



**Namibia IPP and Investment
Market Framework Technical Assistance
USTDA Grant Number: GH051130313**

**Volume II: Annex 4
POWER MARKET SYSTEM DESCRIPTION – DEMAND FORECAST
AND SUPPLY OPTIONS**



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Namibia IPP and Investment Market Framework Technical Assistance Under a Grant by the U.S. Trade and Development Agency

ANNEX 4: ASSESSMENT OF THE LOCAL POWER MARKET

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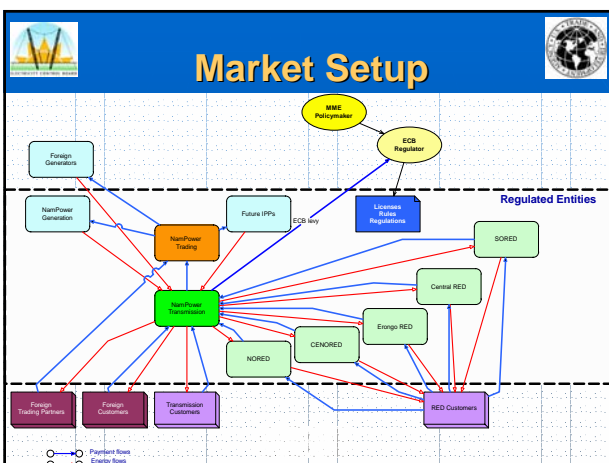


Overview

- Market Setup
- Local Demand
- Regional Demand
- Summary



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Market Setup Issues

- No independent **Single Buyer** (or other market operator)
 - NamPower in potential conflict of interest
 - Small market size limits options
- Low prices** compared to international levels
 - Perception that higher prices may damage economy
 - Worries about competitiveness v. RSA
 - Need to look at structure of economy to gauge impacts





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Market Setup Issues


- **LA taxation** of electricity putting pressure on retail tariffs
 - Removal could make "space" for more realistic generation prices without increasing retail rates
 - Current LA funding method acts as a business and consumption tax, mostly on larger users
- **Distribution & supply restructuring** not complete
 - Lack of stability & predictability
 - End state not certain

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Market Setup Issues

- Eskom (and NamPower) in position to **exercise market power**
 - They can refuse to pay the price required by a generator.
 - They can control offtake volumes so as to benefit own generating plants
 - Dual role as market operators is conflict of interest that is difficult to resolve
- Eskom (and NamPower) are used to exercising **control** and are averse to letting go of this control

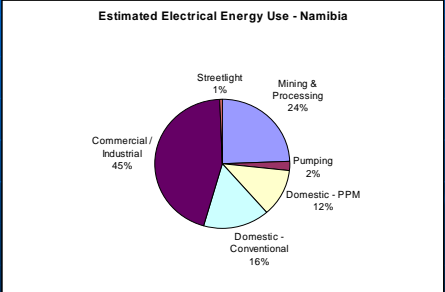
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Local View ...




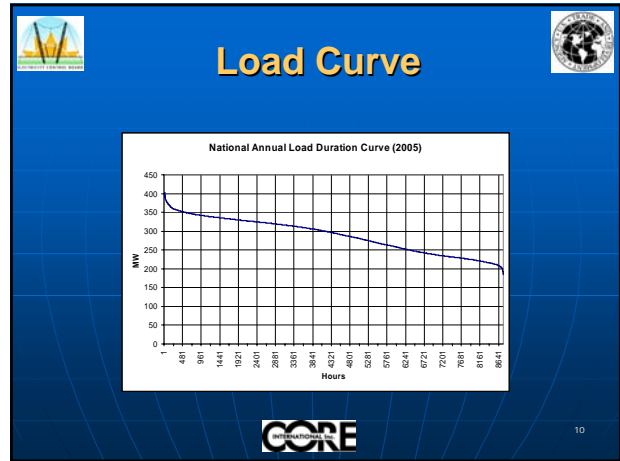
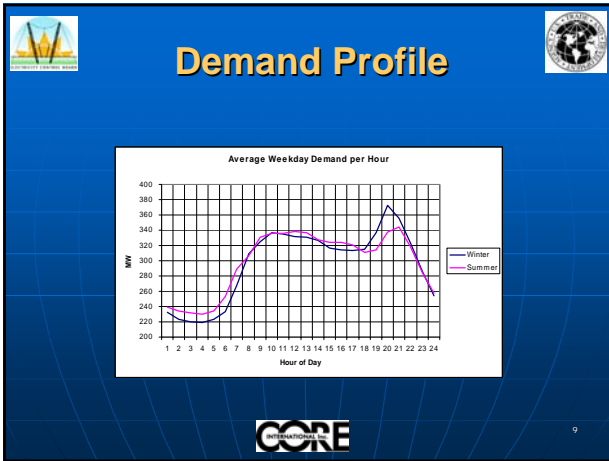
Energy Market

