City Power Jozi Experiences in – Utility Formation, Maintenance and Refurbishment, Energy Crisis, Smart Technologies

28 October 2008

Presented by: Silas Mzingeli Zimu
Managing Director

Presented at: 61st AMEU Buffalo City
Context and Legacy - Joburg

- Discovery of gold in 1886
- Joburg centre of English capital in RSA
- Viewed as a City of “Uitlanders” or foreigners
- Blacks as temporary settlers
- Financial crisis – failed to pay creditors for 3 months
- Joburg, RSA's largest and wealthiest city, the economic engine of the country and the region
- CAPEX R309m 1998/9
- Joburg's population is about 3.3 million people;
- Or about seven percent of the national total
- It contributes 16 percent of national gross domestic product
- It contributes 15 percent to national employment
- Most large corporation have their headquarters in Joburg.
Local Government

- Sphere of government closest to people
- Should be a role player of significance in local economy
- Create opportunities for employment
- Sustainable service delivery of municipal services
Objectives of Local Government

- Provide democratic and accountable government for local communities
- Promote social and economic development
- Promote a safe and healthy environment
- Build and maintain investor and business confidence in the City and the region
Joburg’s GDS & 5-Year IDP

GDS

• What are the future trends?
• Where do we want to be?
• How do we approach development?

5-Year IDP

• What are our objectives?
• What can we get done in the next 5yrs?

Business Plans

• Who will do what and how in the next year?

LONG TERM FINANCIAL PERSPECTIVE

MEDIUM TERM FINANCIAL PLAN

BUDGET & SDBIP
Strategic Framework

Six Development Principles

- Proactive absorption of the poor
- Balanced & shared growth
- Facilitated social mobility
- Settlement restructuring
- Sustainability & environmental justice
- Creative governance solutions

Economic | Human | Housing | Infrastructure | Environment | Spatial | Transport | Health | Safety | Finance | Governance

GDS

Long-term goals
Strategic interventions
(bridging into ... 5-year IDP Objectives & 5-year Programmes)

Election Manifesto
Development Paradigm
Strategic Evaluation (End of Term Report)
The Six Mayoral Priorities

- Economic Growth and Job Creation
- Health and Community Development
- Housing and Services
- Safe, Clean and Green City
- Well Governed and Managed City
- HIV/AIDS
Events that led to the establishment of City Power

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>13 x TCs</td>
<td>Retail Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 x EDs</td>
<td>Wires Business</td>
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<tr>
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<td>Wires Business</td>
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<tr>
<td>4 x EDs taken over by Eskom</td>
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### Events that led to the establishment of City Power

<table>
<thead>
<tr>
<th>Period</th>
<th>Events</th>
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<tr>
<td>Prior 1990</td>
<td>1 x Metro Electricity</td>
</tr>
<tr>
<td>1990 - 1995</td>
<td>TMC</td>
</tr>
<tr>
<td>1995 - 2000</td>
<td>9 x Administrations</td>
</tr>
<tr>
<td>2000 - Onwards</td>
<td>9 x EDs Merge</td>
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<td></td>
<td>Wires Business</td>
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<td>1 x Metro Electricity</td>
<td>Wires Business</td>
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<tr>
<td>7 x TMSS</td>
<td>Other service providers</td>
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Events that led to the establishment of City Power

|------------|-------------|-------------|----------------|

- **MC**
  - Retail Business
  - 1 x Metro Electricity
    - Wires Business
    - 9 x EDs Merge
  - 4 x MLC
    - Other service providers
    - Retail Business
Events that led to the establishment of City Power


MC

- 1 x Metro Electricity
  - Wires Business
  - 9 x EDs Merge

- 4 x MLC
  - Other service providers
  - Retail Business

Metro Financial Crisis
1997
Events that led to the establishment of City Power

|------------|------------|-------------|----------------|

Although the crisis in Johannesburg manifested itself as a financial problem, this was symptomatic of a deep underlying organisational crisis. Investigation of the reason for the crisis revealed them to be embedded in a range of fragmented and dysfunctional organisation systems.

