Government Fleet Case Study
Electricity Fleet Management and Maintenance Services

Willem Janse Van Rensburg

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Government Fleet Case Study

Introduction

Overview 2005-2018

Strategic Objectives

Strategy Implementation

RTMS Implementation

Benefits and Achievements

Committed to service excellence and protection of the environment
Introduction and Strategic Objectives
Introduction

Fleet Management & Maintenance Services

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleet Size</td>
<td>994 vehicles</td>
</tr>
<tr>
<td>Service Providers</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>Depots/Sections</td>
<td>54</td>
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</tbody>
</table>

Budget:
- Total (FMMS): R150 million
- Operating: R55 million
- Replacement Value: R550 million

Energy

EG&D

Technical Support

Services

Electricity

Fleet
Strategic Objectives

- Policy and Strategy Development
- Asset Life Cycle Management
- Technical Standards and Functional Alignment
- Optimise fleet availability and reliability
- Maintenance schedule attainment
Strategic Objectives

- Traffic violations management, Licences and COFs
- Employee wellness, training and development
- Contract Management
- Root cause analysis and remedial action
- Repairs and breakdowns
Fleet Management and Maintenance Administration

- Coordinate driver training – product specific, competency assessments, defensive driver techniques, anti-hijacking awareness etc.
- Provision of specialised vehicles – shared resource on an ad-hoc basis 24/7/365
- Maintenance Services and Repairs
  Attend to fleet break downs 24/7/365 – after working hours contract managed
- Quality assurance management:
  - New vehicles
  - Fleet Compliance audits – operational
  - Ad-hoc Auditing of field service repairs
**Policy and Strategy**

**Business Mission**
- Provision of Reliable Fleet
- Fleet Licence Renewals
- Consulting Services
- Fleet Accident & Incident Management
- Traffic Violation Management
- PrDP Notification Service
- Driver & Operator Training Co-ordination & Provision
- Management Information System
- Provision of Specialised Equipment & Operations

**Business Vision**
To provide **functionally** aligned vehicle and plant Fleet Services to **empower internal clients** by adopting a **market oriented approach** in order to deliver a **competitive and cost effective** service and remain the Fleet Service Provider of Choice.
Overview 2005-2018
# Electricity Fleet Overview 2005-2018

<table>
<thead>
<tr>
<th>Stock Replacement Cycle</th>
<th><strong>Historical (2005)</strong></th>
<th><strong>Current (2018)</strong></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>33 Years</td>
<td>8-15 Years</td>
<td>Whole life cycle costing model implemented</td>
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<tr>
<td></td>
<td>-&gt; Above Industry Standards</td>
<td>-&gt; Based on asset type and condition assessment</td>
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</table>

| Functional alignment    | 40%                   | 85%               | Implementation of EAM Right-sizing of fleet vehicles |
|                         | -> High misalignment between vehicle specifications and operational requirements | -> Vehicles purchased as per specific operational needs |   |

| Fleet Availability       | 65%                   | 92%               | Daily management system implemented |
|                         | -> Work Orders open for months | -> Work Orders closed within 14 days |   |

| Service Schedule Attainment | 47%                | 98%               | Contractor KPI’s instituted Effective Communication |
|                            | -> Vehicles not maintained on time | -> Vehicles serviced as per monthly plan -> 100% Statutory compliance |   |
Strategy Implementation
Understand Where You Are

- Strategy Management
- Information Management
- Technical Information
- Organisation & Development
- Contractor Management
- Financial Management
- Risk Management
- Environment, Health & Safety
- Asset Care Plans
- Work Planning & Control
- Operator Asset Care
- Life Cycle Management
- Support Facilities & Tools
- Performance Measurement
- Focussed Improvement

Primary Focus
Develop Business Processes

TO

AS-IS Process Mapping
System Requirements Analysis
Process Workshop Sessions
Process Improvements
TO-BE Process Mapping
Process Implementation
Strategy Implementation

Roles and Responsibilities

Business Process Development

Entrepreneurial Environment

Daily Management System and Inspections

Training and Skills Development

Loading Charts and Smoke Testing
FLEET MANAGEMENT MAINTENANCE SERVICES

INTEGRATED MANAGEMENT SYSTEM (IMS) D A S H B O A R D

- IMS MANUAL
  - Policy
- LEGAL REGISTER
  - www.dittke.com
- Non-conformances (NCR's)
- AMMENDMENTS
- POLICIES
- RTMS
- OHSAS 18001
- ISO 9001, ISO 14001, OHSAS 18001 & RTMS
- PROCEDURES
  - WORK INSTR
  - STANDING INSTR
- ACTION FILE
  - 1. RECORDS
  - 2. EXTERNAL DOC’s