Estimated Electrical Energy Use - Namibia



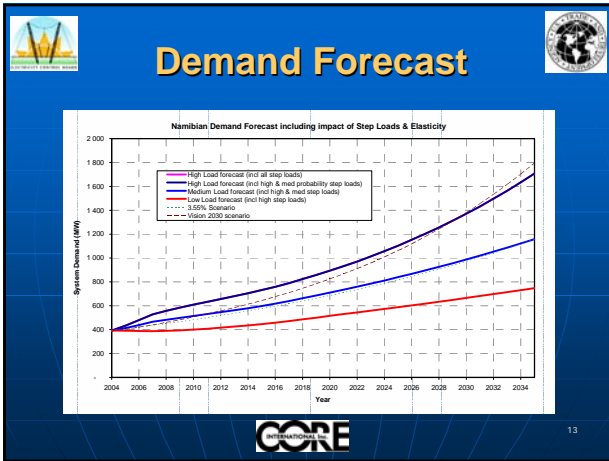
Category	Percentage
Commercial/Industrial	45%
Mining & Processing	24%
Domestic - Conventional	16%
Domestic - PPM	12%
Pumping	2%
Streetlight	1%

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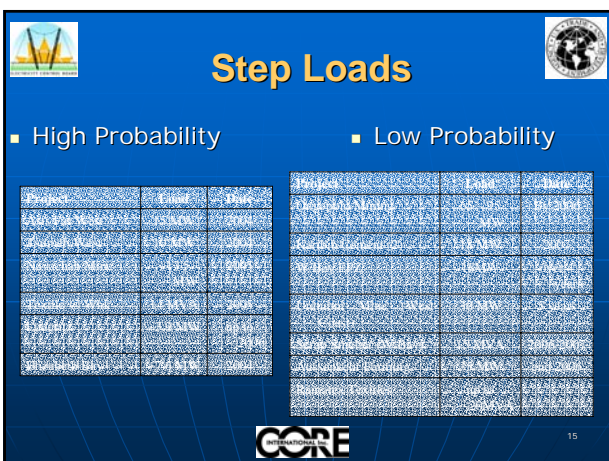


- ## Supply Assumptions
- Van Eck & Paratus too expensive for normal supply
 - Used for emergency situations
 - Fuel costs above import price from Eskom
 - Ruacana average available 120MW
 - Used for peaking and mid merit, base load when full water flow
 - Insufficient dammed water to meet continuous supply duty cycle

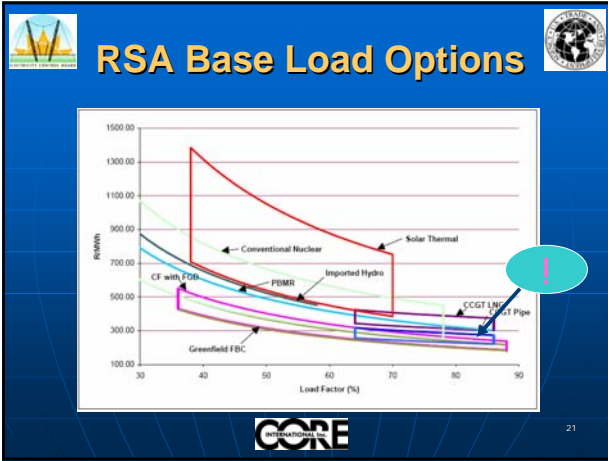
- ## Observations
- Load Profile
 - Domestic evening peak
 - Usually served by Ruacana?
 - Base load of 200MW
 - Potential for IPP – especially in low water season
 - Daytime plateau
 - Potential for IPP – base load to mid merit
 - IPP Opportunity
 - Could argue that there is immediate IPP base load opportunity of around 200MW



