishment of a regional regulator:

1. Establishment of a Technical Working Group consisting of Kenya, Malawi, Namibia, South Africa, Zambia, and Zimbabwe, chaired by Namibia. The Technical Working Group will develop an action plan which will (i) better define the objectives of regional regulation for Southern Africa, (ii) prioritize the regional regulatory focus areas, (iii) determine the legal status of a regional regulatory entity, (iv) develop criteria for the selection of regulators, (v) define the regulatory governance roles, (vi) identify regulator funding, and (vii) present a schedule for implementation of a regional regulatory body.

2. Establishment of a Plenary Committee to direct the Technical Working Group and coordinate with SADC members.

3. Reporting on the progress made by the Technical Working Group and the Plenary Committee at the April SADC Electricity Sub-Committee meeting.

4. Reporting on the progress made in the establishment of a regional regulator at the April SAPP Executive Committee meeting.

5. Submittal of the Technical Working Group action plan report to the Plenary Committee in May 2000.

6. Development of an Information Memorandum to be submitted to SADC Energy Ministers Meeting in May/June.

Southeastern Europe: Design of Institutional Development Requirements for South Eastern European Countries for Power Sector Cross Border Trading and Sectoral Reform for the Development of Regional Programs and Strategies

This on-going project is being funded by the U.S. Trade and Development Agency. CORE International is collaborating with all key donors (particularly the World Bank and the EBRD), and the Office of the Special Coordinator for South Eastern Europe Stability Pact in Brussels, Belgium to develop institutional restructuring requirements for electric utilities in 5 Stability Pact countries

(Albania, Macedonia, Bulgaria, Croatia, and Serbia). CORE International is the prime contractor for this on-going assignment and is closely working with the Energy Division in the ENI Bureau on their on-going electricity sector restructuring projects in Albania and Croatia. Specifically, CORE International is participating in the regular workshops with KESH (the Albanian Electric Utility) and HEP (the Croatian Electric Utility).

SARI: South Asia Regional Initiative/Energy Program – Design and Implementation of Rural Electric Services Reform in the South Asia Region as Part of the USAID South Asia Regional Initiative – Energy (SARI/E)

CORE International is a key partner under a $25 million USAID-funded SARI/E Program that focuses on power sector institution building and capacity enhancement in the South Asian countries (Bangladesh, Nepal, India, Bhutan, Maldives, Sri Lanka). Along with a team of USAID contractors and cooperators, CORE International is taking the lead in the rural energy sector. As a prime contractor for this activity, CORE International is managing the design and delivery of 15 workshops and courses throughout the South Asia region. These workshops and courses involve senior power sector officials from each of the countries and are aimed at identifying and developing new approaches for sector reform and institutional development in order to enhance efficient development and supply of electricity throughout the region.

Thailand: Review of the Institutional Development and Capacity Building Requirements for the Electricity Generating Authority of Thailand (EGAT)

As a prime contractor and through a series of assignments over the period 1986-1992, CORE International closely worked with EGAT, the Asian Development Bank, and the U.S. Trade and Development Agency to develop an overall strategy for the reform of the power sector in the country and for the transformation of EGAT into a more open utility. Specifically, the strategy included the splitting of EGAT into one GENCO and several competing DISCOS. Through the introduction of competition in the electricity sector, CORE was able to convince EGAT to make extensive reforms including the establishment of an independent regulatory agency and a fair and acceptable electricity pricing system. Towards the later part of the assignment, CORE International participated in a management and oversight team that provided direct institution building advice to the top management of EGAT and the Office of the Prime Minister.

Thailand: Development of an Institutional Restructuring Plan for 12 Thai Municipalities towards a Common Strategy for Rural Electricity Supply and Municipal Waste Management

Under a contract with the U.S. Trade and Development Agency and the U.S. Air & Waste Management Association, CORE International, as a prime contractor, managed a 16-month assignment involving 12 Thai municipalities. The objective

of this assignment was to develop an institutional framework to facilitate dialogue between municipal entities and EGAT whereby reliable electricity could be provided to the rural sector at an affordable price. During the performance of this work, CORE International also engaged several Thai consultants and sub contractors. A second component of this project focused on the development of an institutional framework whereby the 12 municipalities could agree on a common strategy for the management of municipal waste in their respective areas in coordination with the overall policies of the Bangkok Metropolitan Administration (BMA).

C. CORE INTERNATIONAL'S RECENT WORK IN THE SADC REGION

Under the Task Order "Private Sector participation in Clean Energy Development, Management & Operations", awarded by USAID to CORE International, Inc. in 2000, CORE International Inc. has been working extensively in the Southern African Development Community region primarily in the areas of expanding the regional electricity trade through the development of the Southern African Power Pool (SAPP), and in the area of rural electrification.

The following Exhibits 1 provides a summary of CORE's major scheduled and planned activities to be completed by end of May 2004, while Exhibit 2 summarizes all major CORE's activities completed in the SADC region.

Exhibit 1: Summary of Scheduled and Planned Activities in the SADC

No.	Dates	Activity Description	Location
1	April 13-14, 2004	A two-day Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector	Namibia
2	April 15-16, 2004	A two-day Regional Conference on Enabling Environment for Private Participation in Rural Energy Service Delivery in the SADC Countries	Namibia
3	November 2003 – June 2004	Global Village Energy Partnership (GVEP) Support In Brazil, Mexico, Sri Lanka, and Zambia	Zambia (Brazil, Mexico, Sri Lanka also)

Exhibit 2: Summary of Completed Activities in the SADC

Location	Activity	Schedule	Scope
Lesotho	1. SADC-wide Desk Study on Issues & Options for Rural Electrification in SAPP Member Countries and Rural Electrification Planning in Lesotho	March 30, 2003	Described approaches to Rural Electrification development through private sector led participation and the involvement of the broader stakeholder community. Focused on best practices for, and lessons learned from Rural Electrification programs and projects worldwide from the development point of view. Described the challenges and approaches to various critical issues related to the planning process of Rural Electrification.
	2. SADC-wide Workshop on Issues & Options for Rural Electrification in SAPP Member Countries and Rural Electrification Planning in Lesotho	April 7 - 12, 2003	Identified the different stages of rural electrification and the importance of containing the appropriate institutional arrangements of SAPP member countries and provided analysis of Lesotho's progress in the rural electrification process.
	3. Support on the Preparation of Detailed Rural Electrification Action Plan for the Government of Lesotho	May - June 2003	Developed a detailed action plan for rural electrification (RE) and an outline for Lesotho's rural electrification policy. The focus was to prepare an agenda for the RE stakeholders in order to implement the World Bank LURP project RE's component.
Mozambique	1. Seminar On The Treatment of Ancillary Services Southern Africa Power Pool	February 20, 2003	The focus of this one day seminar was to consider further system-wide transactional transparency and efficiency improvements to make better use of SAPP members' electricity system resources.
	2. Training Needs Assessment for Mozambique's Power Sector institutions	June - August 2003	Identification of short- and mid-term needs for capacity building through training course and workshops for the Mozambique's power sector institutions.
Namibia	Participation in NARUC's "Southern African Energy Regulators and Other	June 18 - 19, 2003	Dr. Don Hertzmark provided a presentation entitled "Development of a Regional Electricity Market - Southern Africa Development Community". The focus was on issues and options for

Location	Activity	Schedule	Scope
	Stakeholders Forum", jointly sponsored by Nexant, AED, and CORE.		SADC countries to advance the development of the SAPP electricity market.
South Africa	SADC-wide Course On Advanced Electricity Markets South African Power Pool	November 4 - 8, 2002	This course demonstrated gains and benefits of electricity trading for national electricity power systems, and the potential costs and pitfalls. Prepared and conducted exercises on electricity trading.
Zambia	1. Course on Issues in Realizing Wholesale Electric Power Competition through Private Sector Ownership "Energy and Environmental Training"	July 15 - 20, 2001	Training course focused on the approaches to developing a viable competitive electricity market in a restructured environment, to increase efficiency and availability of clean energy to consumers.
	2. Workshop and Roundtable on Issues and Options for Rural Electrification	May 6 - 10, 2002	Geared towards Zambian officials engaged in planning and decision making for increasing access of clean and affordable electricity to rural population. Roundtable for senior political leaders focused on enhancing acceptance of creative ways for RE planning and consumer participation and acceptance.
	3. Follow-up Assistance in Rural Electrification Planning to the Government of the Republic of Zambia	May - July, 2003	Development of a detailed rural electrification action plan for rural electrification (RE), an outline for Zambia's rural electrification policy, and a concept paper on the establishment of a Rural Electrification Authority in Zambia. The objective was to prepare an agenda with milestones for the Zambian RE stakeholders in order to prepare for the launching of the World Bank, $120 million, IAES Projects by mid 2005.

Location	Activity	Schedule	Scope
	4. Facilitation of Discussions on the GVEP Program in Zambia	May 20 - 21, 2003	Facilitation of in-country consultations on the Global Village Energy Partnership (GVEP) program through (i) discussion with Zambian officials, and (ii) conducting a workshop with all major rural electrification (RE) stakeholders during 20 – 21 May 2003.
	5. Two-Day SADC-wide Workshop on Developing SAPP Through Advanced Electricity Trading.	July 24 - 25, 2003	This workshop was for SAPP member executives and regulators. It covered various policy, regulatory, and institutional capacity requirements for implementing a successful electricity-trading program.
	6. Four-Day SADC-wide Course on Advanced Power Trading.	July 28 - 31, 2003	This four-day course was for SAPP electricity traders. The course focused on demonstrating the potential gains and benefits of moving beyond short-term electricity trading in SAPP. The course included numerous hands-on exercises.
	7. A two-day Workshop on "Issues and Options for Power Sector Reform and Restructuring" in Zambia	March 22-23, 2004	This workshop focused on issues and option for enhancing the processes of energy policy development and power sector reforms designing and implementation in Zambia. Institutional arrangements for reform design and implementation involving wide stakeholder participation were discussed in details.
	8. Technical Consultations on the GVEP - Zambia	March 24, 2004	This activity took place in Lusaka and facilitated the formalization of the GVEP Working Group (WG) for Zambia. The GVEP WG is expected to play an important role in the development of National Action Plan focusing on increasing access to modern rural energy services in Zambia.

D. WORKSHOP INSTRUCTORS

The following experts will provide the workshop facilitation:

1. Dr. Donald Hertzmark, Senior Economist and Power Market Development Expert, CORE International, Inc.

2. Prof. Anton Eberhard, Senior Regulatory Advisor, Cape Town University School of Business, South Africa

3. Dr. Vaso Leno, Senior Energy & Training Expert, CORE International, Inc.

4. Mr. Albert Skeath, Senior Utility Expert, CORE International, Inc.

Resumes of these senior experts follow.

DONALD HERTZMARK
Senior Economist and Power Market Development Expert
CORE International, Inc.

Summary of Current Activities and Qualifications:
International Economic Consultant and Senior Energy Market Expert. Also serves as Adjunct Professor of Economics at Georgetown University. Areas of expertise include Energy and Petroleum Economics; Project financial and economic evaluation for refineries and power plants; Natural resource and environmental economics; International trade and macroeconomics; and, Project and program design.

Dr. Hertzmark has completed recent projects in the US and in more than 60 countries worldwide, including the United Kingdom, Canada, France, Australia, Netherlands, Russia, Ukraine, Trinidad, Eastern Europe, Philippines, Thailand, West Africa, Pakistan, Morocco, India, and Indonesia for a variety of clients. Selected projects include the following:

Electric Power:

1. Assistance with business strategy, regulation and investment in Indonesia's restructuring electricity market – 2001-present
2. Advice on wholesale market arrangements – Southern Africa Power Pool – 2001-present
3. Assessment of restructuring activities & Power Purchase Agreements, including off-take purchase agreements, for independent generators in South Korea, Taiwan & Indonesia, 2000-present
4. Creation of tariff structure for stranded cost resolution and IPP integration in restructured Turkish electric power system - 2000
5. Negotiation of ECA project documents, including buyback prices, for independent power producer in Mexico – 2000-present
6. Assistance to generator entering Taiwan's, S. Korea's and Singapore's restructured electricity sectors, 1998-2001
7. Assistance in restructuring energy supply contracts for IPP owner-developers in Indonesia (1998)
8. Assistance to Department of Energy, Philippines, on restructuring electric power system to help resolve of stranded costs, creation of generating companies, 1999
9. Assisting clients in pricing negotiations for private power projects - Thailand (1992-3), Australia (1993), Philippines (1993), Jamaica (1992), China (1994) and Indonesia (1994 and 1998) – various private IPP project developers
10. Market reconnaissance and assessment for SE Asia and China IPP projects

11. Restructuring of electric power system in Ecuador - design of tariff system & regulations, structuring of wholesale market & implementing regulations, tasks for regulator - World Bank, 1997-1998
12. Analysis of stranded cost issues for US electric power trade association, 1994-1996
13. Valuation of power company assets in the UK power system privatization, 1989
14. Assessment of power financing sources for developing countries - World Bank, 1994
15. Power system expansion, cost and tariff analysis (including DSM) in Thailand, Egypt, Philippines, Poland, Russia, India, Pakistan, Indonesia, China - various clients
16. Appraisal of power sector restructuring, regulation and system planning & expansion in Russia and Ukraine – IBRD, 1995

Oil and Gas Analysis & Pricing:

1. Country strategy assistance for Indonesia for a major oil company. Work includes legal & regulatory analysis and downstream integration, 2001-present.
2. Analysis of gas supply investments for South Korean gas market – work included discussions on restructuring activities in local gas supply industry – 2000-2001.
3. Competitor analysis for LNG investor: alternative end use market, competing fuel cycles – Pacific Rim firm, 2000-2001
4. Fuel supply term sheet options and analysis for CCGT power plant, Pacific Rim location - 2001
5. Formulation of policy and law for restructuring Indonesia's oil sector, 1999-2000
6. Preparation of fuel supply agreements for a large gas conversion project, Australia, 2001
7. Pricing, financing, tax and negotiating assistance for new Liquefied natural Gas project in Trinidad - NGC of Trinidad;
8. Natural gas contracts modeling for gas transmission company - NGC of Trinidad;
9. Oil industry restructuring and privatization in Hungary, Estonia, & Latvia - USAID;
10. Assistance to Government of Trinidad for oil and gas industry leasing and taxation;
11. Restructuring of pricing of energy products in Indonesia - chief of party (including construction and transfer of natural gas production, allocation and pricing model) - charged with creating unit within Indonesian Ministry to carry out energy regulation after completion of project;
12. Refining and product market analysis for major US, Pacific, East Asian, and European refiners and producers;

13. Analysis and modeling of impacts of reformulated gasoline in US refinery and fuel supply system and impacts of US Clean Air Act on Asia-Pacific refined product markets and investments;
14. Implementing restructuring of oil product and other domestic energy prices in Philippines and Thailand, 1984-5, 1990-91 - IBRD, USAID.

Gas System Modeling & Analysis:

1. Systems analysis and model design for operational and financial gas utility computer simulations of demand management, supply, and consumption - Washington Gas Co.;
2. Regulatory analysis for several US gas utilities with regard to rates, expansion programs, energy conservation programs, bulk gas sales, competition with electric utilities;
3. Assistance to IBRD on regulatory apparatus for gas industry in former Soviet Union, including Russia and Ukraine;
4. Natural gas pricing and investment appraisal - Egypt, IBRD, IMF;
5. Feasibility studies of natural gas-based transport fuels in Thailand & Indonesia Gas supply for power plants - Indonesia, IBRD;
6. Analysis of natural gas and condensate export markets for major US and Canadian operators in Pacific Rim - Husky Oil Canada, Ltd.;
7. Appraisal of LNG investment proposals in Australia, Indonesia and West Africa;
8. Demand management programs for gas utilities - design of optimal mixes of activities.

Energy Planning & Economics:

1. Short courses in energy economics and finance in Indonesia, China, Philippines, Thailand, India, Pakistan, Hungary, Poland, Bulgaria, Estonia, Latvia, Morocco, France, Netherlands, Ivory Coast;
2. Energy planning and assistance in Thailand, Philippines, Myanmar;
3. Analysis of financial restructuring by major US oil firms;

Environmental Economics:

1. Litigation support for toxic waste and environmental remediation;
2. Analysis of markets for emissions credits for utility companies;
3. Simulation of mobile sources emissions reductions in US;
4. Preparation of options for Global Warming initiatives for US government;
5. Economic analysis and litigation support for hazardous chemicals and agricultural pollution.

Professional Experience:

1985 - Present**:** **Independent Consultant**

1985 - Present**:** **Manager of Southeast Asian Consulting for Price Waterhouse**

1982 - 1985: **ASEAN Energy Advisor** (**for ASEAN Committee on Science and Technology and USAID**) and **Faculty at Asian Institute of Technology, Bangkok, Thailand**.

Advised ASEAN government agencies and state oil companies on investment and policies in energy and electricity. Initiated program at AIT in energy planning and economics. Taught core courses in economics and investment appraisal. Provided consulting services in energy and financial markets for a number of international clients.

1979 - 1981: **Economist at Solar Energy Research Institute, Colorado.**

Responsible for investigating economics of new technologies, particularly those involving liquid fuels. Led projects assessing impacts of new energy technologies on octane markets and on associated prices, outputs, and exports. Testified before Congressional Committees on results of work. Taught international trade and finance and macroeconomics at the University of Colorado.

1973-1975: **Economist**, **U.S. Environmental Protection Agency**

Responsible for investigating agricultural and price impacts of Agency Decisions, in toxic chemicals area, providing litigation support, and prepared Congressional testimony.

Education:

Ph.D. & M.S., University of Wisconsin, Agricultural & Natural Resource Economics, 1978.

M.A. State University of New York (Albany), International Economics, 1973.
B.S.F.S., Georgetown University School of Foreign Service, International Affairs, 1971.

Coursework in chemistry, chemical engineering and computer programming at Harvard University, Massachusetts Institute of Technology and Northeastern University.

Publications:

Professional writings have appeared in a wide variety of academic, business, popular, and trade journals. These include the following: American Journal of Agricultural Economics, The Energy Journal, The Economist Quarterly Review of Energy, The Annual Review of Energy, Petroleum Intelligence Weekly, and the Journal of Energy Exploration and Exploitation, among others. Most recently, authored well-received special studies and reviews of developing country energy issues for the Petroleum Intelligence Weekly, Energy Exploration and Exploitation, and The Annual Review of Energy. Also, published papers on gasoline markets and economics for The Energy Journal, and Reformulated Gasoline.

Foreign Languages:

French - good reading and speaking;
German - fair reading and speaking;
Thai - speaking only.

Awards and Honors:

National Academy of Sciences, Indonesia Development Panel
Distinction on thesis defense at the University of Wisconsin
Fellowship for graduate studies at the University of Wisconsin
Distinction on Comprehensive exam at SUNY
Certificate of Appreciation from Philippine National Oil Corporation

PROF. ANTON EBERHARD
Senior Regulatory Advisor
CORE International, Inc.

SUMMARY OF EXPERIENCE

Dr. Anton Eberhard is Senior Energy Regulatory Expert, who serves as head of the Infrastructure Industries Reform and Regulation Management Program at the Graduate School of Business at the University of Cape Town, South Africa. Through this program, he works with senior managers and leaders in government, regulatory authorities, utilities, and the private sector. The short-courses that Dr. Eberhard produces expose delegates to the frontiers of international and African experience and knowledge in power sector reform and regulation. The program provides a detailed understanding of regulatory frameworks and instruments to achieve desired economic, social, and environmental goals within the context of industry restructuring. The program has a cooperative agreement and operational relationship with the Public Utility Research Center at the University of Florida, and staff there have assisted with curriculum design and teaching. Dr. Eberhard has been at the forefront of the restructuring of South Africa's energy sector to contribute more directly to social and economic development, and his work has included the post-apartheid electrification program that has increased the proportion of South Africans with access to electricity from one-third to two-thirds of the population in a period of six years. Dr. Eberhard maintains extensive management experience in energy training, education and capacity building, both in the Southern African region and worldwide.

Dr. Eberhard is a part-time Board member of the National Electricity Regulator and is able to play an influential role in the development of regulatory instruments that advance not only economic efficiency, but also social and environmental goals. Dr. Eberhard also convenes and teaches Executive Management Courses in the areas of regulation, energy reform, and sustainable development. He has extensive experience in the fields of and regulation, energy restructuring strategic management issues, mechanisms for sustainable development, energy policy, and the promotion of public benefits.

Dr. Eberhard has more than 100 publications to his credit and has undertaken numerous assignments (both locally and abroad) for governments, utilities, regulatory authorities, and donor and multi-lateral agencies.

His primary regions of expertise include: Asia and Near East (India), and Sub-Saharan Africa (Burundi, Congo, Ethiopia, Kenya, Namibia, Rwanda Senegal, South Africa, Sudan Tanzania, and Uganda). Most relevant work includes:

Frontiers in Managing the Reform and Regulation of the Electricity Sector in Africa ***2003***

As Course Director, Dr. Eberhard was responsible for the development and running of regular courses that seek to build capacity in managing the reform of the power sector in Africa in order to maximize local development objectives – and courses that build professional capacity in electricity regulation. Typical courses have 50 delegates from at least 15 different African countries.

Power Sector Reform and Poverty in Africa, World Bank ***2003***

Dr. Eberhard provided an analysis of the impacts of power sector reform on poverty in a number of African countries and recommendations for policy and regulatory instruments to enhance pro-poor programs. His research and assessments spanned six countries in the African continent, where Dr. Eberhard adapted his studies for the needs and conditions of each respective country.

Nile Basin Power Reform, World Bank ***2003***

The objective of this project is to establish a Nile Basin Power Forum, define its role and long-term institutional setting, and initiate its activities. The Power Forum will support continued discourse and promote power trade among Nile Basin countries. Dr. Eberhard's important responsibilities, particularly during the formative period, include; (i) facilitating of dialogue and cooperation among power utilities in the region; (ii) commissioning of special studies; (iii) coordinating analytical activities with relevant SVP projects; (iv) assisting in developing the strategic framework and agreements for advancing power trade; (v) preparing a consistent framework for forecasting power demand; (vi) and facilitating training programs.

Water Sector Restructuring and Regulation in South Africa/ Water Research Commission/PDG ***2003***

For this activity, Dr. Eberhard was responsible for performing a review of regulatory methodologies for the water sector, including a review of international experience.

Business & Sustainable Development, Cambridge Business and Environment Program ***2003***

As Core Faculty, Dr. Eberhard performed Executive Management Education for senior business executives in the field of sustainable development: how to make the business case. This particular project was linked to Cambridge University.

Trade in Energy Services & Energy Market Liberalization, WTO ***2003***

As a Research Consultant for this project, Dr. Eberhard provided an analysis of the linkages in WTO energy service negotiations, internal market liberalization and impacts on national development goals such as widened access to affordable energy services.

Political Economy of Power Sector Reform in South Africa ***2003***

As Power Sector Reform Expert, Dr. Eberhard is currently writing a chapter of a book to be published by Stanford University. He also conducted an analysis of the drivers and shape of power sector reforms in South Africa.

Energy for Sustainable Development towards a Policy Agenda 2002

For this project under the Electricity Chapter of UNDP, Dr. Eberhard provided his services as a Research Professor and performed an international review of key issues in power sector reform and the promotion of sustainable development.

Electricity Sector Reform and Competition in Southern Africa, OECD 2002

Dr. Eberhard provided teaching input on electricity sector reform and the design of new trading regimes for OECD run course for delegates from utilities, regulators and competition commissions in Southern Africa.

Regional Energy Planning Network, SADC Energy Secretariat 2002

Dr. Eberhard facilitated the creation of a network and building capacity for energy data collation systems, creation of energy balances, energy analysis and planning.

Market Reform and Access to Electricity in South Africa 2002

For this project under the Trade and Industrial Policy Strategies (TIPS), Dr. Eberhard was responsible for conducting a study of the potential impact of power sector reform on access to electricity in South Africa.

International Conference on Energy Regulation 2002

Dr. Eberhard lectured at this activity aimed at developing organizational partnerships and the promotion of transfer of best practices. This conference established institution-to-institution relationships between governments, regulatory bodies, power utilities/corporations in public and private sectors, financial institutions, research/academic institutions, and consumer organizations.

EDUCATION

1982 Ph. D., Technological Change and Economic Development, University of Edinburgh, Edinburgh, Scotland

1978 B.A., University of South Africa, South Africa

1974 B.S., Chemical Engineering, University of Cape Town, Cape Town, South Africa

LANGUAGES

	Speaking	***Reading***	***Writing***
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

VASO LENO
Senior Energy and Training Expert
CORE International, Inc.

SUMMARY OF EXPERIENCE

Dr. Vasillaq Leno is a Senior Energy Specialist at CORE International, Inc. and is an integral member in most of CORE's ongoing projects. A list of his most recent work includes the following:

Albania: Restructuring, Unbundling, and Privatization Assessment for the Albanian Electric Company, KESH and the preparation and delivery of training programs in energy planning and strategy development, energy sector management, commercial methods for utility operation and management and private participation in energy sector development, for the U. S. Agency for International Development. Specific activities include the following:

- Course on Power Sector Reform in Albania for senior managers from the Ministry of Industry and Energy, Electricity Regulatory Entity (ERE), and KESH, the national utility. September – October, 2002
- Roundtable on National Energy Policy Implementation Resource Requirements for Ministry of Industry and Energy and KESH, the national utility in Albania. September 2002
- Roundtable on National Energy Strategy and the Role of KESH for senior energy officials. August 2002
- Workshop on IPP Issues and Contracting Requirements for senior management from the Ministry, KESH, and ERE of Albania. November 2002
- Roundtable on Fundamentals of Human Resource Management. March 2003
- Course on Human Resource Management – Impact of Power Sector Reform in Power Utility Downsizing. June – July, 2003
- Development of training needs assessment for the Albanian power sector institutions. June – September 2002
- Designing of a monitoring system for Power Sector Policy Statement implementation in Albania. October 2002 – March 2003
- Development of a proposal for the restructuring of the General Directorate of Electroenergy at Ministry of Industry and Energy in Albania. June – October 2002.

Bangladesh: Power Sector Reform Initiatives in Bangladesh and the Role of Asian Development Bank, a concept paper being developed by CORE International, Inc. Year 2002.