- To provide low cost and affordable electricity to all our customers.
- To improve the quality and efficiency of service.
- To improve the financial health and viability of City Power.
- To eliminate shrinkage and generate annual dividends to our shareholders.

**Unicity**
- One single municipality
- Utilities
  - City Power
- Agencies
- Corporatised businesses
Is a municipal entity which was incorporated as a private company in 2000

- Wholly owned by the City of Johannesburg (100% shareholder)

- Has a Board of directors and has adopted the King II code

- Is governed by the Companies Act as well as by local government legislation and regulations, principally the Municipal Finance Management Act.

- Is fully committed to compliance with corporate governance legislation, regulations and best practices and actively promotes efficiency and productivity

- Takes seriously our commitment to social responsibility, safety, diversity, environmental leadership and ethical business practices
What business are we in?

We are in the business of buying electricity from a source and selling it to electricity customers, making a profit from this.
A World Class Electricity Distributor
Values

Resourceful
Reliable
Resilient
Respectful

Always with Integrity
Strategic Priorities

1. Prioritize social transformation (public lighting/electrification)
2. Seek more revenue
3. Loss reduction

**SERVICE**

**WORLD CLASS ELECTRICITY DISTRIBUTOR**

**PEOPLE**
1. Management style
2. Improve climate
3. Right people in right places
4. Training in key areas

**INFRASTRUCTURE**
1. Replacement & upgrades
2. Expand network
3. Maintenance
4. Outsourcing
5. Demand-side management
6. Alternative energy sources
Overview of the establishment process

Prior 2001
- eGoli 2000
- Arthur Anderson/Joburg Metro
- Establishment framework

Feb 2001 – Aug 2001
- Consultant handover
- Executive Team appointments
- Company Business Model
- SOBA
- SLA
- Business plan 1 – Establishment focus

Aug 2001 – Mar 2003
- Organisation staffed
- Financial and billing system implemented
- Conditions of service developed
- Business Plan 2 - Establishment/Performance based

Mar 2003 – Jun 2004
- Governance structures operational
- Realistic understanding of business challenges
- Company culture starting to develop
- Business Plan 3&4 - Sustainability based

Jul 2004 – Jun 2004
Overview of the establishment process

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Jul 2004 – Jun 2004
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Company goals and strategic objectives

**Company Financial Goal**
Increase the profit base without compromising the viability of the business
- Improve the gross margin
- Reduce operating cost expenditure
- Maximise return on asset investment
- Maximise attributable income
- Reduce interest expense
- Increase payment levels

**Company Customer Goal**
Sustain customer satisfaction
- Increase customer satisfaction
- Decrease interruptions
Company goals and strategic objectives cont..

Company Internal Processes Goal

Processes and practices that support our vision and are aligned to our business needs

- Improve the customer to network linkage
- Comply fully with NRS 048
- Increase engendered procurement spend
- Comply with the Shareowner Compact
- Reduce non-technical losses
- Increase BEE procurement spend
- Improve internal service delivery

Company Learning and Growth Goal

Maximum employee productivity and enabling information systems

- Improve employee productivity
- Increase employee satisfaction
- Improve data quality and business intelligence
Stakeholder management challenges and learning lessons

 Challenges

➢ Most important stakeholders, in order, are: the Shareowner (COJ), City Power Board and the NER. These stakeholders often have different and conflicting objectives that the company must meet.

➢ Satisfying mayoral priorities is the highest order of company goals. Mayoral priorities are not that easy to execute in the business.

➢ The Shareowner wants control over the business. Monitoring and evaluation of the company is done through reports.

➢ Unit monitoring and evaluating the company does not necessarily have business experience.

➢ The introduction of the MFMA has a significant impact on the company governance processes.

