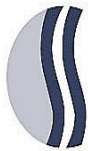




The Kudu Project

25 July 2011



SIMONIS
STORM
Securities

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1. EXECUTIVE SUMMARY

1.1 Government Policy

The objectives set in Vision 2030, National Development Plans, Medium Term Expenditure Framework as well as the White paper on Energy Policy acknowledges the strong relationship between availability of electricity and economic growth and development. An investment of this nature therefore firmly compliments government policy. To the contrary, without an investment in Kudu or a similar project, government policy and planning is seriously compromised.

1.2 Demand and supply of energy

As outlined in various studies and own calculations of the correlation between growth in GDP and units electricity consumed, Namibia will require significant growth in electricity supply to meet the demands resulting from economic growth. Both base load and peak demand electricity will soon exceed supply in Southern Africa.

1.3 Impact on real economic growth

This project will be the single largest project in Namibia to date. Based on the 2009 National Accounts and a N\$/USD exchange rate of 7.65, the Kudu Project will be equivalent to approximately 43% of gross capital formation and 11% of gross domestic product at current prices.

Despite the size of the project, the direct impact on Namibia will be relatively small as only approximately 30% of the goods and services involved during the construction phase will be sourced from the SACU area, while the pure Namibian content will be about N\$1 billion. Based on an estimated output multiplier of 2.60, the gain in output to the Namibian economy will be about N\$2.6 billion, equivalent to 3% of GDP for 2009. The annual impact on the GDP will, however, be smaller as the construction period will be over a 3 year period.

The Kudu Project will also make a significant contribution towards exports of goods and services and substitution of imports of goods and services. For example, the net contribution is estimated to about N\$5 billion in 2017.

This project should also not be considered primarily as a job creation project. Nonetheless, 1,500 jobs will be created during the construction phase as well as 70 full-time positions once in full operation. This will obviously have a positive impact on the economic growth of the Karas region.



The indirect contribution of the Kudu Project, as provider of electricity, to the economic growth and development of Namibia is, however, of critical importance. With surplus electricity capacity, electricity usage is a function of economic growth. However, in the current scenario where there is no or little surplus electricity capacity, economic growth has become a function of supply of electricity. This is evident by the high slope coefficient of 0.88, implying that the demand for electricity will grow by 0.88% for every 1% growth in GDP.

Namibia's productive sectors operate and have to compete within a very open and competitive global environment. Energy security plays a very supportive role and although the mere availability of sufficient and sustainable energy will not guarantee economic growth and development, it has become a pre-requisite for economic growth.

Conversely, although the availability of sufficient and sustainable electricity cannot guarantee economic prosperity, with Kudu gas to power project progressing, an environment suitable for economic growth and objectives as envisaged in Vision 2030 will be set.

1.4 Impact on balance of payments

Previously, one of the most restricting factors of the financing of this project from a macro-economic point of view was Namibia's foreign reserve position. This has, however, changed with foreign reserves currently covering about 15 weeks' imports, well above the acceptable norm of 12 weeks' imports and the current minimum of about N\$2 billion (currency in circulation) in terms of the CMA agreement. Namibia's foreign reserves are as a consequence sufficient to carry the development costs of the Kudu project.

Although most of the operational and maintenance costs as well as cost of fuel of a CCGT plant may be charged in foreign currency and based on the large values of external flow, Kudu will have an ongoing positive impact on Namibia's foreign reserves, even during extreme adverse exchange rate movements. The Kudu Project should make a significant positive contribution to Namibia's balance of payments depending on whether export prices in line with the cost of Kudu can be negotiated. Namibia will benefit from various points: Namcor's sharing in the upstream revenue generation, royalties payable by the upstream consortium, substitution of imports and exports of surplus electricity.

Compare to alternatives (imports and conventional coal fire plant at Walvis Bay), Kudu will offer the most benefits for Namibia in respect of optimizing foreign exchange earnings.

1.5 Demand and supply of funds

Based on statutory requirements, banks' exposure to a single client, in the absence of any Government of Namibia guarantees, is limited to 30% of capital and reserves. This implies that the maximum exposure of Namibian commercial banks to this project will be restricted to N\$2 billion. Namibian banks' involvement will most probably be influenced on whether debt instruments will qualify as liquid assets and most probably limited to project finance during the construction stage. Banks are currently experiencing easy liquid conditions, because of inter alia, liquidity provided by NamPower to the local banking system. Any utilization of current investments by NamPower for this project will have a significant impact on the liquidity of banks and as a consequence banks' ability to fund the project.

Although Namibian institutional investors have the ability to finance the full portion of the downstream project from a statutory and balance sheet point of view, investment mandates and philosophies may not support investments for these type of development projects without any government backing. For the sake of the protection of foreign reserves, funds already invested in Namibia in the form of cash and bonds should as far as possible not be utilized as financing for the Kudu Project, but rather funds currently invested in assets abroad.

1.6 Micro-economic impact

Currently, only 36% of Namibian households use electricity as a source for lighting. Although it is the objective of the government to provide electricity to all households by 2030, it will require a significant improvement in household cash income. The average cash income of rural households was a mere N\$2,317 per month in 2003/04, making it difficult to have access to electricity at commercial rates. An increase in household cash income will only be possible with higher economic growth rates which, in turn requires sufficient and sustainable electricity.

Based on initial findings, the unit cost of imported electricity will increase. Kudu will be cheaper relative to imported sources and local producers can become more competitive as prices of electricity in South Africa and Namibia will converge. However, electricity prices are expected to increase quicker than the average future inflation rate. It is estimated that for every 10% increase in electricity prices the consumer price index will increase by 0.52%. However, sudden depreciation in the exchange rate may cause price shocks.

Despite the relative large capital outlay for conventional coal fire plants, a coal fire plant offers a competitive electricity price and is the least exposed to exchange rate shocks, despite its exposure to changes in international commodity prices. The relative longer lead time of coal fire plants and environmental costs is, however, a major disadvantage, given the supply constraints over the next five years.

1.7 Public Finance

Over the last 5 years the Namibian government has succeeded in reducing both the absolute levels of public debt and public debt as percentage of GDP. However, based on the recent 2011/12 national budget, public debt as percentage of GDP will accelerate to more than 30% over the next three years and therefore any further direct government support, either by means of financing or issuing of guarantees, will result in levels of government debt exceeding national objectives by far.

It is likely that the bulk of the capital goods will enter Namibia directly and not via any other SACU member country. As gas turbines are exempted from customs duties, the contribution of the Kudu project to the SACU pool will be negligible with little monetary benefits for Namibia. The value added tax during the construction phase will add up to at least N\$1.5 billion. However, this amount will be reclaimable by the consortium, with no impact on the government fiscus. Other revenue sources are an estimated 5% royalty of the value of gas at the well-head equivalent to USD17 million per annum, corporate taxation that will depend on the profitability and tax position of both consortiums representing the downstream and upstream phases which is uncertain at this stage, and personal tax that will be insignificant due to the relatively limited utilization of local labour.

Kudu will offer government and state-owned enterprises the best possible opportunities to optimize and broaden the Namibian fiscal revenue base.



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3. ABBREVIATIONS

CIF	Cost-insurance-freight
CMA	Common Monetary Area
CPI	Consumer Price Index
DRC	Democratic Republic of Congo
DSM	Demand supply management
DSP	Demand, supply and pricing
GDP	Gross domestic product
GIPF	Government Institution Pension Fund
IRS	Internal Registered Stock
KW	Kilowatt
KWh	Kilowatt hour
LRAC	Long run average cost
LRMC	Long run marginal cost
MTEF	Medium Term Expenditure Framework
MW	Megawatt (1000 KW)
Mwh	Megawatt hour (1000 KWh)
N\$	Namibia Dollar
NDP	National Development Plan
NIRP	National Integrated Resource Plan
NPV	Net present value
PPI	Production price index
RSA	Republic of South Africa
SACU	Southern Africa Customs Union
SAM	Social Accounting Matrix
SAPP	Southern Africa Power Pool
USD	United States Dollar
VAT	Value added tax
ZAR	South Africa Rand



4. TERMS OF REFERENCE

Ernst & Young has been appointed by NamPower to act as its financial advisor on the development of a combined cycle gas turbine, Kudu Power Station. Ernst and Young has requested Emile van Zyl of Simonis Storm Securities in June 2004 to undertake a macro-economic study, as part of Ernst and Young's engagement with NamPower, to evaluate the macro-economic impact of the Kudu project, to consider the effect on Namibia with or without a Kudu Project by evaluating its impact on government finance, foreign reserves, monetary stability, price stability and economic growth. In 2011, Emile van Zyl of Simonis Storm Securities has been requested to review and update that study.

5. METHODOLOGY

As very little data from official sources existed for the purposes of this study, the author has approached a number of key institutions, such as major municipalities, supervisory authorities, companies, etc. to provide data to build a basis for economic projections.

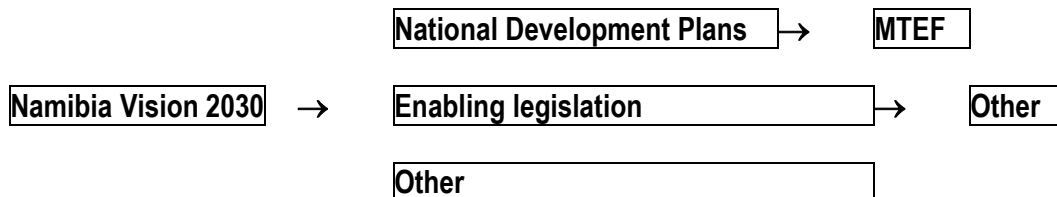
A number of interviews were also conducted with experienced key players in the Namibian economy. The purpose of these interviews was to formulate the profiles of the key stakeholder in the economy, and of electricity consumers in Namibia, and to determine the potential impact and importance of electricity in the different industries of Namibia.

The following main assumptions have been used in the study:

- N\$/USD exchange rate of 7.65 for 2011;
- RSA Production Price Inflation rate of 6.5%;
- US Production Price Inflation rate of 2%; and
- N\$/USD exchange rate depreciation of 4.5% per annum (production price inflation rate differential between the USA and South Africa).
- Debt to equity of 60:40
- 75% of debt instruments in ZAR/NAD
- 80% NamPower shareholding
- Cost of debt for ZAR/NAD denominated debt of 13%
- Cost of debt for USD denominated debt of 4.2%
- Life of program of 15 years
- Repayment of debt over 12 years
- Although still unclear, it is assumed in the macro-economic model that Namcor will have a 20% shareholding in the upstream consortium but will make no contribution to the financing of development capital
- Royalties of 5%

6. GOVERNMENT POLICY

The objective of this section is to give a brief description of a selection of available documentation stating the Government of Namibia's vision, objectives and some policies that will be relevant to determine the feasibility of the Kudu project, and to determine whether the deliverables of the Kudu project will compliment the vision and objectives of the government.



6.1 Namibia Vision 2030

In the foreword of Vision 2030 the Founding President, Dr Sam Nujoma, stated that “the goal of Vision 2030 is to improve the quality of life of the people of Namibia to the level of their counterparts in the developed world”. This vision will serve as the guide to the different development plans, ranging from NDP2 to NDP7. The President specifically stated that this vision set out in Vision 2030 will address issues such as health, food security, high levels of living standards and a good quality life for all Namibians as well as access to quality education.

In the preface of the same document the Director General of the National Planning Commission stated that the key elements of Vision 2030 will depict “the people of Namibia as well developed, prosperous, healthy and confident in an atmosphere of interpersonal harmony, peace and political stability; and as such, Namibia is a developed country to be reckoned with as a high achiever in the community of nations”.

In short: Namibians should within the next 19 years, by becoming an industrialized nation, enjoy the same level of living standards as those currently enjoyed by residents of developed countries.

Some of the key and major objectives that are of specific importance for the purpose of this document for the year 2030 are to:

- Transform Namibia into an industrialized country of equal opportunities, which is globally competitive, realizing its maximum growth potential on a sustainable basis, with improved quality of life for all Namibians;
- Ensure the development of Namibia's natural resources and its sustainable utilization, for the benefit of the country's social, economic and ecological well-being;
- Accomplish the transformation of Namibia into a knowledge-based, highly competitive, industrialized and eco-friendly nation, with sustainable economic growth and a high quality of life;

- Manufacturing and the service sector must contribute to 80% of the country's gross domestic product (GDP);
- Exports of processed goods must represent at least 70% of total exports;
- Small and medium size enterprises must contribute at least 30% of GDP; and
- Unemployment must be less than 5% of economic active population.

Population size and growth

The current population of Namibia is estimated at 1,8 million. Specific annual population growth targets are set to achieve the optimum population size in 2030 (excluding the negative impact of HIV/AIDS):

- From 2.6% to 2.4% by 2015 (can be 1,5% in 2015 as a result of HIV/AIDS)
- To 2.2% by 2025 and
- 2.0% by 2030

These population growth rates will be possible if the mortality rate can be reduced from the current 271 per 100,000 to 20 per 100,000 in 2030, and a reduction in the fertility rate from the current level of 4.2 to 2.0 by 2030.

Urbanization

It is stated as an objective to increase the level of urbanization from the current level of 43% to 75% in 2030, not by overpopulating existing urban areas, but by expanding urban places in Namibia. This objective will be achieved by, inter alia, promoting the development of rural population through diversification of economic activities, the development of rural transport and communication and by creating employment opportunities in rural and urban areas.