Guam: Financial and Fiscal Management of the Government and Strategies for Private Sector Led Economic Development in Guam, for the U.S. Department of the Interior. Year 2002.

India: Senior Energy Specialist for the development of a report on "India Electricity Distribution Reform Review and Assessment for USAID Mission, India. Year 2002.

Kosovo: Participation in a Multi-Sector Project Identification Mission to Kosovo for the U.S. Trade and Development Agency. May – June 2003

Lesotho: Participation in number of tasks under the USAID Private Sector Participation in Clean Energy Project. Specific activities include the following:

- Development of materials and delivery of a Course on Rural Electrification Planning in Lesotho. January – April, 2003
- Working sessions with the Government appointed Rural Electrification Working Group (REWG) to assist the REWG in the development of an Action Plan for rural electrification with a specific focus on desirable institutional and financial models for the implementation of pilot projects under the World Bank LURP Loan. May 2003
- Development of an Overall Action Plan for Rural Electrification in Lesotho -- Phase I: Preparation and Implementation of RE Pilot Projects. June – July 2003

Mozambique: Participation in the preparation of training needs assessment report for the Mozambican power sector stakeholders, July 2003

South Africa: Development of materials for a course on "Advanced Electricity Markets and Trading under the SAPP Model" for senior representatives from the Southern Africa Power Pool, for USAID, EGAT Bureau. June – July, 2003

Southern Africa: Development of materials for a workshop on "Developing SAPP through Advanced Electricity Trading" for regulators and senior energy policymakers from the Southern Africa Power Pool member countries, for USAID, EGAT Bureau. June – July, 2003

Southern Africa: Development of materials for a course on "SAPP Advanced Power Trading" for power traders/members from the Southern Africa Power Pool, for USAID, EGAT Bureau. October - November 2002

Southern Africa: Development of a Desk Study on Issues and Options for Rural Electrification in SAPP Member Countries. Development and delivery of a Course on Issues and Options for Rural Electrification in SAPP Member Countries. January – April 2003

Southern Africa: Participation in the preparation of a report named 'Seminar on the Treatment of Ancillary Services for Southern Africa Power Pool'. January – February, 2003

South Asia Region: Analysis of Lessons Learned in Rural Electrification and the potential for the Adaptation of Best Practices within the South Asia Region under the USAID South Asia Regional Initiative for Energy (SARI/Energy) Program, for U.S. Agency for International Development. Specific activities include the following:

- Development of course materials for a course on "Private Participation, Financing and Procurement Approaches for Rural Electrification in the Maldives" for USAID, Mission, India. Year 2002
- Development of course materials for a course on "Policies and Regulations for Rural Energy Access and Integration with Other Rural Development Programs in Nepal" for USAID, Mission, India. Year 2002
- Development of course materials for a course on "The Process of Decision Making for Rural Energy Programs in Sri Lanka" for USAID, Mission, India. Year 2002
- Development of course materials and delivery of a course on "Financing Rural Energy Projects in the South Asia Region". The course conducted in India for USAID, Mission, India. October – November 2002

U.S. Virgin Islands: Financial and Fiscal Management of the Government and Strategies for Private Sector Led Economic Development in the U.S. Virgin Islands, for the U.S. Department of the Interior. Year 2002

Zambia: Participation in number of tasks under the USAID Private Sector Participation in Clean Energy Project. Specific activities include the following:

- Rural Electrification Issues and Options Assessment in Zambia and the Preparation of Training Materials. Year 2002
- Participation in the preparation of a Desk Study and conducting a one-week workshop on institutional and financial models for rural electrification in a power sector reforming environment and a follow up stakeholder roundtable and a working group work session to assist the stakeholders in the development of a blue print for a rural electrification plan. Year 2002
- Follow up mission for the development of a complete report focusing on (i) the development of the outline of the Rural Electrification Policy document for the Government of the Republic of Zambia, (ii) an action plan for the implementation of Rural Electrification Program, and (iii) initiation of in-country consultations on the Global Village Energy Partnership (GVEP) Program. May – July 2003
- Design, development, and delivery of a two-day Workshop on "Issues and Options for Power Sector Reform and Restructuring" in Zambia. March 23-24, 2004

- Facilitation of a one-day Stakeholder Workshop on the GVEP – Zambia. March 25, 2004

Zimbabwe and South Africa: Development of Parameters for a Modeling Exercise for Energy Trading and the Manual for Training for Members of the Southern Africa Power Pool (SAPP), for the U.S. Agency for International Development. Year 2002

Dr. Leno has over 16 years of professional experience in a number of area including energy and environment planning and training; private sector financing; sector reform; banking and finance; project appraisal, financing, and development; economic development and trade policy development; development program coordination at the national level; bilateral and multilateral donor leveraging; energy and environmental sector policy formulation; and government strategy development. Dr. Leno has extensively worked with a large number of Bilateral and multilateral donors including the World Bank, European Bank for Reconstruction and Development (EBRD), European Investment Bank, (EIB), and the European Union (EU), Italian Cooperation, USAID, USTDA, CIDA, and others.

Dr. Leno's international experience includes energy policy, planning, and training activities in Europe (Italy, Greece, Germany, Belgium, Luxembourg, Great Briton, Spain, Austria, Hungary, Turkey, and Macedonia, Poland, Bulgaria, Rumania, Ukraine, and Denmark), North America (USA and Canada), Latin America (Brazil and Colombia), Middle East and Arab Countries (Lebanon, Israel, Saudi Arabia, and Kuwait), Asia (Bangladesh, China, Hong Kong, India, Nepal, Sri Lanka, and South Korea), and Africa (Egypt, Lesotho, Mozambique, South Africa, Tunisia, Zambia, and Zimbabwe).

PROFESSIONAL EXPERIENCE

August 1 2002 - Present
Senior Energy Expert, CORE International, Inc., Washington, D.C., U.S.A.

June 2001 - July 2002
Senior Consultant, CORE International, Inc.

As a Senior Associate at CORE international, Inc., Dr. Leno participated in many of CORE's technical assistance and training projects in the energy sectors. He was the lead analyst on CORE's USAID project for developing strategies for the restructuring and privatization of the Albanian national utility. He was also assisting in the design of course materials and research for CORE's SARI/Energy Project for USAID. In addition, he was assisting the project team for CORE's Private Sector Participation Task Order with USAID.

July 1997 - May 2001
Senior Advisor to the Minister, Ministry for Economic Cooperation and Trade, Tirana, Albania

Responsible for advising the Minister on all donor coordination and infrastructure financing issues. Specific activities included managing and providing coordination for infrastructure project identification, development, and financing, by working with the line ministries -- Ministry of Industry and Energy, Ministry of Transportation, and the Ministry of Public Works. In addition, Dr. Leno closely worked with other ministries in articulating the process for the development of the national economic policy. Other responsibilities of Dr. Leno included the following:

- Supervision of two departments in charge with monitoring and evaluation, and programming and coordination of all development aid for Albania.
- Coordination of the development foreign aid assistance and participation in negotiations with IFIs and bilateral donors concerning the development finance assistance for Albania.
- Training and capacity building.

September 1994 - July 1997
Manager, Department of Economic Development and Foreign Aid Coordination, Government of Albania, Council of Ministers, Tirana, Albania

Specific responsibilities in this position included the following:

- Task Manager for World Bank (IDA), German Cooperation, and EC projects in Albania
- Involved in project preparation and appraisal of priority economic development project throughout Albania in all productive sectors of the economy
- EC-Project management Unit, Director - involved in Public Administration project implementation.

March 1991 - March 1994
Senior Banking and Investment Officer
National Commercial Bank of Albania, Tirana, Albania

Specific responsibilities included all commercial banking function such as the following:

- Analysis and appraisal of project proposals and long-term loans applications.
- Project risk assessment and customer/borrower financial review
- Credit worthiness assessment of potential borrowers
- Market assessment and customer profiling
- Financial management and portfolio supervision
- Finance and accounts report analysis.

September 1987 - March 1991
Lecturer, in Thermotechnics disciplines -- such as Heating, Air Conditioning, Cooling, Ventilation, Thermodynamics, Thermotechnic Industrial Machines, Thermal Generation, Tirana University, School of Engineering, Tirana, Albania

January 1985 - September 1987
Air Conditioning and Ventilation Design Engineer, Textile Mill, Project Designing Department, Tirana, Albania

EDUCATION

Ph.D.	Energy Resources and Renewable Energy Tirana University, School of Engineering, Tirana, Albania (1991)
B.S.	Mechanical Engineering Tirana University, School of Engineering, Tirana, Albania (1985)

OTHER RELEVANT PROFESSIONAL EXPERIENCE

1991	Two weeks course on energy project identification, preparation and appraisal through PROPSPIN and COMFAR 2.1, in UNIDO Office, Milan, Italy
1993	Two weeks course on project preparation and risk evaluation, Vienna, Austria
1995	Six months internship on Banking, California, U.S.A**.**
1996	A two weeks training course on project identification, preparation, financing and evaluation, Milan, Italy
1996	Three weeks training UNIDO course on project preparation, appraisal, evaluation and COMFAR III Expert Software, Albania
1996	Two weeks training course on Public Investment Programming and Aid Coordination, Bradford, UK
1997	Two week study tour in Latin America to get experience on UNDP's project development and financing approach, Brazil and Colombia
1997	Two weeks training course of Bradford University (England) on organizational behavior, team working, Ohrid, Macedonia
1997	A two weeks training course on Economic Development Policies organized by the Korea International Cooperation Agency, Seoul, Korea
2000	One month course on small and medium enterprise (SME) Banking, California, U.S.A.

LANGUAGES
Fluent in English, Italian, Albanian. Conversational Spanish and German.

ALBERT SKEATH
Senior Utility Expert
CORE International, Inc.

Experience: Al Skeath is a senior utility specialist with over 25 years of experience in a variety of positions at the Pennsylvania Power and Light (PP&L) Company, a major electric utility in the U.S. Mr. Skeath has hands-on expertise in most aspects of utility management and operations in production services, distribution engineering, loss reduction, customer services and customer relations management (CRM), and human resource management (HRM) and human resources development (HRD). In addition, after his 25 years with PP&L, Mr. Skeath worked as Deputy Program Manager at the U.S. Energy Association (USEA), where he routinely worked with hundreds of electric utilities in the U.S. that are members of the USEA.

Key Qualifications:

2003 - Present: Senior Utility Specialist, CORE International, Inc.
Mr. Skeath is a Senior Utility Specialist at CORE International, Inc. He is currently participating in a number of projects that CORE is implementing worldwide. He is CORE International's senior utility expert in our USAID Capacity Building Project for KESH and the Ministry of Industry and Energy in Albania. Under our USAID Capacity Building Project for the Southern Africa Power Pool (SAPP) Project, Al is acting as CORE's Program Coordinator. In this role he is working with power utilities in 12 African countries that are SAPP members. He is also supporting CORE' USAID projects in India, Sri Lanka, Nepal, Bangladesh, and Bhutan.

1993 - 2002, Deputy Program Manager, U. S. Energy Association (USEA)
Served as Deputy Program Manager at the United States Energy Association from 1993 until 2002. Interviewed potential employees, prepared program orientation training, established employee goals programs, conducted employee coaching sessions and performance evaluations, wrote job descriptions, developed employee career development training programs, made salary and merit increase recommendations, and made promotion recommendations.

1981 - 1992, Production Services Supervisor, Pennsylvania power and light Company (PP&L)
Held a variety of positions leading to the position of Production Services Supervisor at Pennsylvania Power & Light Company from 1981 to 1992 in the Power Plant Engineering Section that consisted of approximately 100 engineers. Responsible for:

- Conducting PP&L's recruitment program for new engineers;
- Interviewing and evaluating qualifications of candidates;

- Preparing job descriptions;
- Developing a performance evaluation system based on Morrison's technique of MBO -- management by objectives and results;
- Conducting employee safety programs;
- Analyzing workload resource requirement to develop hiring strategies;
- Preparing an employee Procedures Manual for work activities;
- Establishing an orientation program;
- Developing a salary increase through incentives program;
- Promotion recommendations.

Mr. Skeath has been involved in many customer relations management (CRM) and human resource management. These have included the following:

Ukraine, Management Exchange Visit for Skills Enhancement for Managers
Developed and managed a one-week Management Exchange Visit for Skills Enhancement for a delegation of managers from Kievenergo of Ukraine on Skills Enhancement. This program included a training needs assessment, development of training models, and evaluation of current training programs, job analysis, instructional videos, simulator training, and on-the-job (OJT) training.

Macedonia, Human Resource Management Seminar for ECM
Developed and managed a management seminar on the topic of Human Resource Management for about 30 managers from ECM in Skopje, Macedonia. The topics included responsibilities of HR managers, organization charts, functional versus process organizational structure, resource planning, employee selection process, employee testing, interview process, employee development, counseling, performance evaluations, goals development, compensation and benefit programs, safety training, succession planning, job descriptions, labor relations, and the grievance process.

Additional Management Expertise

Program management including the development of work plans, agendas, budgets, schedules, trip reports, and provision of cost monitoring functions. Management and implementation of internal and external communications with USAID, DOE, World Bank, USTDA, ministers of energy, regulatory commissioners, and other U.S. and foreign business managers.

Experience Summary:

2003 - Present: Senior Utility Specialist at CORE International. Responsibilities include work with power utilities in Albania, India, Bangladesh, Nepal, Bhutan, Sri Lanka, South Africa, Botswana, Zambia, Zimbabwe, Namibia, Mozambique, Malawi, Angola, and several other countries.

1993 - 2002: Deputy Program at USEA with program management responsibilities in **Ukraine, Moldova, Armenia, Georgia, Kyrgyzstan, Kazakhstan, Macedonia, Romania, and Bulgaria**. Developed work plans, budgets, agendas, trip reports, and program summaries. Worked with Otter Tail Power, Kentucky Utilities, Pennsylvania Power & Light, Washington Water Power, City of Anaheim Municipal Utility Co., PJM, New York Power Pool, New England Power Pool, and regulatory commissions from Illinois, Kentucky, Minnesota, Michigan, and New York to develop management exchange visits and seminars for managers from the former Soviet Union.

1973 - 2002: Senior Engineers and then Production Services Supervisor in Power Plant Engineering at PPL. Responsible for HR activities, strategic planning, and project management of engineering programs.

Education:

B. S. Mechanical Enginering	Lafayette College, Pennsylvania
M. S. Management Science	Lehigh University, Pennsylvania

E. WORKSHOP DESCRIPTION

Two-Day "Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector"

Windhoek, Namibia
April 13-14, 2004

Sponsored by the U.S. Agency for International Development Energy and Environment Training Program (EETP)

1. Background

The Government of Namibia has realized the need to further restructure its domestic energy sector to create an attractive environment for private sector financing. Current policies in Namibia allow private sector participation in the power industry. Additionally, reform and restructuring of the vertically integrated NamPower no longer pose a question. Instead it has become an evident part of the overall reform and restructuring agenda in Namibia. NamPower, a publicly owned utility in Namibia, is responsible for the generation, transmission, and partly for distribution of energy to mostly commercial farmers and mines. Mining in the country accounts for approximately 50% of the local consumption. Few other distribution entities provide electricity service to other consumer groups and areas in Namibia. The growth in the non-mining sector has been at an average rate of 7% per annum. Installed capacity in the main grid is 384 MW, two-third of which is the run-of-river hydropower plant on the Kunene River. An additional 150-200 MW provided by a double circuit 220 KV transmission line, provides energy to South Africa. Approximately one third of Namibia's power requirement comes from South Africa[1].

Like many countries in the SADC Region, Namibia is undergoing a reform that intends to liberalize the industry and allow more effective private sector participation. In Namibia, municipal electricity departments largely undertake distribution of electricity, power distribution to rural areas of Namibia is the responsibility of the Ministry of Regional, Local Government and Housing. Government involvement in the electricity supply industry is focused within the Ministry of Mines and Energy (MME), which is ultimately responsible for policy formulation and regulation.

[1] Selma-Penna Utonih & Sibusiso Dlaminio "Power sector reforms, rural electrification and gender", 2001

Electricity Control Board (ECB) was created in July 2000 as an independent electricity regulator, which controls and regulates all aspects concerning the generation, transmission, supply and distribution of electricity. ECB provides licenses, guarantees fair pricing and ensures overall transparency of the electricity supply industry.

There exists a substantial need for new power generation in Namibia. The Government is committed to work on creating an attractive environment for private power generation in the framework of the reforming and restructuring power sector in the country. In this context, there is a need for enhancing institutional capacity of the IPPs in an emerging market environment.

Furthermore, there is clearly a need for the MME, ECB and NamPower to consider the option of moving away from a rigid single-buyer model and to focus on the market elements that are essential for the introduction of IPPs, as well as the means to fast-track IPP investments (particularly Kudu).

CORE International, Inc. is offering a two-day workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector in support of USAID's effort of comprehensive capacity building among the major players in power sector reform and restructuring in Namibia.

2. Workshop Objective

The primary objective of this workshop is to address issues and approaches surrounding the power sector market and attracting IPPs in Namibia. Specifically, the workshop will focus on the following:

1. Facilitation of discussions among participants from MME, ECB and Nampower to reach a consensus on best options for Namibia to promote IPPs in the reforming environment

2. Demonstration of the nature and stages of power sector and market reform and restructuring in the context of Namibia, the SADC Region, and SAPP

3. Discussion of issues, options, and institutional arrangements needed for creating an attractive environment for IPPs while ensuring competition

The proposed two-day workshop is intended to enhance the participants' knowledge and consensus on issues related to the above-described objectives.

3. Workshop Dates

April 13-14, 2004

4. Venue

Location: Windhoek, Namibia

5. Workshop Material Development and Delivery

Mr. Vinod Shrivastava, Senior Power Sector Reform and Restructuring Expert
Dr. Donald Hertzmark, Senior Power Market Economist
Dr. Anton Eberhard, Senior Regulatory Expert, Cape Town University
Dr. Vaso Leno, Senior Energy Expert
Mr. Albert Skeath, Senior Utility Expert
Ms. Marika Zirk, Project Analyst
Mr. Dinesh Wahi, Logistics

6. Description of Activities

a. Assembly of Workshop Materials
The CORE team will use the company archives and current energy literature on the subject to design and develop the workshop modules and materials. All relevant materials obtained in the preparation stage of the effort will be included in the Workshop Book as well as on a CD as a resource for participants.

b. Workshop Contents
All development materials for the workshop will be organized in a Workshop Book that becomes an important tool for the workshop participants. The workshop will cover the following topics, organized in a sequence of modules:

1. Module I: Power Sector Reform and Market Developments in the SADC Region

2. Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

3. Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

4. Module IV: Attracting IPPs in an Emerging Market Environment

5. Module V: Arrangements for Attracting IPPs on a Fast-Truck Basis

Contents of each of the workshop modules are briefly provided below:

1. **Module I: Power Sector Reform and Market Developments in the SADC Region**
    - Electricity Situation in the SADC Region
    - Policies, Reforms, and Institutions
    - Regional Power Market Development – Trade at the SAPP
    - Electricity Market Reform in South Africa
    - Regional Policy Implications

2. **Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead**
    - Policy Objectives and Decisions to Date
    - Move to a Single-Buyer Model
    - Single-buyer Model Proposed by Sadelec and Simpler Version by SAHA
    - Market Models Proposed by SAHA/Nampower
    - New Investment in Power Generation – A Challenge for Namibia
    - Policy Implications and Required Decisions

3. **Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region**
    - What Has Already Been Done?
    - What Remains To Be Done?
    - Amendments to Electricity Act
    - Proposed New Licenses
    - Issues on Open Access to Transmission
    - Progress on the grid-code
    - Need for Regional Coordination in Policy and Regulatory Areas

4. **Module IV: Attracting IPPs in an Emerging Market Environment**
    - Why Designing the Best Possible IPP Contracting Process?
    - Why Long Term Contracts with IPPs?
    - Minimal Prerequisites for Attracting IPPs
    - Methods of Contracting for Power Purchase -- Power Purchase Agreements (PPA)
    - Competitive Contracting for Privately Generated Power
    - List of Docs to Close an IPP Deal

5. **Module V: Arrangements for Attracting IPPs on a Fast-Track Basis**
    - Development and Clarification of an IPP Contractual Framework
    - Potential Institutional Arrangements Towards Improving the Process of Evaluation and Negotiation of IPP Proposals

- About Improving the IPP Regulatory Framework
- Proposed Role of MME, ECB, and Nampower
- Conclusions and Recommendations

7. Intended Participants

The workshop is intended for up to 20 – 25 participants primarily from the MME, ECB, and NamPower.

II. WORKSHOP SCHEDULE

WORKSHOP SCHEDULE

Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Windhoek, Namibia

April 13-14, 2004

Sponsored by: U.S. Agency for International Development
Conducted by: CORE International, Inc.

Tuesday, April 13, 2004

8:30 a.m. – 9:00 a.m.	**Opening Remarks** **Mr. Kirk Dahlgren** **Acting Mission Director** **USAID Mission** **Windhoek, Namibia** **Keynote Address** **Hon. Mr. Nickey Iyambo** **Minister, Ministry of Mines and Energy** **Namibia**
9:00 a.m. – 9:30 a.m.	**Progress and Challenges of Power Sector Reforms in Namibia** **Mr. Siseho Simasiku** **Chief Executive Officer** **Electricity Control Board** **Windhoek, Namibia**
9:30 a.m. – 10:00 a.m.	**Introduction of Workshop Participants** **Workshop Introduction** **Dr. Donald Hertzmark** **Chief Economist** **CORE International, Inc.**

10:00 a.m. – 10:30 p.m. **Module I: Power Sector Reform and Market Developments in the SADC Region**

- Electricity Situation in the SADC Region
- Policies, Reforms, and Institutions
- Regional Power Market Development – Trade at the SAPP
- Electricity Market Reform in South Africa
- Regional Policy Implications

10:30 a.m. – 11:00 a.m. **Coffee/Tea Break**

11:00 a.m. – 12:30 p.m. **Module I: Power Sector Reform and Market Developments in the SADC Region *(cont'd)***

- Electricity Situation in the SADC Region
- Policies, Reforms, and Institutions
- Regional Power Market Development – Trade at the SAPP
- Electricity Market Reform in South Africa
- Regional Policy Implications

12:30 p.m. – 1:30 p.m. **Lunch Break**

1:30 p.m. – 2:00 p.m. **Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead**

- Policy Objectives and Decisions to Date
- Move to a Single-Buyer Model
- Single-buyer Model Proposed by Sadelec and Simpler Version by SAHA
- Market Models Proposed by SAHA/Nampower
- New Investment in Power Generation – A Challenge for Namibia
- Policy Implications and Required Decisions

3:00 p.m. – 3:30 p.m. **Coffee/Tea Break**

3:30 p.m. – 4:30 p.m. **Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region**

- What Has Already Been Done?
- What Remains To Be Done?
- Amendments to Electricity Act
- Proposed New Licenses
- Issues on Open Access to Transmission
- Progress on the grid-code
- Need for Regional Coordination in Policy and Regulatory Areas

4:30 p.m. – 5:00 p.m.	**Review of the First Day** **Review of the Next Day Workshop Program**
7:00 p.m.	**Dinner Hosted By CORE International, Inc.**

Wednesday, April 14, 2004

9:00 a.m. – 10:30 a.m. **Module IV: Attracting IPPs in an Emerging Market Environment**

- Why Designing the Best Possible IPP Contracting Process?
- Why Long Term Contracts with IPPs?
- Minimal Prerequisites for Attracting IPPs
- Methods of Contracting for Power Purchase -- Power Purchase Agreements (PPA)
- Competitive Contracting for Privately Generated Power
- List of Docs to Close an IPP Deal

10:30 a.m. – 11:00 a.m. **Coffee/Tea Break**

11:00 a.m. – 12:30 p.m. **Module IV: Attracting IPPs in an Emerging Market Environment *(cont'd)***

- Why Designing the Best Possible IPP Contracting Process?
- Why Long Term Contracts with IPPs?
- Minimal Prerequisites for Attracting IPPs
- Methods of Contracting for Power Purchase -- Power Purchase Agreements (PPA)
- Competitive Contracting for Privately Generated Power
- List of Docs to Close an IPP Deal

12:30 p.m. – 1:30 p.m. **Lunch Break**

1:30 p.m. – 2:00 p.m. **Presentation: "Case Study: The Proposed Kudu IPP" by a Namibian representative**

2:00 p.m. – 3:00 p.m. **Module V: Arrangements for Attracting IPPs on a Fast-Track Basis**

- Development and Clarification of an IPP Contractual Framework
- Potential Institutional Arrangements Towards Improving the Process of Evaluation and

	Negotiation of IPP Proposals • About Improving the IPP Regulatory Framework • Proposed Role of MME, ECB, and Nampower • Conclusions and Recommendations
3:00 p.m. – 3:30 p.m.	**Coffee/Tea Break**
3:30 p.m. – 4:30 p.m.	**Module V: Arrangements for Attracting IPPs on a Fast-Track Basis *(cont'd)*** • Development and Clarification of an IPP Contractual Framework • Potential Institutional Arrangements Towards Improving the Process of Evaluation and Negotiation of IPP Proposals • About Improving the IPP Regulatory Framework • Proposed Role of MME, ECB, and Nampower • Conclusions and Recommendations
4:30 p.m. – 5:30 p.m.	**Workshop Summary**
5:30 p.m.	**Adjournment**

III. WORKSHOP MATERIALS

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

USAID Support Under The Energy and Environment Training Program (EETP)

Two Day Workshop Designed and Facilitated By
CORE International, Inc., Washington, D.C.