 Learning lessons

➢ Establish sound business relationships with stakeholders as soon as possible.

➢ Deploy transparent and robust governance institutions and processes immediately. Make stakeholders part of this process.

➢ Expect to implement numerous control mechanisms.
Financial management challenges and learning lessons

- **Challenges**
  - Higher than expected OPEX requirements to capacitate and normalise the business
  - Shareowner profit expectations: non-negotiable
  - Imposed financial shareowner financial planning parameters
  - Imposed Kelvin PPA agreement
  - Tariff determination process Board/COJ/NER/Eskom
  - Disclaimed audits
  - Section 197 transfers limit the ability to improve productivity

- **Learning lessons**
  - Understand the company costs drivers properly before committing to financial performance
Customer service challenges and learning lessons

- **Challenges**
  - One customer equals one vote and CRM = Citizen Relationship Management
  - Shared customer contact accountabilities - by instruction
  - Revenue collection efforts impacted by political priorities
  - Accountable for domestic revenue but not responsible. Ineffective and inefficient COJ revenue management processes and systems and the inability to influence COJ performance
  - Revenue allocation rules

- **Learning lessons**
  - Possible to turn revenue collection around by implementing new system and processes
  - Need one bill but different invoices for different services (water, electricity, rates)
  - Significant effort into fostering a customer service culture
Network challenges and learning lessons

- **Challenges**
  - Five non-integrated network systems
  - Poor network performance a consequence of not undertaking proper planning, refurbishment and maintenance in the past
  - Unrealistic improvement in network performance expected from the Shareowner
  - Generation capacity
  - Load shedding
  - EE/DSM

- **Learning lessons**
  - Significant time, effort skills and capital required to normalise the system
  - Operations Group under enormous pressure to perform
  - Operations Group will be in a fire-fighting mode for sometime
Leadership challenges

- Challenges
  - Highly stressed environment
  - Managing conflicting priorities
  - Managers lack leadership experience/exposure
  - Strong functional orientation

- Learning lessons
  - Need strong change managers in the set-up phase
  - Prepare to deal with leadership conflicts
Business performance challenges and learning lessons

**Challenges**

- Poor data quality
- No business intelligence
- Little history to establish trends on
- Lack analytical capabilities
- Significant level of detail required by Shareowner in compiling company business plan
- High number of company projects (deliverables)
- Conflicting priorities
- Non availability of competent people for projects
- Poor/no performance management practices

**Learning lessons**

- Three year required to roll-out business performance value chain
- Capacitate dedicated company programme office focussing on company projects. Line to focus on operational issues
- Need specialised resources to prepare business plan
- Data management requires dedicated resources
People challenges and learning lessons

- **Challenges**
  - Inherited different value systems and cultures
  - Unrealistic expectations
  - Job grading and parity
  - Differing conditions of service
  - Mismatch in skills requirement and skills availability
  - Pension schemes/liabilities
  - Remuneration philosophy
  - Section 97 Transfers

- **Learning lessons**
  - Can implement an uniform COS
  - Require significant investment in competency development
  - Require significant effort to establish a performance culture
Setting-up an electricity distribution business is a challenging and time consuming process. The tangible and intangible benefits of this process only start to become evident from year three onwards.

The business model will not realise as originally designed. Environmental factors and leadership styles will dictate changes.

The first three years is a period of chaos and high stress levels, requiring exceptional and brave leadership.
The future EDI