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15
RTMS Implementation
# STRATEGY: RTMS / ISO 39001

<table>
<thead>
<tr>
<th>Business Processes / SAP Optimisation / ISO 39001</th>
<th>AARTO Elements</th>
<th>RTMS / ISO 39001 Elements</th>
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<tbody>
<tr>
<td>Operational road shows</td>
<td>Inventory of vehicles</td>
<td>Inventory of vehicles</td>
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<tr>
<td>New vehicles are acquired in full compliance with RTA</td>
<td>Mass assessment</td>
<td>Mass assessment</td>
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<tr>
<td>Extends to all operational drivers</td>
<td>Mass verification</td>
<td>Mass verification</td>
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<td></td>
<td>Vehicle and load safety</td>
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<td></td>
<td>Vehicle maintenance</td>
<td>Vehicle maintenance</td>
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<tr>
<td></td>
<td>Driver wellness</td>
<td>Driver wellness</td>
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<tr>
<td></td>
<td>Training and education</td>
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<tr>
<td>Extends to all operational drivers</td>
<td>Assessment of responsibilities</td>
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<tr>
<td>Self explanatory wall AARTO charts ordered &amp; received for operations</td>
<td>Awareness workshop</td>
<td>Awareness workshop</td>
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<tr>
<td>Responsible persons to undertake &amp; be accountable for compliance audits identified</td>
<td></td>
<td>Self Audit</td>
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Mass Assessment and Verification

- Weigh vehicles
- Record and report results

- Measure V-T on delivery of vehicle
- Balance
- Verify mass
- Compile load charts to be held in the vehicle
## Vehicle Loading

### Loading Chart for Drivers

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<th>Fleet No</th>
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<td>Reg. No</td>
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<tr>
<td>Make</td>
<td>Nissan</td>
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<td>Model</td>
<td>UD 85</td>
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<td>GVM (kg)</td>
<td>15000</td>
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<td>GCM (kg)</td>
<td>20000</td>
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<td>V (kg)</td>
<td>15000</td>
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<tr>
<td>Tare (kg)</td>
<td>8400</td>
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<tr>
<td>G(a) (kg)</td>
<td>6000</td>
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<tr>
<td>G(b) (kg)</td>
<td>9200</td>
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<td>Drawbar (kg)</td>
<td>5000</td>
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<tr>
<td>Payload</td>
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### Density of Materials

<table>
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<th>Density of Materials</th>
<th>Clamshell</th>
<th>Front end loader</th>
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<tr>
<td>Stone 13mm: 1340 kg/m³</td>
<td>10 x</td>
<td>5 x</td>
</tr>
<tr>
<td>Stone 19mm: 1360 kg/m³</td>
<td>10 x</td>
<td>5 x</td>
</tr>
<tr>
<td>Dry Sand: 1602 kg/m³</td>
<td>8 x</td>
<td>4 x</td>
</tr>
<tr>
<td>Wet Sand: 1922 kg/m³</td>
<td>7 x</td>
<td>3.5 x</td>
</tr>
<tr>
<td>Moist Sand: 1762 kg/m³</td>
<td>8 x</td>
<td>4 x</td>
</tr>
<tr>
<td>Concrete rubble: 1865 kg/m³</td>
<td>7 x</td>
<td>3.5 x</td>
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<tr>
<td>Dry gravel: 1682 kg/m³</td>
<td>8 x</td>
<td>4 x</td>
</tr>
<tr>
<td>Wet Gravel: 2002 kg/m³</td>
<td>6.5 x</td>
<td>3.2 x</td>
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</table>

Grab volume is approximately 0.5 m³ and the chart has to incorporate the various materials that the specialist driver/operator encounters in the course of his duties in the operations. The driver has to take note of the vehicles data plate indicating the maximum load which can be accommodated by the load body for various materials.
Vehicle Loading

- Load should be distributed evenly over axles
- During unloading, remaining loads should be redistributed (as required)

Preferred placement indicated in photo below (when crane at back):
Load Safety - Towing Tool

The purpose of the towing tool:
Ensuring the information to be legal when towing is available to all Cost Centers.

Vehicle homologated towing capacity must match the Trailers GVM and the Driver License code must be relevant for the class of vehicle or combination.
Vehicle Maintenance
3 Circle Approach

CORE Functions
• Service Delivery

CORE Functions
• Execution of Vehicle Services and Repairs

Electricity Fleet

Electricity Operations

Fleet Management and Maintenance

Fleet Maintenance Workshops

Asset Management (ISO 55000)
Proactive and Reactive Maintenance
SAP Solution – Planning and Scheduling Daily Management

- SAP Reports
- Daily Movement Meeting
- Automated Emailing System
The automation of the Daily Movement Meeting, communication and coordination between Electricity Fleet, Cost Centers and Vendors ensures high maintenance schedule attainment and minimum “NO SHOWS”.