April 13-14, 2004
Windhoek, Namibia

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Workshop Modules

Module I: Power Sector Reform and Market Developments in the SADC Region

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Module IV: Attracting IPPs in an Emerging Market Environment

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

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Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Contents of Module I:

Power Sector Reform and Market Developments in the SADC Region

1. Electricity Situation in the SADC Region
2. Policies, Reforms, and Institutions
3. Regional Power Market Development – Trade at the SAPP
4. Electricity Market Reform in South Africa
5. Regional Policy Implications

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Module I: Power Sector Reform and Market Developments in the SADC Region

1. Electricity Situation in the SADC Region

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Module I: Power Sector Reform and Market Developments in the SADC Region

1. Electricity Situation in the SADC Region – Regional Economy

- The region's population is approximately 201 million
- SADC covers about 9 million square kilometers
- Regional GDP growth was about 2.1% in 2002
- Regional economies are structurally diverse and at different stages of development
- The substantial external debt of individual SADC member countries remains one of the Region's greatest challenges
- The Region has embarked on substantial market economy reforms

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Module I: Power Sector Reform and Market Developments in the SADC Region

Economic and Demographic Indicators

Country	Gross Domestic Product (GDP), 2001E (Billions of U.S. $)	Real GDP Growth Rate, 2001 Estimate	Real GDP Growth Rate, 2002 Projection	Per Capita GDP, 2001E	Population 2001E (Millions)
Angola	$8.3	3.4%	11.2%	$610	10.4
Botswana	$5.1	8.9%	4.2%	$3,057	1.6
D.R. Congo	$7.0	-4.3%	2.7%	$134	53.6
Lesotho	$0.8	3.2%	2.9%	$386	2.2
Malawi	$1.5	3.0%	5.3%	$133	10.5
Mozambique	$2.4	10.5%	9.5%	$132	19.4
Namibia	$2.9	2.7%	4.0%	$1,538	1.8
South Africa	$113.3	2.2%	2.0%	$2,492	43.6
Swaziland	$1.2	2.0%	2.5%	$1,117	1.1
Tanzania	$8.9	5.1%	5.7%	$247	36.2
Zambia	$3.1	5.2%	4.3%	$301	9.8
Zimbabwe	$9.4	-7.9%	-15.0%	$761	11.4
SAPP Countries Total/Average	**$163.9**	**≈2.2%**	**≈2.1%**	**$813**	**201.6**

Sources: DRI/WEFA; Central Intelligence Agency World Factbook 2001; International Monetary Fund; World Bank - *Adopted*

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1. Electricity Situation in the SADC Region – Electricity Generation Potential

- SAPP countries, on the whole, are a net energy exporter
- Commercial energy resources in the region are diverse, with significant reserves of coal, petroleum, and natural gas
- Electricity in Southern Africa is generated through thermal or hydroelectric resources (with one nuclear facility in South Africa)
- Natural gas is becoming more significant to the Region's energy sector as fields off Mozambique, Namibia, South Africa, and Tanzania are being developed and exploited

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1. Electricity Situation in the SADC Region – Electricity Generation Potential *(cont'd)*

- Southern Africa's total installed electric generating capacity was 54,183 MW in 2000
- Total electricity generation for the Region in 2000 was 226.66 billion kwh (bkwh)
- Net hydroelectric generation was 28.76 bkwh, with Zambia (7.78 bkwh), Mozambique (6.77 bkwh) and the DRC (5.30 bkwh) being the largest generators
- In 2000, total regional electricity consumption was 211.19 bkwh, led by South Africa's 181.52 bkwh (85.1%)

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1. Electricity Situation in the SADC Region – Electricity Generation Potential *(cont'd)*

- Large hydro potential – D.R. Congo and Zambia
- Large potential to develop small and micro hydro sites to serve isolated mini grids
- Large opportunities to use solar energy – high solar insulation throughout the region
- Large reserves of oil and gas

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Electricity Overview, Billion Kilowatthours except where noted

Country	Consumption, 2000	Generation, 2000	Installed Capacity, 1/1/2000 (gigawatts)	Exports, 2000	Imports, 2000
Angola	1.11	1.12	0.586	0.00	0.00
Botswana	1.45	0.50	0.217	0.00	0.99
D.R. Congo	4.58	5.40	2.473	0.50	0.06
Lesotho	0.10	0.00	0.00	0.00	0.10
Malawi	0.77	0.83	0.308	0.00	0.00
Mozambique	0.93	7.02	2.388	5.70	0.10
Namibia	0.89	0.03	0.00	0.00	0.86
South Africa	181.52	194.38	43.110	4.55	5.29
Swaziland	0.90	0.36	0.131	0.00	0.56
Tanzania	2.62	2.77	0.620	0.00	0.05
Zambia	5.84	7.82	1.786	1.54	0.10
Zimbabwe	10.48	6.43	1.881	0.00	4.50
Regional Total	**211.19**	**226.66**	**53.5**	**12.29**	**12.61**

Sources: Energy Information Administration - *Adopted*

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1. Electricity Situation in the SADC Region – 1999

Surplus Power Capacity Within the SADC

Country / Utility	Surplus capacity (MW)
South Africa (Eskom)	7 450
Mozambique (EDM)	1 900
Angola (ENE)	450
DRC (SNEL)	1 400
Zambia (ZESCO)	320
Less deficit in others	(350)
Total surplus capacity	11 170

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Total Energy and Carbon Dioxide Emissions, 2000

Country	Total Commercial Energy Consumption, (Quadrillion Btu)	Total Commercial Energy Production, (Quadrillion Btu)	Net Energy Exports, (Quadrillion Btu)	Carbon Dioxide Emissions (Million metric tons of carbon)
Angola	0.090	1.621	1.531	3.60
Botswana	0.053	0.025	-0.028	0.95
D.R. Congo	0.104	0.111	0.008	1.10
Lesotho	0.004	0.000	-0.004	0.05
Malawi	0.020	0.010	-0.011	0.24
Mozambique	0.031	0.073	0.042	0.36
Namibia	0.025	0.000	-0.025	0.32
South Africa	4.643	7.213	2.570	105.85
Swaziland	0.022	0.009	-0.013	0.32
Tanzania	0.058	0.024	-0.034	0.68
Zambia	0.095	0.086	-0.010	0.59
Zimbabwe	0.252	0.144	-0.108	3.97
Regional Total	**5.397**	**9.316**	**3.918**	**118.03**

Sources: Energy Information Administration - *Adopted*

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2. Policies, Reforms, and Institutions

- Most national electricity sectors are composed of vertically integrated, state owned utilities
- Pricing policies and practices are not cost reflective and the current subsidies by governments across sectors are not sustainable
- Barriers exist to private investment, leading to very low rates of investment in the sector
- The utilities' financial viability is at risk

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2. Policies, Reforms, and Institutions – Power Sector Performance Indicators

Key Power Sector Performance Indicators for Most of SAPP Member Countries

Country	GNP per Capita US$	Energy Consumption per capita (kgoe)	Average Revenue (US$/Kwh)	System Loss %	Rate of Return (%)	Consumer per employee	Electricity produced per capita (Kwh)	Generation Capacity Factor	Debt Service coverage Times	Average receivable days
Botswana	2530	408	2.37	7.10		14				
DR Congo	220	71	0.64	12.00	-15.40	33	160			232
Malawi	230	41	4.67	14.10	15.10	22	85	46.30	1.90	66
Mozambique	80	59	7.75	14.00	10.00	99	30	2.40		110
Swaziland	1050	285	3.21	10.40	7.20				1.65	
Tanzania	100	37	4.88	19.80	6.80	26	36	23.40	1.63	135
Zambia	460	309	2.07	7.00		29	935	36.40		
Zimbabwe	650	517		9.00	13.80	42	949	53.60	1.10	67

Source: The World Bank

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2. Policies, Reforms, and Institutions – Power Sector Performance

- Access to electricity ~ 20% of the population
  - Pressure exists to accelerate electrification for social and economic growth
  - Issue of environmental degradation
- Financial viability of national utilities
  - Good: Eskom, BPC, NamPower
  - Satisfactory: SEB
  - Less than Satisfactory: The rest
  - Pricing not cost reflective
  - Subsidies by governments and across sectors are not sustainable

Source: Francis Masawi, Transmission Director, ZESA - 1999.

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2. Policies, Reforms, and Institutions – Supply Driven Power Sectors

Regionally, the energy sector is primarily driven by supply rather than demand

- Little focus on demands of energy users
- Consumers and their priority needs need to considered as part of donor-financed projects
- End-user efficiency should be considered for any pilot projects and when making decisions on the choices of new energy technologies
- Involvement of local stakeholders can help address supply/demand issues

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2. Policies, Reforms, and Institutions – Power Sectors Reform Efforts

Countries in the SADC region are attempting to restructure through combinations of the following:

- New legal frameworks
- New regulatory frameworks
- Tariff reform
- Utility commercialization
- Unbundling & IPPs
- Third party access
- Private sector participation

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2. Policies, Reforms, and Institutions

- **Electricity Reforms in SAPP**

	Ang	Bot	Les	Mal	Moz	Nam	RSA	Swa	Tan	Zam	Zim
New legal framework				x		x	x			x	x
Unbundling & IPP's			IP	IP	x		IP		x	IP	IP
Private sector participation.						IP	IP			X	
Third party access											
New regulatory framework				x		x	x	IP		x	IP
Reorganisation of distribution		IP				IP	IP		IP		IP
Rural Electrification Agency		IP	IP	x	IP			IP			x
Utility commercialisation	X	X	X	X	X	x	x	x	x	x	x

➡ **PROPOSAL FOR DONOR FUNDING –ON HOW EXISTING POWER POOLS ARE HANDLING PLANNING**

IP – In Progress

Source: SAPP Members' Meeting in Mozambique, February 2003

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2. Policies, Reforms, and Institutions – Low Private Investments

Table 1: Private investments in electricity projects in LDCs 1990-99 (1998 $ millions)
Source: World Bank PPI Database

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Sub-Saharan Africa	49	0	27	1	84	42	1,014	503	709	455	2,884
East Asia & the Pacific	55	454	4,622	5,592	7,291	7,492	11,677	12,437	4,833	1,945	56,398
Europe & Central Asia	85	0	1,041	0	1,332	3,369	3,507	2,128	504	688	12,655
Latin America & the Caribbean	1,204	23	2,497	3,298	2,924	5,788	8,750	20,629	12,720	6,287	64,120
Middle East & North Africa	0	0	0	0	225	0	217	4,679	0	715	5,837
South Asia	169	735	37	1,186	3,081	3,193	4,934	2,319	926	2,227	18,805
Total	1,562	1,212	8,225	10,077	14,936	19,884	30,100	42,694	19,692	12,317	160,698

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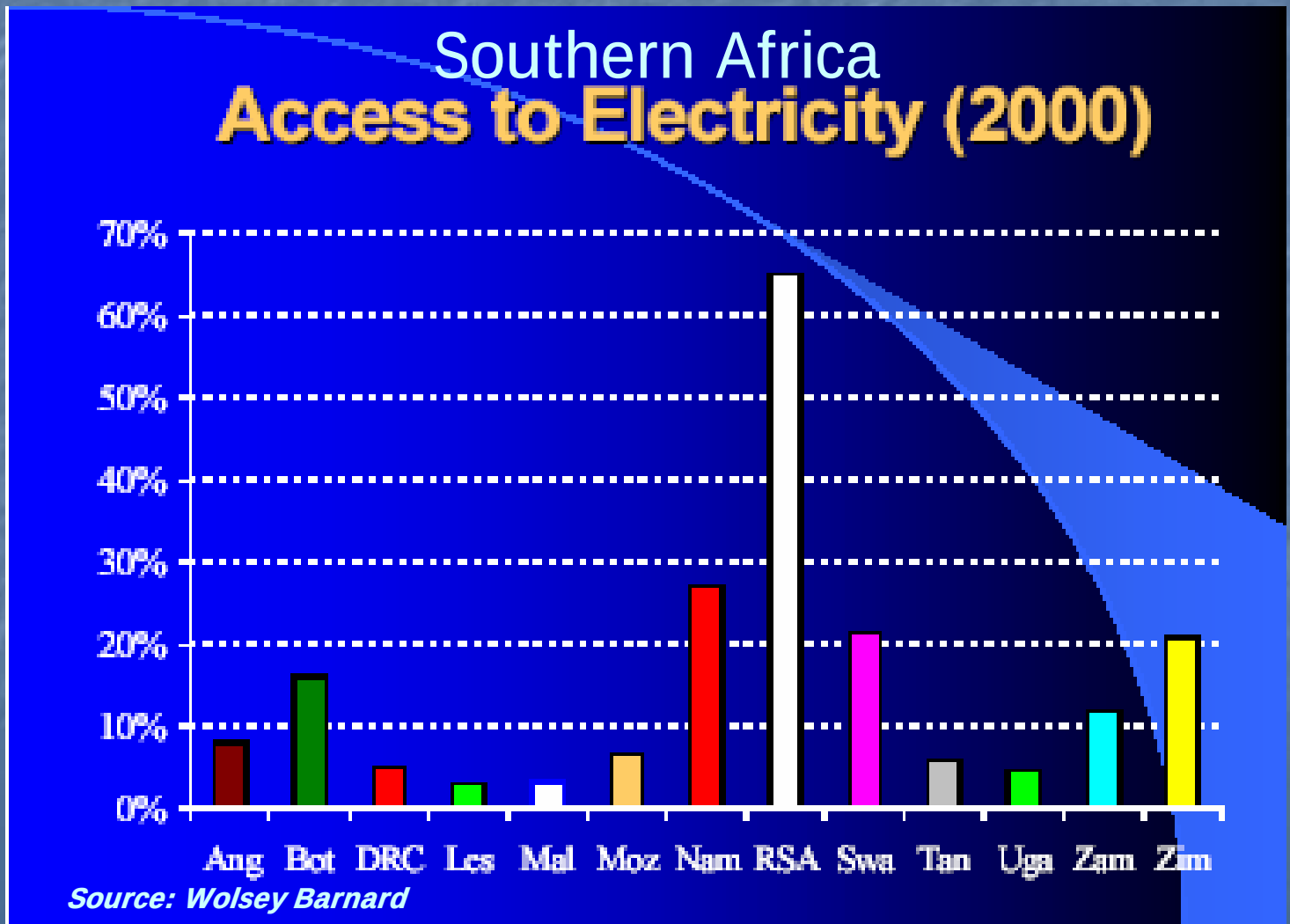
2. Policies, Reforms, and Institutions



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2. Policies, Reforms, and Institutions –

Rural Access to Electricity

- Overall regional electrification rate in 2000 was 20%, compared to 90% in the developed world
- Access rates are as low as 2% in rural areas
- Dispersed villages in remote locations create low-density demand, expensive to connect to national grid
- Zambia, Zimbabwe, and Namibia, in particular, have committed to power plans for the near and long-term
- Solar, wind, and small generator alternatives are becoming increasingly attractive

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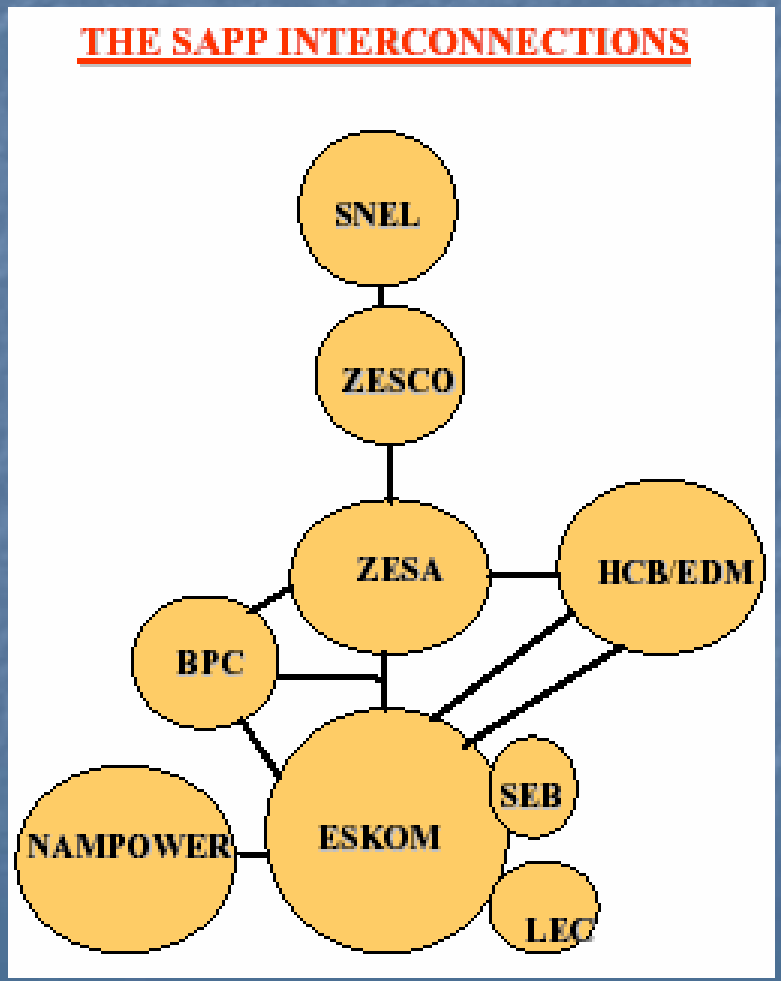
3. Regional Power Market Development – SAPP



SAPP Members:

There are eight members operating SAPP: BPC, EDM, ESKOM, HCM, KNBC, NamPower, SEB and ZESA

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3. Regional Power Market Development –

Factors Leading to the Establishment of SAPP

- Reserves of large, low-cost hydropower resources in the North (DR Congo and Mozambique)
- Reserves of cheap coal in South Africa
- The Kariba Dam between Zambia and Zimbabwe acts as a buffer
- Experience with decades of bilateral power trade among the utilities of Southern Africa

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3. Regional Power Market Development –

Factors Leading to the Set-up of SAPP *(cont'd)*

- Considerable supply and demand imbalances
- Opportunities for economies of scale and security of supply
- Matching demand patterns to generation options
- Public sector investment constraints
- Improved monitoring and control of environmental concerns

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3. Regional Power Market Development – Key Characteristics of SAPP

- Set up as a 'loose pool' similar to the Nordpool, UCPTE, and the Mid-Continent Area Power Pool in the U.S.
- SAPP, in its infancy, traded only about 3% of total generation
- SAPP covers 200 million people and 9 million square kilometers
- SAPP membership is restricted to national utilities – most are vertically integrated to serve domestic systems

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3. Regional Power Market Development –

Key SAPP Objectives

- Coordination of planning and development of interconnections to expand IPS and power trading in the region
- Reduction of investments and operating costs and enhancement of reliability of supply
- Coordination of planning and operation of generation and transmission facilities

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3. Regional Power Market Development –

Key Benefits of SAPP

- Reduction or postponement of new generating capacity or reserves
- Reduction in fuel costs
- Reduction in public sector investment demand
- More efficient use of resources, especially hydropower

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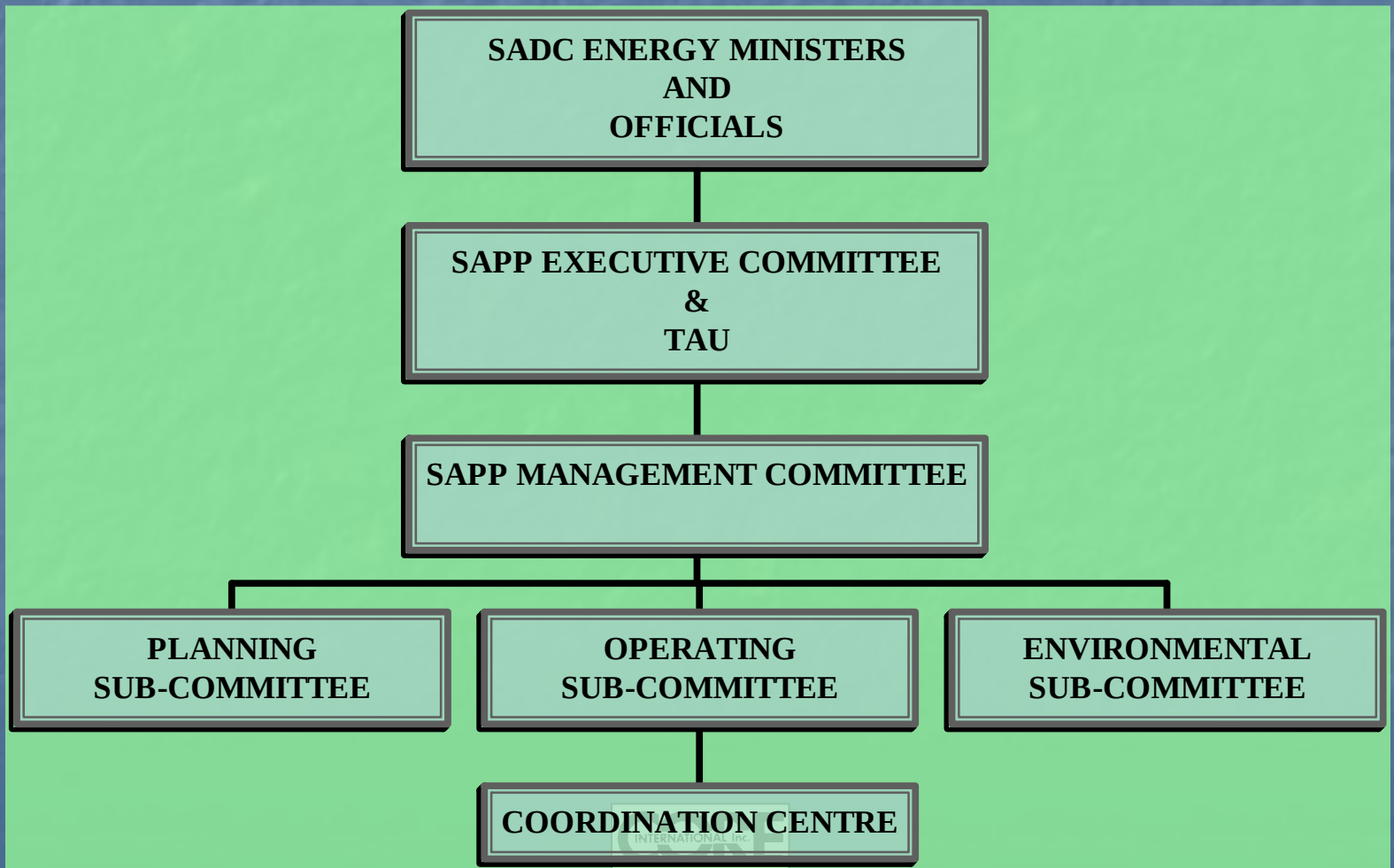
3. Regional Power Market Development – SAPP Management Structure



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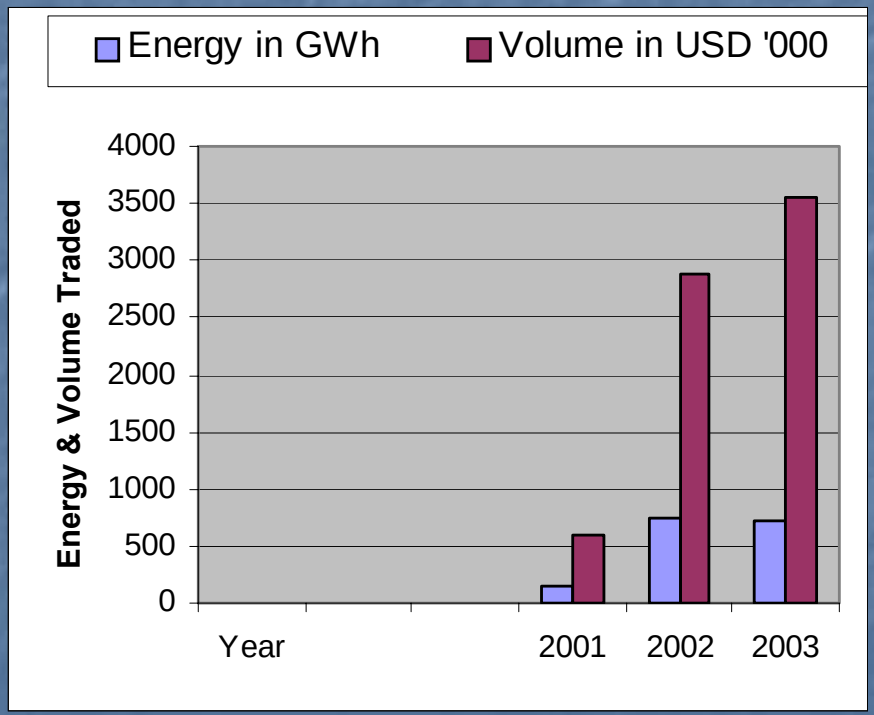
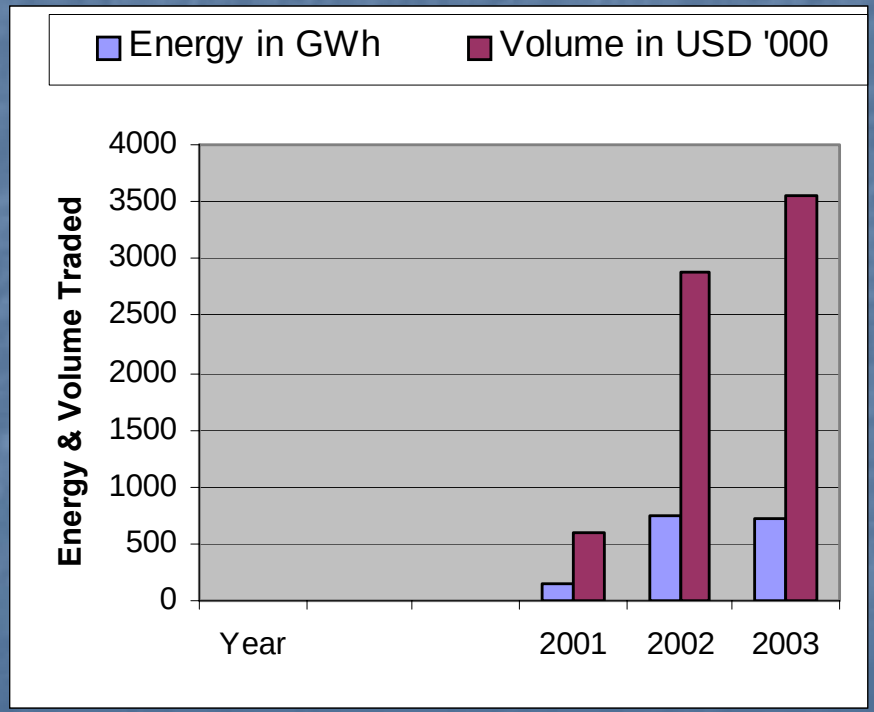
3. Regional Power Market Development – Power Traded on the STEM -SAPP





