Resource Efficiency in the WCG Key Office Portfolio
Technical Workshop - 20 June 2019
Contents:

1. OFFICE ACCOMMODATION: TARGETS AND PERFORMANCE
   a. ENERGY
   b. WATER
2. OFFICE ACCOMMODATION INTERVENTIONS

Property Efficiency Report 2017/18
An annual publication that demonstrates the Western Cape Government’s commitment to managing and improving the efficiency, effectiveness and sustainability of its property holdings.
Issue No. 7
RATIONAL

The WCG’s obligation (GIAMA) and commitment through its Department of Transport and Public Works, is to manage and improve the efficiency, effectiveness and sustainability of its property holdings to ensure that it manages its property portfolio in an efficient and sustainable manner, providing facilities that are fit-for-purpose, benefitting citizens and those who work for them.
The Portfolio

• Current portfolio criteria:
  • Office Accommodation with usable extent > 1,000m²
  • Must have 12 month reliable data
• Current portfolio breakdown:
ENERGY CONSUMPTION
The portfolio continues to out-perform the private sector, this year by more than 38%.
ELECTRICITY CONSUMPTION (Kwh/m²) OWNED VS LEASED BUILDINGS (CBD)

Electricity consumed per m², CBD Building

- **Combined CBD**
  - 2017/2018: 169.46
  - 2016/2017: 183.43

- **Owned**
  - 2017/2018: 135.41
  - 2016/2017: 151.95

- **Leased**
  - 2016/2017: 226.94

The overall electricity consumption for the CBD is 237.7 Kwh/m².
ELECTRICITY CONSUMPTION (Kwh/m²)
OWNED VS LEASED BUILDINGS (Non-CBD)

Electricity consumed per m², Non-CBD buildings

<table>
<thead>
<tr>
<th>Category</th>
<th>2017/2018</th>
<th>2016/2017</th>
</tr>
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<tbody>
<tr>
<td>Combined Non-CBD</td>
<td>96.03</td>
<td>84.79</td>
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<tr>
<td>Owned</td>
<td>101.10</td>
<td>92.40</td>
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<tr>
<td>Leased</td>
<td>64.75</td>
<td>60.99</td>
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</table>
WATER CONSUMPTION
Total water consumption per kL/m²/pa was reduced by approximately 24% over the reporting period.
WATER CONSUMPTION (KL/m²)
OWNED VS LEASED BUILDINGS (CBD)

Water consumed CBD properties per m²

- Combined CBD: 0.72 (2017/2018) vs 0.99 (2016/2017)
- Owned: 0.53 (2017/2018) vs 0.73 (2016/2017)
WATER CONSUMPTION (KL/m²)
OWNED VS LEASED BUILDINGS (Non-CBD)

Water consumed Non-CBD properties m²

- Combined Non-CBD: 0.95 (2017/2018), 1.08 (2016/2017)
- Owned: 0.73 (2017/2018), 0.70 (2016/2017)

0.89

2017/2018  2016/2017
Fruitful Interventions

1. Modernisation Programme (Space Utilisation)
2. Appointment of Resource Champions
3. Remote Metering Rollout Programme
4. Building Performance Reporting (Measure, Monitor, Manage)
5. Green Lease Interventions
SPACE UTILISATION
Space Modernisation Programme

The portfolio achieved 18,78m² per desk, down from 21,44m²

12,4% Increase in desk efficiency

54% improvement achieved over 26 Floors in 6 Buildings since 2012

- Increase staff capacity through increasing usable area (Benefit: Reduce lease-in requirement);
- Improving work place efficiencies (New technology, Retrofits); and
- Implementing versatile space, furniture and fittings to create a modern working environment (Increase in productivity).