Wealth, livelihood and the economy

As part of this vision it is stated that by 2030 Namibia must operate an open, dynamic, competitive and diversified economy that provides sustained economic growth to form the basis for availing resources for the fulfillment of major national objectives like poverty reduction, human resource development, employment creation, and the provision of adequate social services and infrastructural facilities. To achieve this subvision it is envisaged that over the next 19 years:

- Real GDP growth rate must be higher than 6% pa;
- Growth in real GDP per capita must be at least 4% pa;
- Growth in real fixed investments must be at least 10% pa;
- Gini coefficient must drop from 0.70 to 0.30 (Gini coefficient gives an indication of the distribution of income in a country, where 0 represents an equal distribution and 1 an unequal distribution);
- Employment must increase by more than 3% pa;
- The budget deficit must not be higher than 1.5% of GDP;
- The inflation rate must be restricted to a single digit figure; and
- The primary sector must not represent more than 10% of GDP.

Developing a knowledge-based society

It is envisaged that Namibia will fast track its development process with the focus on high value-added services and specialized industries by transforming the economy into an innovative, knowledge-based society, supported by a dynamic, responsive and highly effective education and training system. This will entail more intensive application of information and communication technology. An obvious prerequisite to reach this goal will be more sophisticated training as well as the development of communication and supporting infrastructures.

Production Technology

It is stated quite explicitly that the lack of access to energy services is a major obstacle in sustainable development and that an industrialized nation needs to be at least partially independent in terms of foreign energy. Strategies such as basing industries and major projects on Namibia's natural resources and promoting self-sufficiency and access to energy services are therefore becoming very important.

6.2 Third National Development Plan (NDP3) for the period 2007/08-2011/12

The key results areas remain:

- Equality and social welfare
- Quality of life
- Productive and competitive human resources and institutions
- Knowledge based economy and technology driven nation
- Competitive economy
- Productive utilization of natural resources and environmental sustainability
- Peace, security and political stability
- Regional and international stability and integration

The national development goals as set out in the NDP3 are, inter alia, as follows:

- Increased equality in income distribution;
- Increased and sustainable economic growth;
- Increased employment;
- Increased smart partnerships and private sector development;
- Highly developed and reliable infrastructure;
- *Optimal and sustainable utilization of renewable and non-renewable resources, with the sub-sector goal of having adequate, secure and efficient supply of energy that is environment friendly leading to a reduction in the country's reliance on energy imports.*

The following programmes are identified:

- *Regulation of the energy sub-sector*
- *Electricity generation and supply with the following expected outcomes:*
 - *Increased local production of electricity by the promotion of Kudu gas-bases power plant, exploration of other hydro-electric projects and thermal generation plants;*
 - *Increased supply of electricity from local plants and neighbouring countries by the construction of sub-stations, transmission lines,*

interconnectors at strategic places and extending transmission lines and sound regional links;

- *Improved electricity supply to a large number of consumers by encouraging private participation, expansion of services to new customers and enlarging of the number of RED's.*
- *Fossil fuels with the implementation of Kudu Gas Field development highlighted as one of the key activities*
- *Renewable energy with the promotion of biogas, wind energy and solar energy highlighted as key activities*
- Environmental sustainability
- Adequate supply of qualified, productive and competitive labour force
- Innovative and productive usage of technology, research and development
- Affordable and quality health care
- Eradication of extreme poverty
- Reduced inequality and social welfare
- Gender equality
- Promote regional integration

The NDP3 is based on two growth scenarios:

	Baseline	Higher growth
Mining and quarrying	0.8%	3.0%
Primary industries	2.0%	3.6%
Manufacturing	4.9%	5.3%
Electricity and water	3.4%	15.6%
Secondary industries	6.7%	9.0%
Tertiary industries	6.2%	7.7%
GDP	5.0%	6.5%

Even at the baseline growth scenario, the envisage growth is set high at 5.0% (6.5% for the higher growth scenario).

With specific reference to the energy sector, the mission statement has been formulated “to ensure sufficient, adequate, reliable and affordable energy supplies in a sustainable manner, taking advantage of and adding to the country’s infrastructure”.

6.3 White paper on Energy Policy (with specific reference to electricity)

It is stated as a key policy challenge that affordable electricity must be provided to all households in urban areas. Due to rapid growth in the urban population the main challenge will be to sustain the provision of affordable electricity to urban households (including shack dwellings). The provision of electricity in rural areas is even more challenging as the majority of rural households currently rely on particular wood fuel to meet energy demands (with the associated environmental issues). The challenge is therefore to formulate strategies where a range of safe, affordable and appropriate fuels and appliances is provided to rural communities. It is also acknowledged that, although access to electricity will not alleviate poverty directly, it plays a very important role in rural water supply, education, industries and health.

The fact that electricity supply is dependent on imports mainly from a single source is highlighted as a major concern. Although this reality is difficult to reconcile with the principle of security of supply, it has to be weighed against competitiveness from a regional perspective.

In line with the major objectives as outlined in NDP2, the Namibian electricity sector faces the following key challenges:

- Increased efficiency which will require the restructuring of the electricity supply industry and pricing reform (determination of electricity tariff structures based on sound economic principles);
- Improved access to electricity to all Namibians, including low-income consumers (with an increase from 8% to 25% of rural households and the outstanding 25% of urban households), social institutions, etc.;
- Broadening the electricity supply base by means of enhanced security of supply, but simultaneously taking into account financial considerations;
- Promotion of investments in the electricity sector;
- Ensuring environmental and socio-economic sustainability;
- Building capacity to alleviate resource constraints; and
- Development of an efficient and appropriate governance structure

Finally it is recognized that Namibia is integrally linked to the region and to the global village. Namibia is also an active member of different committees and protocols of SADC (including the SADC Energy Protocol and the Southern Africa Power Pool). These arrangements regulate the trade of energy within the region and warrant more comfort than isolated bilateral arrangements.

7. DEMAND AND SUPPLY OF ELECTRICITY

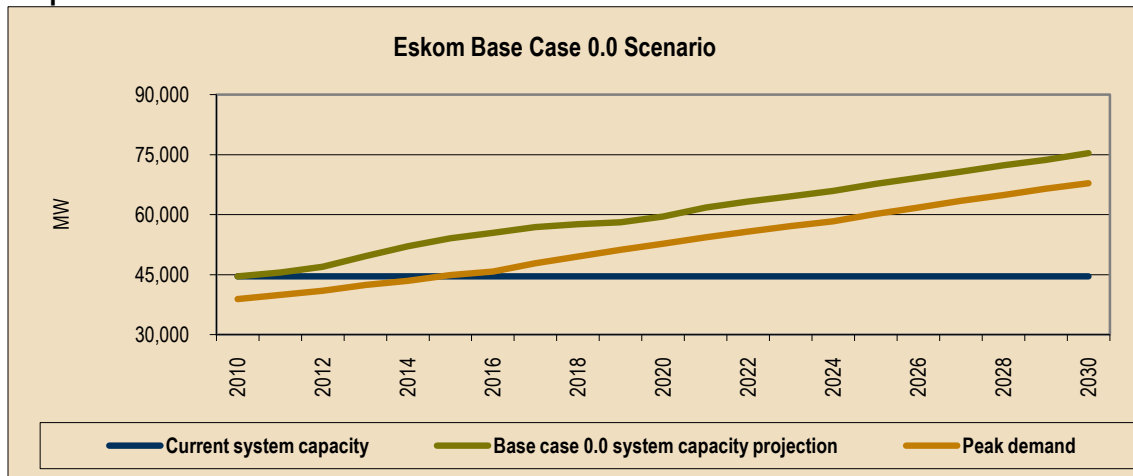
The purpose of this section is to incorporate some important elements of demand, supply and pricing of electricity that will impact on Namibia from a macro-economic point of view.

7.1 South Africa

Eskom generates approximately 95% of the electricity used in South Africa and approximately 45% of the electricity used in Africa and is considered as one of the cheapest electricity producers in the world. The current total system capacity in South Africa is 44,535 MW. South Africa's peak demand for electricity is currently close to 39,000 MW with a reserve margin for reliable capacity of about 15%. Based on Eskom's Base Case 0.0 scenario, peak demand will reach the current system capacity by 2015.

Industry norm of 15% reserve capacity implies little surplus electricity to neighboring countries.

Graph 1



Source: Eskom Executive Summary of the Draft Integrated Electricity Resource Plan for SA

7.2 Southern Africa Power Pool Region (SAPP)

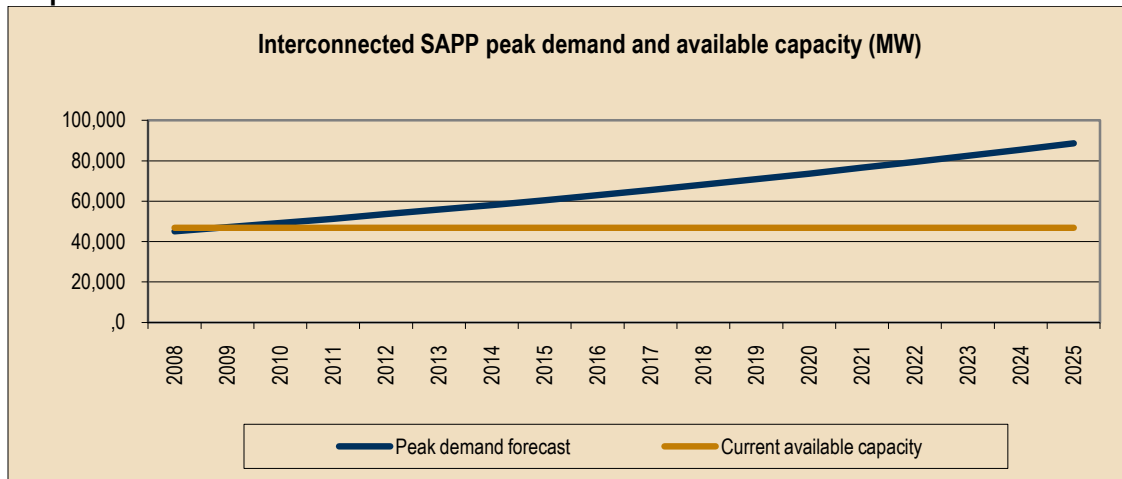
At June 2009, SAPP had interconnected installed capacity of 53,445 MW and interconnected available capacity of 46,772 MW. Interconnected peak demand was estimated at close to 42,000 MW, implying reserves of 10.3%, slightly above the minimum level set by SAPP of 10.2%. South Africa is also the dominant supplier of electricity in the region and contributes 83% of the total available electricity capacity:

Table 1

South Africa	83%
Mozambique	5%
Zambia	3%
DRC	2%
Zimbabwe	2%
Namibia	1%
Other members	4%
TOTAL	100%

Source: SAPP Overview at the SADC-SAPP-RERA Investors Roundtable, July 2009

Graph 2



Source: SAPP 2008 Annual Statistics

The SAPP Plan shows that 56,686 MW of new additional power generation capacity would be required by 2025 and that peak demand will soon exceed current available capacity.

South Africa is the dominant country in terms of future generation projects, representing more than 60% of total new generation projects over the next 15 years.

Large projects, with significant electricity generation capacity, are envisaged. There are however some questions in this regard:

- Will those projects realize?
- When will these projects become operational?



7.3 Namibia

7.3.1 Current demand and supply situation

Namibia currently has the following maximum capacity available:

Table 2

	Installed (MW)	Available (MW)
Ruacana	240	120
Van Eck	120	80
Paratus	24	18
Anixas (from 2011)	21	21
4 th Turbine	92	33
TOTAL	497	272

Source: Unpublished information from NamPower's management

Based on current peak demand of approximately 521 MW (excluding Skorpion Zinc), Namibia has already exceeded both maximum levels of domestic capacity of electricity and average availability.

Water levels at Ruacana vary according to the rainy season, leaving Namibia very exposed. Electricity generated at Ruacana can therefore not be considered as a long term sustainable source of electricity. Only Van Eck, Paratus and Anixas power plants can be considered as Namibia's own sustainable sources of electricity. The average available capacity of these three plants is only 119MW (approximately 23% of existing peak demand) of which more than two-thirds (Van Eck Power Plant) is based on an old station close to its reasonable end of life.

Existing power purchases agreements are with Eskom, an agreement for 150MW with ZESA that expires at the end of 2013 and an agreement with ZESCO for 50MW that expires at the end of 2020.

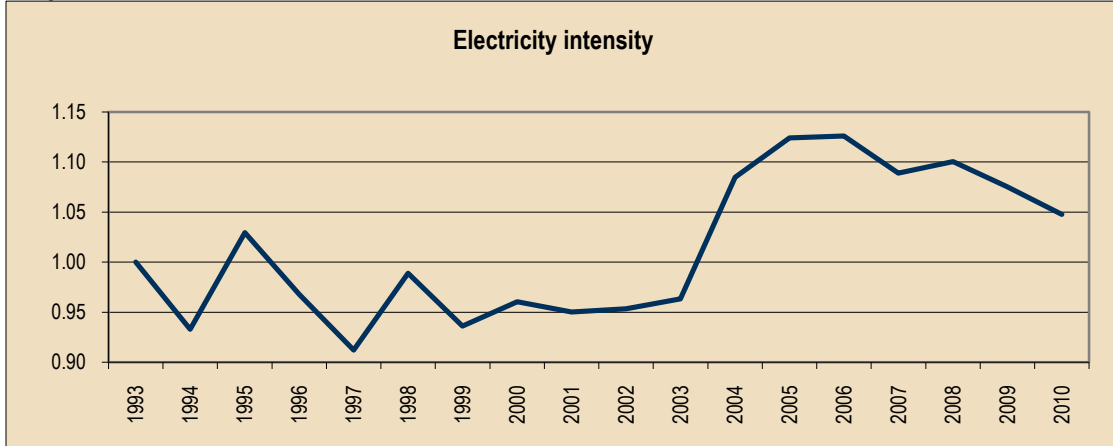
7.3.2 Modeling of future demand and supply

There is a very good correlation (approximately 94%) between GDP and units of electricity sold in Namibia, implying that there is an interrelationship between economic growth and demand for electricity. This makes an estimation of units of electricity that will be required to meet certain economic growth objectives, possible. An analysis indicates the slope coefficient for both the periods 1993 to 2003 and 2004 to 2010 to be between 0.88 and 0.89 (it was necessary to calculate the slope coefficient separately for the two mentioned periods due to the introduction of Skorpion Zinc, starting with commercial production in May 2004 and its significant impact on the demand for electricity in Namibia).