Source: CO-ORDINATION CENTRE REPORT TO THE SAPP OPERATING SUB-COMMITTEE, GABORONE, BOTSWANA, FEBRUARY 2004

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4. Electricity Market Reforms in South Africa

Challenges for Change

- Poor financial performance of many of the (State-owned) utilities
- Inappropriate electricity pricing (usually as a result of political pressures)
- Managerial inefficiencies
- Technical weaknesses, particularly in distribution
- Unsustainable subsidisation of certain categories of customers
- Growing belief in benefits of private sector involvement
- Losing professional staff
- Accelerate electrification

NATIONAL ELECTRICITY REGULATOR

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5. Electricity Market Reforms in South Africa – Current Structure of the Power Sector

- Eskom (vertically integrated) supplies 95% of the country's electricity requirements
- In South Africa, 92% of electricity is generated from coal. Nuclear accounts for 6%, and hydro and emergency gas turbines make up the remaining 2%
- 55 power stations are licensed by the NER
- Eskom operates 25 power stations, 13 of which are coal-fired stations. Eskom also operates Africa's only nuclear station

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5. Electricity Market Reforms in South Africa – Current Structure of the Power Sector *(cont'd)*

- Eskom owns about 93% of active generating capacity
- Eskom owns and operates the national high voltage transmission system
- Eskom and 13 other distributors cover over 360 local municipalities
- Municipalities collectively service directly about 56% of total customers (by number) and about 42% of total customers by sales volume

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5. Electricity Market Reforms in South Africa – Reform Drivers

- Electricity Distribution Industry (EDI)
  - ✓ Financial viability
  - ✓ Inequitable treatment of consumers
  - ✓ Inefficiencies
  - ✓ Need to move to cost-reflective tariffs

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5. Electricity Market Reforms in South Africa – Reform Drivers *(cont'd)*

- Electricity Distribution Industry (EDI) – G&T
  - ✓ Consolidate the EDI into a maximum number of financially viable independent regional electricity distributors (REDs) – likely that a total of six REDs
  - ✓ Establish EDI Holdings, in then interim, to administer the whole EDI industry
  - ✓ REDs ownership
  - ✓ REDs governance and legal status
  - ✓ Commercial arrangements for bulk power purchase by the REDs – regulated Wholesale Pricing System
  - ✓ Regulatory arrangements, NER and municipal authority

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5. Electricity Market Reforms in South Africa – Reform Plans

- Electricity Supply Industry
  - ✓ Eskom's 24 power stations to be grouped in competing clusters
  - ✓ Transmission will be housed in an independent state-owned company
  - ✓ Private sector involvement to be re-considered after 2010, when every South African household should have access to electricity

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5. Electricity Market Reforms in South Africa – Reform Plans *(cont'd)*

- Electricity Supply Industry
  - ✓ Eskom to maintain a dominant role in the generation sector for the foreseeable future (to hold about 80%)
  - ✓ Independent power producers will be licensed in order to encourage greater competition in generation
  - ✓ Black economic empowerment companies will have a greater share in generation when 10% of the sector will be set aside for empowerment purposes by 2004

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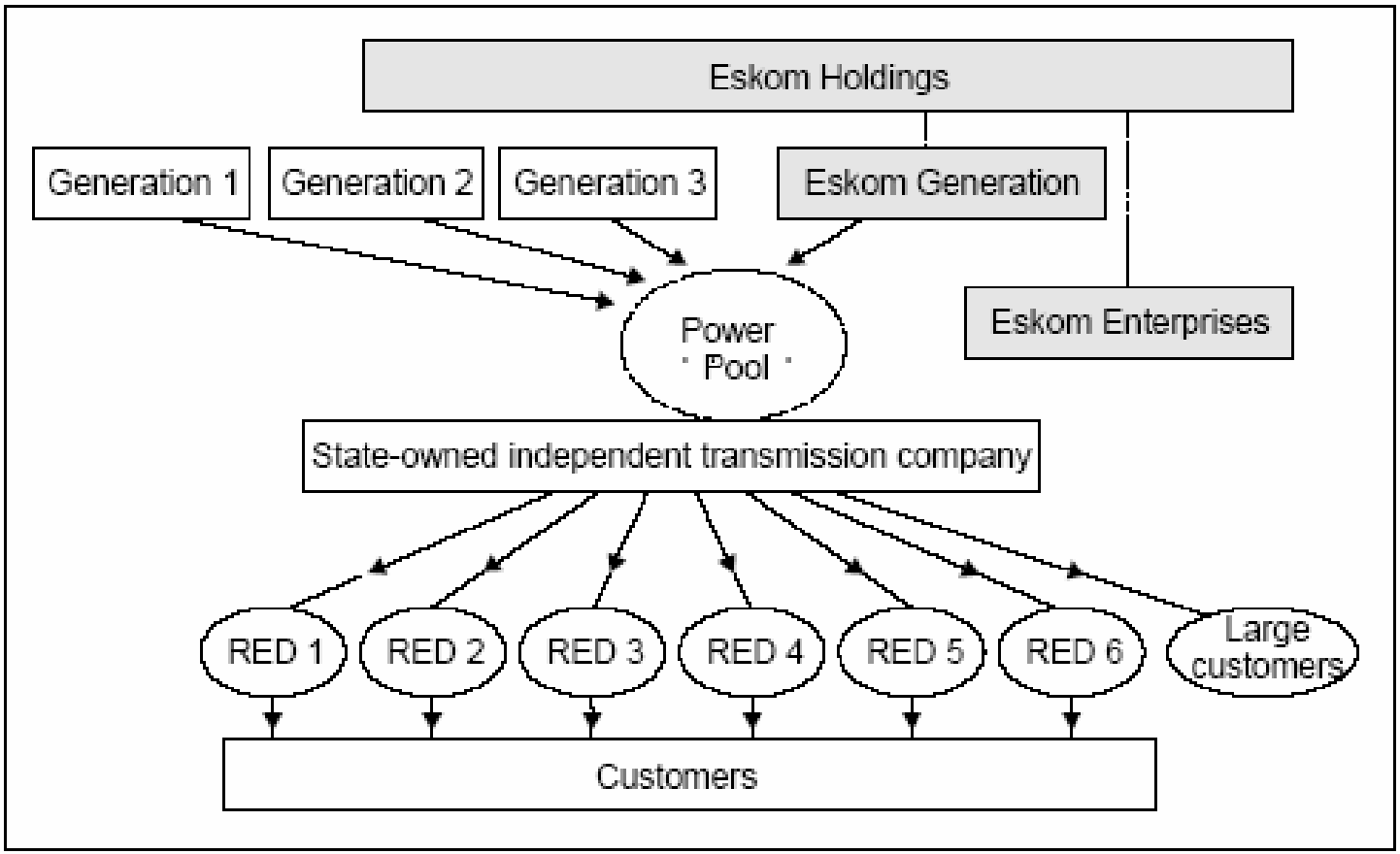
5. Electricity Market Reforms in South Africa – A Vision – Wholesale Competition in the South African Electricity Industry

Source: Power Sector Reforms in South Africa: Plans and Progress, Alix Clark, June 2001



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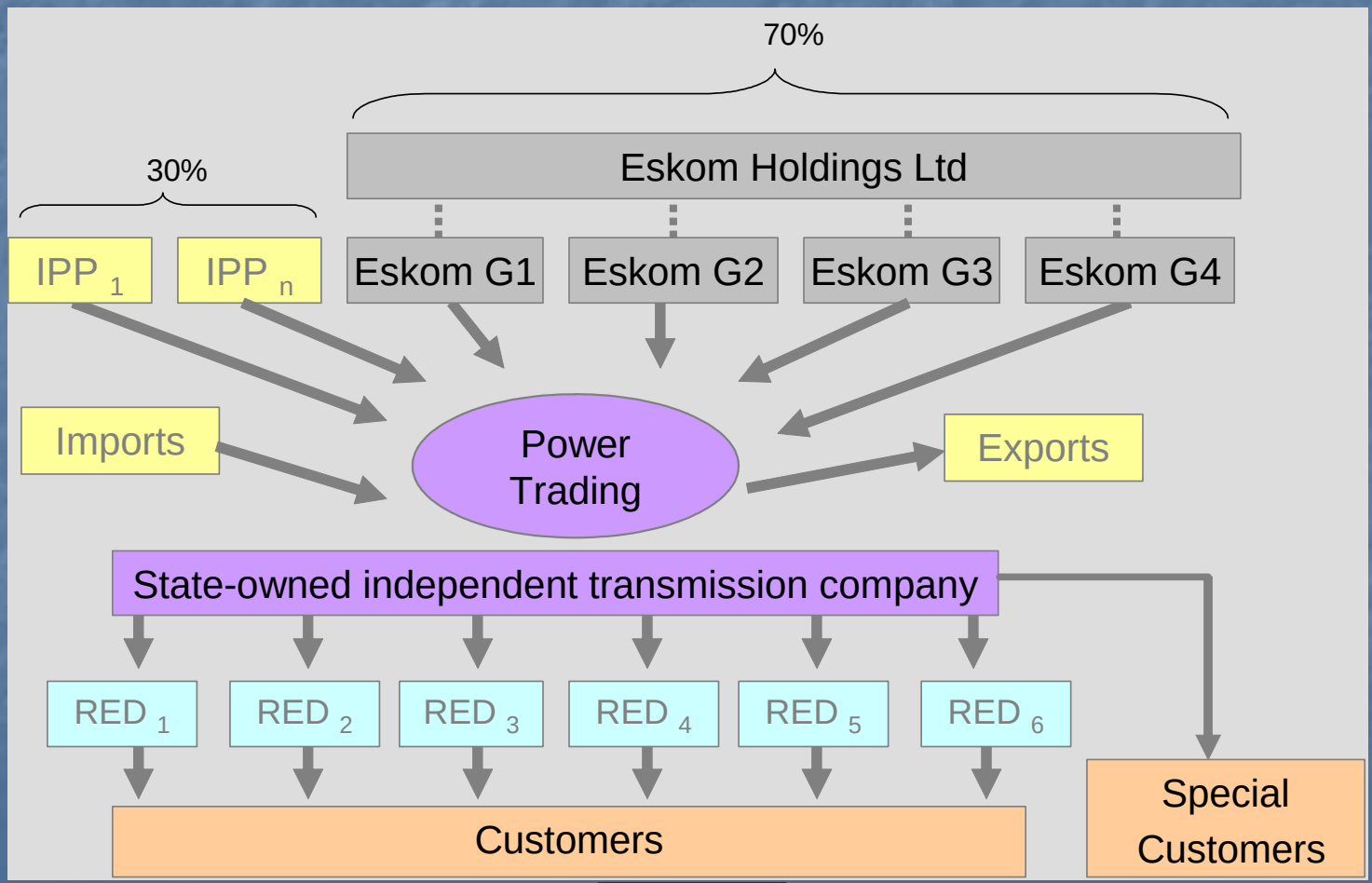
5. Electricity Market Reforms in South Africa - Proposed Structure of Electricity Market for South Africa



Source: SAHA International, Limited, 2003

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5. Regional Policy Implications – Power Sector Reforms Involve

- *Structural* changes
- *Regulatory* changes
- *Ownership* changes

Each of these changes will have a profound effect on people

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5. Regional Policy Implications – Effects on Prices

- Short term impacts have traditionally entailed price increases (because of new capacity investments)
- In the long term, it is likely that prices will drop if competition is introduced into the industry

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5. Regional Policy Implications – Subsidy Reform

- As the electricity industry moves towards cost-reflective tariffs, subsidy reform is inevitable
- The impact that this reform has on consumers depends on government stance on this
- Many countries maintain targeted “smart subsidies” energy subsidies for those most in need

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5. Regional Policy Implications – Effects on Energy Access Programs

- Electrification programs may be placed on the backburner until mainstream issues are agreed upon
- Private companies are less inclined to invest in electrification programs
- Private companies can offer new sources of funds for grid and off-grid electrification
- There is often a bias towards grid-electrification and for shying away from off-grid electrification

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5. Regional Policy Implications – Power Sector Reform is an 'Improve by Doing' Policy Development Strategic Process

Implementing Comprehensive Reform Policy Takes you form A to B

Point A

- Low access
- Deteriorating reliability
- Financial bankruptcy
- No private investment
- Increasing burden on government budget

Enhanced Power Reform Policy

Point B

- Increase access
- Private investments
- Increased reliability
- Enhanced power security
- Sector financial viability
- Etc.

A good Reform Policy answers the question: *What is the best way to go from point A to point B?*

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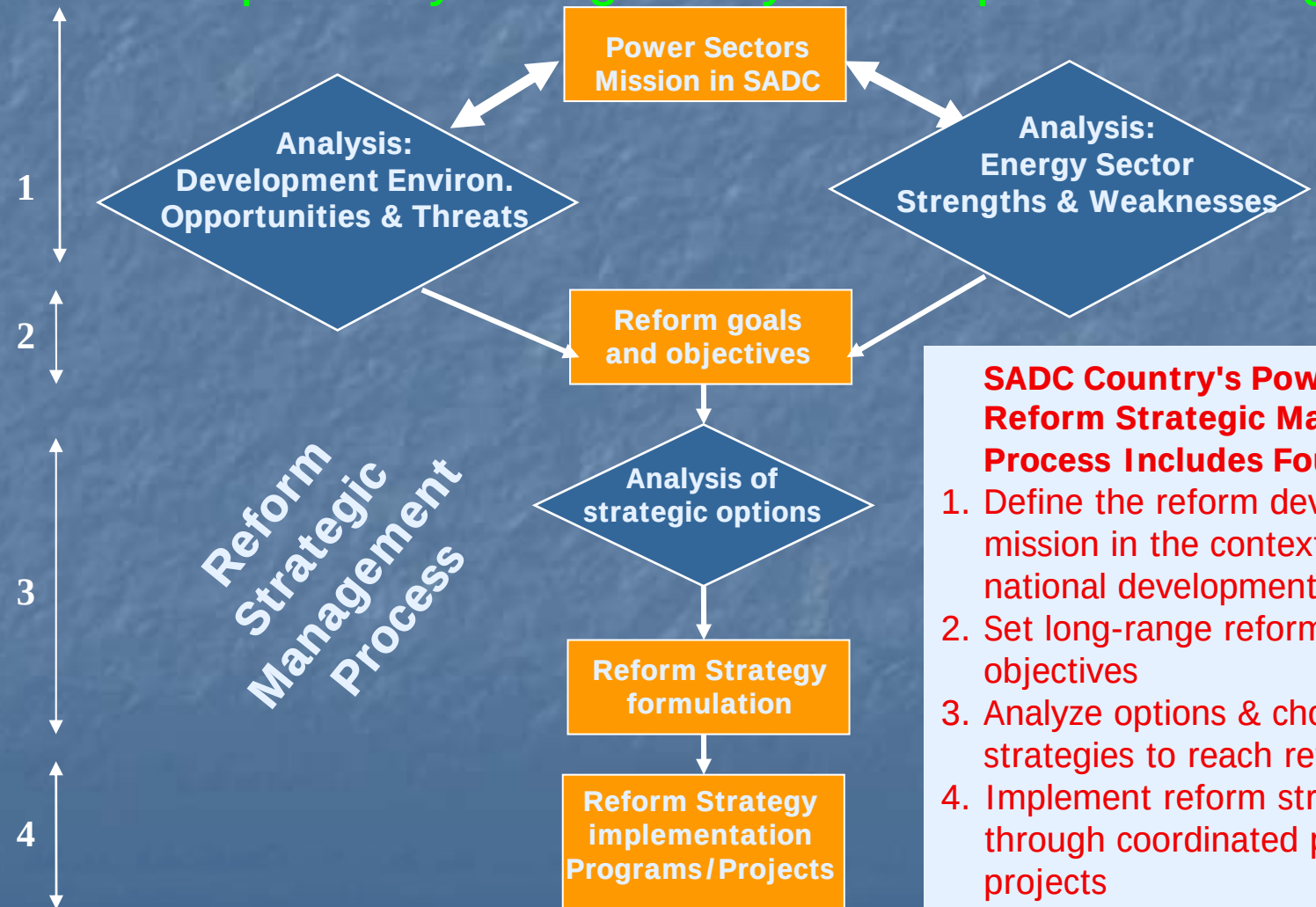
5. Regional Policy Implications – Power Sector Reform is an 'Improve by Doing' Policy Development Strategic Process



SADC Country's Power Sector Reform Strategic Management Process Includes Four Activities:

1. Define the reform development mission in the context and as part of national development policy
2. Set long-range reform goals and objectives
3. Analyze options & chose, formulate strategies to reach reform objectives
4. Implement reform strategies through coordinated programs and projects

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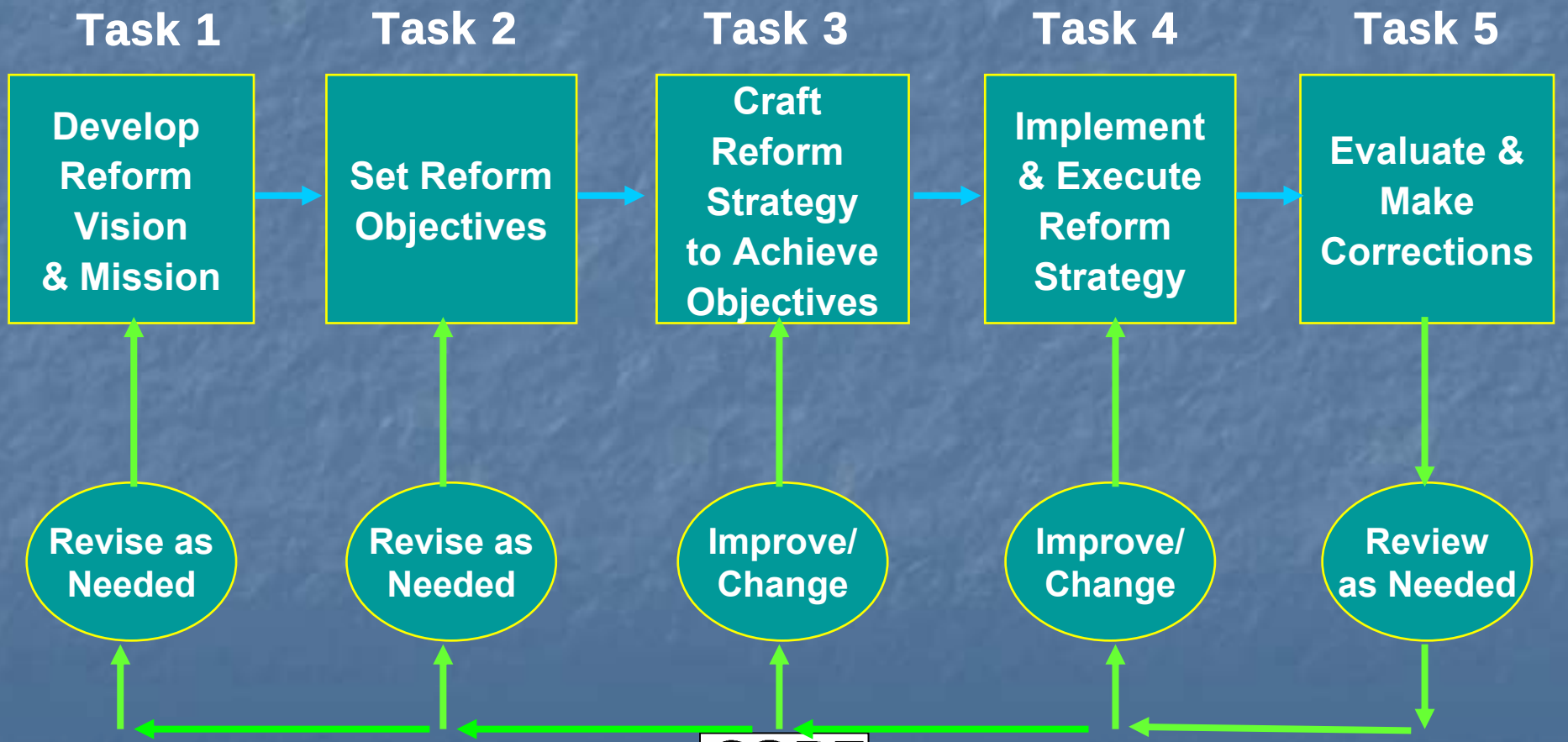
5. Regional Policy Implications – Power Sector Reform is an 'Improve by Doing' Strategic Process

Five Tasks of Strategic Management Process for Reform



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5. Regional Policy Implications – What Does Power Sector Reform Implementation Include?

As a country-driven activity, it includes:

- Building capable institutions and effective implementation capacity
- Allocating enough resources to reform critical activities
- Establishing reform supportive policies
- Motivating stakeholders/people to pursue objectives through extensive participatory approaches

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5. Regional Policy Implications – What does Power Sector Reform Implementation Include? *(cont'd)*

As a country-driven activity, it includes:

- Tying rewards to achievement of results
- Creating a reform-supportive public awareness
- Establishing needed information, communication, and public participation strategies
- Instituting best practices for continuous improvement in energy service delivery
- Supervising and exerting strategic leadership

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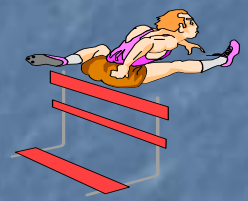
5. Regional Policy Implications – Build Competitive Advantages to Attract Private Investment

SWOT ANALYSIS



Countries compete for financial resources!

Strengths

Opportunities

Weaknesses

Threats

SADC countries' competitive advantage for mobilizing more financial resources in their power sectors

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

5. Regional Policy Implications – Recommendations

- Power sector reforms must take access issues into account right from the start
- Competition and sound regulation must precede privatization initiatives
- Studies on the impact of reforms should be conducted before mistakes are made
- Regulation is key to the ongoing provision of public benefits (energy efficiency, renewable energy, access) which contribute to poverty alleviation

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Workshop Modules

Module I: Power Sector Reform and Market Developments in the SADC Region

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Module IV: Attracting IPPs in an Emerging Market Environment

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

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Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Contents of Module II:

Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date
2. Move to a Single-Buyer Model
3. Single-buyer Model Proposed by SAD-ELEC
4. Market Models Proposed by SAHA/Nampower
5. New Investment in Power Generation – A Challenge for Namibia
6. Policy Implications and Required Decisions

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Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date

Namibia:

- Is rich in natural resources
- Has well-developed physical infrastructure
- Is politically stable
- Enjoys a relatively high GDP per capita of around US $2,000, four times as high as the average for sub-Saharan Africa
- Has agriculture, especially large-scale commercial livestock farming, fishing and mining, while tourism is one of the stronger upcoming sectors in the economy

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – Increasing Demand for Energy

- The Namibian population is expected to double over the next 15 years – same with the number of households
- The Energy Sector of Namibia will need to be able to cope with huge energy requirements in future
- Energy demand will grow along with the population growth and possibly even faster as the economy picks up on new developments such as mines and increased processing of agricultural products

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – Main Energy Sources

- Imported petroleum products (mainly petrol and diesel) make for 70% on the country's energy supply
- Electricity (grid electricity, solar, and wind power)
- The balance of energy supply is made up by electricity through the national grid and other means such as solar power in small quantities
- The Namibian market for electricity is small, with generation in 1997 being 0.8 TWh alongside net imports of 0.9 TWh

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – The Energy White Paper (EWP)

- EWP was accepted by the Parliament in 1998
- EWP is guiding the development of the Energy Sector and serving as a basic planning tool for the different energy sub-sectors
- EWP endorses the need to develop the Energy Sector faster through free market enterprises, as it is a basic requirement for industrial development in Namibia

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – The Electricity Act

- New Electricity Act was enacted in June 2000
- The *Electricity Control Board (ECB)* has been established based on the 2000 Electricity Law
- Establishment of a number of Regional Electricity Distribution (REDs) Units
- General feeling among the stakeholders is to allow the development of the ECB into a full-fledged *Energy Regulator* in the future to also include the regulation of the oil and gas sector

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – GRN Cabinet Decisions

- In 2000, the GRN Cabinet announced its intention to establish a single buyer (SB) to be the sole operator and administrator of the energy generation and trading market in Namibia
- GRN has made the decision that the SB should be located in NamPower
- Accountability for the design and implementation of the Single Buyer has been given to the Electricity Control Board and NamPower

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – GRN Cabinet Decisions *(cont'd)*

- Structuring the Single Buyer in this way is intended to help maintain the smooth operation of the small Namibian market and minimize its costs
- It does, however, require that the market include governance mechanisms that ensure the explicit impartiality of the Single Buyer
- The development of the single buyer market in Namibia is meant to be consistent with the future development of the SAPP

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

1. Policy Objectives and Decisions to Date – Goals of Electricity Market Restructuring

- The two major goals of electricity market restructuring in Namibia are:
  - to achieve a greater economic efficiency, and
  - to ensure that the risks are allocated to the parties that are best positioned to control or manage them

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – What is it?

- A typical Single Buyer (SB) is an independent entity or transmission utility mandated to purchase electricity from competing generators and resell to distribution utilities
- SB chooses from various generators (IPPs)
- Access to transmission is not permitted for sales to final customers
- SB has monopoly over transmission networks and over sales to final customers

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Why SB?

- SB is often believed to:
  - Be better able to balance the supply and demand of electricity, which must be done constantly
  - Avoid having to establish an institution for third party access to transmission
  - Maintain a role for the government in generation investment decisions

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model

- SB is often believed to: *(cont'd)*
  - Help maintain a single wholesale electricity price
  - Make it possible to shield generation projects from market risk and retail (distribution-level) regulatory risk
  - Appeal to the populist instincts of many politicians by keeping this function in the state hands

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Issues

- Decisions about adding generation capacity are made by governments through the granting of licenses, so potential bias in adding generation capacity may result
- If demand falls short of supply, wholesale prices do not fall
- During economic downturns, prices often rise due to take-or-pay contracts that must be spread over a shrinking volume of electricity purchases
- Political interference and corruption are potential problems

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model

- **Main ADVANTAGE:** it allows for direct inward investment by private investors, and allows for investment risks sharing. This can be particularly desirable where emerging economies are struggling to meet a number of competing social priorities from the public budget
- **Major DEFICIENCY:** **t**here is no real competitive market. Therefore, it is difficult to maintain economic efficiency

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Issues of Reforming Small Electricity Systems

Systemic constraints:

- ✓ Generation facilities are too small to be divided into several generating firms – the issue of whether the efficiency gains from competing small or sub-optimal units out-weighs diseconomies of scale and increased transaction costs of an unbundled system
- ✓ Attempts to limit the size of participants in the market can reduce the already limited number of potential investors and entry in the market

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Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Issues on Reforming Small Electricity Systems *(cont'd)*

Regulatory constraints:

- ✓ Lack of regulatory resources – embryonic functions at present times
- ✓ Lack of human resources to staff the regulators
- ✓ Lack of economic resources and shortage of regulatory experience and skills in addressing a wide array of regulatory functions
- ✓ Lack of credible dispute resolution and appeals procedures which are needed to reduce risks

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – What Might be Advisable to Reforming Small Electricity Systems?