Maintenance and Scheduling Tasks – Manual (before 2012)

- 58% Productive time spent on Maintenance Scheduling and Planning tasks
- 42% Routine Communication & Co-ordination tasks

Maintenance and Scheduling Tasks – Automated (After 2014-2018)

- 98% Productive time spent on Maintenance Scheduling and Planning tasks
- 2% Routine Communication & Co-ordination tasks
Driver Training and Development
PrDP Management and Control

PrDP Renewals

All PrDP renewals are managed and controlled by Fleet Management Administration.

1. The maintenance of a PrDP driver detail database for all Electricity Drivers.
2. Coordination of medicals required for assessment of driver fitment.
3. Necessary photographs for PrDp licenses.
4. Payment of PrDP licensing fees.

Driver ID Keys

Driver ID keys are programmed with:

1. Class and code of drivers license.
2. Expiry date of PrDP licence.

This ensures that drivers only drive vehicles for which they are licensed.
# Driver Training

## Workplace Skills Plan

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<tr>
<th>Grade</th>
<th>Surname</th>
<th>First Name</th>
<th>Staff No</th>
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<td>MPD Grade 2</td>
<td>Adams</td>
<td>Indi K</td>
<td>10000175</td>
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<tr>
<td>Driver 2</td>
<td>Arendse</td>
<td>Lucas</td>
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<td>Brown</td>
<td>Winston</td>
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<td>Neville</td>
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<td>Ashwin</td>
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<td>Teaburn</td>
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<tr>
<td>Driver Grade 2</td>
<td>Cordons</td>
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<td>Driver Grade 2</td>
<td>Davy</td>
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<td>George</td>
<td>Mark</td>
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<td>Hartnick</td>
<td>Theodore</td>
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<td>Jada</td>
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<td>Nicholas</td>
<td>10001906</td>
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<td>Zoelani Zanele</td>
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<td>MPD Grade 3</td>
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<tr>
<td>Driver Grade 2</td>
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<tr>
<td>Driver 2</td>
<td>Zikhala</td>
<td>Elatsi</td>
<td>Contract</td>
</tr>
</tbody>
</table>

**CITY OF CAPE TOWN**

**ISIKEMO SASEKAPA**

**STAD KAAPSSTD**
# Driver Training
## Driver Assistance Programme

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DRIVER'S ASSISTANCE PROGRAMME</strong></td>
<td><strong>Driver Category</strong></td>
<td><strong>Operate a rigid light vehicle (5 days)</strong></td>
<td><strong>UNIT STANDARD: 123257</strong></td>
<td><strong>Level 2</strong></td>
<td><strong>10 Credits</strong></td>
<td><strong>Operate a rigid heavy vehicle (5 days)</strong></td>
<td><strong>UNIT STANDARD: 123253</strong></td>
<td><strong>Level 4</strong></td>
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</tbody>
</table>

### Driver Category

- **A** New Entrants & Business
- **B** Frequent Accidents/Incidents
- **C** Existing staff
- **D** Specialised Staff
- **A&C** New Entrants & Business & Existing staff
- **B&C** Frequent Accidents/Incidents & Existing staff

- **Mitigating Risk**
- **Increase Public Safety**
- **Increase Driver Safety**
- **Enhanced Driver Awareness**
- **Increase Fleet Availability**
Records and Documentations
Performance Assessment - Self Audit

- Daily Inspection sheet checks by supervisor
- Filing of Documentation
- SAP notifications tracking
- Monthly documentation and certification audits
Daily & Monthly Statistics
Daily Statistics

Tactical (PM22) vs Non-Tactical (PM21) [All Open PM Work Orders]

Total Open Fleet Work Orders - Trucks, Vehicles and Workshop [PM21 and PM22]

Open Fleet Related Work Orders - Trucks, Vehicles and Workshop PM21 and PM22

Job Duration per Section

"No Show" per day
Monthly Statistics

SAP Work Order Analysis – PM22

Maintenance Compliance and Schedule Attainment

PLANNED = 301

SAP Work Order Analysis – Vehicles with high Repairs count

Job Duration – PM21
Benefits and Achievements
Benefits: Functional Alignment

Before 2007
Incorrect vehicle for purpose

- Fit for purpose: No
- Passenger safety: No
- Conformance to Road Traffic Ordinances: No
- Driver Ergonomics and Passenger Comfort: No