Although electricity intensity and electricity efficiency will normally result in relatively smaller usage of electricity over time, the unique characteristics of the Namibian economy of a fairly prominent primary and tertiary sector and policies aiming and focus on value addition creating stronger secondary industries, we do not expect the slope coefficient to drop meaningful over the next twenty years.

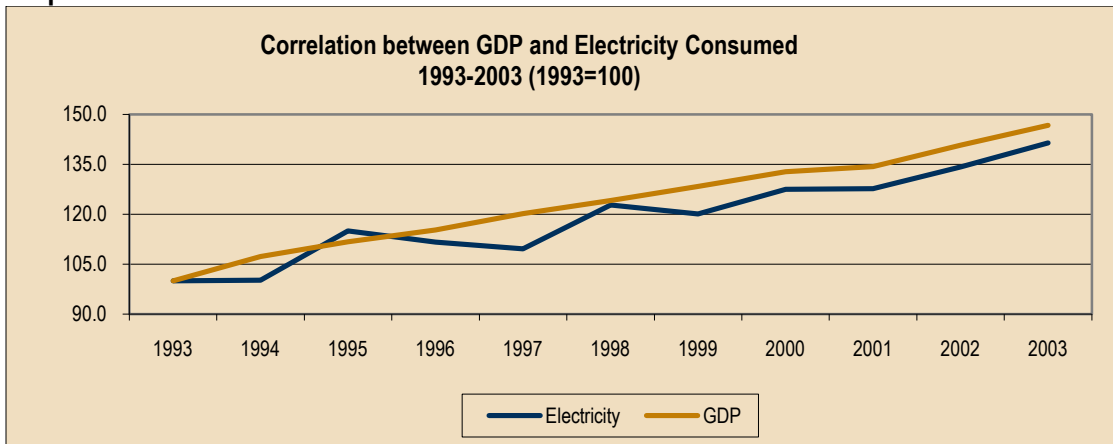
The electricity intensity as measured by the ratio of electricity consumption relative to the GDP is illustrated in Graph 3. The increase in the intensity in 2004 is quite clear and current levels are still well above pre-2004 levels.

Graph 3



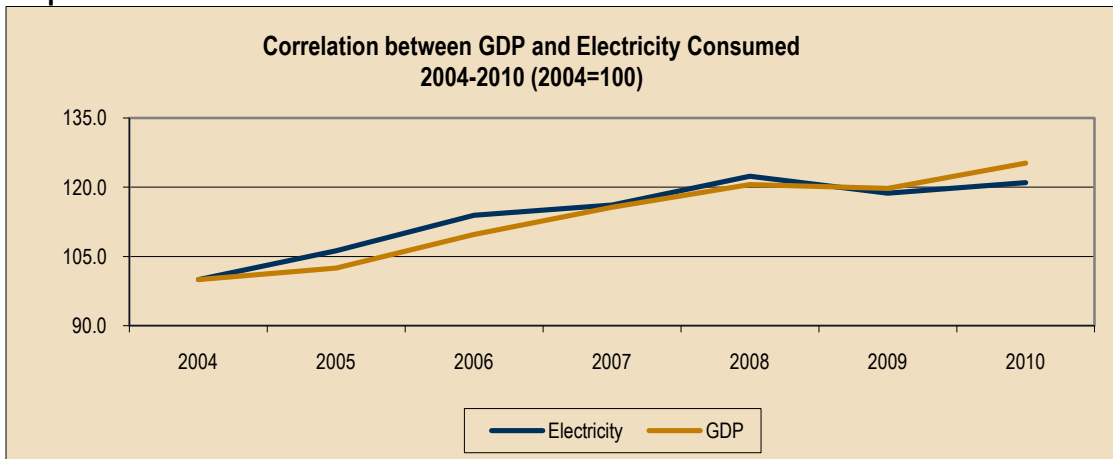
Sources: National Planning Commission and NamPower Annual Reports

Graph 4



Sources: National Planning Commission and NamPower Annual Reports

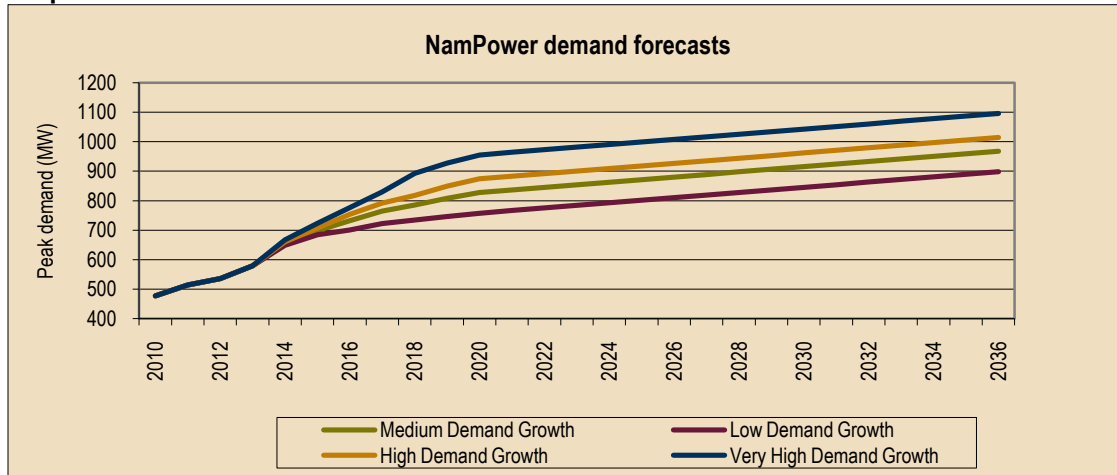
Graph 5



Sources: National Planning Commission and NamPower Annual Reports

In its recent demand forecast, it is estimated that, according to the different demand scenarios, system demand will range between 650MW and 723MW in 2015, between 700MW and 955MW in 2020 and between 800MW and 1,043MW in 2030.

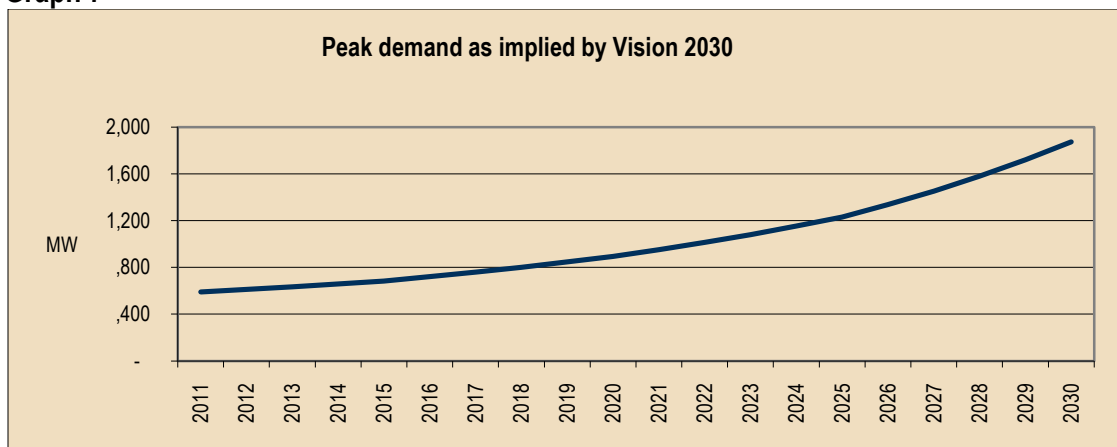
Graph 6



Source: NamPower Demand Forecast (including detail of assumptions for different scenarios)

Specific GDP growth rates for different periods have been set in Vision 2030 which presents an average annual growth rate of about 6.9% over the next 20 years. In order to achieve these goals as briefly discussed earlier in this document, the peak demand for electricity (based on a conversion factor of 0.69) will be as depicted in Graph 7, based on the correlation and slope coefficient as discussed earlier.

Graph 7

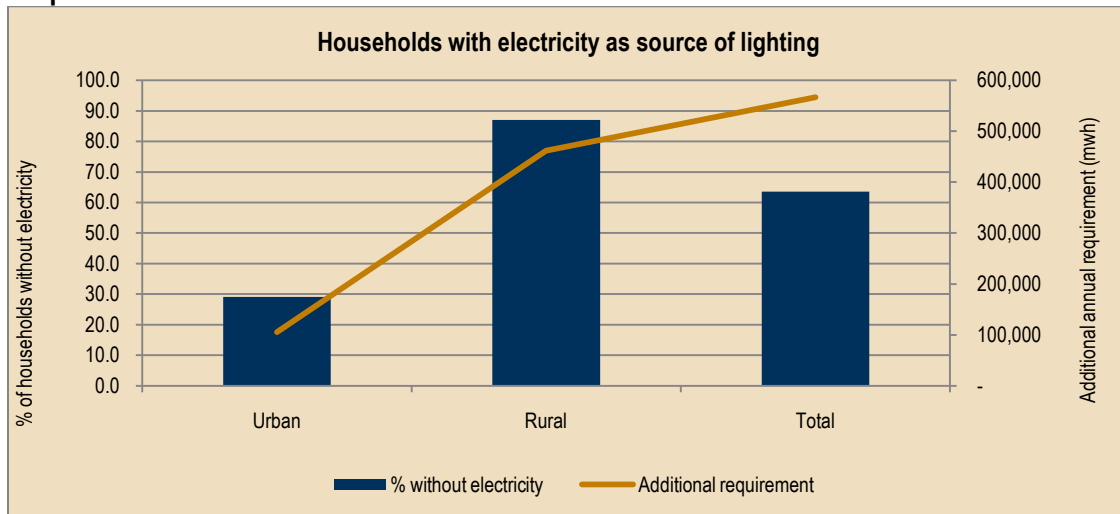


Sources: Author's own projections, NamPower Annual Reports and National Planning Commission

The implication of Vision 2030, without any improvement in energy efficiency or a decline in electricity intensity, peak demand may reach a level of close to 1,900 MW in 2030, which is about 82% higher than the "Very high demand growth" path of NamPower.

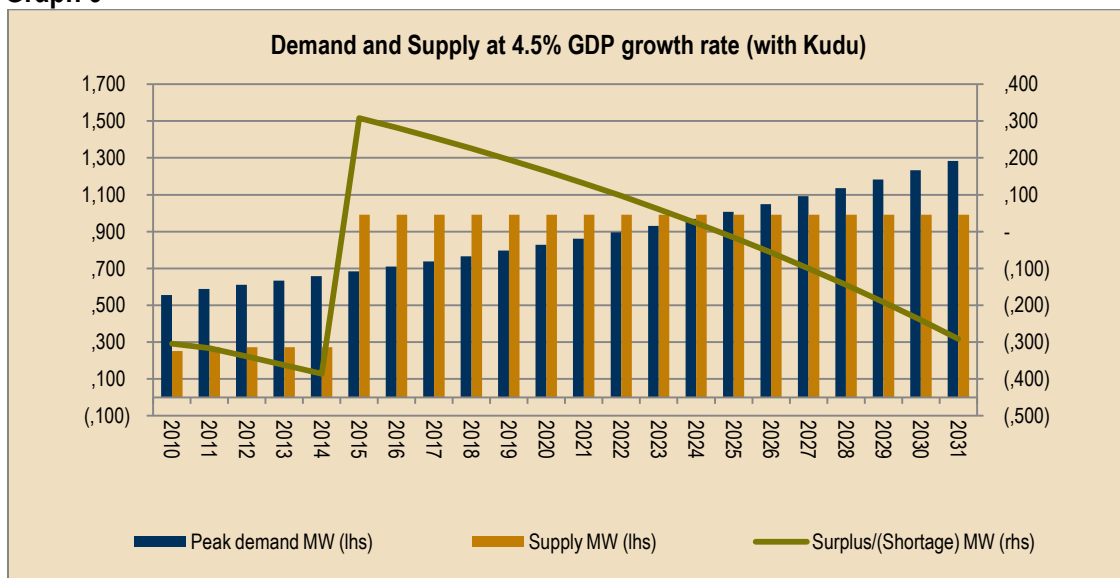
According to most government policy documents the provision of electricity as a tool to alleviate poverty is considered very important. Currently (based on 2003/2004 Namibia Household Income and Expenditure Survey) approximately 29% of all urban households, 87% of all rural households and 64% of total Namibian households do not use electricity as a source of lighting. In order to correct the situation with a usage of approximately 200 kWh per month, an additional 567 million kWh's (236,387 households without lighting X 200 X 12) will be required to fill the gap – this is equivalent to base demand of 65 MW, or 94 MW peak demand.