Generation

Transmission

Eskom

Distribution

> 255 Municipal electricity departments

Six Regional Electricity Distribution (REDs) businesses

Preferred option - Six REDs
### Key Statistics

#### Measure Indicator

<table>
<thead>
<tr>
<th>Measure Indicator</th>
<th>Unit</th>
<th>06/07 Actual</th>
<th>07/08 Plan</th>
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</thead>
<tbody>
<tr>
<td>Eskom Supply Points</td>
<td>No</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>HV Substations (Bulk Intake Points)</td>
<td>No</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>MV Substations (Major Substations) excluding Bulk Intake Substations</td>
<td>No</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>LV Substations (Devices)</td>
<td>No</td>
<td>13,800</td>
<td>14252</td>
</tr>
<tr>
<td>HV Overhead Transmission Lines &gt; 44kV</td>
<td>km</td>
<td>789.93</td>
<td>811</td>
</tr>
<tr>
<td>HV Transmission Cables &gt; 44kV</td>
<td>km</td>
<td>93.68</td>
<td>93.68</td>
</tr>
<tr>
<td>MV Overhead Lines &gt;20.5kV and &lt; 44kV</td>
<td>km</td>
<td>5.95</td>
<td>11.2</td>
</tr>
<tr>
<td>MV Cables &gt;20.5kV and &lt;44kV</td>
<td>km</td>
<td>46.52</td>
<td>123.3</td>
</tr>
<tr>
<td>Ripple Relays Installed</td>
<td>No.</td>
<td>178 000</td>
<td>183 000</td>
</tr>
<tr>
<td>Ripple Relays In-service</td>
<td>No.</td>
<td>87 000</td>
<td>92 000</td>
</tr>
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</table>

#### Customer Type

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>06/07 Actual</th>
<th>07/08 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agric</td>
<td>36</td>
<td>34</td>
</tr>
<tr>
<td>LPUs</td>
<td>4,343</td>
<td>4,350</td>
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<tr>
<td>Business</td>
<td>12,542</td>
<td>12,592</td>
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<tr>
<td>Prepayment</td>
<td>86,768</td>
<td>108,991</td>
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<tr>
<td>Domestic</td>
<td>211,204</td>
<td>192,870</td>
</tr>
<tr>
<td>Total</td>
<td>315,030</td>
<td>318,999</td>
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</table>
3 to 5 year rolling plans

- Detailed Audits were conducted in order to ascertain the condition of the Network infrastructure.

- Network master plans were also developed to ascertain short and medium term capacity requirements.

- Root cause analysis for Technical and non-Technical loses were conducted and revenue protection and generation projects identified.

- Electrification master plans were developed in consultation with Housing department to ascertain the electrification backlog.

- From the above exercise the five year rolling plan to address the load growth, Electrification and refurbishment needs was developed.
Expenditure per Major Category

<table>
<thead>
<tr>
<th>Year</th>
<th>Electrification</th>
<th>Service Connection</th>
<th>Upgrade of Electrical Network</th>
<th>Township and Network Development</th>
<th>Meters</th>
<th>Public Lighting</th>
<th>Bulk Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-3</td>
<td>15,500</td>
<td>29,947</td>
<td>78,887</td>
<td>21,444</td>
<td>14,421</td>
<td>39,086</td>
<td>2,246</td>
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<tr>
<td>2003-4</td>
<td>21,904</td>
<td>44,617</td>
<td>92,168</td>
<td>18,096</td>
<td>11,694</td>
<td>21,527</td>
<td>22,787</td>
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<tr>
<td>2004-5</td>
<td>10,112</td>
<td>66,135</td>
<td>225,811</td>
<td>5,234</td>
<td>27,984</td>
<td>57,651</td>
<td>50,466</td>
</tr>
<tr>
<td>2005/6</td>
<td>43,992</td>
<td>80,946</td>
<td>326,104</td>
<td>8,755</td>
<td>23,160</td>
<td>77,762</td>
<td>149,242</td>
</tr>
<tr>
<td>2006/7</td>
<td>66,023</td>
<td>103,995</td>
<td>298,863</td>
<td>34,362</td>
<td>50,629</td>
<td>64,796</td>
<td>182,343</td>
</tr>
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</table>
## Future Capex Requirements