2018
New Generation Mobile Workshops

- Fit for purpose: ✓
- Passenger safety: ✓
- Conformance to Road Traffic Ordinances: ✓
- Driver Ergonomics and Passenger Comfort: ✓
Benefits: Functional Alignment

Before

Vehicle Type – 10 tone A/P truck
Purpose – Street light maintenance
Extra vehicles/equipment required – Crane truck, passenger vehicle, slings, 3 workers

2018

Vehicle Type – 6x4 A/P and Crane (2in1) – operates in almost all road conditions e.g. steep inclines, dump sites
Savings on personnel – 2 persons instead of previous 3
Safety Considerations – Pole manipulator present, no need for ropes
Operational Efficiencies – More functions performed with less resources and shorter lead times
Average Work Order – Proactive Maintenance

54% Reduction in Work Order age since implementing improvement initiative.
• At least 98% of all planned services are completed in the planned month.
• All vehicles are serviced within the required statutory limits i.e. Statutory Compliance = 100%.
Daily Movement Meeting, effective communication and maintenance coordination between Electricity Fleet, Cost Centers and Vendors ensures high vehicle availability.

This is also shown by the decrease in number of work orders per vehicle per year.
Fleet Size vs Work Order Count per Financial Year

- Gradual decrease in Work Order count while fleet size increases shows an increase in Mean Time Between Failures (MTBF) due to proper fleet maintenance and life cycle management. Thus increasing Fleet Availability.
New Initiative - Speeding Reports (Vehicle Tracking)

- Performance tracking and trending by reporting
- Change in driver behavior
- Refer to incident committee on serious offenders.
Speeding – Change in Driver Behavior

Number of Excessive Speeding Incidents in Past Five Months

<table>
<thead>
<tr>
<th>Name</th>
<th>September</th>
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<th>November</th>
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## Speeding – Disciplinary Matrix

<table>
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<tr>
<th>Occurrences</th>
<th>1 - 10km</th>
<th>11 - 29km</th>
<th>&gt;30km</th>
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Traffic Violation Reporting

Electricity Generation and Distribution
Fleet Management
Traffic Violations - Overview

Sean Beasly Monthly Report - April 2017

YTD count of all fines

Traffic Violation Offenders

Name | Count
--- | ---
Collin Van Rooy | 4
Nokuthula Zizwe | 2
Sergio Snell | 2

YTD Serious Offences

Name | Offence
--- | ---

Violations this Month

<table>
<thead>
<tr>
<th>Name</th>
<th>Fleet Number</th>
<th>Offence</th>
<th>Cost</th>
<th>Serious</th>
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<tbody>
<tr>
<td>Nokuthula Zizwe</td>
<td>1581</td>
<td>EXCEEDING THE SPEED LIMIT BY: 11 KM/H TO 12 KM/H</td>
<td>R 200</td>
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<td>Nokuthula Zizwe</td>
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<td>Collin Van Rooy</td>
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<tr>
<td>Lubabalo Thinga</td>
<td>636</td>
<td>EXCEEDING THE SPEED LIMIT BY: 11 KM/H TO 15 KM/H</td>
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<td>No</td>
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<td>Sergio Snell</td>
<td>701</td>
<td>EXCEEDING THE SPEED LIMIT BY: 16 KM/H TO 20 KM/H</td>
<td>R 400</td>
<td>No</td>
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</tbody>
</table>

No Unlicensed Drivers
No Roadworthy Violations
No Overloading
Benefits: Reduction in Traffic Violations and Accidents

**Total Traffic Violations: Electricity Global Statistics**

- Fleet Incident Rate per million km

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan-17</th>
<th>Feb-17</th>
<th>Mar-17</th>
<th>Apr-17</th>
<th>May-17</th>
<th>Jun-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Oct-17</th>
<th>Nov-17</th>
<th>Dec-17</th>
<th>Jan-18</th>
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<tbody>
<tr>
<td>Incident rate</td>
<td>5%</td>
<td>3%</td>
<td>3%</td>
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<tr>
<td>Benchmark</td>
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<td>1%</td>
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</table>

Traffic Violations, Accidents and incidents measured and monitored monthly

Monthly reporting to management

Driver training according to requirements
Benefits: Reduction in Traffic Violations and Accidents

Incidents Committee analyses speeding, traffic violations and accident reports and takes appropriate action.