Graph 8



Source: National Planning Commission

Graph 9



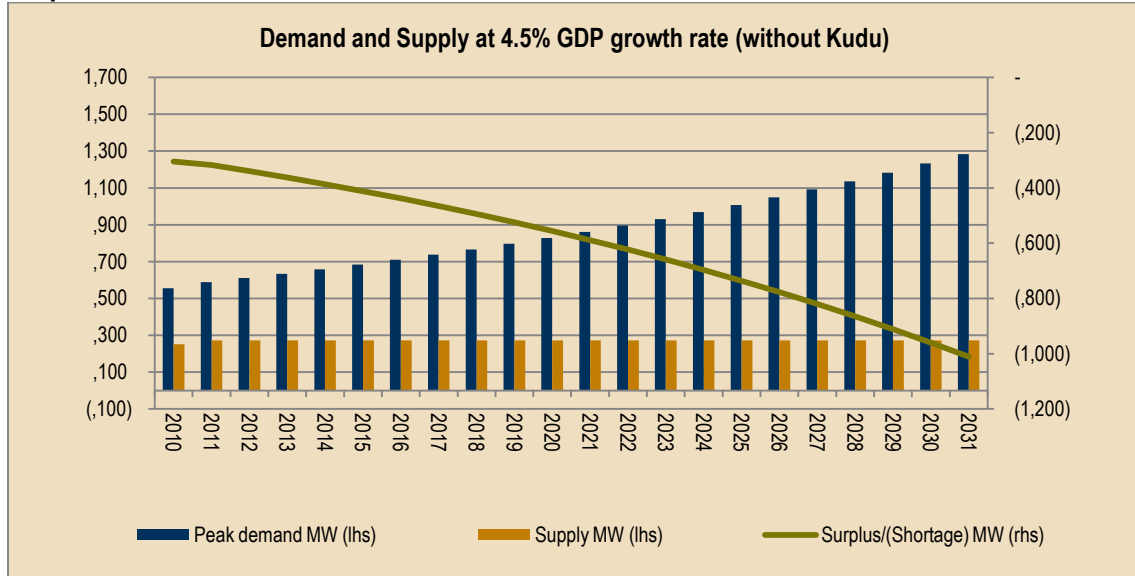
Source: Author's own projections, Annual reports of NamPower, National Planning Commission

It is clear from Graphs 9 and 10 that the Namibian authorities will soon be confronted by the choice to:

- either continue with the Kudu Project and manage the financial and economic challenges as outlined in this document, or

- to find and implement alternative sustainable electricity sources in Namibia, or to negotiate with a regional supplier (such as Eskom in South Africa) to become an integral user of electricity within its electricity network and planning framework.

Graph 10



Source: Author's own projections, Annual reports of NamPower, National Planning Commission

The difference between the two options is quite clear.

In the first instance Namibia takes full responsibility and ownership for supply of electricity within the country.

The second option may appear to be less risky, but the outcome is uncertain over the longer term. Namibia's demand for electricity is approximately 1% of that of South Africa and it can be argued that this ratio is insignificant and will most probably remain insignificant over the next few decades. Should Eskom or any other regional provider therefore be prepared to supply Namibia with guaranteed and uninterrupted electricity, the cost of electricity will most probably be based on marginal cost of electricity plus additional costs to cover for the upgrading of the existing transmission network.

8. IMPACT ON REAL ECONOMIC GROWTH

8.1 Point of departure

This project has to be considered as very significant in the context with the size of the Namibian economy. Table 3 gives an indication of the size of the project (USD1.1 billion at a N\$/USD exchange rate of 7.65) relative to specific expenditure categories of the gross domestic product at current prices in 2009 (the actual annual impact will, however, be significantly smaller as the construction period will be at least 3 years):

Table 3

Expenditure category	N\$ Million	Kudu project as % of expenditure
Final consumption expenditure	64,666	13%
Gross fixed capital formation	19,351	43%
Gross domestic expenditure	85,888	10%
Imports of goods and services	41,488	20%
GDP at market prices	77,812	11%

Source: National Accounts, 2009 published by National Planning Commission

Although the project will have a meaningful impact on the level of gross fixed capital formation and gross domestic expenditure, a significant portion will be off-set by higher levels of imports, thus having a small impact on the GDP. The abovementioned ratios will more than double when the upstream component is included.

This project should not be seen as a project to increase employment in Namibia. The sustainable number of jobs created as a result of the Kudu-project will be minimal compared to the total cost of the project as discussed in Section 8.2. The impact of the project should rather be evaluated in terms of its importance to facilitate future economic growth and development. If surplus electricity capacity is available, one can argue that electricity is a function of economic growth, but when no or very little additional capacity of electricity is left, economic growth becomes a function of the supply of electricity. Namibia has reached the stage where economic growth has become a function of the availability of electricity.

In the section on Demand and Supply of Electricity, much attention has already been given on this topic, the main findings being:

- A meaningful correlation exists between expansion in economic activities and demand for electricity;
- Namibia has fully utilized existing electricity capacity;
- Although in active planning, future regional supply of energy is uncertain and unreliable to be confident to achieve local economic growth and development objectives.

8.2 Job creation

The project will create a number of job opportunities during the construction phase. Although the impact on job creation is still uncertain the following case studies serves as examples on what the impact could be:

Construction of a 760MW air-cooled plant in Amorebieta in Spain

The number of construction staff was approximately 80 to 100 workers during site establishment and civil works of about 6 months. This number increased to 600 in 15 months after the start of construction. The average site staff was about 400 over the 30 month construction period. The staff breakdown during this phase was as follows:

Unskilled	10%
Semi-skilled	50%
Skilled	30%
Supervisory	10%

The permanent operating staff will be in the region of 38 with none unskilled, but the outsourcing of services such a cleaning, security and catering will create new job opportunities.

Construction of 400MW gas and steam turbine plant in Rousch in Pakistan

The number of staff ranged between 3,400 during the initial construction stage to less than 100 at close of construction. The number of operating staff is 67 and consists of the following:

Operating staff	28
Maintenance staff	21
Administration	8
Management/supervisory	10

There is also no unskilled operating staff, but the following compound staff has been appointed:

Catering and indoor cleaning	45
Gardening and outdoor cleaning	45
Security and drivers	59

A study conducted by Nepu in 2001 on the proposed macro-economic impact assessment of the proposed Kudu gas generation plant in Oranjemund revealed that the construction of the on-shore facilities could create more than 1,300 jobs for mainly unskilled Namibian workers. The study admits that the contribution to job creation will be minimal, but estimates that the wage bill will be in the region of N\$30 million during the construction period. It was also estimated that additional employment of 580 persons could be created in mainly the trade sector. Current estimates point to employment of 1,500 persons during the construction phase with approximately 70 full-time positions once in full operation.

The contribution of the Kudu Project in respect of transfer of knowledge should not be underestimated. CCGT technology is fairly new in the region and although the number of full time positions will be relatively small, some unique human resource capacity building will take place during both the construction and operational phases. This could distinguish Namibia as a possible leading country in the region in respect of the application of CCGT technology.

8.3 Direct impact on Economic Growth

The Kudu Project (downstream phase) will directly contribute to economic growth. It is estimated that about 70% of the goods and services during the construction stage will be imported from outside the SACU area. Based on our understanding of the nature of the remaining 30%, we expect that only about 12% will be sourced within the borders of Namibia. By using the income multipliers calculated by Nepru for the construction industry, the contribution of the Kudu Project to the economy during the construction phase will be as follows:

Table 4

Economic impact of the Namibian element of construction of Kudu Project	
Output	N\$1.0 billion
Income/value adding	N\$1.6 billion
As % of 2009 GDP during construction	3%

Sources: NamPower and Nepru

According to the calculated multiplier, for every N\$1 spent in the country during the construction phase, the economy will expand by N\$2.60. As the construction phase will be spread over 3 years, the direct impact on the GDP growth rate will be approximately 1% per annum.

Table 5

Annual economic impact of both upstream and downstream once operational	
Output	N\$5.0 billion
Income/value adding	N\$0.9 billion
As % of 2009 GDP	8%

Sources: NamPower and Nepru

However, once in operation, the Kudu Project will make a significant contribution towards exports of goods and services and the substitution of imports of goods and services. For example in 2017 the situation will be as follows (see also Table 15):

Exports of electricity	N\$3 billion
Substitution of imports of electricity	N\$7 billion

8.3.1 Social Accounting Matrix

Nepru has formulated a social accounting matrix (SAM) for Namibia. A SAM is a useful instrument illustrating how income is generated and how it is distributed per industry. According to the model the revenue for the Electricity and Construction sectors were as follows utilized in 2004:

Table 6

Distribution of outlay in terms of Social Accounting Matrix		
Activities	Electricity	Construction
Primary sector	1%	3%
Secondary sector	19%	50%
Tertiary services	7%	19%
Skilled labour	16%	4%
Unskilled labour	5%	2%
Net operating surplus	52%	21%

Sources: Nepru and author's own calculations

According to the model, every N\$1 revenue of the electricity and construction industries in 2009 has resulted in a 5c and 2c allocation to unskilled labour in the electricity and construction sectors respectively. Due to the very high capital intensive nature of CCGT, we do not expect the relative allocation to unskilled labour to be higher for the electricity industry in future, while the allocation to the construction industry to be more or less in line with the allocation as indicated in Table 6.

The Kudu project's direct contribution to the reduction of poverty and economic development will be relatively small. However, Kudu will ensure energy security which will enable all Namibians to have access to electricity and creating an environment essential for future economic growth and development.

8.4 Indirect impact on Economic Growth

The indirect contribution of the Kudu Project, as provider of electricity, to the economic growth and development of Namibia is of critical importance. An analysis of the relationship between economic growth and consumption of electricity has shown that every 1% growth in GDP will result in growth in demand of electricity of 0.88%. As Namibia's existing supply is insufficient to meet future demand and a similar experience is expected for SAPP members, no economic growth strategies can realize without sufficient and sustainable supply of electricity.

Namibia's productive sectors operate and have to compete within a very open and competitive global environment. Energy security plays a supportive role and although the mere availability of sufficient and sustainable energy will not guarantee economic growth and development, it will soon become a pre-requisite for economic growth (other factors such as productivity, stability, legislation, tax regime, etc also play an important role in economic development and growth).

Should the region run into a shortage of electricity, Namibia will be forced to fully utilize domestic capacity. As mentioned before, a large portion of domestic supply is either not sustainable or not economical. The implications of such a scenario are significant:

- Pressure on consumer and production price inflation
- Economic stagnation
- Unstable energy supply will result in the deterioration of business and investor confidence in Namibia
- No new investments and even disinvestments
- Interrupted energy supply will lead to higher production costs, non-competitiveness, implying negative economic growth rates
- Unemployment will increase
- Further deterioration in the distribution of wealth, with an annual decrease in GDP per capita
- Social instability
- Objectives of Vision 2030 will never realize

Conversely, although the availability of sufficient and sustainable electricity does not guarantee economic prosperity, with Kudu gas to power project progressing, an environment suitable for

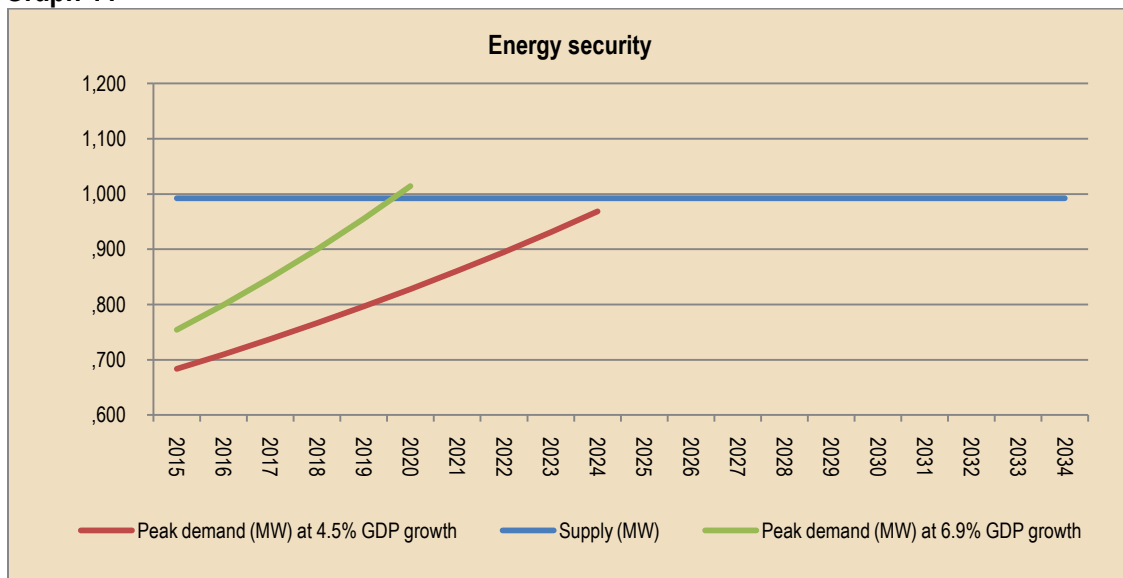


economic growth and objectives as envisaged in Vision 2030, as described in Section 6.1, will be set.

Apart from the importance of energy in the production process and living standards, energy security creates certainty and certainty enhances both business and consumer confidence and consequently new investments.