- ‘Competition in the Market’ vs. ‘Competition for the Market or Contracts’. The first market model may be more desirable in the mid term
- Three approaches are possible under the ‘Competition for Market’ model:
  - Single Buyer – preferable to the traditional regulated vertically integrated utility model
  - Bilateral Contract Market – generators compete to sell electricity to unbundled distribution utilities. Transmission utilities administer the contracts, dispatch, and balance power. No retail competition

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – What Might be Advisable to Reforming Small Electricity Systems?

- ‘Competition in the Market’ vs. ‘Competition for the Market or Contracts’. Leave the first market model for the mid term
- There exist three ‘Competition for Market’ models:
  - Management Contracts
    - ✓ cheaper to implement and require less regulatory resources, but
    - ✓ Need creating appropriate incentives, negotiating terms of contracts, and defining performance standards

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Transitional Issues

- The purchasing agent (SB) should ideally be independent of the generation owners
- An Independent System Operator, which has overall responsibility for the management of the entire transmission system, is appropriate
- In economies where, as of yet, there are no reasonable accounting systems in the industry, proposing a more complicated model may not be an effective way to proceed

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Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

2. Move to a Single-Buyer Model – Transitional Issues *(cont'd)*

- Maintaining some flexibility for adjustments in the future to avoid market and ownership conditions that constrain future development of the reform process
- An evolutionary approach to reform can benefit from the following future developments:
  - ✓ Development of regional electricity markets – SAPP
  - ✓ Technological progress can reduce the optimal size of generation units
  - ✓ The size of market will grow at a manageable pace
  - ✓ Regulatory expertise will constantly evolve

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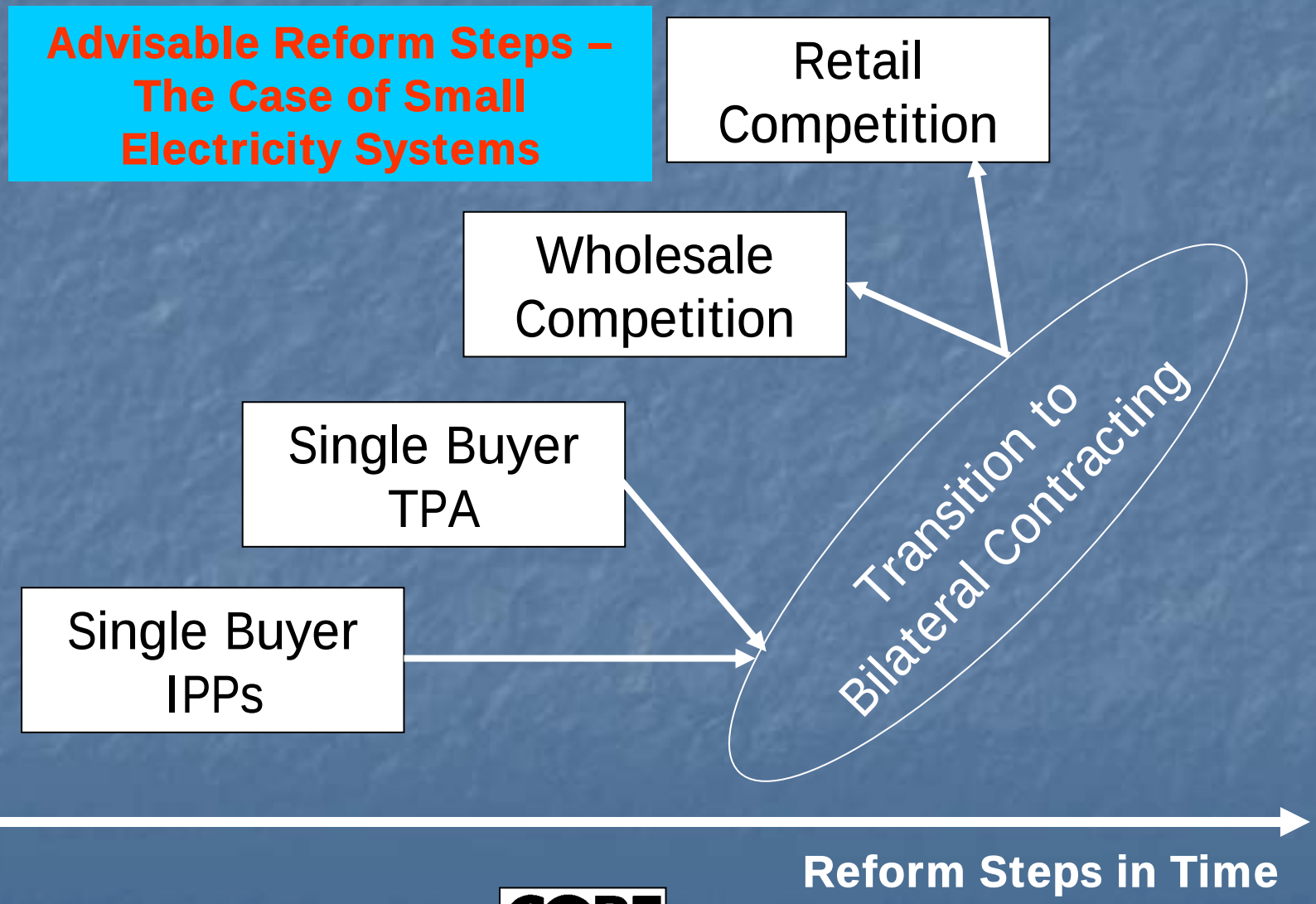
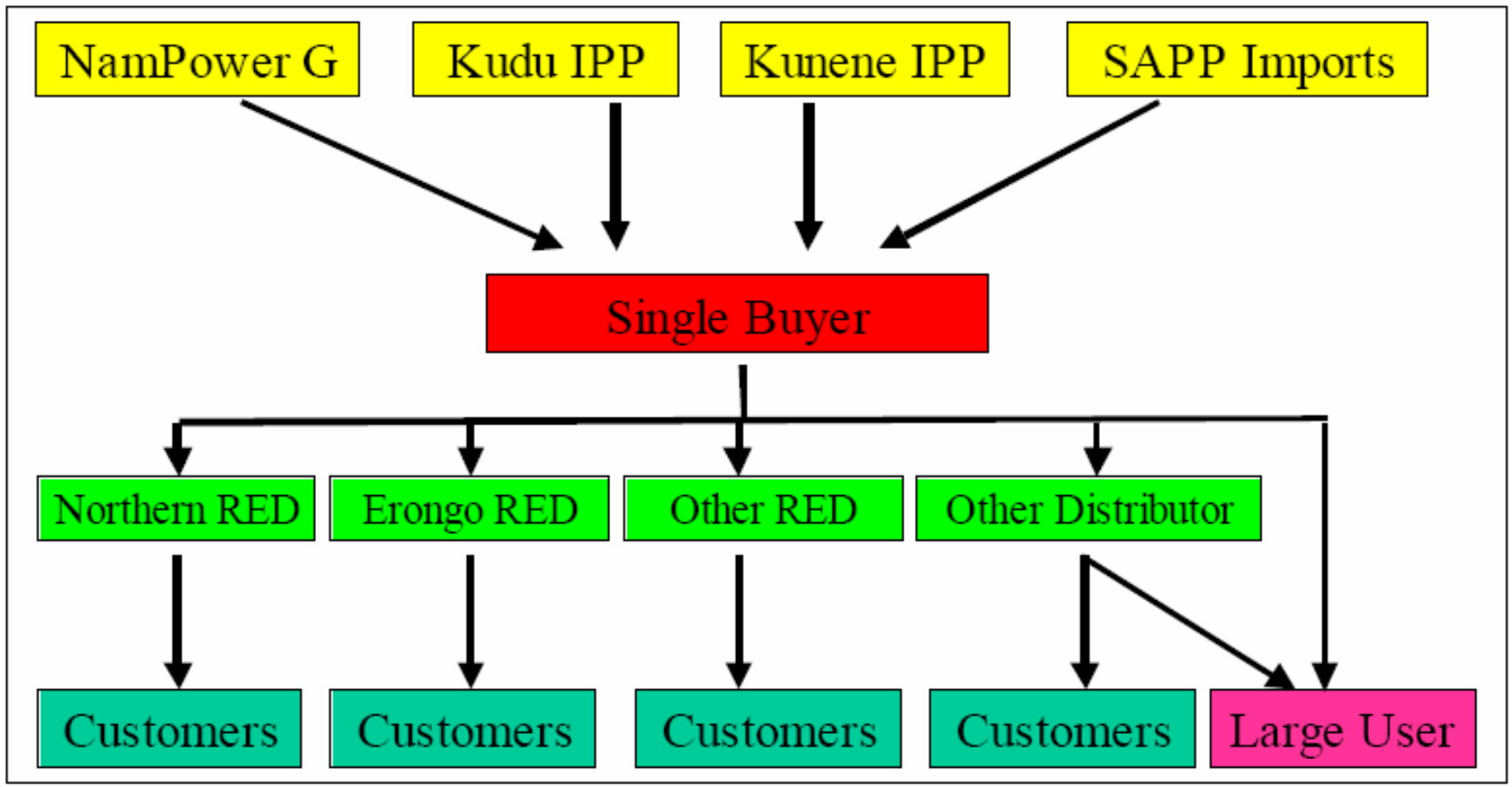
Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead



Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

3. Single-buyer Model Proposed by SAD-ELEC



Source: SAD-ELEC "Study of Restructuring of the Namibian Electricity Supply Industry - Phase 3: Public Presentation Document", 2000

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

3. Single-buyer Model Proposed by SAD-ELEC – Key Elements of the SAD-ELEC Proposal

- Single Buyer (SB) would be established inside NamPower as a business unit. Therefore, NamPower's Board is accountable for all business decisions by the SB
- SB would be the sole operator and administrator of the energy generation and trading market
- SB would have the overall accountability for energy demand and supply planning and for the energy security of supply
- All generators would sell their electricity to the SB

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

3. Single-buyer Model Proposed by SAD-ELEC – Key Elements of the SAD-ELEC Proposal (cont'd)

- SB would sell energy at the bulk level to the Transmission Supply Business which, in turn, would sell it to distributors and large users
- SB would be the only licensed importer or exporter of electricity
- NamPower's balance sheet would provide the guarantee for the Single Buyer's financial decisions and the associated risks

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Market Model Proposed by SAHA – SB Objectives

- Adequate supply
- Cost minimization
- Risk management
- Competition in Generation
- Transparency and neutrality
- Business performance

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Single Buyer Models Proposed by SAHA International

- SB to be a business unit of NamPower
- SB to be the sole operator and administrator of the energy generation and trading
- SB to optimise the balancing of electricity demand and supply at the least cost and with acceptable risk levels
- CEB to licence the SB (SAHA proposed the need for an amendment of the Electricity Act 2000)

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Single Buyer Models Proposed by SAHA International

- The SB will buy all the electricity that is fed into the Namibian transmission grid
- The SB may export Namibian generation and it may arrange to wheel electricity, through Namibia, from one country to another
- The SB may trade within the region as a member of the Southern African Power Pool (SAPP) or on the Southern African Short Term Energy Market (STEM)

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Single Buyer Models Proposed by SAHA International *(cont'd)*

- The development of the SB in Namibia will:
  - provide a co-ordinated approach to planning for future electricity expansion
  - provide a renewed emphasis to management of energy security of supply
  - provide certainty for investors and thus facilitate private sector participation in developing new generating sources; and
  - facilitate competition in electricity generation and wholesale supply

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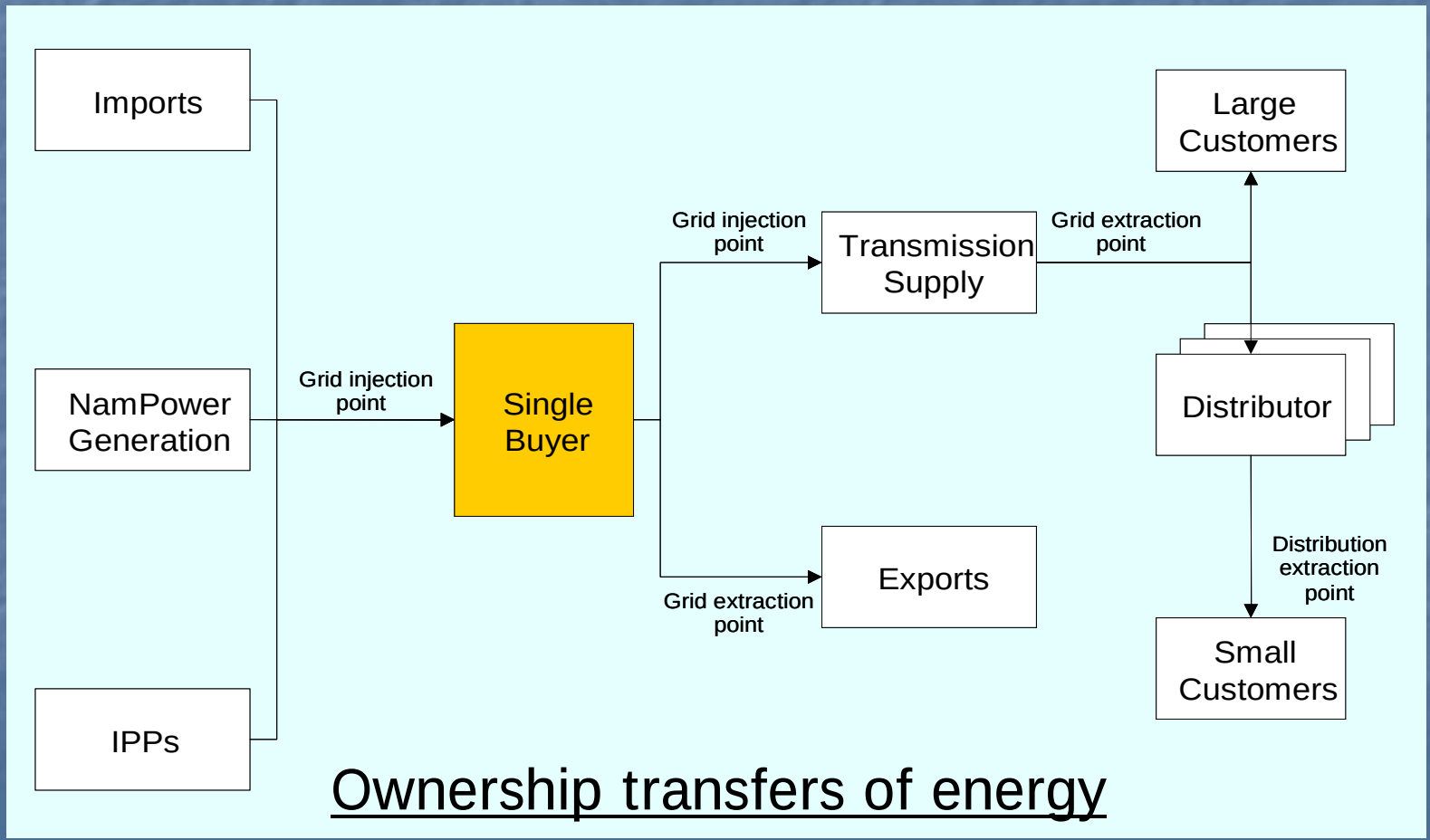
Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Single Buyer Models Proposed by SAHA International *(cont'd)*



Source: Single Buyer Energy Trading – SAHA International, May 2003

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Market Model Proposed by SAHA International

- Major differences between the SAHA model and the SAD-ELEC model are:
  - The overall market design and trading rules in the SAHA model are seen to be simpler and, therefore, less expensive
  - Governance arrangement and IPP entry framework have been modified in the SAHA model to give NamPower the full accountability for this process without ECB involvement
  - Provision is made for appeals by a unaffected party to the Minister of Mines and Energy

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Market Models Proposed by SAHA International – cont'd

- Major differences between of SAHA model and the SAD-ELEC model are: *(cont'd)*
- Risk management systems and framework are considerably more streamlined
- ECB has smaller and much more defined intervention powers. Therefore the prospects for conflicts between the NamPower Board and Single Buyer are considerably reduced
- Energy demand and supply planning is considerably simplified ***(IN SAHA's SIMPLIFIED VERSION)***

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Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

4. Market Models Proposed by SAHA – SB Functions

Process		Purpose
1	Market information	Disseminate information to market participants and to the public to maintain the effective operation of the market.
2	Scheduling	Identify generation and ancillary service requirements. Prepare generation schedules.
3	Contracting	Negotiate and arrange contracts for the purchase of energy and services. Negotiate and arrange contracts for the export of energy and services.
4	Settlement procedures	Prepare invoices and pay accounts.
5	Market administration	Arrange the entry and exit of market participants, coordinate appeal processes, coordinate rules development and changes.

Source: NamPower, Single Buyer and Energy Trading, 2003

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Cost Analysis of Various Electricity Market Options for Namibia

	Option Zero	Option One	Option Three	Option Four	Option Five	Option Six	Option Seven
	Status Quo	NamPower - Eng Trader & Planner	SAD-ELEC S.B. Model	SAHA S.B. Model	Simplified SAHA S.B. Model	Access to S.A. Market	Namibian MBMS
System Operator				Operating Costs Nam $(000s)			
Incident Management	200	200	200	200	200	200	800
Grid Management	5,600	5,600	5,600	5,600	5,600	6,000	6,400
Outage Coodination	200	200	200	200	200	400	800
Market Operations							
Pricing	-	-	800	400	400	1,200	2,000
Admin (inc.Market Rules)	-	-	1,200	800	-	1,200	1,200
Customer Switching	-	-	-	-	-	400	800
Reconciliation	-	-	400	400	400	400	800
Clearing and settlement	-	-	400	400	400	400	800
Energy Trading	800	800	800	800	800	800	800
Energy Planning	800	800	1,600	800	800	800	1,600
Procurement of Ancillary services	-	-	200	200	200	400	800
Market Compliance							
Surveliance	-	-	800	-	-	200	800
Enforcement	-	-	800	400	400	200	800
EGB Resources and Liaison	400	400	1,200	-	-	1,200	1,200
Software depreciation	400	400	1,400	600	400	2,000	2,000
Management of Balancing Account	-	-	400	400	-	-	-
Risk Management	400	400	800	400	400	400	1,600
External Auditing	-	-	800	400	-	-	-
	8,800	**8,800**	**17,600**	**12,000**	**10,200**	**16,200**	**23,200**

Source: SAHA International, ENERGY TRADING MARKET STRUCTURE & GOVERNANCE 19 November, 2003

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

5. New Investment in Power Generation – Basic Requirements for an Enabling Environment

- Political stability, minimum bureaucracy, minimum interference, minimum subsidy, acceptable legislation
- Open competition, efficient regulation, and efficient and functioning SAPP
- Reasonable returns on investments and convertibility of currencies and repatriation of returns
- Cost-reflective pricing and tariffs based on LRMC
- Effective privatization, which attracts capital, enhances quality and reliability, reduces costs, and creates creditworthy companies

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Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

5. New Investment in Power Generation – Common Barriers to Private Investment in Africa

- Insufficient and unclear policies and inadequate regulations that increase both the risk to private investors and the cost of doing business
- High contracting costs that can exceed 10% of the project cost in pioneering projects when the normal range for such costs is 3-5%
- Expensive financing terms due to high project risks and insufficiently defined project parameters

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

5. New Investment in Power Generation – Common Barriers to Private Investment in Africa *(cont'd)*

- Weak domestic capital markets that are unable to provide long-term financing
- Few sovereign developing country governments have solid credit-worthiness and the ability to provide guarantees, if needed
- Lack of local partners who have capital or suitable managerial skills

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

5. New Investment in Power Generation – A Challenge for Namibia

Namibia' Electricity Sources

Power Plant	Location	Plant Type	Energy Carrier	Capacity
Ruacana	Kunene River	Hydro	Water	240MW
Van Eck	Windhoek	Thermal	Coal	120MW
Paratus	Walvisbay	Thermal	Diesel	24MW
Katima Mulilo	Katima Mulilo	Thermal	Diesel	3MW
220KV	From South Africa	Interconnector	Power Lines	200MW
400KV	From South Africa	Interconnector	Power Lines	400MW
Off-Grid Technologies	Nationwide	Generators, Photovoltaics,etc.	Diesel, solar, wind etc.	2MW
PROPOSED				
Kudu	**Off the Oranjemund Coast**	**Thermal**	**Gas**	**350-750MW**
Lower Kunene	**Kunene River**	**Hydro**	**Water**	**300-500MW**
Wind Park	**Luderitz**	**Turbine**	**Wind**	**3-20MW**
Divundu	**Okavango River**	**Hydro**	**Water**	**20MW**

Source: *MME an information brochure for Rural Electrification in Namibia*

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

5. New Investment in Power Generation – A Challenge for Namibia *(cont'd)*

A short list of potential private projects includes:

- ✓ Kudu IPP Project
- ✓ Epupa Hydro-power Scheme
- ✓ Divundu Hydro-power Scheme
- ✓ 132 kV Line: Victoria Falls to Katima Mulilo
- ✓ Wind and Solar minigrids

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Policy Issues

- Sequence of reform regulation, restructuring, and eventual privatization
- Financing of electrification: roles of Government budget, electricity levy, donors, and private sector
- A lack of a clear understanding of the best institutional arrangements for furthering the electrification process?
- The role of the Regional Councils in the process?
- Clarification on the role of local authorities in the restructured industry

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Regulatory Issues

- Generation contracting
- TPA and transmission pricing
- Incentive regulation of distribution networks
- Electricity pricing and tariff principles
- Ensured sharing of any efficiency gain with the consumers in order to gain popular backing for and sustainability of the power sector reform process
- Ensured protection of low income consumers and extension of the services to the unserved

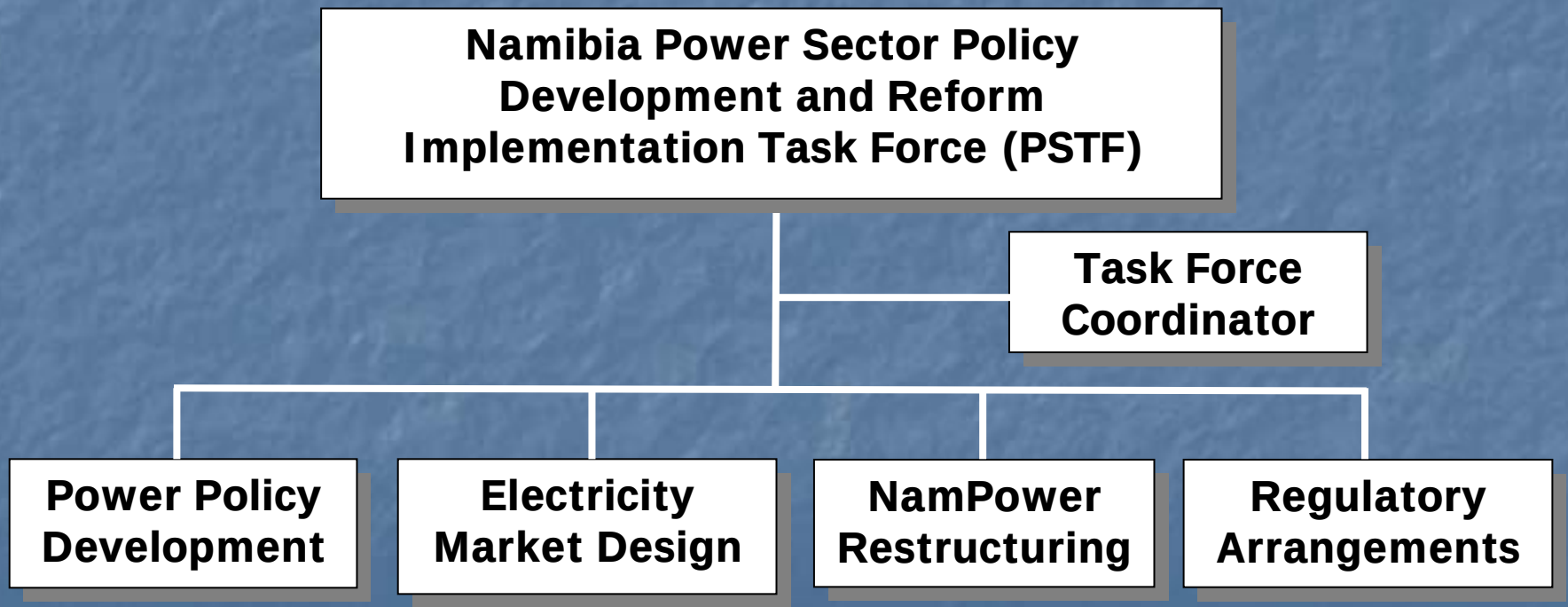
Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Institutional Arrangements for Policy Development and Reform Implementation

- Institutional arrangement - establishment of interagency High Level Task Force or working group
- Reform implementation arrangements to provide wide stakeholder participation
- Extensive public awareness campaigns to ensure public buy-in in the reform and restructuring process
- Donor community buy in and support of the process
- Private sector opinion and interest need to be drawn and considered in the process through adequate participation

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Institutional Arrangements for Policy Development and Reform Implementation – *A Model PSTF Structure*



Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Institutional Arrangements for Policy Development and Reform Implementation – *A Model PSTF Responsibilities*

- Electricity sector policy development and update
- Electricity market design suitable for Namibia
- NamPower restructuring and potential disaggregating
- Regulatory arrangements for reform policy implementation
- Assessment of overall economic and social impact – cost and benefits – of the proposed power sector reform and restructuring
- Public awareness campaign

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

6. Policy Implications and Required Decisions – Institutional Arrangements for Policy Development and Reform Implementation – *Need for Donor and Private Sector Participation in this Process*

- Identify potential donors/IFIs and make sure to involve them from the very beginning of the reform process
- Ensure private sector involvement in policy development and reform implementation
- Seek technical assistance from donors/IFIs to build sustainable capacity for policy and reform development and implementation

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Thank You !