LCS 6.4.44 – Incidents Committee Process

**Committee Members**
- Fleet Management Representatives (AO3, Fleet Clerk, Head of Fleet)
- Line Management
- Staff member(s) involved
- Industrial Relations (IR) officer where required
- Electricity Asset management officer

**Trigger: Incidents**
The incidents include public complaints, accidents, traffic violations (above acceptable tolerance), negligent driving, passing red robots, parking on red zones or any other incidents of a serious nature. Upon occurrence, the responsible authorities must be notified and summoned to the Incident Committee meeting.

**010 Review Incidents**
The Committee reviews the incidents at hand, makes the necessary decisions and compile a proposal. The proceedings of the meeting must be minuted.

**020 Communicate proposal to line management**
The proposal made by the Incident Committee must be communicated to the line management.

**030 Execute and provide feedback**
The line management executes the proposed resolutions and provides feedback to the Incidents Committee.

**040 Close Case**
Once there is evidence that the corrective measures or proposals have been implemented, the case can then be closed.
Benefits: Employee Wellness - Driver Overtime Reduction

Driver overtime reduced by 61%

Monthly overtime monitoring

Improved work planning and control

Improved employee wellness

Enforcing Health and Safety regulations

Demand Driven

Average Overtime Hours per Driver per Month (2012-2017)

- 2012: 92
- 2013: 54
- 2014: 44
- 2015: 11
- 2016: 9
- 2017: 36

Driver Overtime Distribution - Current Month

Monthly Report
Benefits: Efficiency Improvements

Fuel Consumption Improved from 17l/100km to 12.8l/100km

Carbon footprint improved by 24%
Benefits: Employee Wellness - Skills development

Before 2007

- 90% Compliant
- 10% Non-compliant

Aerial Platform and Crane Operator Certification

2018

- 100% Compliant
- 0% Non-compliant
New Initiative – Vehicle Service Prediction

- Forecast vehicle services with utilisation rates.
- Manage service dates effectively, removing over/under capacities.
- Identifies any vehicle that require servicing.
Service History: Create Benchmark

Interventions
*(excluding Hydraulic services)*

- Over-Capacity
- Under-Capacity

Graph showing service interventions over time with a proposed benchmark line.
Manage Services

- Manage services according to usage within acceptable parameters to balance out workflow.
- Effectively manage service intervals of entire fleet.
Achievements

- Green Supply Chain Award: Awarded in June 2009
- OHSAS 18001: February 2011
- RTMS Accreditation: March 2011
- ISO 9000 & ISO 14001: March 2012
- Pragma Asset Management Silver Award: August 2012
- ISO 39000: September 2015
- Future Goal: ISO 55000: Target – 2 years time
Electricity’s kings of the road

One of the City’s largest municipal transport fleets has been crowned best on the continent for best practice and commitment to promoting traffic safety.

Outstanding standards: Electricity Services staff who contributed towards earning the Department ISO accreditation for its fleet management. Front row, from left: Newton Bam (Senior Driver), Neil Raubenheimer (Senior Rig Driver), Themba Simboga (Senior Superintendent), Robert Knoop (Admin Officer I), Nigel Diedericks (Superintendent), Megan Wilmans (Senior Driver) and Yovita Esahim (Asset Care). Back: Kyle Foote (Technician), John Jardine (Senior Technician), Abel Mabasa (Asset Care), Jared Flynn (Asset Care), Jerome Galiath (Specialist Engineering Artisan), Charles Abrahams (Technician), Ashley Davie (Senior Rig Driver), Alton Phaga (Specialist Engineering Artisan), Suban Khaan (Mechanical Plant Operator Grade 2), Randall Nelison (Specialist Engineering Artisan), Zewla Yauza (Driver), Ntshoba Motsi (Senior Rig Driver), Eric Matthews (Admin Officer I), Jean Johnson (Senior Professional Officer), Ida Joseph (Driver), Rochelle Theres (Senior Driver), Willem Jansen van Rensburg (Head: Fleet Management and Maintenance Services) and Ayanda Kgosico (Driver).

“IT’s a great credit to Willem and his team. Since he was appointed as fleet manager in September 2009, he has worked towards this ISO certification. Many public and private organisations have come to study our fleet, including Johannesburg’s City Power, the Durban and Buffalo City metros, Namibian Water and Namibia Power, and the retailer Spar. He has also provided technical advice to the Saldanha Bay it also reduced average fuel consumption from 17 L to 13 L per 100 km.

About ISO standards
ISO, the International Organization for Standardization, is an independent, non-governmental organization that began in 1926 as the International Federation of the National Standardizing Associations. It is based in Geneva, Switzerland. It develops voluntary international standards, providing common standards between nations. Nearly 20 000 standards have...
Thank you
Thank you.

City of Cape Town Electricity Fleet Management and Maintenance Services.
March 2018

Making progress possible. Together.