The Kudu project or any other similar electricity generation project will create an environment where economic growth and development objectives can be achieved. The energy security capacity in Namibia that will allow economic growth is illustrated in Graph 11. The area between the supply line and the left of the economic growth lines represent energy security. According to this graph, energy security will exist until 2025 with a 4.5% growth in GDP scenario, while it will only last until 2020 in a 6.9% growth scenario (similar to Vision 2030).

Graph 11



Sources: National Planning Commission, NamPower Annual Reports and author's own calculations



9. DEMAND AND SUPPLY OF FUNDS

9.1 Banking Industry

Supply of funding to the Namibian banking industry and funding of public debt have for a number of years now been supported by specific regulations in the Pension Fund Act and Long Term Insurance Act where asset managers of Namibian pension and insurance funds are forced to invest at least 35% of assets under management in Namibian approved assets and a significant portion of the Namibian portfolio has been invested in local bank and other debt instruments. Since the previous report of 2005, liquidity in the banking sector as well as the Namibian foreign reserve have improved considerable.

Table 7

Balance sheet of "Other depository corporations" as on 30 September 2010		
	N\$ Million	% of total
Assets		
Net claims on non-residents	2,472	4.9%
Claims on central bank	3,461	6.9%
Net claims on central government	1,004	2.0%
Claims on other financial corporations	3,086	6.2%
Claims on state and local government	68	0.1%
Claims on public non-financial corporations	318	0.6%
Claims on other non-financial corporations	13,970	28.0%
Claims on other resident sectors	24,761	49.6%
Other	800	1.6%
TOTAL	49,940	
Liabilities and equity		
Deposits: Other financial corporations	3,077	6.2%
Deposits: State and local government	645	1.3%
Deposits: Public non-financial corporations	3,360	6.7%
Deposits: Other non-financial corporations	16,022	32.1%
Deposits: Other resident sectors	8,510	17.0%
Securities: Other financial corporations	10,248	20.5%
Securities: Other	1,072	2.1%
Shares and equity	7,006	14.0%
TOTAL	49,940	
* Four Namibian commercial banks, Agribank, NHE and Nampost		

Source: Bank of Namibia

Table 7 gives a breakdown of the balance sheet of the Namibian banking industry. Some observation and key conclusions from this table are:

- Based on existing banking practices where South African parent banks act as provider of liquidity for Namibian banks or a destiny to park surplus funds, the difference between non-resident deposits and claims on non-residents gives an indication of excess liquidity/shortage in the Namibian banking industry. According to this method, a surplus of approximately N\$2.5 billion existed at the end of September 2010, pointing to banks with free liquidity to finance this project.

- Deposits by central government, other financial corporations and public and private non-financial corporations provide funding of approximately N\$21 billion (equivalent to 46% of total assets) to the Namibian banking industry.
- Disintermediation, where asset managers transfer funding from local banks to re-invest in alternative investment instruments for the project may have serious cash flow implications for the local banking industry. Although funding interest rates will increase over the short term, the ability to acquire shortfalls will be limited due to relatively small capital bases. Liquidity pressure will result in selective credit extension that could hamper economic growth. Such a scenario is a real possibility once Government implements their debt issuing program.
- Banks are statutory obligated to maintain liquid assets equivalent to 10% of liabilities.
- Longer dated listed non-government bonds do qualify as statutory liquid assets for Namibian banks provided that it has a Namibia government guarantee at the date of issue and/or have a investment credit rating.
- Based on the prescribed maximum exposure to a single entity of 30% of audited capital, the total amount of credit that commercial banks could extend to this project will be N\$2 billion (provided that the project is not financed with government issued securities). Exemption can, however, be granted if the debt is fully guaranteed by the Government of Namibia.

NamPower has currently N\$3.5 billion of investments in various debt instruments and fixed deposits and money on call with various financial institutions of which fixed deposits alone are N\$2.9 billion. The full or partial utilization of these funds that currently serves as a significant source of funding for local banks (equivalent to 7% of total liabilities and equity) as financing for the Kudu Project, will result into liquidity pressure on local banks (the current surplus of banks is approximately N\$2.5 billion).

9.2 Role of institutional funds

No readily available statistics exist that give an indication of the demand and supply of funds in Namibia. Some statistics have been obtained from various sources such as the major local asset managers, Government Institutions Pension Fund, Association of Unit Trusts of Namibia and Bank of Namibia. Although it is impossible to reconcile the data from the different sources the results are fairly consistent. According to Namfisa, the asset allocation of funds under management was as follows on 31 March 2010:

Table 8

Assets under management in Namibia as on 31 March 2010		
	N\$ Million	% of total
Money market	28,046	33.5%
Listed debt	11,009	13.1%
Unlisted debt	394	0.5%
Equity	39,215	46.8%
Other investments	5,084	6.1%
TOTAL	83,748	

Source: Namfisa 2010 Annual Report

It was mentioned earlier in this document that levels of both liquidity and foreign reserves have improved considerable. However, due to the nature of liquidity and foreign reserves, it will be prudent to source and target funding either from Namibian entities' foreign portfolio or from

foreigners. As illustrated by Table 8 and 10, cash currently invested in the RSA as well as existing investments in RSA bonds are potential sources for this project. The amount available according to our calculations can be as high as N\$8 billion.

A significant portion of the abovementioned assets under management consists of income and money market unit trusts.

Table 9

Namibian Unit Trust funds as on 31 December 2010		
	N\$ Million	% of total
Income Funds	3,113	12.8%
Money market funds	16,568	68.1%
Equity funds	428	1.8%
Asset allocation funds	4,236	17.4%
TOTAL	24,345	

Source: Association of Unit Trusts of Namibia

Based on the inherent duration of assets in money market funds of less than 12 months a significant portion of funds under management in the Namibian unit trust industry (68%) will not qualify to invest in longer dated debt instruments. It is estimated that the total demand for fixed income instruments in the rest of the unit trust industry will add up to about N\$4 billion (the bulk of the assets of Income Funds and a portion of Asset Allocation Funds).

Money market funds and to a lesser extent Income funds are important providers of liquidity for local banks. Although there are no local asset requirements currently for the unit trust industry, a significant portion of the money market funds are invested locally. Money market funds are currently equal to 50% of the deposits of banks in Namibia.

The following restraints should also be taken into consideration:

- Investment mandates, where trustees of private pension funds stipulate the maximum exposure per investment category or instrument;
- Statutory prudence requirements, where the Pensions Fund Act and Long Term Insurers Act stipulate the maximum percentage of aggregate market value of total assets of a fund that can be invested in different asset classes; and
- Internal investment philosophies.

The Namibia Government Investment Pension Fund (GIPF), being the largest pension fund in Namibia will be an important player. Funds of the GIPF are managed by a number of local asset managers (included in the figures of Table 8). Allocations are based on investment philosophies, while performance is evaluated against internationally accepted benchmarks. It should still be determined whether investing in the Kudu project, without any government backing, will be in line with existing investment mandates. Table 10 gives an indication of the current GIPF asset class profile.

Table 10

Assets of Government Institutions Pension Fund as on 31 December 2010		
	N\$ Million	% of total
Cash-RSA	270	0.6%
Cash-Namibia	1,187	2.8%
Bonds-RSA	5,540	12.9%
Bonds-Namibia	3,138	7.3%
Other investments	32,679	76.3%
TOTAL	42,814	

Source: Unpublished data received from GIPF

The following conclusions can be made from Table 10:

- The GIPF is an important provider of liquidity to the Namibian banking industry;
- The GIPF is an important investor in Namibian bonds; and
- The potential amount available (that will have a neutral impact on Namibia's foreign reserves) for investment in the project is approximately N\$6 billion (based on the amount currently invested in RSA bonds and cash with RSA banks), while from a statutory point of view it can be closer to N\$9 billion (see the section on Statutory requirements), although the GIPF's current exposure to other corporate and public sector bonds is not known.

Table 11

Holdings of Government of Namibia IRS as 31 January 2010		
	N\$ Million	% of total
Nominee companies	4,855	79%
Banks	470	8%
Non-bank financial institutions	176	3%
Other public enterprises	560	9%
Rest of private sector	60	1%
TOTAL	6,121	

Source: Unpublished data from Bank of Namibia, annual reports of Namibian banks

Table 11 confirms that nominee companies, representing mostly institutional investors and unit trust management companies, are currently the most important holders of government bonds.

Table 12

Asset allocation of Namibian Insurers as on 28 February 2011	
Cash: Namibia	11%
Bonds: Namibia	12%
Other cash	1%
Other bonds	11%
Other investments	64%
TOTAL	100%

Source: Unpublished data collected from main insurers in Namibia

9.3 Statutory requirements

Amendments to the Pensions Funds Act will be tabled before Parliament in 2011. An important amendment is the ruling that domestic assets consisting of shares acquired in a company incorporated outside Namibia (typical the dual listed shares listed on the NSX) may not exceed 10% of the market value of its total assets 66 months from the publication date of the notice. Although the full extent of investments in dual-listed shares is unclear at this stage, it should be significant considering that the free float market capitalization of the local shares was N\$3.5 billion at the end of December 2010 while GIPF has indicated that the value of Namibian shares was N\$11.4 billion. For the GIPF to meet the 10% requirement will imply a maximum shareholding of N\$4.4 billion in dual-listed shares at current values. If one assumes that the GIPF has two-thirds of the free-float of local listed shares, then GIPF alone will have to release dual-listed shares to the value of N\$4.7 billion for other Namibian assets. It will therefore be safe to assume that at least N\$6-7 billion dual-listed shares must be liquidated over the next 5 years and replaced with Namibian assets.

In terms of regulation 28 of the Pensions Funds Act and 35 of the Insurers Act the maximum percentage of aggregate market value of total assets of any fund that can be invested in bills, bonds and securities issued or guaranteed by state-owned enterprises is 20%, equivalent to approximately N\$16 billion. There is, however, a limit of 30% for total investments in state-owned enterprises, local authorities and regional council bonds. As total bonds issued within this category currently amounts to only N\$1.2 billion, there is still significant scope for institutional investors to invest in securities of state-owned enterprises. The 20% limit also applies to corporate bonds, while the limit of total investments of a fund in corporate bonds is 50%. The total amount of listed corporate bonds is currently about N\$1 billion also implying significant scope to invest more in corporate bonds.

9.4 Summary of local financing ability

- The maximum amount that local commercial banks will be able to contribute will be N\$2 billion (from a single party and surplus liquidity point of view). The utilization of fixed deposits currently invested at Namibian banks by NamPower as its contribution to the project may impact the current liquid conditions experienced by Namibian banks significantly leaving banks with very little or no capacity to fund this project. The final appetite of banks will also be influenced by the statutory liquid asset status of these financing instruments. In a scenario of no government guarantees banks final appetite is expected to be minimal and most probably restricted to project finance and working capital.
- Theoretical, local institutional investors have the ability to finance the project in full based on the regulations proposed in the Amended Pensions Fund Act and Long Term Insurance Act. However, the risk profile of the project, without any government backing, may not necessarily fit the risk appetite and mandates of the various pension funds and long term insurers, especially during the development stage. Should the risk profile matches the risk appetite of investors, it will be beneficial for the country and its foreign reserves to persuade investors to switch other foreign assets for a Kudu debt instrument in order to minimize the impact on Namibia's foreign reserves.



9.5 Cost of local funding

Namibian government bonds are currently (as on 16 February 2011) trading at the following margins above the South African benchmarks:

Table 13

Trading margins of Namibian Government IRS above SA benchmarks (16 March 2011)		
Namibian IRS	Margin (bp)	SA benchmark
GC15	+43	R157
GC18	+56	R204
GC21	+68	R208
GC24	+62	R186

Source: SSS Daily Bond Yield, SSS Daily Money and Capital Market Monitor

Table 14

Market rates for Namibian bonds listed on the NSX according to Namibian commercial banks				
4 March 2011				
Code	Issuer	Redemption date *	Nominal outstanding - N\$m	Average
SBNK11	Standard Bank Namibia	7-Jul-11	216.0	6.24
SBN2016	Standard Bank Namibia	20-Nov-11	150.0	6.39
FNB17	FNB Namibia	29-Mar-12	260.0	6.94
GC12	Government of Namibia	15-Oct-12	1,379.5	6.49
BW19	Bank Windhoek	4-Feb-14	100.0	9.35
SBKN14	Standard Bank Namibia	23-Oct-14	210.0	8.70
GC15	Government of Namibia	15-Apr-15	1,647.3	8.30
TCN15	Telecom Namibia	17-Apr-15	93.0	9.28
BW 20	Bank Windhoek	16-Aug-15	150.0	9.48
TN15	Telecom Namibia	19-Aug-15	159.5	9.42
RFA16	Road Fund Administration	31-Jan-16	330.0	9.29
TCN16	Telecom Namibia	3-Feb-16	44.0	9.54
SBNK16	Standard Bank Namibia	7-Jul-16	100.0	9.22
GC18	Government of Namibia	15-Jul-18	1,087.5	9.18
NMP19N	NamPower	10-Nov-19	250.0	9.77
NMP20N	NamPower	24-Jul-20	500.0	9.58
GC21	Government of Namibia	15-Oct-21	151.0	9.50
GC24	Government of Namibia	15-Oct-24	1,813.2	9.59
GC27	Government of Namibia	15-Oct-27	20.0	9.64
GC30	Government of Namibia	15-Oct-30	23.0	9.84
TOTAL			8,684.0	

* If callable, date of option

Source: SSS Daily Bond Yield, SSS Daily Money and Capital Market Monitor

Currently NamPower's NMP20N (maturing on 24 July 2020) currently trades approximately 88bp above its South African benchmark (R207), compares to the GC21 (maturing on 15 October 2021), trading approximately 68bp above its South African benchmark (R208), implying a difference of approximately 20bp between NamPower bonds and Government of Namibia internal registered stocks.