20,80m² per desk Non-CBD properties
17,98m² per desk CBD properties
15m² per desk Private sector benchmark
Resource Champions

- Prepare Resource Management Policies and Saving Strategies
- Carry-Out Resource Management Research and Perform Feasibility Studies
- Engage Management to promote savings initiatives
- Provide mentorship and training to client departments and facility managers
- Provide input on Capital and Maintenance Projects
- Monitor, evaluate, record and report on resource utilization, expenditure and savings
# Remote Metering Rollout Programme

<table>
<thead>
<tr>
<th></th>
<th>Electricity</th>
<th>Water</th>
<th>Pressure</th>
<th>Solar</th>
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<td><strong>Planned</strong></td>
<td>663</td>
<td>125</td>
<td>8</td>
<td>34</td>
<td>830</td>
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<tr>
<td><strong>Installed</strong></td>
<td>646</td>
<td>123</td>
<td>8</td>
<td>34</td>
<td>811</td>
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<tr>
<td><strong>Online</strong></td>
<td>641</td>
<td>123</td>
<td>8</td>
<td>34</td>
<td>806</td>
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</tbody>
</table>

Phase 1, 2, 3 and 4
Performance Reporting

Principal: Measure, Monitor and Manage
BENEFITS OF REPORTS:

1. Monitor and Manage energy / water consumption
2. Benchmark performance against Industry norms (Private and Public)
3. Compare performance of properties in portfolio
4. Measure the efficiency and cost effectiveness of Interventions
5. Monthly bill comparisons
6. Ensure that WCG properties are on most cost effective tariff structures
7. Apply 80 / 20 principle with ranking graphs
8. Automated alert and notification system minimizes energy and water consumption
Annual Property Efficiency Report

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Portfolio Management Report (Accounting Officers)
Portfolio Management Report (Accounting Officers)

Group Report: Electrical & Water

Department of Transport & Public Works

Date: 2019 March 2019-03-01 - 2019-03-31

GROUP AVERAGE: 148.06 (kWh/m².a) | GROUP AVERAGE (Feb-19): 150.03 (kWh/m².a) | GROUP AVERAGE (Mar-18): 71.44 (kWh/m².a)

Consumption (kWh) / Area (m²) per annum - Ranking

- DTPW-Waldorf: [EV01] Main
- DTPW-4 Dorp: [EV01] Intake Total
- DTPW-Protea Assurance: [E01] Main Meter
- DTPW-27 Wale Street: [Ev01] Intake Total
- DTPW-Gov Garage Roeland Street: [E01] Main CB
- DTPW-9 Dorp Street Complex: [EV01] Intake Total
- DTPW-Grand Central: [EV01] Total
- DTPW-York Park: [E01] Transformer Main
- DTPW-Gov Garage Hope Str: [E01] Main CB
- DTPW-Union House: [EV01] Main Total
- DTPW-1 Dorp Street: [E01] Main Intake
- DTPW-35 Wale Street: [E01] Main
Facility Management Report
Benefits of Smart Meters
WATER CRISIS RESPONSE (City of Cape Town)
Cumulative Savings

13 Owned Metro Buildings
8 129 kLitres saved against the target (more than 3 Olympic Sized Swimming Pools)
Green Lease Addendums

Taking the conversation to our landlords to work collectively towards introducing mutually beneficial sustainability measures in leased office buildings

Achieved by way of:

• concluding an annexure to an existing lease agreement
• adding additional “green” clauses to new leases

7 Primary Leased Buildings in the CT CBD Targeted

<table>
<thead>
<tr>
<th>Addendums Concluded</th>
<th>Target</th>
<th>Achieved</th>
<th>In Progress</th>
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<td>3</td>
<td>4</td>
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## Western Cape Government: Rooftop Solar PV Installations - Fact Sheet