- ## Demand Forecast Observations
- Low Scenario
 - Little growth in 10 years – 100MW
 - Projects static economy & population
 - Medium scenario
 - Add 200MW in 10 years
 - Includes ~70 MW from high probability mining & industry
 - High Scenario
 - Add 400MW in 10 years
 - Includes additional ~200 MW from lower probability mining & industrial projects
 - Possibility to supply Scorpion from 2011?
- CORE**

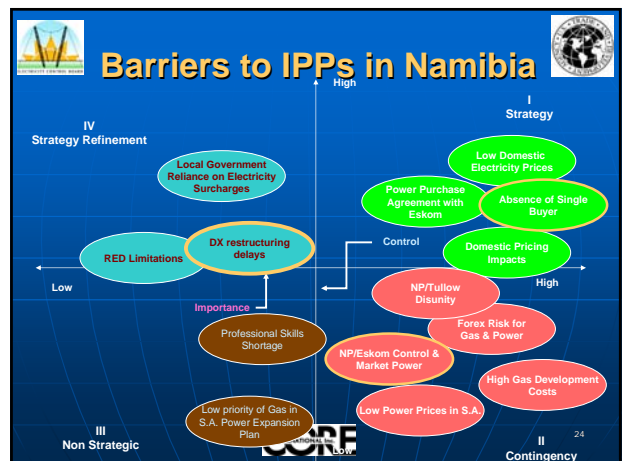


Regional View ...



- ### Observations
- Gas does not feature prominently
 - But CCGT piped indicated close to coal in cost terms at high load factor
 - Plan based largely on coal with flue gas cleaning
 - More than 10GW of coal plant planned in next 17 years

In Summary ...






Observations

- Strong growth in regional market
 - RSA demand to increase by 10,000 MW in next five years
 - Regional demand growth accounts for most of current supply shortage
 - Limited ability to provide massive increases in supply in short run
 - Hydro in Zambia, Mozambique ~1,000 MW at most in next five years
 - Congo River project very large, but longer term

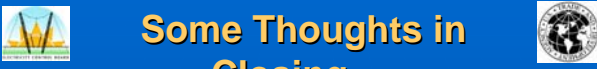
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Observations

- Current supply shortages result from exhaustion of 1970s-era excess capacity
 - Most new demand must be met from thermal plants in next 5-10 years
 - Coal is largest potential fuel source
 - The region's dominant player, Eskom, will wish to:
 - build new generation facilities; and
 - retain control

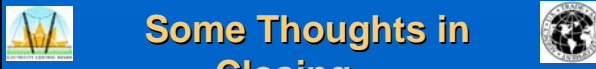
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Some Thoughts in Closing ...

- Demand
 - Existing local demand can justify IPP 200 – 400MW?
 - Growth in local residential demand unlikely to justify sizeable IPP (especially if DSM is used to reduce peaks)
 - Local commercial and industrial load growth difficult to predict and dependent on a few large players – high risk (e.g. Ramatex, other potential large power users)
 - Exports to RSA & exchange with Zambia critical to economics of large projects

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Some Thoughts in Closing ...

- Supply
 - This is not the 1970s
 - Coal is not free
 - Environmental standards cost investment funds as well as foregone output
 - Gas is nice, but expensive
 - Demand in RSA has outgrown transmission system
- NamPower views on market?
- ECB views on market?

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Some Thoughts in Closing ...



- Structure
 - NamPower views on market?
 - How to implement single buyer
 - What are the structural alternatives?
 - How much volume does the Namibian market need to justify restructuring?
 - ECB views on market
 - Regional coordination - RSA, SAPP
 - Trading efficiency for accountability?

Right now no one can order up new supply in convincing manner



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Thank You!