10. IMPACT ON BALANCE OF PAYMENTS

10.1 CMA Agreement

The multilateral monetary agreement between South Africa, Lesotho, Swaziland and Namibia (also known as the CMA agreement) forms the basis of maintained monetary stability with the objective to provide a basis for sustained economic development within the region. Some of the important elements of the agreement that are of importance from the Kudu Project point of view are as follows:

- Namibia has a right of access to the South African capital and money markets;
- When intending to source funding from South Africa, the authorities of Namibia must reach an agreement with the Government of South Africa on conditions, timing, amounts, etc of issue; and
- The Bank of Namibia as well as authorized dealers in Namibia shall have access to the foreign exchange market in South Africa.

10.2 Foreign Reserves

Although Namibia's minimum foreign reserve requirement is an amount equal to currency in circulation (which is approximately N\$1.5 billion), it is the intention of the Government to have sufficient reserves to cover at least 12 weeks' imports, which is in line with international standards. According to official statistics, Namibia's foreign reserves currently fluctuate between N\$12 and N\$14 billion – equal to approximately 15 weeks' imports, implying an excess of about N\$2.5 billion. It should, however, be noted that the surplus liquidity of Namibian banks and the Government's deposit with Bank of Namibia represent almost 50% of foreign reserves at this point. The Government has also started utilizing their balance to finance expenditure.

10.3 Development Costs

The following approximate costs are envisaged during the construction phase of 3 years:

Upstream	USD1.2 billion
Downstream	USD1.1 billion

The *Energy Africa Kudu Consortium* is responsible for the upstream phase, consisting of the following shareholders (although recent developments point to possible changes):

Namcor/Gazprom	54%
Tullow Oil	31%
Itochu Corporation	15%

Preliminary indications are that Namcor will not make any contribution towards the capital development costs with a free carry, will share 10% of the profits for the first 6 years of operation

and 20%, thereafter. It can be assumed that the funding will be sourced from outside the borders of Namibia, and that this portion of the development cost of the project will have no net impact on Namibia's balance of payments and foreign reserves.

At this stage no final decision has been made on the financing of the Kudu upstream project. In our analysis on the macro-economic impact we have used the following assumptions:

- 60% of the project will be financed by debt and the remaining 40% from equity contributions
- NamPower will provide 80% of the equity
- 25% of the finance will be sourced from outside the CMA

Based on an exchange rate of 7.65 the cost of the construction of the downstream phase will be in the region of N\$9 billion with the bulk of the cost representing imported capital goods.

As previously stated, Namibia's foreign reserves are above the minimum set levels but a significant portion of about 50% of current foreign reserves are exposed. It will therefore be prudent to finance all or a significant portion of these expenses by foreign or external sources.

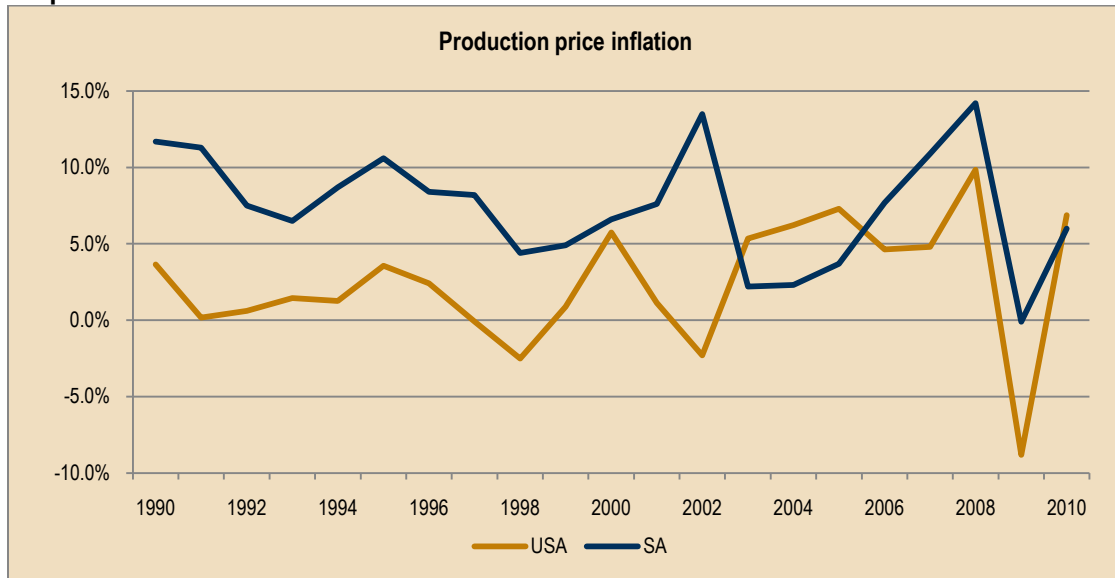
Namibia's foreign reserves are, however, sufficient to carry the full portion of the costs associated with the downstream development phase of the Kudu Gas Project.

10.4 Operational costs

The pricing of gas delivered at NamPower in future may have a serious impact on the balance of payments. A scenario where the input cost of electricity is USD denominated, while sales of electricity are either SA Rand or Namibia Dollar denominated, may pose risks for Namibia.

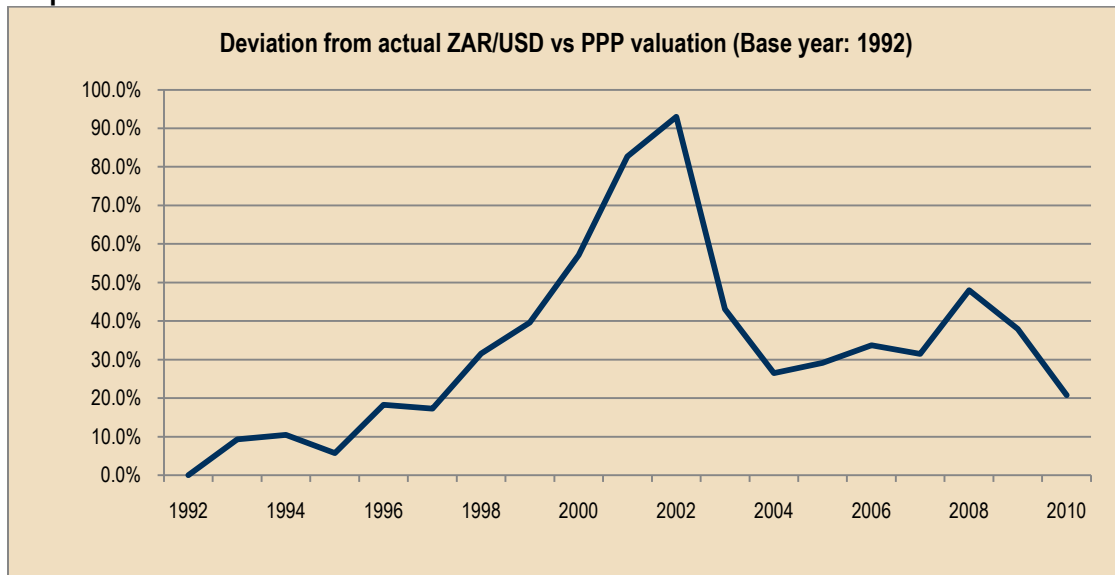
Graph 13 depicts clearly that the ZAR / USD exchange rate does not necessarily follow the inflation differentials between the two countries and that it can fluctuate significantly. Since 1992 (our base year), the ZAR was at times up to 90% undervalued against the USD in terms of purchase power parity. It is also interesting to note that over this period that the producer price inflation differential was 4.2%, while the ZAR on average has depreciated by 5.4%, implying a significant deviation from purchase power parity of 1.2% per annum. Although we have seen a reversal in this trend (for example since 2000 the ZAR depreciated 0.6% on average compared to the average producer price differential of 3.1%), an exchange rate not behaving according to purchase power parity poses major risk to the price of electricity, generated by Kudu.

Graph 12



Source: South African Reserve Bank, South Africa Statistics Office and USA Federal Bank

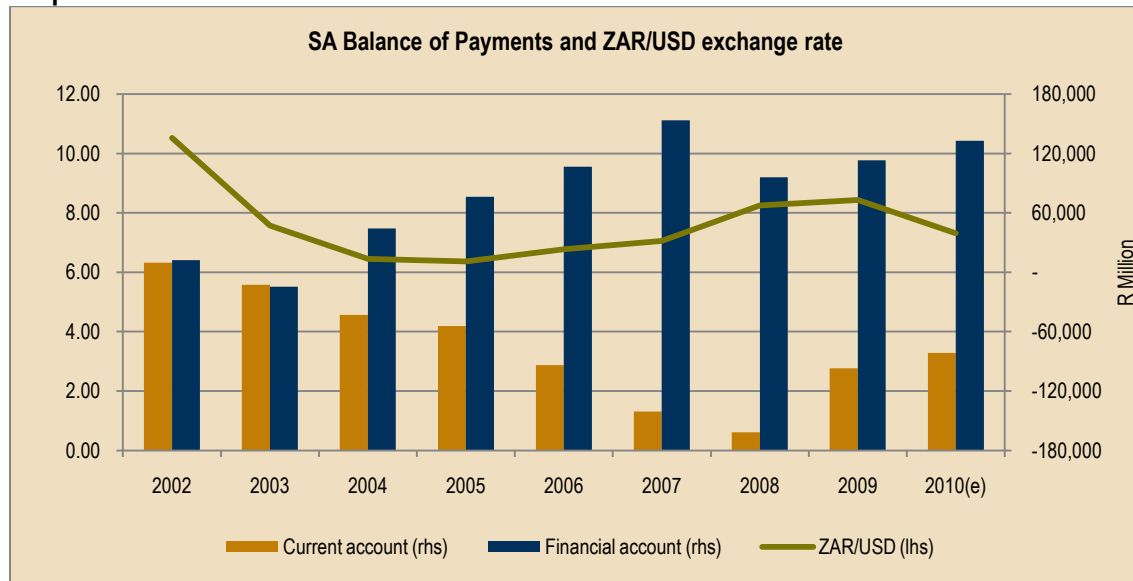
Graph 13



Source: Author's own calculations based on data published by the South African Reserve Bank, South Africa Statistics Office and USA Federal Bank

Since the mid-1990's, financial flows have played an increasingly important role in the external value of the ZAR. Globalization has eased the flow of funds between countries and complicated the determination of fair levels of exchange rates. The impact of these flows is evident from the graph below. Purely based on purchase power parity, the ZAR is still trading at a discount of approximately 20% despite being supported by large inflows of capital. A possible reversal of the trend of the last number of years and the potential impact on the ZAR exchange rate can, however, not be ignored.

Graph 14



Source: South African Reserve Bank

The net impact on the balance of payments is very sensitive to the following:

- Depreciation in the exchange rate:
 - In a scenario of a ZAR/USD 4.5% depreciation, and where 50% of the surplus is exported at the daily average market price and the rest wasted, results in a NPV of N\$19 billion for the flows during the construction/operational period of 2013 to 2031
 - A simulation of very volatile historical exchange rate movements from 1992 to 2010, where the ZAR depreciates by up to 24% within a year, for the period 2013 to 2031, will reduce the NPV to N\$3 billion
- Limiting the exposure to Kudu:
 - a PPA of 300MW at a firm ZAR price and the importation of any shortfalls from within the region will imply a similar NPV of N\$19 billion
- Price of exports to the region
- Theoretical price of imports to calculate import substitution
- Conclusion of Namcor's position within the upstream consortium
- Realization of a 5% royalty on gas sales

The impact of a 4.5% depreciation in the USD/ZAR exchange rate and the realization of the abovementioned assumptions on the balance of payments is illustrated in Table 15.

Table 15

Impact on Balance of Payments (N\$ Million)								
Fin.year	Construction	Debt/Div	Operational	Namcor	Royalties	Exports	Import subs.	Net impact
2012								
2013	(3,015)	4,280	-	-	-	-	(2,107)	(843)
2014	(3,015)	-	-	-	-	-	(3,613)	(6,629)
2015	(3,015)	-	-	-	-	-	(5,155)	(8,170)
2016	-	(611)	(1,825)	70	73	-	2,829	536
2017	-	(623)	(4,495)	275	201	185	6,712	2,255
2018	-	(636)	(4,838)	304	216	194	7,547	2,788
2019	-	(649)	(4,946)	204	220	174	8,533	3,536
2020	-	(662)	(5,496)	237	246	199	9,420	3,943
2021	-	(677)	(5,802)	253	259	200	10,326	4,559
2022	-	(692)	(5,884)	509	261	175	11,209	5,578
2023	-	(707)	(6,655)	603	297	219	12,160	5,916
2024	-	(723)	(7,026)	643	314	219	13,106	6,532
2025	-	(740)	(7,252)	664	322	200	14,295	7,489
2026	-	(758)	(7,769)	723	346	209	15,493	8,243
2027	-	(777)	(8,611)	825	385	247	16,786	8,855
2028	-	(137)	(9,068)	876	405	242	18,176	10,494
2029	-	(143)	(9,372)	907	417	217	19,636	11,661
2030	-	(149)	(10,302)	1,019	460	252	21,245	12,525
2031	-	(156)	(8,437)	837	363	-	22,630	15,237

Source: Kudu Project internal documents, author's own calculations

10.5 Hedging

Although the cost of currency forward rate agreements for periods of longer than 12 months is considered expensive, the downstream consortium should have the cash flow ability to enter into rolling 12-month forward rate agreements. The consortium should therefore be able to hedge itself against exchange rate risks during the period of construction. Hedging during the operational period may, however, become challenging.