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Workshop Modules

Module I: Power Sector Reform and Market Developments in the SADC Region

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Module IV: Attracting IPPs in an Emerging Market Environment

Module V: Arrangements for Attracting IPPs – The Case for Fast-Tracking the Kudu IPP

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Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Contents of Module III:

Market Reform Elements Essential for facilitating New Investment in Namibia and Trading Effectively in the Region

- The investment challenge and key policy choices
- Implications of regional market developments
- Market choices for Namibia
- Simplifying the single-buyer model
- Enabling framework for IPPs
- Possible next steps

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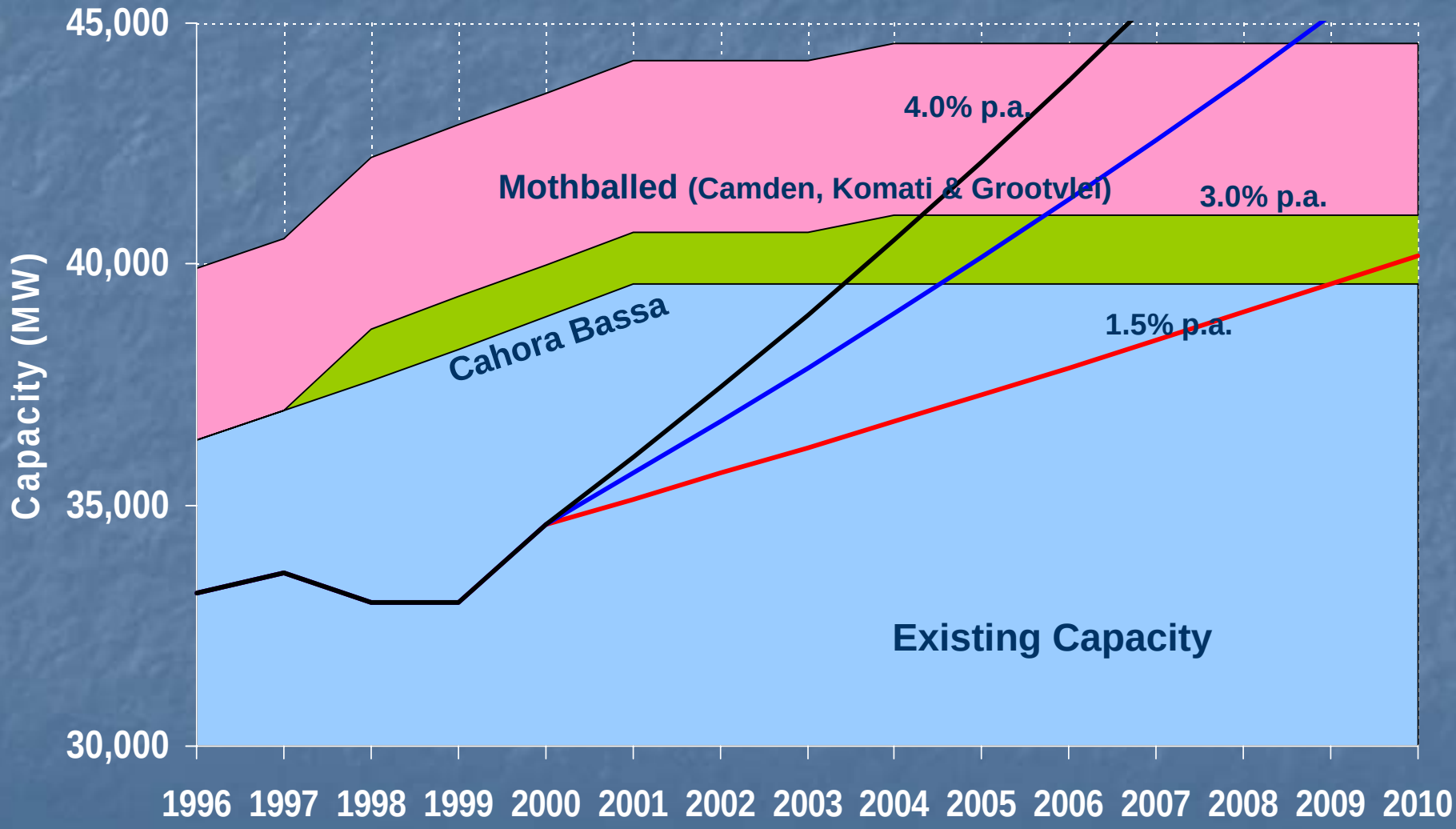
The investment challenge

- Namibia is dependent on power imports for the majority of its electricity needs
- Power outages and constraints on the transmission grid in South Africa have resulted in load shedding in Namibia
- South Africa will run out of excess generation capacity in 2006/7; new investment decisions will have to be made soon
- Namibia needs to ensure power supply security for the future
- Most likely new Namibian generation option is Kudu gas
- Economies of scale mean that a local CCGT investment will be larger than Namibian power market and will need to secure export contracts as well.

Supply & Demand of Electricity in South Africa (including Namibia)



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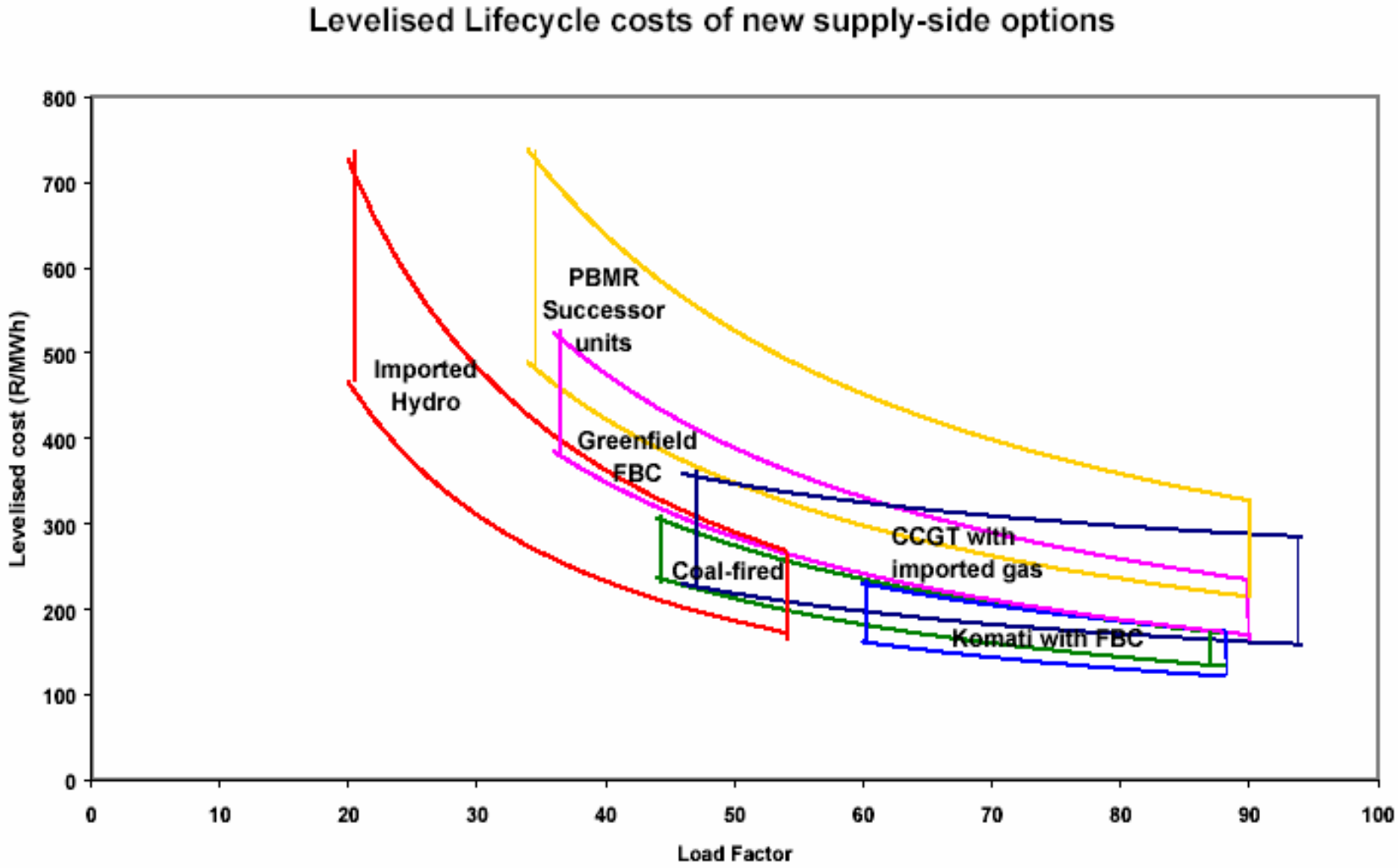

Figure 5: Lifetime levelised costs of new base load supply-side options

Possible supply plan

Table 2: Outlook 2001 to 2025 - Base Plan

	Return Mothballed Stations to service (Rate of 2 units/a)				Commission large Coal-fired Pulverised Fuel (PF) Stations (Rate of 1Unit/a)				Commission Gas-fired Plants (Rate of 1 Unit/a)		Commission Pumped Storage (PS) Stations (Rate of 3 Units/a)				Demand-side Options				
Year	Camden (PF)	Grootvlei (PF)	Komati Fluidised Bed Boilers (FBC)	Komati (PF)	PF (1)	PF (2)	PF (3)	PF (4)	Gas Combined Cycle (CCGT)	Simple Cycle Gas Turbine (GT)	PS (A)	PS (B)	PS (C)	PS (D)	Inter'tbl load (IL)	Indust & com energy eff'cy (ICEE)	Indust & com load man (ICLM)	Residen energy eff'cy (REE)	Residen load man (RLM)
Operating Mode	Peaking to mid-merit	Peaking to mid-merit	Base Load Operation	Peaking Operation	Base Load Operation	Base Load Operation	Base Load Operation	Base Load Operation	Mid-merit Operation	Peaking Operation	Peaking Operation	Peaking Operation	Peaking Operation	Peaking Operation	Decide	Decide	Decide	Decide	Decide
2001											EIA								
2002											Decide				552	95		36	49
2003	Decide											Decide				95	53	36	49
2004																95	53	36	49
2005		Decide														95	53	72	49
2006				Decide	EIA								EIA			127	53	72	49
2007	6X190MW		EIA		Decide					EIA						95	53	72	49
2008									EIA				Decide			95	53	72	49
2009		5X190MW	Decide			EIA				Decide						95	53	72	49
2010		& 1X180MW		5X90MW					Decide							95	53	72	49
2011						Decide	EIA			5X240MW	3X334MW					95	53	72	49
2012												3X334MW				32	53	36	49
2013			4X114MW		6X640MW		Decide							EIA		32		36	49
2014									1X750MW							32		36	49
2015								EIA						Decide		32		36	49
2016						6X640MW		Decide								32		36	49
2017													3X334MW			32		36	49
2018							6X640MW									32		36	49
2019																32		36	49
2020																32		36	49
2021																32		36	49
2022								4X640MW								32		36	49
2023																32		36	49
2024														2X334MW		32		36	49
2025																32		36	49
TOTAL (MW)	1520	1130	456	450	3840	3840	3840	2560	750	1200	1002	1002	1002	668	552	1429	535	1109	1182

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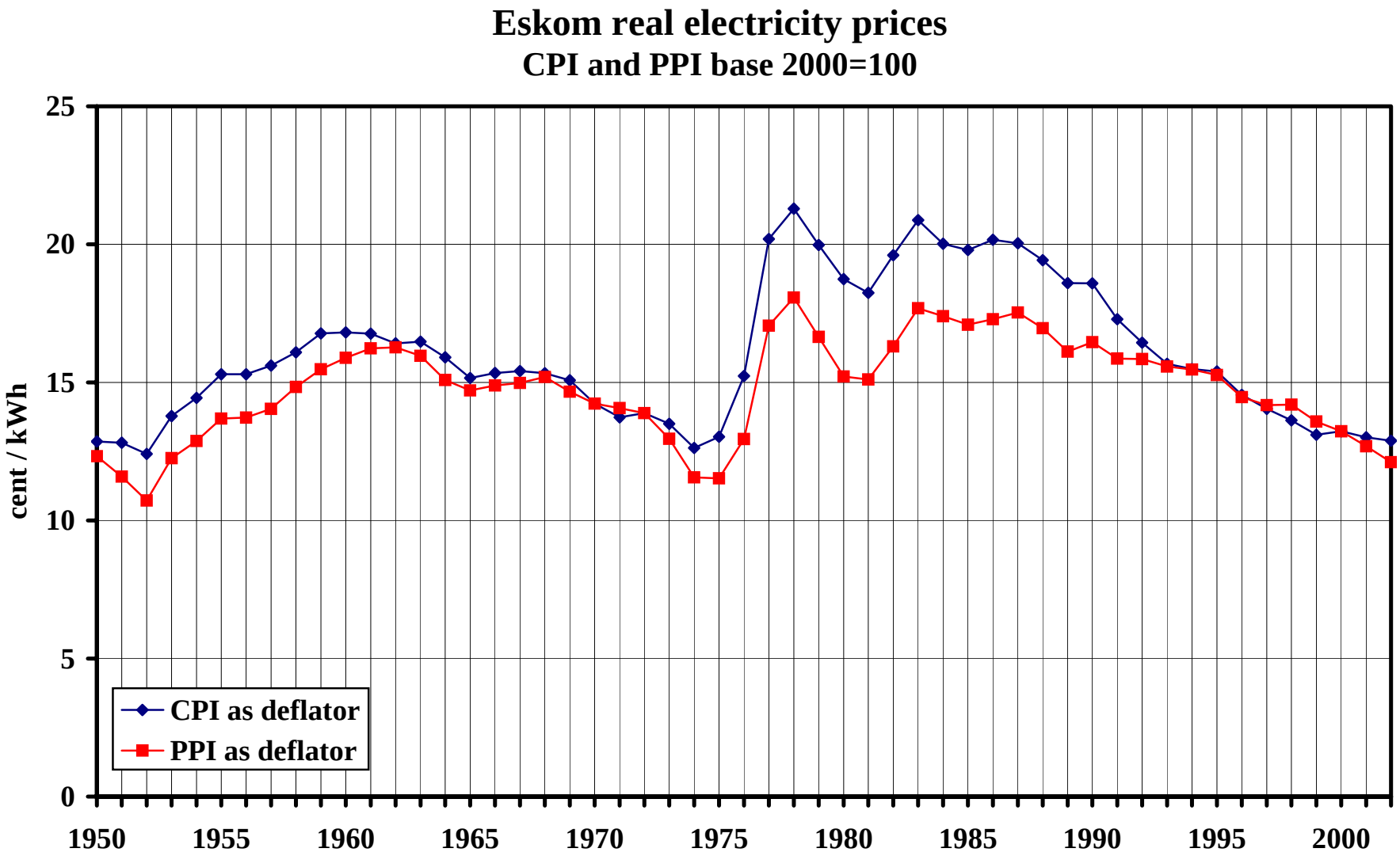
Effective electricity prices in South Africa since 1950

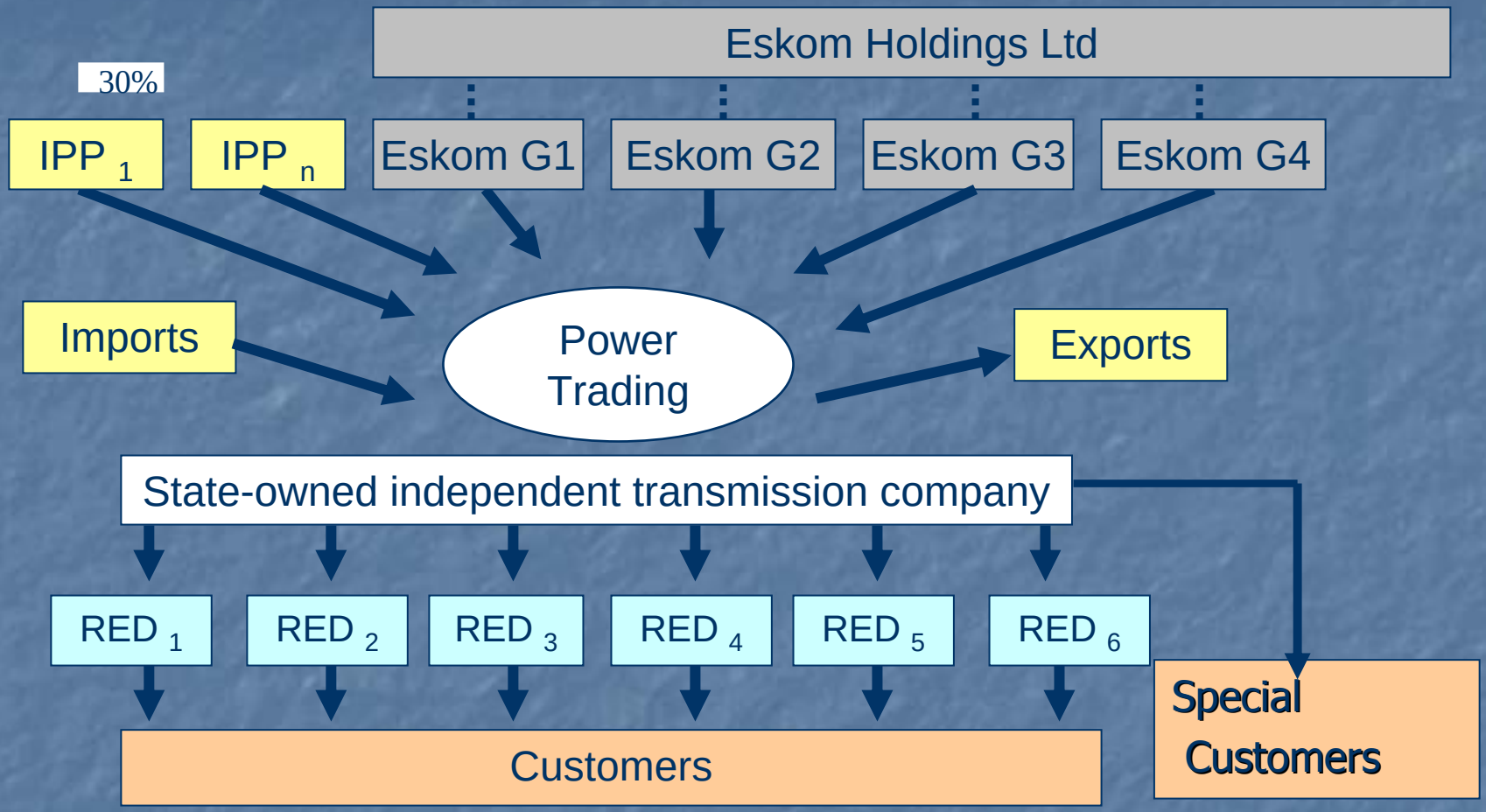


Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Key policy choices

- How does Namibia best achieve energy security at the lowest possible cost?
- Should Namibia increasingly rely on imports or should it promote local power investments?
- A treaty with South Africa on future power imports?
- If energy security imperatives dictate that local generation capacity should be increased, how does Namibia best secure new investments, as well as optimise electricity trading with the region?
- And what kind of electricity market will best facilitate the above?

Implications of market developments in South Africa

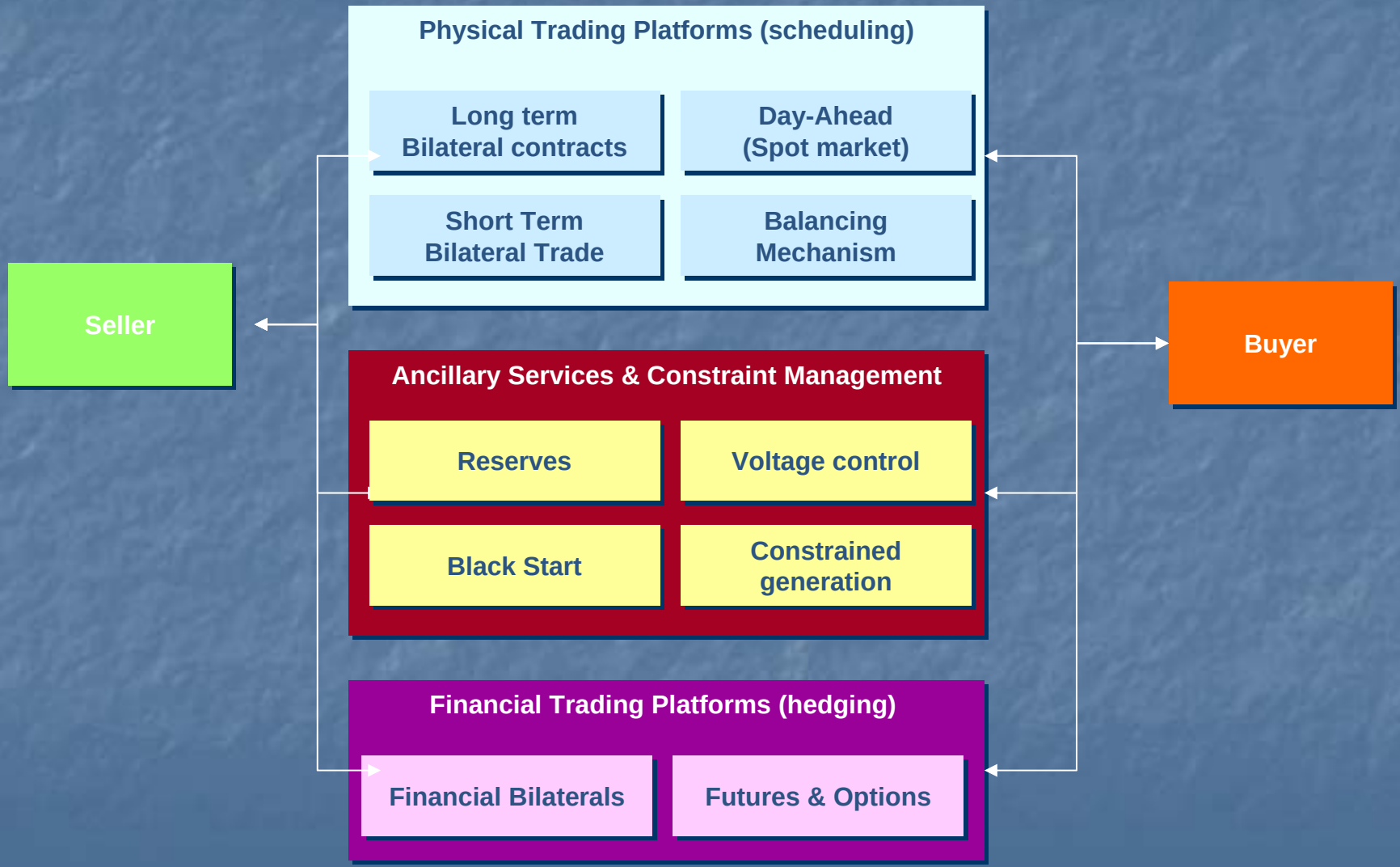


Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Latest reform timetable in South Africa

- Tender for new IPP - August 2004
- Appointment of new IPP – Sept 2004 - Dec 2005
- Eskom generation clusters into subsidiary companies - Sept 2005
- Privatisation of 15% of Eskom generation – Feb 2006
- Privatisation of 30% of Eskom generation – July 2007
- Transmission out of Eskom – Oct 2005
- SAPEX out of Eskom – March 2005
- New energy regulator 2004/5

Proposed electricity trading arrangements in South Africa



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Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Implications of SA market reform for Namibia

- Trade will not be limited to Eskom trader
- In principle, it will be possible for utilities or IPPs or large customers in the region to trade in the spot market or to enter into bi-lateral contracts with a range of power producers or large customers in SA
- Trade volumes could increase substantially
- Relationship between SAPP/STEM and SAPEX?

Implications of SAPP market developments

- Namibian access to increased SAPP and STEM trades constrained by Tx capacity
- Surplus capacity is rapidly disappearing
- New investments necessary in the region
- Western corridor

Namibia should urgently conclude a local IPP investment to meet local demand and should participate in the South African (and SAPP) market as an exporter

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Possible electricity market choices for Namibia

- Monopoly X
  - where will new investment, and new expertise in Gx, come from?
- IPPs and a single-buyer √ ?
  - possible
- IPPs and wholesale competition X ?
  - not possible in Namibia given limited market size and limited number of generators. Possible if part of regional market.
- Retail competition X
  - not possible in Namibia given limited choice, but possible for large customers if part of regional market.

