

# Utility Management Consulting

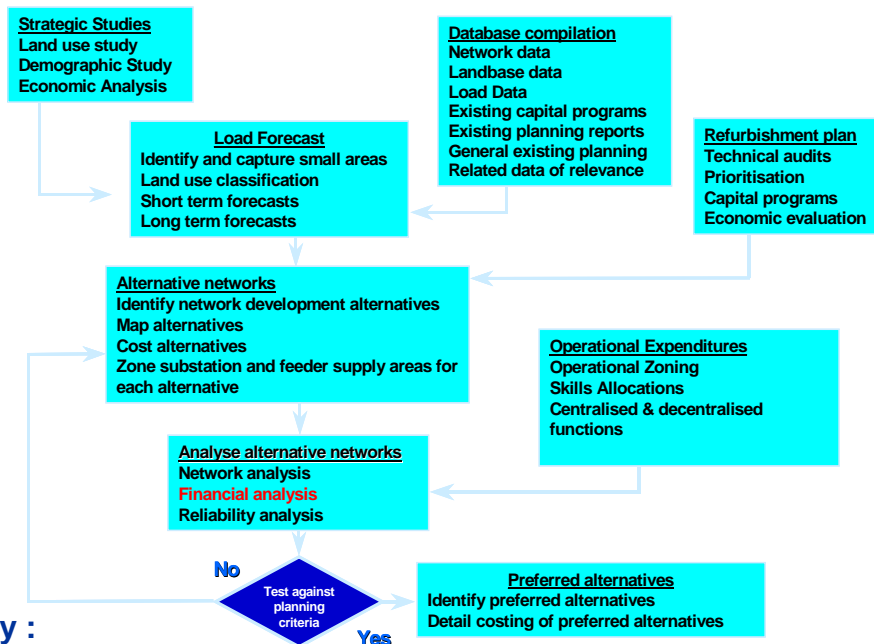
## MasterPlanning

### PowerFIN



- The **Financial Analyses** product is primarily designed to compare different future capital investment streams against one another on a discounted future cash flow basis
- It receives its inputs from the following purpose designed products:
  - Geographic load forecasting - **POWERGLF**
  - CAPEX and Refurbishment planning-**POWERCAPEX**
  - Operational expenditure planning- **POWEROPEX**
  - Sales and purchases tariffs-**POWERTARIFF**

#### General Planning Process:



#### Methodology :

- The Financial Analyses Model can in its most generic format derive macro sales and purchase levels from yearly forecasted demand patterns, load factors, power factors and loss percentages from the supply side or from empirical or measured consumption factors on the demand side. When used in tandem with the *Tariff Analyses* model only the gross income and purchase cash streams are imported from that model.
- It then further simulates accumulated infrastructure investment premiums by escalating yearly investments and adding each marginal yearly premium to the accumulated yearly down payment.
- Operational expenditures are simulated on a cost per customer category or as a percentage of either the total amount of operational capital invested or the amount of energy sales per customer category. The cost of technical losses is resultant from synoptic load flow studies whilst the cost of commercial losses are related to customer category and investment in revenue management programs.
- Except for the capital expenditure cash flow stream, the above income and expenditure streams are escalated at different inflation rates to simulate future trading correctly.
- The net surpluses and deficits are then de-escalated to present values per annum and accumulated on a yearly basis.
- The above exercise is repeated for each alternative investment scenario.
- The present value net cash generation potential for various alternatives provides a powerful decision making tool.
- Results obtained from the above financial analysis are utilised to calculate the IRR's and NPV's of different investment streams on macro, multi-phased investments

## PowerFIN – Input Parameters

VARIABLES		STD	DEV/yr	STD	DEV/yr
Escalation rate(electricity)	%	10.00%		10.00%	
Escalation rate(inflation)	%	10.00%		10.00%	
Interest rate DBSA	%	16.00%		16.50%	
Loan Period	Yr	20		20	
Percentage losses	%	16.00%	-0.50%	21.00%	-0.50%
ADMD non resd(@res peak)	kVA	0.00		0.00	
ADMD per resd.unit	kVA	0.82	0.02	0.82	0.02
kWh cons. per resd.unit	kWh	180.00	5.000	180.00	5.000
Power factor		0.95		0.95	
Load factor		0.43		0.43	1.00%
RESIDENTIAL SELLING COST	R	0.272		0.272	
NON- RESID. SELLING COST	R	0.300		0.300	
Current operating costs	R/con.	10	-0.5	6	-0.5
Initial connections	no.	1		1	
Potential connections	no.	27301		0	
Residential development cost	R	2450	0	2450	0
Accumulated prof/loss(PV)(5yr)	R	61233		84298	
Eskom:kWh Tariff (R)	R	0.0594		0.0594	
Eskom:kVA Tariff (R)	R	21.00		21.00	

FINANCIAL ANALYSIS					
	Year	Year	Year	Year	Year
	1999	2000	2001	2002	2003
Description	0	1161	2783	3310	3925
Regional: Max. demand (kVA)	1	11437	23578	24199	24819
Regional: Units Purchased (kW)	238	3324795	6854164	7034537	7214910
<b>CAPITAL EXPENDITURE (RX1000)</b>	F6	F6	F7	F7	F7
Total capital expenditures	34800	28540	0	0	0
Total escalated capex	23800	31394	0	0	0
<b>INCOME (RX1000)</b>					
Income from residential sales	1	9018	20449	23086	26045
Income from non-res sales	0	1161	2783	3310	3925
Total income	1	10179	23232	26396	29970
<b>EXPENDITURES (RX1000)</b>					
Accum. capex pmt/yr	0	4014	9309	9309	9309
Purchase costs	0	5777	13101	14790	16687
Maint./operat. costs	0	1706	3568	3706	3837
Total	0	11497	25978	27806	29833
<b>PROFIT/LOSS PER YEAR (RX1000)</b>					
Present value	0	-1198	-3468	-4528	-4434
Accumulated profit/loss(pv)	0	-1198	-3468	-4528	-4434
Residential reticulations(total)	1	13601	27301	27301	27301
Residential reticulations(yearly)	13600	13700	0	0	0

### Major Projects Completed:

The NETGroup systems financial analysis approach, **PowerFin**, has been developed over many years and was successfully applied on the following systems:

- Eskom Johannesburg region 1990
- Eskom Kwa Zulu-Natal region 1995
- Eskom Eastern Cape region 1996
- Eskom Mpumalanga region 1998
- Nampower Namibia 1999
- Swaziland Government 1997
- Numerous Local Governments RSA, ongoing.

### CASHFLOW