Should the consortium enter into any other long term loan agreements denominated in hard currency, other hedging alternatives such as cross currency swaps are also available to hedge itself against exchange rate risks.



11. ALTERNATIVE OPTIONS

It is concluded from the section on Demand and Supply of electricity that Namibia's peak demand for electricity will range between 845MW (Low Demand Growth scenario) and 1900MW if the objectives of Vision 2030 are met in 2030. It is also clear that the demand for electricity in the region will soon outstrip current supply levels.

From previous sections it has become evident that as economic growth will become a function of sufficient and sustainable supply of electricity, Namibia should be pro-active to be able to address the potential shortage that may be a reality within the next few years.

The following main electricity generation technology options were investigated:

- Combined cycle gas turbine
- Conventional coal fired plants
- Nuclear
- Wind
- Solar
- Hydro-power

Application of nuclear technology is quite complex and is not considered as suitable for Namibia. It also has a relatively long lead-time of 9 years in the case of both advanced light water reactors as well as pebble bed modular reactors. It is therefore excluded as an alternative for Kudu.

Due to the inherent nature of wind and solar energy as sources of electricity, these cannot be relied upon as sustainable primary sources of electricity, and are therefore ignored as alternatives for Kudu. Hydro-power requires constant flow of water at sufficient water levels. Due to the water situation in Namibia and the experience of erratic rainfall within the region, this option has also been excluded as an alternative primary source of electricity for Kudu. Some issues, amongst others, that will have an impact on macro-economic variables are:

- Relative costs
- Stimulation of economic activities within the Caprivi and other northern Namibian regions
- Regional integration opportunities
- Lead times
- Sustainability

This implies that only coal can be considered as an alternative source of electricity generation within the boundaries of Namibia.

11.1 Reliance on South Africa (or rest of the region)

Advantages

- No initial capital outlay
- No pressure on local liquidity and foreign reserves
- Limited vulnerability to foreign exchange risks
- Namibia's supply of electricity forms part of the South African electricity backbone

Disadvantages

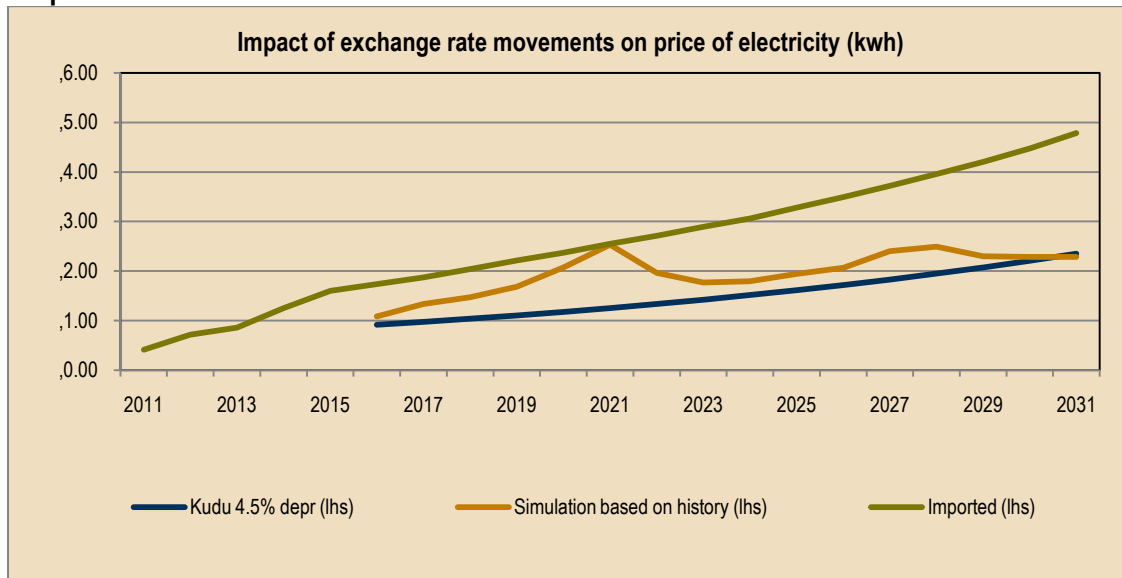
- The potential of gas as a Namibian natural resource is not economically utilized
- Although an integral part of a formal agreement between other regional parties and NamPower, Namibia has no control over the continued sustainable supply of electricity
- Interrupted power supply will harm the manufacturing sector and economy in general and will weaken the competitive position of Namibian producers
- Depending on the source, the cost of building a transmission network can be costly

11.1.1 Cost Implications

In order to increase the supply of electricity to Namibia, Eskom or any other regional supplier will have to upgrade the transmission network to Namibia. Based on 2010- prices, the impact will be an additional 10c/kWh, resulting in an import price of 80c/kWh in 2014:

Eskom base export price: 70c/kWh
Transmission in South Africa: 10c/kWh

Graph 15

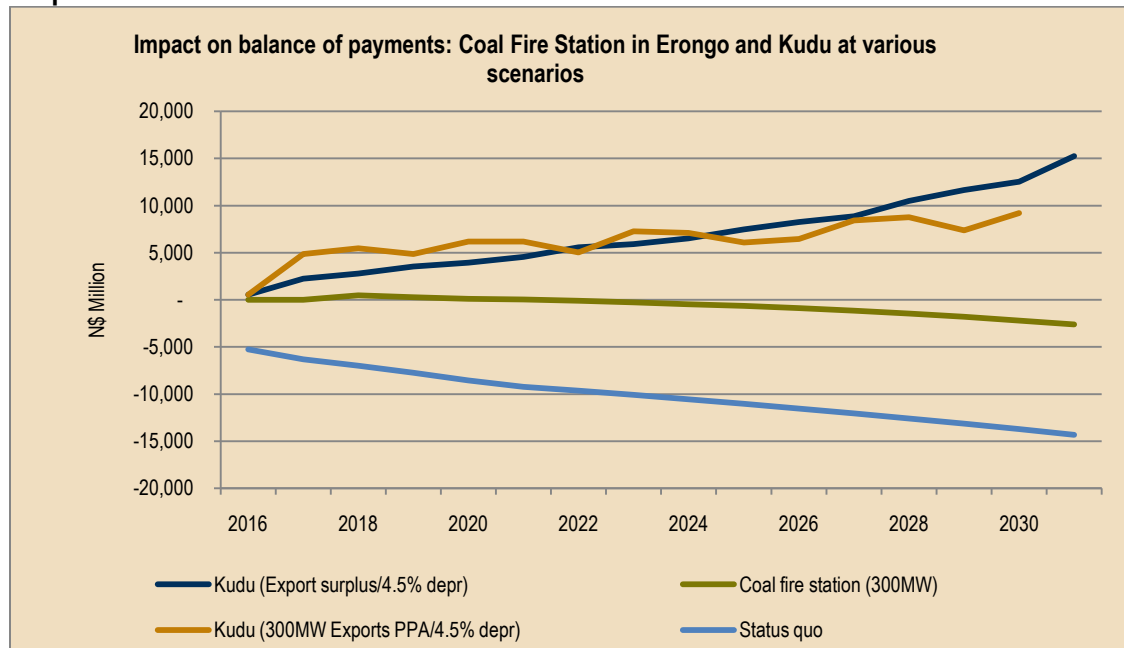


Source: Unpublished information from NamPower, SIAL, author's own calculations

Graph 15 shows the difference between the expected price of Kudu and price of imported electricity from the rest of the region under different exchange rate scenarios. The positive price difference between Kudu electricity at an average depreciation of 4.5% in the N\$/USD and imported prices is quite significant, while the impact of a volatile exchange rate on prices is also evident. Based on this graph the difference in prices between a stable 4.5% depreciation and a repetition of the volatile historical pattern from the late nineties to the early 2000's can at times nearly double, if not hedged. From a price perspective, Kudu appears to compare very favorably with the price of imported electricity.

11.1.2 Impact on balance of payments

Graph 16



Sources: Unpublished information from NamPower, SIAL, author's own calculations

It appears that all Kudu scenarios (4.5% depreciation in the exchange rate, simulation of historical exchange rate movements and a firm 400MW PPA) will have a favorable impact on Namibia's balance of payments. As Namcor is a beneficiary in the upstream operation, royalties are based on USD revenue stream and there is potential that about 30% of the generation at Kudu can be priced in USD, Namibia as a country will also receive some benefits from a weaker currency.

11.2 Namibia constructs a new conventional coal fired plant in Erongo Region

Advantages

- Namibia has full control over its supply of electricity
- Will make a positive contribution to Namibia's foreign reserves
- Additional capacity will make a positive contribution to SAPP
- Will support Namibia's long term economic growth and other objectives
- Namibia's exposure to foreign exchange risks once operational may be relatively smaller (depending on whether Namibia is able to secure contracts for imports of coal in ZAR)

Disadvantages

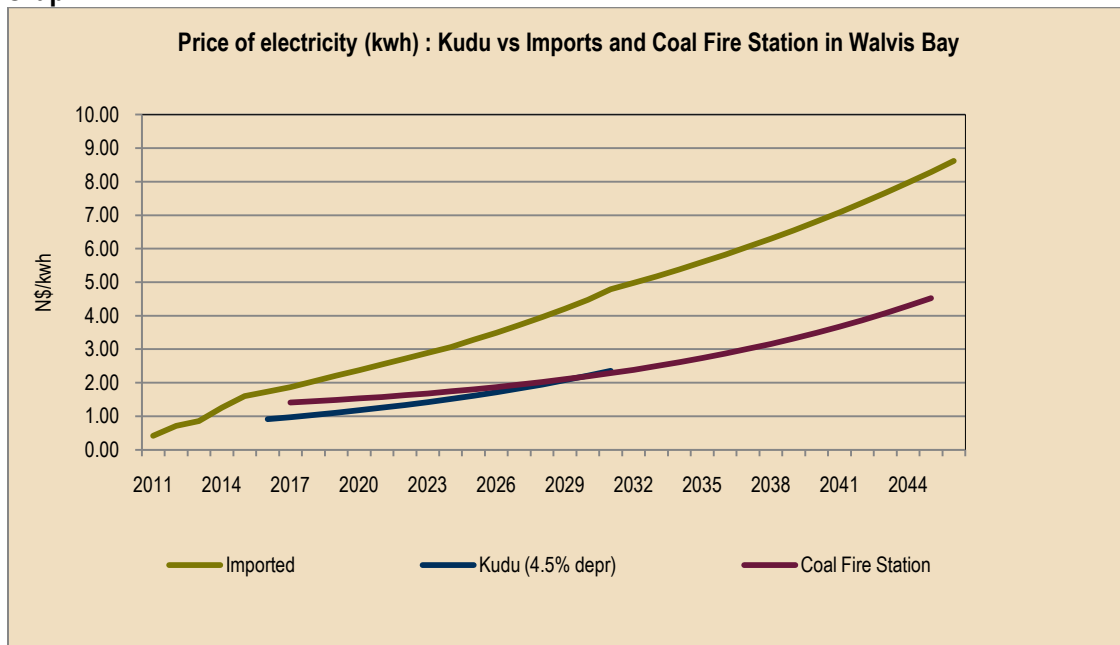
- The potential of gas as a Namibian natural resource is not economically utilized
- Relatively large initial capital outlay
- High transportation costs
- Financing of the project may result in huge pressure on local liquidity and foreign reserves if funding cannot be sourced outside Namibia
- Relatively long lead time
- Potential foreign exchange and commodity risk

11.2.1 Cost implications

One of the major cost elements of a conventional coal fired plant not located close to the source (coal) is transportation costs. The operational cost at Von Eck power station in Windhoek is approximately 102c/kWh compared to the current long run marginal costs of 42c/kWh of Eskom, mainly due to high transportation costs. According to a NamPower study, the cost of transport of coal delivered in Windhoek is approximately 50c/kWh. Environmental costs associated with a conventional coal fired plant, which can become costly, did not form part of the comparisons.

According to Graph 17, the price of electricity of Kudu is for most of the time cheaper than a conventional coal fired plant built in Namibia (conveniently close to a port). Again, exchange rate movements will be a major variable in levels of future electricity prices. The analysis indicated that at a 4.5% per annum depreciation, the Kudu project will remain the cheaper option. Both options are significantly cheaper than the projected costs of imported electricity.

Graph 17



Sources: Unpublished information from NamPower, SIAL, author's own calculations

11.2.2 Impact on Balance of Payments

As Kudu will produce more electricity than the envisaged coal fire plant (800MW versus 300MW) it generates far more export opportunities, while the presence of Namcor as a stakeholder in the upstream operation, royalties on gas imply that Kudu is far more attractive as a source of foreign exchange earnings for Namibia. This is applicable for both a 4.5% exchange rate depreciation and 300MW PPA scenario. The impact is also illustrated in Graph 16.