<table>
<thead>
<tr>
<th>Measure Indicator</th>
<th>06/07 Actual</th>
<th>07/08 Actual</th>
<th>08/09 Plan</th>
<th>09/10 Plan</th>
<th>10/11 Plan</th>
<th>11/12 Plan</th>
<th>12/13 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Assets</td>
<td>Rm 888.89</td>
<td>757.39</td>
<td>1018.55</td>
<td>2387.52</td>
<td>1199.52</td>
<td>989.52</td>
<td>989.52</td>
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<tr>
<td>Other Assets</td>
<td>Rm 40.53</td>
<td>277.5</td>
<td>25</td>
<td>10.48</td>
<td>10.48</td>
<td>10.48</td>
<td>10.48</td>
</tr>
<tr>
<td>Total</td>
<td>Rm 929.34</td>
<td>1034.89</td>
<td>1043.55</td>
<td>2398</td>
<td>1210</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>
Capacity for planned maintenance

% Capacity

95% - Unplanned ‘Breakdown’ Maintenance
5% - Planned Maintenance

2003: 95%
2005: 80%
2008: 5%

Time:
2003
2005
2008
THE HARSH REALITY

NOT ENOUGH JOBS

Job changes and unemployment

Unemployment rate

Jobs created/lost

SOURCE: STATS SA

*First half 2007
The answer to SA's jobs crisis

"PLEASE"
MR PRESIDENT
WE WANT JOBS,
JOBS AND MORE JOBS
WE KNOW ABOUT VU ZINTU
PROOF OF GLOBAL WARMING
World Population continues to grow

Generating Capacity Requirements 2004-2030

Some regions need to speed up investment to prevent the ‘lights going out’
SA’s Energy Reality/ Jozi far South
Observations on Geo-Political Events

- Energy/Climate
  - Energy is one of the interesting sectors in the world, it affects everyone
  - Energy security
    - Energy prices
    - Energy supply
  - Energy policy
  - Climate change
    - Developed world will have to reduce emissions drastically
  - Huge gap between energy policy and energy projects being implemented
  - China and India have confirmed that their next generation capacity would still be from coal
By far the most famous AMI project is ENEL’s implementation of 30 million meters in Italy.
So there are all sorts of benefits from AMI – not just data collection and price response.
Classic Principal/Agent problem: the Landlord/Tenant relationship

- Landlord (agent)
  - Energy-related investments in building infrastructure
- Tenant (principal)
  - Rent
  - Living space
  - Energy payments

Source: Mind the Gap - Quantifying Principal-Agent Problems in Energy Efficiency, IEA, Paris, October 2007
Revenue Management

Flat Rate
- Cumulative consumption
- Impact
  • Metering (net metering)
  • Dual metering (Feed in Tariff)

Time-of-Use Rate
- Interval consumption/supply
- Impact
  • Metering (interval consumption)
  • Billing (CIS)
  • Settlement

Real-Time Rates
- Just-in-time consumption/supply
- Impact
  • Metering (MDM-data historian)
  • Billing (CIS)
  • Settlement
The World is at significant crossroads

System Reliability
- Resource adequacy
- Fuel diversity
- Grid reliability
- System operability

Advancing technology
- Renewables
- Storage
- Grid communications (AMI/BPL)
- Customer networks

Continuing rate pressure
- Record high electric prices
- Significant infrastructure investment on horizon
- Regulator and customer frustration

Increasing environmental pressure
- Climate change policy
- Renewable Portfolio Standards
- Significant energy efficiency aspirations
New challenges

Global warming

Energy price
City Power Focus

- SWH’s +/- 30% consumption reduction
- Smart Metering/Load Management
- Smart Grids/Network Automation & Network Protection
City Power: Application Architecture
No Choice For The World

▪ The Best Way To Generate Energy is To Save Energy

▪ 1kW SAVED = 3kW Generated
A technological society has two choices. First it can wait until catastrophic failures expose systemic deficiencies, distortion and self-deceptions… Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures.
Thank you for your time.