Renewable Energy and Energy Efficiency in Industry and COVID-19 realities

VEF20 Virtual Series - 09 December 2020

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Presentation Points

- Covid-19 Realities
- Mitigation Measures
- Case Study
- Opportunities
2019: Most intensive load shedding year

<table>
<thead>
<tr>
<th>Year</th>
<th>Duration of outages (hours)</th>
<th>Energy shed (GWh)</th>
<th>Est. econ. Impact (ZAR-bin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>-</td>
<td>176</td>
<td>8-15</td>
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<tr>
<td>2008</td>
<td>-</td>
<td>476</td>
<td>21-42</td>
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<tr>
<td>2014</td>
<td>121</td>
<td>203</td>
<td>9-18</td>
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<tr>
<td>2015</td>
<td>852</td>
<td>1325</td>
<td>58-116</td>
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<tr>
<td>2016</td>
<td>-</td>
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<tr>
<td>2017</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>2018</td>
<td>127</td>
<td>192</td>
<td>8-17</td>
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<tr>
<td>2019</td>
<td>530</td>
<td>1352</td>
<td>59-118</td>
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<tr>
<td>2020 (YTD)</td>
<td>80</td>
<td>143</td>
<td>6-12</td>
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South Africa – Post Covid V-Rebound
Global Equity Markets Rebound

Top 5 names have been responsible for all the US equity performance this year

Tech leadership has led to significant concentration ➔ higher than tech bubble

$9.3tn: market cap of US tech sector > entire market cap of Europe’s stock market

2020: Microsoft, Apple, Amazon, Alphabet, Facebook

2000: Microsoft, GE, Cisco, Intel, Walmart

Top 5 companies % of S&P500 market cap
Shift in priorities:
• Government identified the green economy as one of 12 job drivers which aims to create 5 million additional jobs by 2030.
• Government’s New Growth Path envisages that as many as 300 000 new direct jobs could be created in the areas of natural resource management and renewable energy construction.

Covid-19 Impact:
• Hospitality, Chemicals, Retail, General Industrials and Financial sectors were worst affected.
• Metals & Mining, Pharmaceuticals and Agro-processing least affected.
• Digital technology is the medium for a rapid and smart recovery.
• Renewable Energy adoption was accelerated by influx of large scale energy project developers.
• Investors keen to shape a new RE investment frontier.
Covid Support Measures

Government:
• Debt Relief Finance Scheme
• Restructuring SEFA-funded loans
• Business Growth Resilience Facility
• Agricultural Disaster Support Fund
• Tourism Relief Fund
• Tax Relief Measures
• Loan Guarantee Scheme

Business:
• Cash, PPE, Food, Water, Sanitizer, Safe Water Access, Hospital Upgrades,..
• Developed unique blend of alcohol-based chemicals to be used in the manufacture of hand sanitizers
• Developed a novel track and trace solution to identify affected people
• Manufactured face shields from recycled beer crates
Small-Scale Embedded Generation (SSEG) market is dominated by rooftop solar PV.

Estimated current installed capacity in SA is ~700MW.

More than 200MW of solar PV panels were installed in 2018.

Retrofitting 100 000+ public buildings which could exceed 1GWp of rooftop solar PV installations by 2025.

18% local electricity distribution utilities are regulated for SSEG.

€12.5 billion invested since 2011 with additional 6.3 GWp RE generation capacity, through REIPPPP.

Annual RE procurement of 1.1 GW: 670 MW of wind and 450 MW of solar PV.

Mining sector embedded generation approval.
Largest paper and plastics packaging and recycling business in Southern Africa.


Its integrated circular business model is focused on closing the loop in plastic and paper packaging through recycling and beneficiation of recyclables.

In 2016 its Mpact Atlantis plant commenced EnMS implementation.

Conducted steam and compressed air system optimization assessments at various sites.

Regularly train their management teams at the quarterly Mpact Centre of Excellence workshops.
Adapation Case Study

**Mpact Paper**

- Energy efficiency projects and DSM strategies continue to be implemented across the Group.

- Mpact installed a 750kWp solar PV plant at Versapak Paarl, a 1 000kWp solar PV plant at Springs and is developing a Group-wide solar PV roll out programme.

- Extensive work is being done to find cost effective alternative energy supply concepts such as combined heat and power plants and waste-to-energy solutions.
Covid Opportunities

- Redouble efforts on EnMS action plans to drive down kWh consumption
- Squeeze every kWh out of energy systems through optimisation
- Lower interest rates mean lower hurdle rates, while lower inflation levels means lower IRRs, presenting interesting investment opportunities
- Lower production volumes forces review of energy intensity metrics and also presents opportunity to train staff
- Invest in digital technology to improve controls and shorten response to anomalies
- Automate plant systems to limit human contact
- Change shift patterns, reconfigure work environment and work remotely
- Expand use of Scada systems to track process and operator movement to drive resource efficiencies
- Exploit low hanging embedded generation and renewable energy opportunities, e.g. waste heat recovery
Thank you

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