12. MICRO-ECONOMIC IMPACT

12.1 Analysis of users of electricity in Namibia

Table 16

Profile of electricity users in Namibia						
	Cooking		Lighting		Heating	
	Households	% of total	Households	% of total	Households	% of total
Urban	90,922	60%	106,728	71%	60,213	40%
Rural	16,365	7%	28,749	13%	9,067	4%
Total	107,287	28.8	135,477	36%	69,280	19%

Source: 2003/4 Namibia Household Income and Expenditure Survey, published by National Planning Commission

Electricity is a commodity that is not affordable to a large section of the population with the average household cash income of rural households a mere N\$2,317 per month in 2003/4, significantly lower than the average household cash income of urban households of N\$5,552 per month. The average income position is further distorted by a very skew distribution of income in Namibia, with the monthly income of 75% of all households at only N\$1,672 per month (2003/04-prices).

Should the objectives of Vision 2030 be partly achieved by doubling the real income of the poorest 75% poorest households to N\$ 8,000 (2010 prices) then the demand for electricity for these households will increase to 116MW base demand or 168MW peak demand.

12.2 Impact of Kudu Project on cost of electricity

12.2.1 Direct impact on inflation

As emphasized in previous sections electricity prices are bound to increase irrespective of the source of electricity. It was also concluded that the Kudu probably is the cheapest option for Namibia from a cost and lead time point of view. The focus of this section is to determine the potential impact of higher electricity prices on inflation, and the identification of variables that should be closely evaluated and monitored.

Graph 15, in the previous section, clearly shows that the pricing of gas delivered at the power plant will have a significant impact on the price of electricity. Should the price of gas be denominated in USD, the price of electricity could be subjected to considerable fluctuations. With the ZAR/USD exchange rate being as volatile as during the past years, this could have a major impact on the price of electricity.

The weighting of fuel and power of the Consumer Price Index for Namibia is 4.0%. This implies a 0.4% increase in the consumer price inflation index for every 10% increase in the price of fuel and power. With the price of gas probably 100% USD denominated and the same volatility in the ZAR/USD exchange rate as during the last few decades, the impact on the total CPI inflation rate can at times be significant.

As illustrated in Graph 15, the price difference between a scenario of orderly depreciation of 4.5% per annum and a scenario where history repeats itself can be quite significant, if not hedged. A scenario where the price of electricity double, will result in an escalation in the consumer price inflation of 4%, should the full cost be passed on to the consumer.

12.2.2 Other impacts

Namibia operates in an open economy and has to compete with the rest of the world. Unfortunately Namibia does not have a production price index. With a lot of similarities between the RSA and Namibian economies, one can assume that Namibian companies have a very similar production cost structure than that of South Africa. The importance of electricity in the production process is as follows:

Table 17

PPI for consumption in South Africa	4.17%
PPI for total output of South African industry groups	4.35%
PPI for output of South African industry groups for SA consumption	5.72%

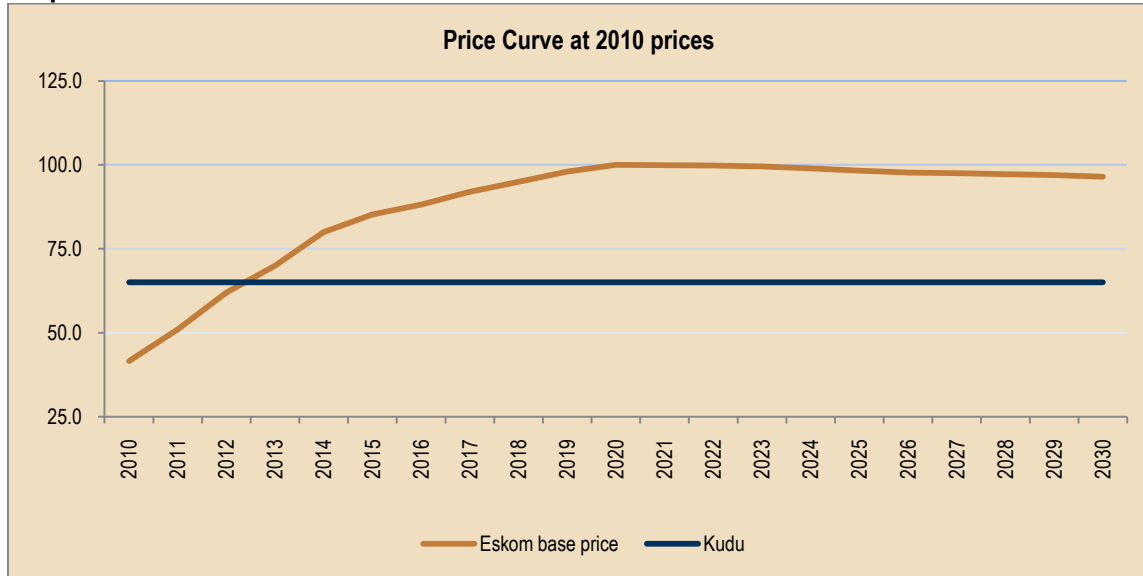
Source: South Africa Statistical Office

Due to the differences in time periods for time-of-use tariffs, it is difficult to make a clean comparison between South African tariffs and Namibia and to determine exactly on how much more expensive Namibian tariffs are. The cost of electricity with an 11 kV supply in Gauteng will range between 17c and 131c/kwh, while in Windhoek the tariff for industrial customers will range between 37c and 195c/kwh. The daily average is about 140% more expensive in Windhoek than in Gauteng for these two categories.

Eskom's average 2010 price, as approved by the South African regulatory body NERSA, was 41.6c/kwh. In the Base Case scenario the average price is expected to increase to 70c/kwh in 2013, 80c/kwh in 2014 and 100c/kwh in 2020 after it is expected to stabilize. Kudu's expected price of 65c/kwh (at 2010 prices) compares very well and will put Namibian producers in a very competitive position from an electricity cost point of view.

Producers in Namibia compete to a large extent with South African producers, implying that Namibian producers is less competitive as a result of relative higher electricity prices. The availability of electricity is, however, not the only factor that will be considered by potential energy intensive industries when investing in a country. Other factors that will also play a role are the tax regime, stability, availability of resources, infrastructure, etc..

Graph 18



Source: Eskom Executive Summary of the Integrated Electricity Resource Plan for SA

The impact of higher input costs can be divided into two sub-sections.

Firstly, the impact on import substitution companies. Government can protect industries with the introduction of import levies, but then it must be approved at SACU-level to give these industries infant industry status. This would allow them to maintain a competitive position within Namibia, but it will remain difficult to compete with companies abroad and Namibian consumers will most probably pay a higher price (than imports) for these commodities.

Secondly, the impact on export companies. These companies operate in very competitive global commodity and consumer markets. To maintain a competitive position, electricity will have to be provided at subsidized levels, again to the detriment of local consumers.

13. PUBLIC FINANCE

13.1 Role of the public sector in the economy

The public sector in Namibia plays a significant role in the Namibian economy. Concerns with the size of government expenditure, government revenue, public debt and deficit before borrowings as percentage of GDP has often been expressed in annual budget statements. According to the latest Medium Term Expenditure Framework (MTEF) for 2011/12-2013/14 the government aims to achieve the following goals during the next 3 years:

Table 18

	2011/12	2012/13	2013/14
Expenditure as % of GDP	38%	34%	37%
Revenue/Grants as % of GDP	29%	29%	30%
Budget deficit as % of GDP	10%	5%	6%
Public debt as % of GDP	27%	30%	34%

Source: Ministry of Finance

It should, however, be noted that actual public debt as at the end of February 2011 was estimated to be only 16% of GDP and that the expected acceleration in public debt has not taken place yet.

Although no specific targets have been set for government guarantees as percentage of GDP, concerns have also been expressed in the past on the extent of these guarantees. Controls on the issuing of new guarantees have been tightened during the last few years. The latest available figures state central government loan guarantees at N\$2.6 billion, equivalent to about 3% of GDP.

The total cost of the downstream development phase of the Kudu Project is estimated at USD1.1 billion. Due to the magnitude of this project within the Namibian context and potential risks during the construction stage, it may become necessary for the Government of Namibia to guarantee the project partially or in full at least during the construction phase to secure the required funding. This will obviously have a significant impact on public debt to GDP ratios. For every N\$1 billion guaranteed, central government loan guarantees as a percentage of GDP will increase by 1.2%, based on an estimated GDP of about N\$85 billion for 2010.

Based on a debt to equity split of 60:40 in respect of the financing of the project an amount of approximately USD650 billion must be raised. For every N\$1 billion financed by the Government of Namibia, public debt as percentage of GDP will increase by 1.2%, implying if fully financed, public debt as percentage of GDP (at 2010 prices) will increase by an additional 5%. According to the government's forecast of GDP for 2013/14, public debt as percentage of GDP will increase to 37% should government take full responsibility for the financing of the required N\$4.3 billion. This level is well above the level of 25% envisaged in NDP3 and Vision2030.

13.2 Impact on government revenue

13.2.1 SACU receipts

Receipts from the Southern African Customs Union (SACU) remain the main source of revenue to central government. SACU receipts is expected to be N\$7 billion for the fiscal year 2011/12, equivalent to 26% of total own source revenue. Theoretically, this project may have an impact on Namibia's future share based on the extent of imports of capital goods (during the construction period and once fully operational) within the SACU region, but also because of changes in the import/export pattern within the region. The formula for Namibia's share of SACU consists of three elements:

Customs component:

Cost-Insurance-Freight (CIF) value at border posts from all other Member States into the area of each state as percentage of the total CIF value of intra-SACU imports.

Excise component:

Value of the GDP of each member state as percentage of the value of the total SACU GDP.

Development component:

The total value available for sharing is the equivalent of 15% of the excise component. Each Member State's share is a factor of differences between per capita income of Member States.

The benefits for Namibia's fiscus derived from the project will come from the customs component should all capital goods be imported from within SACU. Based on figures in the South African budget and trade figures released by the South African Revenue Services, Bank of Namibia and the South African Reserve Bank, the weighting of the Customs component of the SACU revenue sharing formula for Namibia is estimated at between 70% and 75%.

The total cost of this project (upstream plus downstream) is estimated at USD2.3 billion. The estimated value of capital goods that will most probably be imported from outside the SACU-region is USD1.7 billion, equivalent to N\$13 billion at a ZAR/USD exchange rate of 7.65. Goods entered Namibia via other CMA-member countries will increase Namibia's share and will have a positive impact on Namibia's SACU revenue. In the more likely scenario where all the capital goods are directly delivered at a Namibian port, the benefit will be very small as gas turbines (which will represent the bulk of the imports) are exempted from customs duty in terms of the Harmonized Customs and Excise Tariff Book - thus no impact on the SACU pool. These imports will also not reflect in the intra-country trade numbers.

The fact that Namibia will import less from other SACU-members and most probably export electricity to members will have a negative impact on Namibia's share. Currently Namibia's imports of electricity from other members are approximately N\$350 million. This is equal to approximately 1% of total imports. Based on the weight of the customs component of approximately 75%, the Kudu project can result in a reduction in SACU revenue of approximately 0.75% (N\$45 million on a normalized SACU revenue of N\$6 billion)

13.2.2 VAT

Based on a 15% Value Added Tax rate and an approximate value of capital goods that will be purchased of USD1,540 million (70% of the construction cost of both the upstream and downstream phase) at N\$/USD exchange rate of 7.65, the theoretical VAT receipts will be about N\$1.5 billion. However, this amount would be considered as an input VAT credit that would be claimed back from Inland Revenue, thus no impact on the fiscus of the Government of Namibia.

13.2.3 Corporate tax

Corporate taxation will depend on the profitability and tax position of both consortiums representing the downstream and upstream phases which is uncertain at this stage.

13.2.4 Individual tax

Due to the relatively limited utilization of local labour, the potential tax to be collected in the form of personal tax will be insignificant.

13.2.5 Other principal fiscal elements as outlined by Namcor

13.2.5.1 Royalties

Payable quarterly, Royalty is levied at the rate of 5% of the market value of oil and gas produced and saved. (Under earlier Rounds the rate was 12.5%). In special circumstances, the Minister may defer, remit or refund Royalty due, upon application made by the holder of a production licence. It is estimated that a 5% royalty of the value of gas at the well-head will imply additional revenue for the government of USD19 million per annum initially growing to USD25 million in the final full year of production.

13.2.5.2 Petroleum Income Tax (PIT)

PIT is levied at the rate of 35% of taxable income.

In the computation of taxable income, exploration expenditure and operating expenditure is written off immediately and in full (i.e. 100% depreciation). Development expenditure is depreciated over 3 years (33.33% per annum, straight line), and deducted accordingly.

PIT is assessed on a Licence Area (i.e. contract area) basis. However, as a new incentive, exploration expenditure incurred by a licensee, after the enactment of the Petroleum Laws Amendment Act, 1998, in any Licence Area in Namibia may be deducted in the computation of that licensee's PIT taxable income from a producing Licence Area.

13.2.5.3 Additional Profits Tax (APT)

An incremental three tiered APT is charged on the after-tax net cash flow from petroleum operations in each Licence Area separately. Exploration, development and operating expenditures, as well as Royalty and PIT, are all fully deductible in the year they are paid in the computation of the APT net cash flow for the year.

APT will only be paid if the petroleum operations in a Licence Area earn an after-tax real (i.e. inflation- adjusted) rate of return of 15%. The second and third tiers of APT become payable once the profitability level exceeds 20% and 25% respectively.

The first tier rate of APT is established in the legislation (through a formula) at 25%. However, the incremental second and third tier APT rates are biddable by, and negotiable with, each prospective investor consortium, and the agreed rates will be set out in the respective Petroleum Agreement.

14. Sources of Information

Interviews

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Manufacturers Association of Namibia
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