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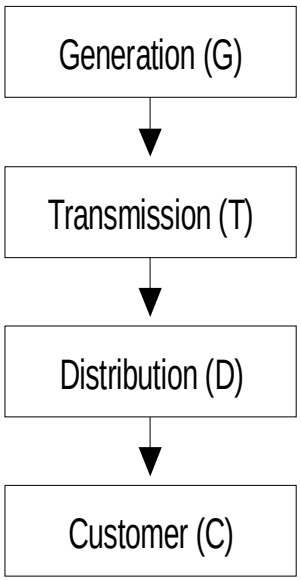
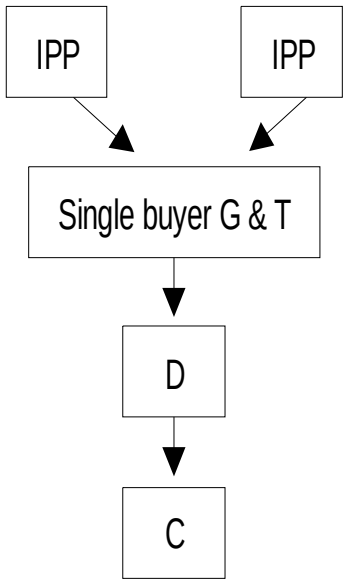
MODEL 1: NATURAL MONOPOLY

- Utilities are vertically integrated
- Generation, transmission and distribution are not subject to competition
- No-one has choice of supplier



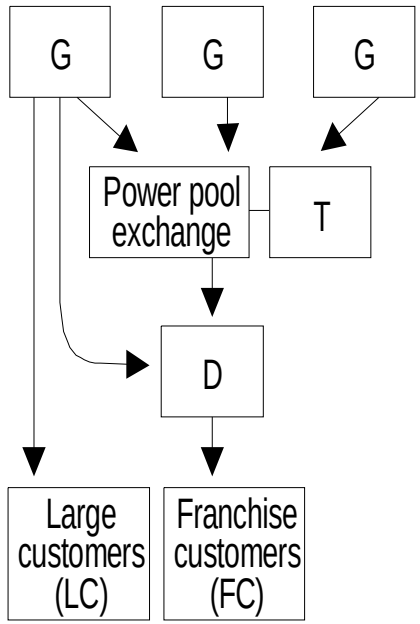
MODEL 2: SINGLE BUYER

- Single buyer chooses from various generators (IPPs)
- Access to transmission xxx not permitted for sales to final customers
- Single buyer has monopoly over transmission networks and over sales to final customer



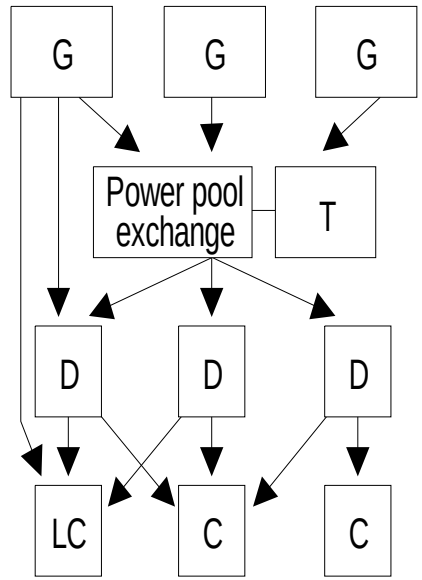
MODEL 3: WHOLESALE COMPETITION

- Distribution companies buy direct from generator (IPPs)
- Distribution companies have monopoly over final customers
- Open access to transmission wires
- Generators compete to supply power
- Power pool established to facilitate xΔ

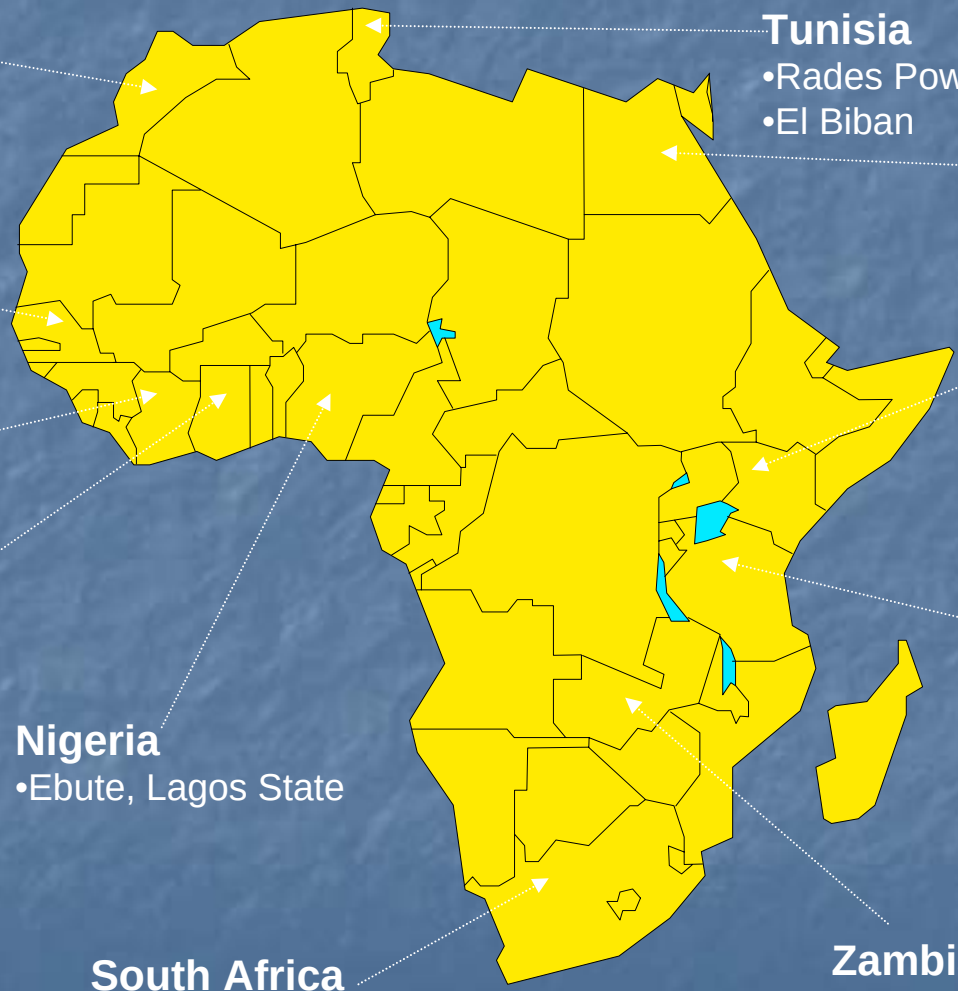


MODEL 4: RETAIL COMPETITION

- All customers have choice of supplier
- Open access to T & D wires
- Distribution is separate from retail activity
- Retail industry is competitive



IPP SB model increasingly adopted in Africa



Morocco
•Jorf Lasfar

Tunisia
•Rades Power Station
•El Biban

Egypt
•Sidi Krir
•Suez Canal
•East Port Said

Senegal
•GTI Dakar

Kenya
•Kipevu II
•Nairobi South Plant
•Olkaria III
•Mombasa Barge-Mounted

Cote d'Ivoire
•Azito
•Vridi

Ghana
•Takoradi II

Tanzania
•IPTL

Nigeria
•Ebute, Lagos State

Mauritius
•Belle Vue

South Africa
•Kelvin

Zambia
•Lusemfwa Hydro

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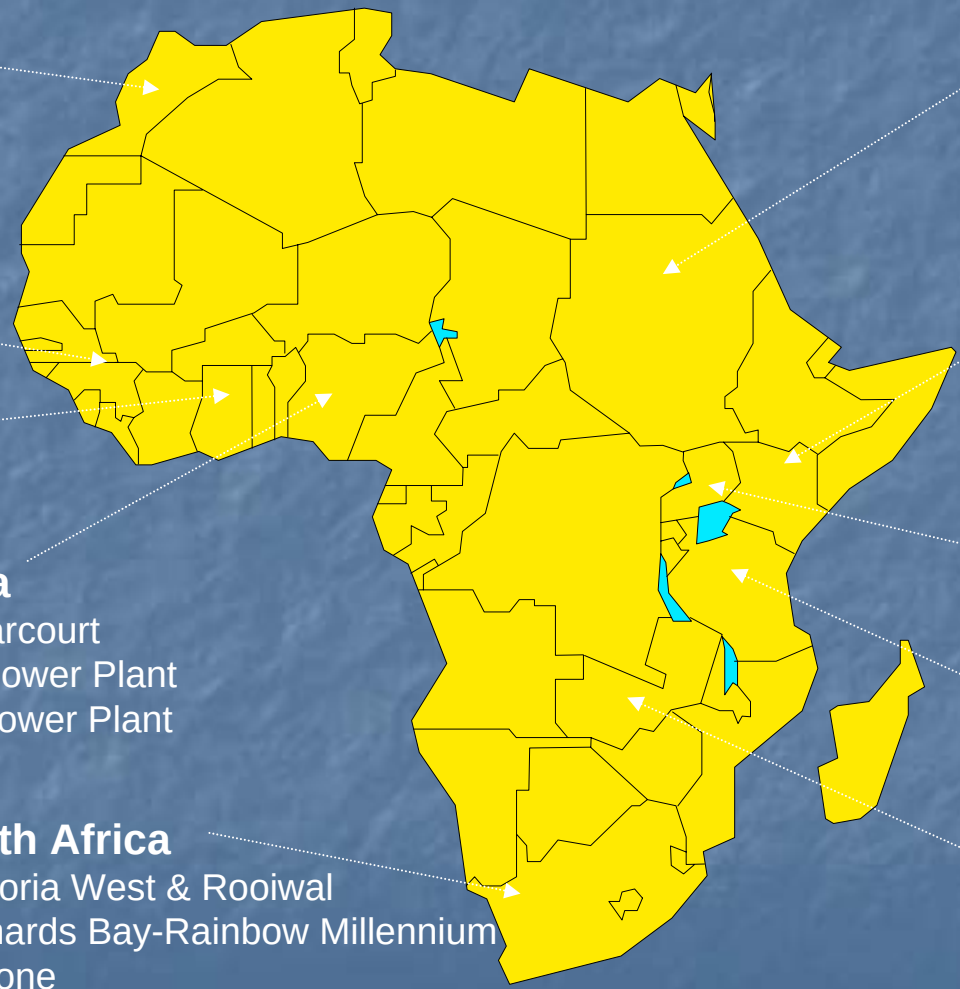
IPPs under development



Morocco
- Tahaddart CCGT

Guinea

Ghana
- Tema
- Takoradi III

Nigeria
- Port Harcourt
- Afam Power Plant
- Ibom Power Plant
- Kwale

South Africa
- Pretoria West & Rooiwal
- Richards Bay-Rainbow Millennium
- Athlone
- Mondi-Merebank

Sudan
- Khartoum North

Kenya
- Sondu Miriu
- Olkaria III
- Lanet & Eldoret

Uganda
- Bujugali

Tanzania
- Ubungo, Songo Songo

Zambia
- Itezhi-tezhi
- Kafue Gorge Lower

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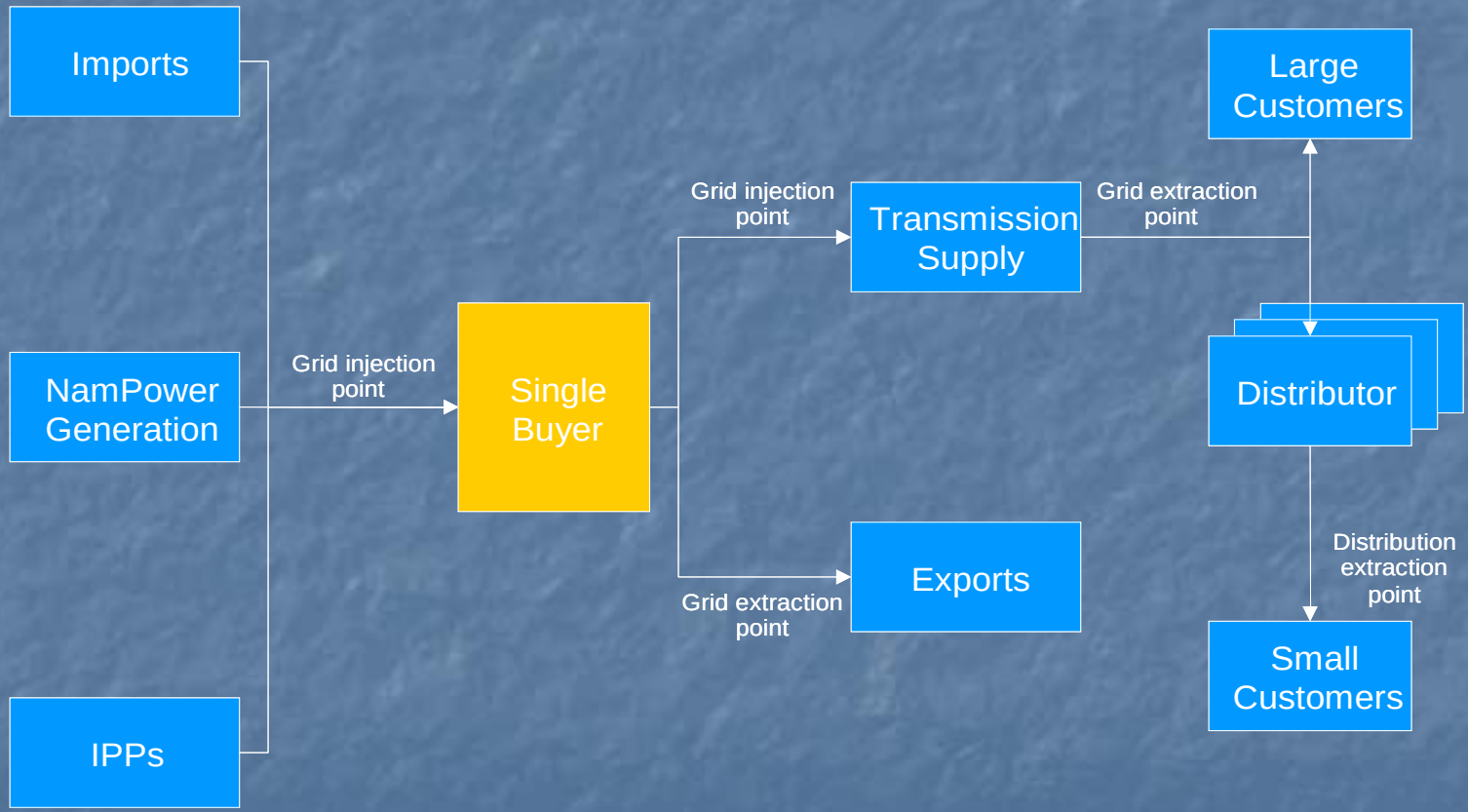
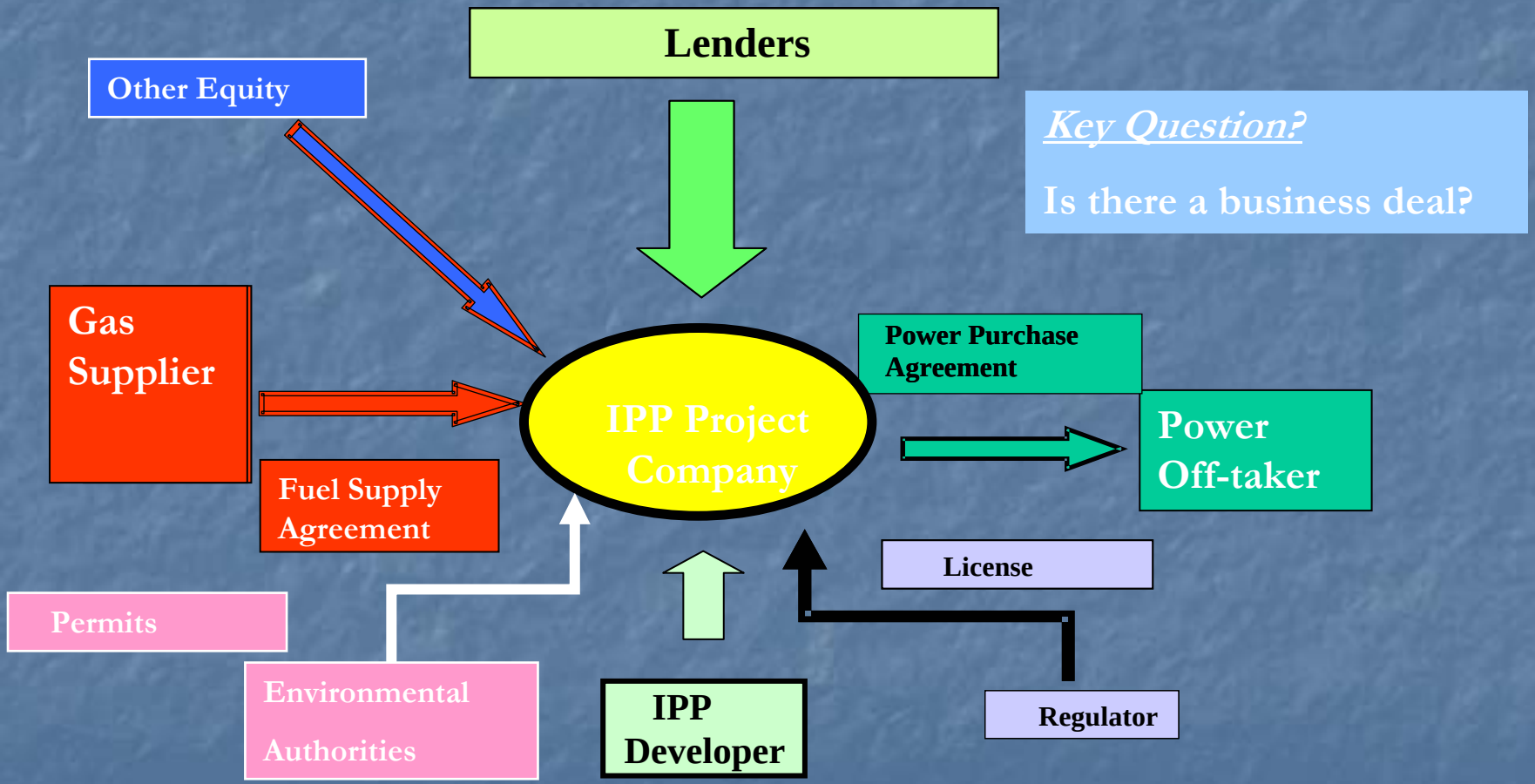
Single-buyer model has dominated Namibia policy discussions (1999-2004)



Sophisticated or simple model?

- How many new IPP projects are likely?
- A handful, or fewer? Options are limited
- Competition *for* the market is not likely
- Focus is on Kudu and how to make it happen
- Probably not necessary to construct a complex and rigid legislative, regulatory and institutional framework. Focus should be on securing investment and PPA contracts
- Kudu CCGT investment will also require contracts with South African market

Typical IPP business structure



Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Enabling framework for IPPs

- Non-discriminatory, open access to ring-fenced Tx must be entrenched in Tx licence
- Grid code
- Clear policy statement that Gov and Nampower Board encourages entry of IPPs, including policy document incorporating high-level principles that would shape PPA and other contracts with Nampower
- Ensure Electricity Act Amendments will facilitate, rather than inhibit IPP investment
- Clarification of Nampower's participation in IPP project development and investment
- Regulation by contract – certainty/fairness

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Need win-win solution between MME, ECB & Nampower

- Agree that new investment in generation capacity is now top priority
- Agree on most likely investment options
- Work together to fast-track IPP negotiations
- Complete work on ring-fencing of Nampower Tx, non-discriminatory access to Tx, grid-code, high-level policy statement on IPPs.

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Workshop Modules

Module I: Power Sector Reform and Market Developments in the SADC Region

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Module IV: Attracting IPPs in an Emerging Market Environment

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

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Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Contents of Module IV:

Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process?
2. Why Long Term Contracts with IPPs?
3. Minimal Prerequisites for Attracting IPPs
4. Methods of Contracting for Power Purchase – Power Purchase Agreements (PPA)
5. Competitive Contracting for Privately Generated Power
6. List of Documents to Close an IPP Deal

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Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – What are IPPs?

- IPPs are typically limited-liability, investor-owned enterprises that generate electricity
- IPPs sell electricity either:
  - ✓ In bulk to an electric utility, or
  - ✓ In retail to industrial or other customers

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – What are IPPs? *(cont'd)*

- Independent Power Projects (IPPs) are generating plants built and operated by firms independent of incumbent power utilities
- IPPs may be contracted by an existing utility to supply power across its network, or may compete with incumbents for contracts to supply final customers
- One common approach is for incumbent utilities to enter "build-own-operate" (BOO) or "build-operate-transfer" (BOT) contracts with IPPs

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Traditional IPPs Structure

- A stand-alone development corporation, owned principally by large international corporations
- 60-70 percent financed by debt
- Non-recourse debt financing, secured by a long-term, take-or-pay PPA
- A PPA with foreign exchange rate and/or inflation protection
- A government guarantee (covering convertibility, transfer, forex rate, and other risks)
- Political risk insurance (MIGA is one of the insurers)

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Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Designing an IPP

- Design of an IPP differs according to the ownership structure of the project
- Typical ownership structures for IPPs in the power sector include:
  - ✓ BOO (build, own, operate)
  - ✓ BOOT (build, own, operate, transfer)
  - ✓ BLT (build, lease, transfer)

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Designing an IPP *(cont'd)*

- A well-designed BOO or BOT, implemented through competitive tendering can lead to:
  - ✓ Reduced costs
  - ✓ Increased access to best-practice technology
  - ✓ Improved access to project finance via the international capital markets
  - ✓ Shifting of key risks – particularly construction risk – to the private sector

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process?

- Rather than beginning with privatization of the existing generators, many governments prefer to create an enabling environment for attracting IPPs
- There exists an inevitable tension between designing contracts to reduce uncertainty for the private investor and running the power system as efficiently as possible

Module IV: Attracting IPPs in an Emerging Market Environment

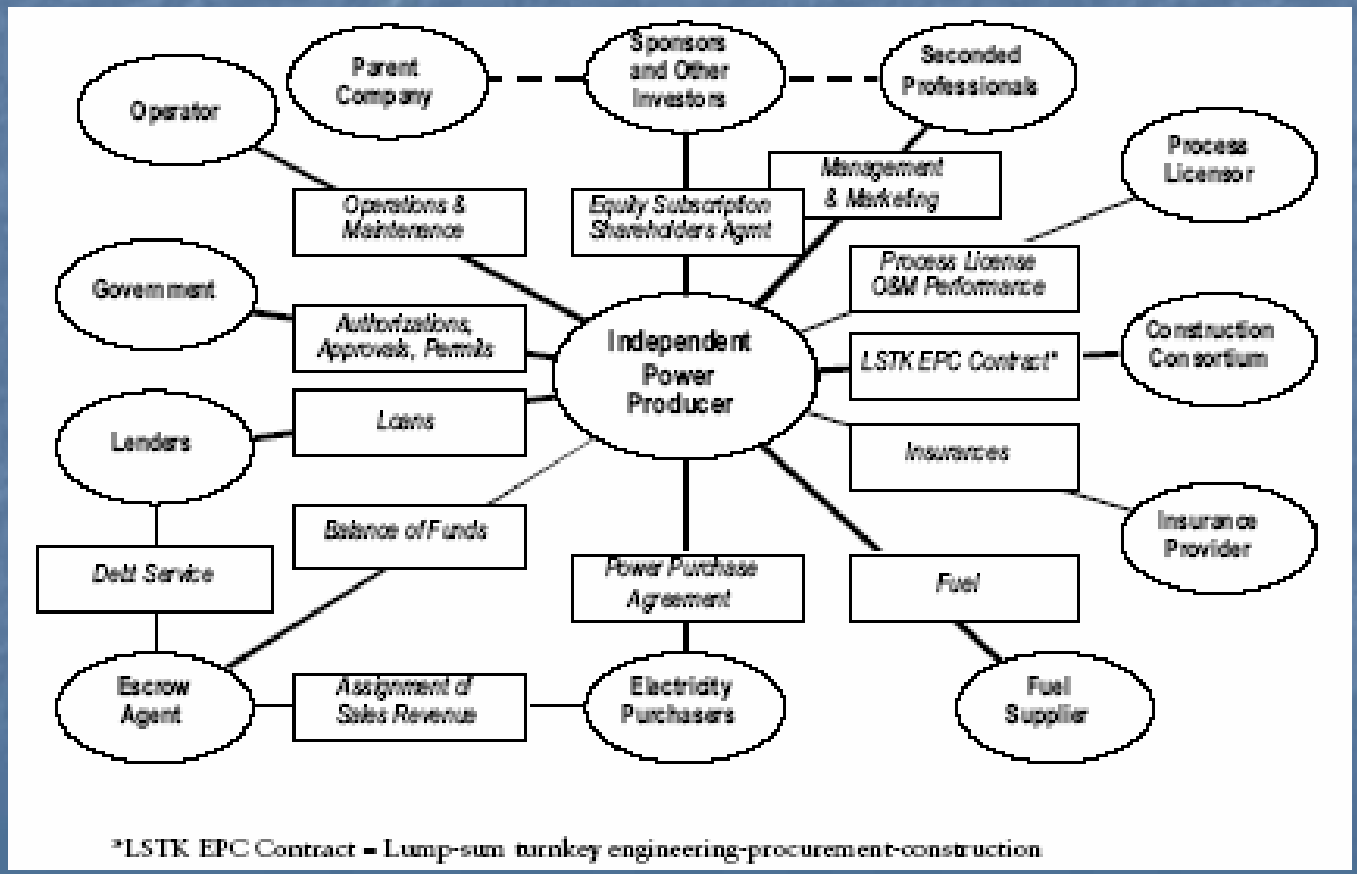
1. Why Design the Best Possible IPP Contracting Process?

- The characteristics of power purchase agreements (PPAs) are pivotal in resolving the tension. If the contract does not lead to competition, it should include performance incentives to ensure that the IPP remains an efficient bulk power supplier
- Contracts that provide only for guaranteed sales to reduce private investors' risk may reduce the competitive pressure

Final goal is competition!