<table>
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<td>1 9 Dorp Street</td>
<td>51.7</td>
<td>77.1</td>
<td>R 112,036</td>
<td>8.22</td>
<td>R 1,427,702</td>
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<td>2 VSSC Athlone</td>
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<td>172.4</td>
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<td>R 2,437,827</td>
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<td>3 27 Wale Street</td>
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<td>22.5</td>
<td>R 33,669</td>
<td>12.50</td>
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<td>4 Alfred Street Building – Library</td>
<td>75.6</td>
<td>109.8</td>
<td>R 105,029</td>
<td>10.80</td>
<td>R 1,834,252</td>
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<td>5 Alfred Street Building – CMD</td>
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<td>332.8</td>
<td>R 316,804</td>
<td>9.50</td>
<td>R 4,983,809</td>
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<td>6 Karl Bremer Hospital</td>
<td>75.0</td>
<td>122.3</td>
<td>R 154,814</td>
<td>8.13</td>
<td>R 1,903,756</td>
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<td>7 Khayelitsha Shared Services Centre</td>
<td>21.1</td>
<td>33.5</td>
<td>R 46,463</td>
<td>11.11</td>
<td>R 787,505</td>
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<td>8 GMT Building, Rusper Street, Maitland</td>
<td>72.2</td>
<td>119.3</td>
<td>R 116,381</td>
<td>9.96</td>
<td>R 1,893,403</td>
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<td>9 Goulburn Building, 63 Voortrekker Road, Goodwood</td>
<td>21.8</td>
<td>35.1</td>
<td>R 49,835</td>
<td>10.55</td>
<td>R 830,498</td>
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<td>10 Cape Teaching and Learning Institute (CTLI)</td>
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<td>1148.0</td>
<td>R 751,017</td>
<td>8.39</td>
<td>R 10,392,705</td>
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<td>11 Kromme Rhee, Stellenbosch</td>
<td>131.0</td>
<td>225.6</td>
<td>R 217,080</td>
<td>8.87</td>
<td>R 3,068,640</td>
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<tr>
<td>12 Gene Louw Building, Off Brackenfell Boulevard</td>
<td>53.6</td>
<td>98.4</td>
<td>R 106,768</td>
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<td>13 Eisenberg Administration Building</td>
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<td>610.0</td>
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<td>14 Dassen Island</td>
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<td>15 4 Dorp Street</td>
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<td>16 York Park George</td>
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<td>17 Artscape</td>
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<td>557.14</td>
<td>R 604,081</td>
<td>9.09</td>
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<td>In Construction</td>
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<td><strong>Total:</strong></td>
<td><strong>2,405 kWp</strong></td>
<td><strong>3,888.58</strong></td>
<td><strong>R 3,648,084</strong></td>
<td><strong>9.09</strong></td>
<td><strong>R 54,889,357</strong></td>
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</tbody>
</table>
Municipal vs. Solar PV kWh/m²/pa

9 Dorp
- Municipal Consumption: 157 kWh/m²/pa
- Solar PV: 23 kWh/m²/pa
- Savings: 12.7%

27 Wale
- Municipal Consumption: 139 kWh/m²/pa
- Solar PV: 8 kWh/m²/pa
- Savings: 5.4%
Ground Water Use
9 Dorp Street Municipal vs. Ground Water

kL/m²/pa

© Western Cape Government 2012
9 Dorp Street Water Consumption

Interventions:
- Re-commissioning of existing ground water system, completed May 2017
- Urinal retrofit completed (41 waterless urinal cartridges installed into existing urinals) in September 2017
- Metered taps retrofit completed in October 2017
- First air cooled chiller commissioned end of January 2018
- Second air cooled chiller installed mid March 2018
3. Public Works – Additional Water Interventions

- Ground Water system at 9 Dorp (±90% Water used by toilets is groundwater)
- Waterless urinals trials and rollout (Saves approximately 18,000 L per day?)
- Flow restrictors and aerators in existing basin taps
- Metered taps and dual flush cisterns in already modernised bathrooms
- Water chilled air-conditioners: various interventions. **These interventions are saving approximately 10 000L per week.** In addition, all chillers currently using potable water - investigating shifting to alternative sources.
FORWARD LOOK - IS UP TO US!
Thank you

Edwin Bath
DD: Immovable Asset Management Information
DD: Immovable Asset Register (Acting)
Department of Transport and Public Works
WESTERN CAPE GOVERNMENT

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