Module IV: Attracting IPPs in an Emerging Market Environment

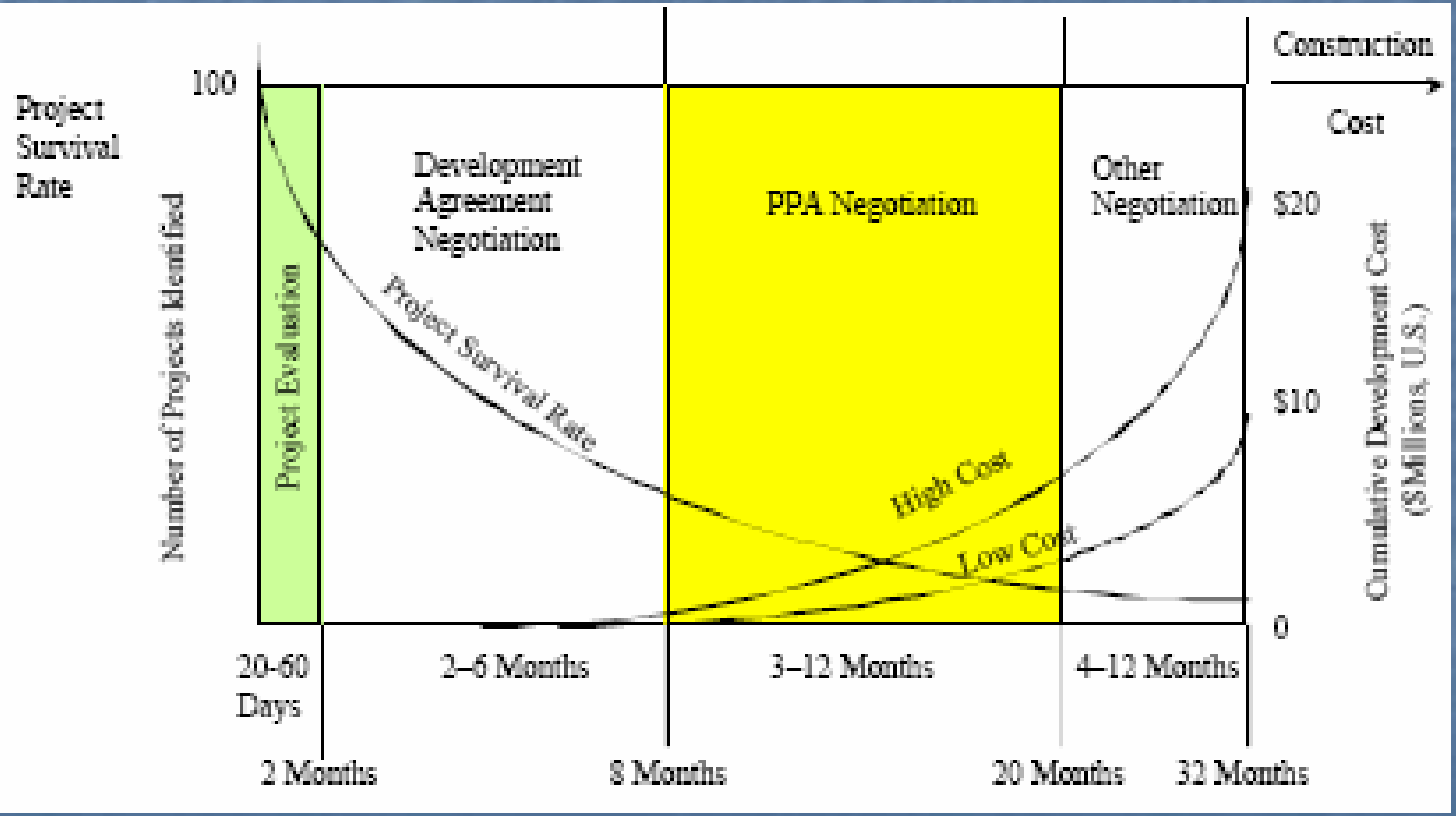
1. Why Design the Best Possible IPP Contracting Process? – Complexity of the Traditional IPP Process



Source: Robert Thomas Crow, 2001

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – IPP Development Phase



Source: Robert Thomas Crow, 2001

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – New IPP Approach in the Emerging Market Environment

- Merchant power is power sold on a spot market
- Risk shifted to the investor/developer and lenders
- Under this approach, IPPs and power purchaser do not sign long-term traditional PPAs
- Electricity market dictates the electricity price and quantity of electricity generated and delivered

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Elements of the New IPP Approach

- De-integrated transmission and distribution, financially viable distribution entities, and a well functioning and efficiently operated transmission system
- IPP developers large enough to be able to manage risk
- IPPs that sell power on a competitive spot market rather than through PPAs
- Workable commercial transactions system that eliminate the need for government commercial guarantees
- Solid macroeconomic and forex stability, along with fair and efficient financial and regulatory laws and institutions

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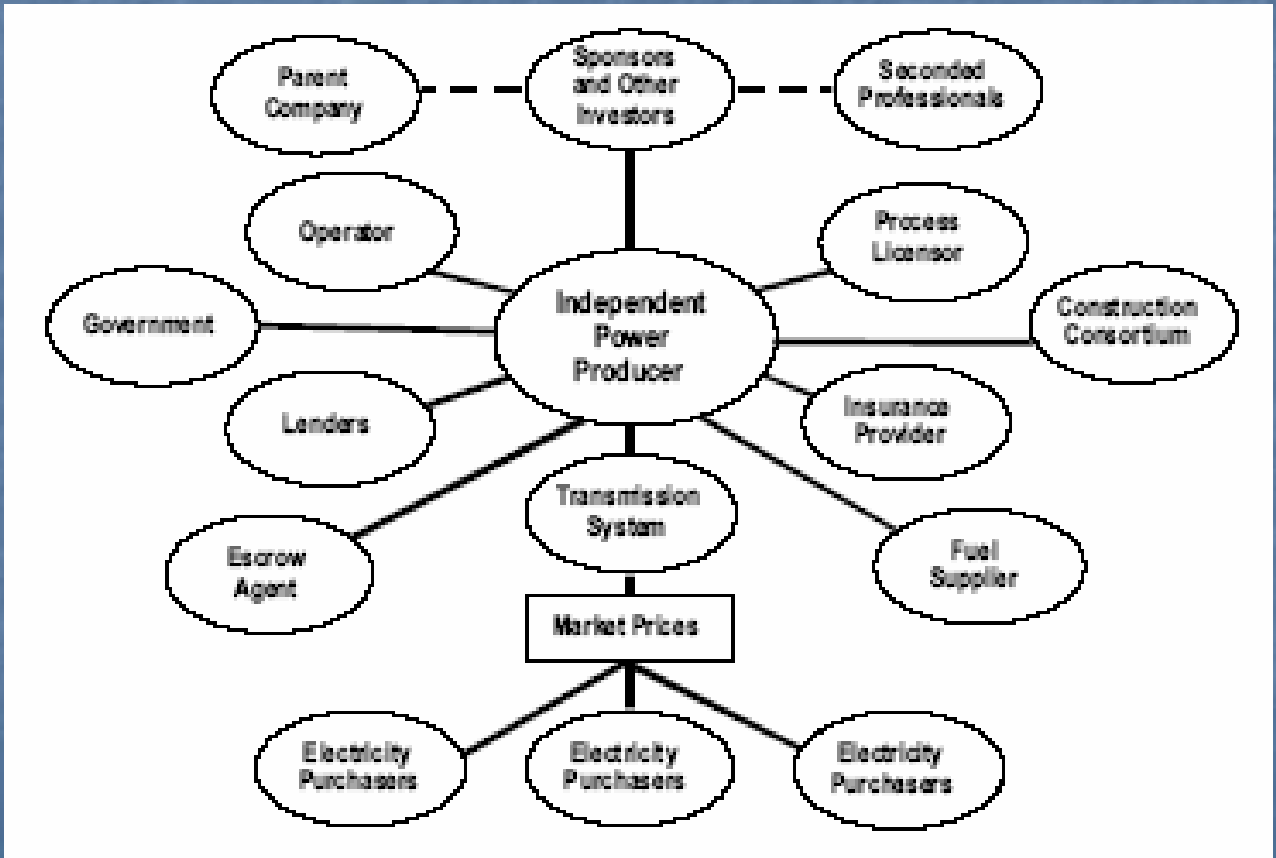
Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Merchant Power Market Structure



Source: Robert Thomas Crow, 2001

Module IV: Attracting IPPs in an Emerging Market Environment

1. Why Design the Best Possible IPP Contracting Process? – Summary: Traditional IPPs vs. Merchant Power Plants

Traditional IPPs	Merchant power plants
· Long-term PPAs	· No PPAs
· Predictable revenues	· Volatile revenues
· Stable fuel supply	· Possible stable fuel supply
· Isolated from competition	· Subjected to intense competition
· Fixed fuel-electricity spread	· Unpredictable operating margins

Module IV: Attracting IPPs in an Emerging Market Environment

2. Why Long Term Contracts With IPPs?

- In the case of developing countries that lack some of the minimum prerequisites for attracting IPPs, long-term contracts (PPAs) with IPPs are required both to:
  - ✓ encourage entry by potential investors, and
  - ✓ safeguard their interests
- PPAs themselves rest on the financial strength of the underlying purchasers, generally the local transmission and distribution companies

Module IV: Attracting IPPs in an Emerging Market Environment

2. Why Long Term Contracts With IPPs?

- Because it is difficult to write legal clauses that cover uncertainties about future market conditions, PPAs cannot be fully contingent, so inefficiencies may arise in system operation a few years after starting an IPP

Which contract will satisfy all parties involved?

What a signing ceremony, huh!

Module IV: Attracting IPPs in an Emerging Market Environment

3. Minimal Prerequisites for Attracting IPPs – Key Criteria

Key criteria of whether a market will be attractive to private investors are:

- ✓ There is a clear demand for additional capacity, e.g. the Government has a plan for the required private investment in the electricity industry and associated industries (e.g. fuel delivery) – case of the Kudu IPP
- ✓ The Government and ECB have demonstrated stable and predictable performance over two to three years

Module IV: Attracting IPPs in an Emerging Market Environment

3. Minimal Prerequisites for Attracting IPPs – Key Criteria *(cont'd)*

- ✓ Powers to change market conditions are reasonable and balanced, with efficient arbitration methods for resolving disputes
- ✓ Generation projects using new technology or an alternative fuel have significant cost advantages over existing plants
- ✓ New plants are needed to run as baseload to meet demand

Module IV: Attracting IPPs in an Emerging Market Environment

3. Minimal Prerequisites for Attracting IPPs – Key Criteria *(cont'd)*

- ✓ As a general rule it should be understood that investors do not seek competition for their investment and will prioritize markets where competition is the least, provided access can be achieved
- ✓ The final criterion is therefore that any competition that is forecast is seen to be small or manageable by the investor

Module IV: Attracting IPPs in an Emerging Market Environment

3. Minimal Prerequisites for Attracting IPPs

- A fully developed regulatory framework does not have to be in place for IPPs to succeed
- A proper enabling environment, which includes the following features, should be in place:
  - A legal regime that:
    - ✓ allows for an enforceable contract, including mechanisms to resolve disputes smoothly
    - ✓ provides for private sector ownership of power generation assets
    - ✓ empowers a state-owned utility to enter into power purchase agreements with IPPs, and
    - ✓ offers assurances of ownership rights to the stream of revenues.

Module IV: Attracting IPPs in an Emerging Market Environment

3. Minimal Prerequisites for Attracting IPPs

- A proper enabling environment, which includes the following features, should be in place: *(cont'd)*
  - A satisfactory track record of adequate tariffs
  - Legal policies that encourage local as well as foreign private investment
  - Clearly defined and delineated roles and responsibilities for inter-ministerial coordination with respect to permits, clearances, and approvals
  - Well-articulated tax laws, import duties, and incentives applicable to both local state-owned power utilities and IPPs

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs

- Most PPAs or power sales contracts are:
  - ✓ long-term - fifteen years or more
  - ✓ full output contracts
- PPAs, over the last ten years have grown from twenty pages in length to over two hundred pages

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

- Pricing terms are the most important. Typically, electricity prices are:
  - either on a rolled-in energy basis (x/kWh), or
  - two-part (y/kWh + z/kW)
- In either case, there may be performance standards (unit availability) tied to rewards or penalties
- Best practice is to have a two-part contract where the price components reflect the underlying fixed and variable costs of the technology being purchased

Appropriate pricing is crucial !

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

- Generally, there are three principal dimensions to power purchase/sales agreements (PPA):
  - A. the selling prices for power,
  - B. the amount of power sold, and
  - C. incentives to improve performance and disincentives to ensure that performance does not fall below a basic standard

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

A. PPA agreements are generally based on a two-part pricing structure:

- ✓ Payments for capacity, usually related to the capacity declared available, rather than to the actual capacity run
- ✓ Payments for power

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

B. There are substantial differences in the way PPAs deal with quantities – ranging between these two extremes:

- "Must-run" or "take-or-pay" on the plant's entire output (free of demand risk), which:
  - ✓ is most attractive to IPPs and their financiers, but
  - ✓ the less competitive pressure is implied to other generators
- Competitive dispatch, where energy price is paid only for the energy dispatched

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

- Thus, choice of PPA structure must take into account the following two, sometimes conflicting, reform objectives:
  - Attracting private finance
  - Improving sector efficiency

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Incentives and disincentives

- PPAs tend to set a target level for availability (*say, 80 percent*) over the year, plus a bonus zone above this availability and a penalty zone below it
- A target well below the feasible availability under good operating practices reduces the financing risk of the IPP and thus the incentive for efficiency

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Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Incentives and disincentives *(cont'd)*

- The IPP that is the lowest-cost generator should be used as much as possible
- A bonus payment for availability above the target can be used as an incentive for higher production
- If the price for capacity allows an IPP to earn an economic return on capital at a capacity utilization below the target, penalties are needed to ensure that the IPP remains efficient

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Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

- The contractual arrangements for determining how much power is sold can vary greatly. Major forms of arrangements can be grouped as follows:

  A. Must-run or take-or-pay contracts

  B. Economic dispatch

  C. Generator trading

  D. Competitive pool

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Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

A. Must-run or take-or-pay contracts

- ***The least risky form of contract*** for IPPs, which guarantees the sale of a stipulated amount of power for the life of the contract
- ***The problem*** with this type of PPAs is the issue of no economic dispatch for the plant. The purchaser must pay for any contracted output that it does not take from the IPP

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

A. Must-run or take-or-pay contracts *(cont'd)*

- This arrangement has three separate effects on the performance of the power sector

  First, there is *no competitive pressure* for the IPP to lower costs, so that efficient operation depends *solely on the profit motive*

  Second, dispatch can occur out of merit order, leading to the loss of a system's productive efficiency

  Third, the lack of competition for market share between the IPP and other generators means that the IPP poses no threat to other generators because it has no spare capacity to capture their market share

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

B. Economic Dispatch – In this type of PPAs:

- Capacity price is again related to availability, and the energy price is paid only for the energy dispatched
- The IPP can declare its available capacity and thus can cover its capital costs, but it is not guaranteed energy sales

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

B. Economic Dispatch – In this type of PPAs: *(cont'd)*

- Plants are dispatched according to their economic ranking, which is the main benefit of the arrangement, but it requires the existence of an independent entity to determine dispatch – TRANSCO
- Generators cannot bid market prices, but instead offer cost-based prices determined at the outset of contracts. Therefore, there is no way for IPPs or for other generators to increase market share through price competition

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

B. Economic Dispatch – In this type of PPAs: *(cont'd)*

- Energy prices are linked to a cost index, however, do not allow cost savings to be passed on to consumers or reflected in the prices that influence dispatch decisions
- The use of bonuses and penalties for capacity availability can lead to some competitive pressure between plants
- If the IPP tries to increase its market share by bidding a higher availability (under the incentive of a bonus payment), other generators may lose market share and respond by trying to reduce their capacity costs so as to improve their availability

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

B. Economic Dispatch – In this type of PPAs: *(cont'd)*

Conclusion: Contracts that guarantee a "minimum-take" below normal capacity availability combine aspects of the must-run contract with those of an economic dispatch contract

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Generator Trading

- Another step to improve efficiency is to allow generators to trade in a market based on economic dispatch
- The contract prices for energy are predetermined for all generators, but the generators bid availability for the next period (typically the next day)

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Generator Trading *(cont'd)*

- The dispatch agency (or power purchaser) determines least-cost dispatch on the basis of the contract prices and announces the schedule
- Generators can then trade energy among themselves, buying from lower-cost generators not fully committed in dispatch to meet some of their contractual commitments

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Generator Trading *(cont'd)*

- In this case, opportunities for trade emerge when actual costs for energy are below the contract prices. The power purchaser is informed of such trades and adjusts the dispatch schedule while paying in accord with the original schedule
- This system:
  - ✓ lowers the total costs of generation, but
  - ✓ these benefits are not passed on to consumers, because generator prices are tied to the cost index

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Competitive Pool

- Here, ***prices for energy are bid rather than set tied to costs by a formula,*** which allows prices to be lowered when there is real competition
- Generators bid their:
  - ✓ capacity availability, and
  - ✓ offered energy price

Module IV: Attracting IPPs in an Emerging Market Environment

4. Methods of Contracting for Power Purchase – PPAs *(cont'd)*

C. Competitive Pool *(cont'd)*

- The pool operator then determines economic dispatch and pays for:
  - ✓ Energy on the basis of marginal bid prices
  - ✓ Capacity on the basis of declared availability and a formula that gives signals for long-term investment
- In principle, this system can produce lower consumer prices. But experience suggests that there are many problems associated with setting up and running such a pool

Module IV: Attracting IPPs in an Emerging Market Environment

5. Competitive Contracting for Privately Generated Power – Bids vs. Negotiation

- Competitive bidding, in principle at least, is fairer and more efficient
- The basic premise of bidding is that the power purchaser knows how much power it needs and is capable of evaluating complex bids
- Competitive bidding is, in principle, less vulnerable to corruption

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Module IV: Attracting IPPs in an Emerging Market Environment

5. Competitive Contracting for Privately Generated Power – Bids vs. Negotiation *(cont'd)*

- In direct negotiations, the would-be developers of the IPP approach the power purchaser with a proposition to build a plant and deliver power at a specified price
- The developers and the power purchaser then enter negotiations on specific terms and conditions
- Disadvantages of direct negotiation include (i) uncertainty of receiving competitive-equivalent terms from the IPP, and (ii) suspicions of corruption in the negotiation process

Module IV: Attracting IPPs in an Emerging Market Environment

5. Competitive Contracting for Privately Generated Power – Major Issues

- Complexity of bid requests - purchaser needs to know exactly what it wants with respect to plant's location, capacity, fuel, other physical parameters, as well as financial terms it will accept
- Transparency may be more apparent than real
- Bid preparation is expensive and risky for the bidders (large international developers go after large IPPs solicitations with higher potential for wining the bid)
- Negotiations can be faster

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal

- **Financing Documents**
  - ✓ Credit agreement
  - ✓ Promissory notes
  - ✓ Interest rate protection

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Project Documents**
  - ✓ Power purchase agreement
  - ✓ Engineering procurement and construction contract
  - ✓ Completion guarantees, performance bonds, etc.
  - ✓ Operations and maintenance contract
  - ✓ Fuel supply agreement
  - ✓ Fuel transportation agreement
  - ✓ Wheeling/transmission agreement
  - ✓ Water supply agreement
  - ✓ Site lease or instrument of deed transfer

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Insurances**
  - ✓ Political risk insurance contract
  - ✓ Commercial insurance contract
  - ✓ Certifications of recognized broker

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Security Documents**
  - ✓ Assignment and security agreements between the various project parties and the lenders
  - ✓ Uniform commercial code filings
  - ✓ Trust agreements
  - ✓ Consent and assignments of all major project documents

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Corporate Documents**
  - ✓ Certified copies of all agreements
  - ✓ Certification of representations and warranties of all project parties
  - ✓ Certified financial statements for all project parties
  - ✓ Certificates of incorporation and good standing
  - ✓ Certified Bylaws and corporate authority for all project parties

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Approvals and Licenses**
  - ✓ Land use
  - ✓ Operating license
  - ✓ Construction permit
  - ✓ Import license
  - ✓ Environmental permit

Module IV: Attracting IPPs in an Emerging Market Environment

6. List of Docs to Close an IPP Deal *(cont'd)*

- **Legal Opinions**
  - ✓ Legal opinions from local counsel and project counsel (numerous)
- **Other**
  - ✓ Approved feasibility study
  - ✓ Construction budget and payment schedule
  - ✓ Final base case projection
  - ✓ Engineer's report
  - ✓ Environmental report

Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Workshop Modules

Module I: Power Sector Reform and Market Developments in the SADC Region

Module II: Energy and Electricity Reform Policy in Namibia – Challenges Ahead

Module III: Market Reform Elements Essential for Facilitating New Investment in Namibia and Trading Effectively in the Region

Module IV: Attracting IPPs in an Emerging Market Environment

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

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Workshop on Enhancing the Environment for IPPs in the Reforming Namibia Power Sector

Contents of Module V:

Attracting IPPs on a Fast-Track Basis

1. Demand for electricity
2. IPP contractual framework
3. Streamlined institutional arrangements
4. Improved IPP Regulatory Framework
5. Roles for MME, ECB, and Nampower
6. Conclusions and Recommendations

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

1. Demand for electricity

- Who will purchase all this electricity?
- Total electricity consumption in Namibia will take about 20-25% of Kudu output
  - Who takes the rest?
  - On what terms?

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Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

2. IPP contractual framework

- IPPs are financed and constructed through the use of a series of linked agreements ("Back-to-back" contracts)
- Risk is allocated among various parties according to who can bear it best
- Degree of recourse (to assets or balance sheet) depends on strength of project and experience of parties

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

2. IPP contractual framework (continued)

- Fuel supply agreement and offtake purchase agreement must be matched quantitatively
- EPC contract is usually separate from FSA and PPA
- Both the FSA and PPA seek to allocate risks

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

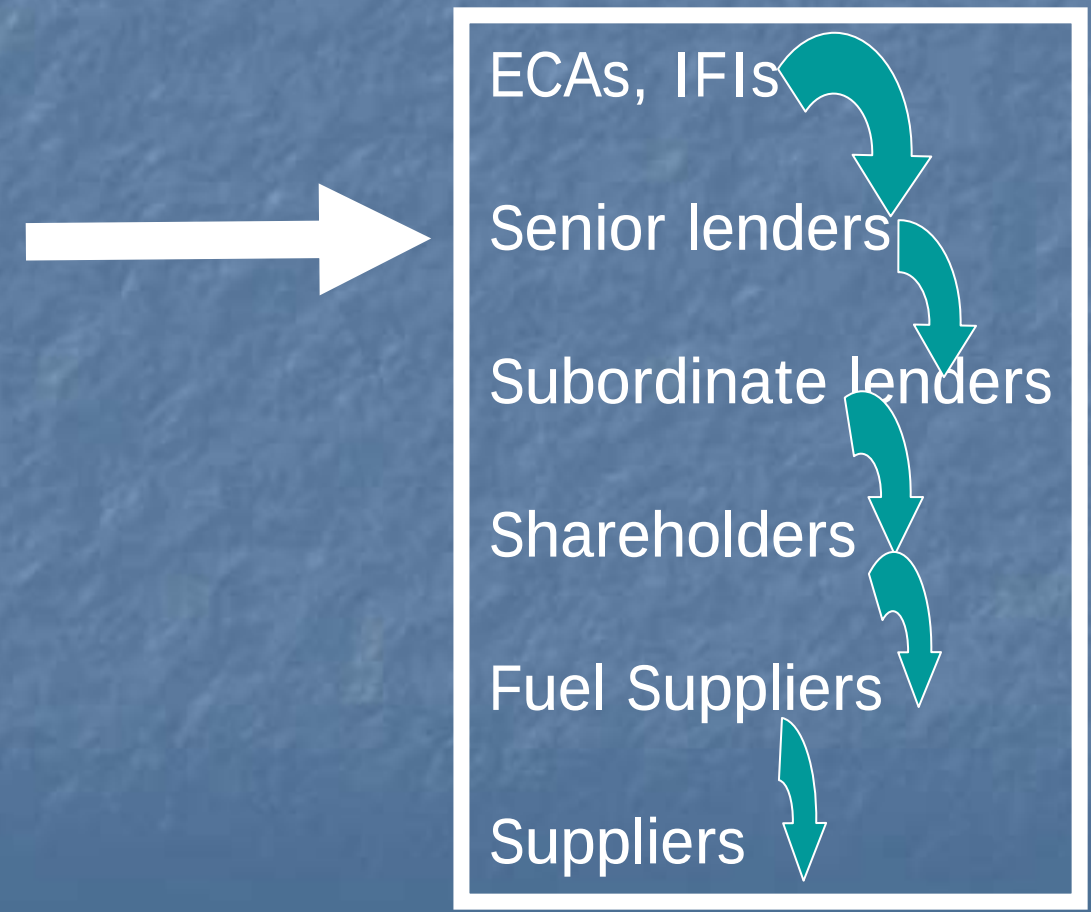
2. IPP contractual framework (continued)

- Fuel supply agreement provides sufficient income for gas producer to make initial investment worthwhile
- PPA covers fixed costs of power plant including Take or Pay provisions of FSA

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

Waterfall Payments

Project Revenues



Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

2. IPP contractual framework (continued)

- Degree of simplicity for IPP arrangements depends on how many parties will eventually show up
- Namibia has a small market, costs of full competition may not be justifiable
- Simple framework is quicker, simpler and not more than is needed now

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

3. Streamlined institutional arrangements

- ❑ No sins of omission
- Regulatory apparatus in place
- Business and investment law
- Government guarantees, if needed
- Offshore payment facilities
- Tax packages

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

3. Streamlined institutional arrangements (continued)

- ❑ Few sins of commission
- Market structure is appropriate to transactions
- Risks are fairly and appropriately allocated
- Lines of authority and responsibility are clear and distinct

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Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

4. Improved IPP Regulatory Framework

- Representing the public's interests
- Allocation of risks
- Assessment of types of regulatory decisions needed
  - Gas prices
  - Electricity prices
  - Prices to RECs

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

5. Roles for MME, ECB, and Nampower

- ECB represents the public interest
- If ECB does its job then roles for MME and Nampower should be clear
  - Efficiency
  - Fairness
  - Consumer protection
  - State asset control

Ideally, there should be a chart delineating roles and responsibilities that is easy to assess and understand

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

	Nampower	ECB	MME
Licenses	♦	●	
Approval of contracts	♦	●	
Market operation	●	♦	
Prices	●	♦	
New IPP approval		●	♦
Market organization		♦	●
Key: ♦ - has a role, ● - has lead role			

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

6. Conclusions and Recommendations

- Most liberalization schemes that fail run aground for two reasons
  - Search for the perfect when the good will suffice
  - Attempting to replace organic market growth with administrative fiat

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

6. Conclusions and Recommendations (continued)

- For Namibia the key risks are
  - Export price and volume risk
  - Future competition from large hydro

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

6. Conclusions and Recommendations (continued)

- How to mitigate these risks?
  - PPAs and FSAs must recognize potential competition
  - Need agreement with SA on market operation & openness
  - Recover most investment costs early while Take or pay provisions still meaningful

Module V: Arrangements for Attracting IPPs on a Fast-Track Basis

6. Conclusions and Recommendations (continued)

- ❑ A leap of faith
  - Kudu represents the first project in the region using international standard measures for construction & fuel
  - It is more expensive than plants in SA, built with legacy cost structure
  - Success of Kudu will be key indicator of ability to monetize local resources for investors

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