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ENVR E-599a – Capstone: Consulting with Clients for Sustainability Solutions

Draft Sustainability Action Plan – Bonpak

12 August 2018

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## **Introduction & Background**

Bonpak (Pty) Ltd. is a supplier of a wide range of plastic and glass packaging in the food, pharmaceutical, cosmetics, fruit juice, mineral water, wine and spirit industries. Established in 1990, Bonpak has been providing flexible and reliable service, not only to the larger industry players, but to small to medium businesses as well (Bonpak, 2018).

For over 20 years, Bonpak has been able to provide access to packaging materials for businesses that may not have been able to meet minimum order quantities of larger packaging companies. The entrepreneurial spirit of Bonpak is seen not only in its fostering of small businesses through accessibility to resources but also in its business style. Bonpak offer complete packaging solutions in a variety of different shapes, sizes, styles and materials to perfectly meet both standard and unique requests. The spirit of Bonpak has enabled the organization to operate for almost three decades, continually expanding and seeking new products and ways to create value for their consumers. The positive changes and influence of Bonpak has been fostered over many years, and an important factor in creating their value is their ability to take action.

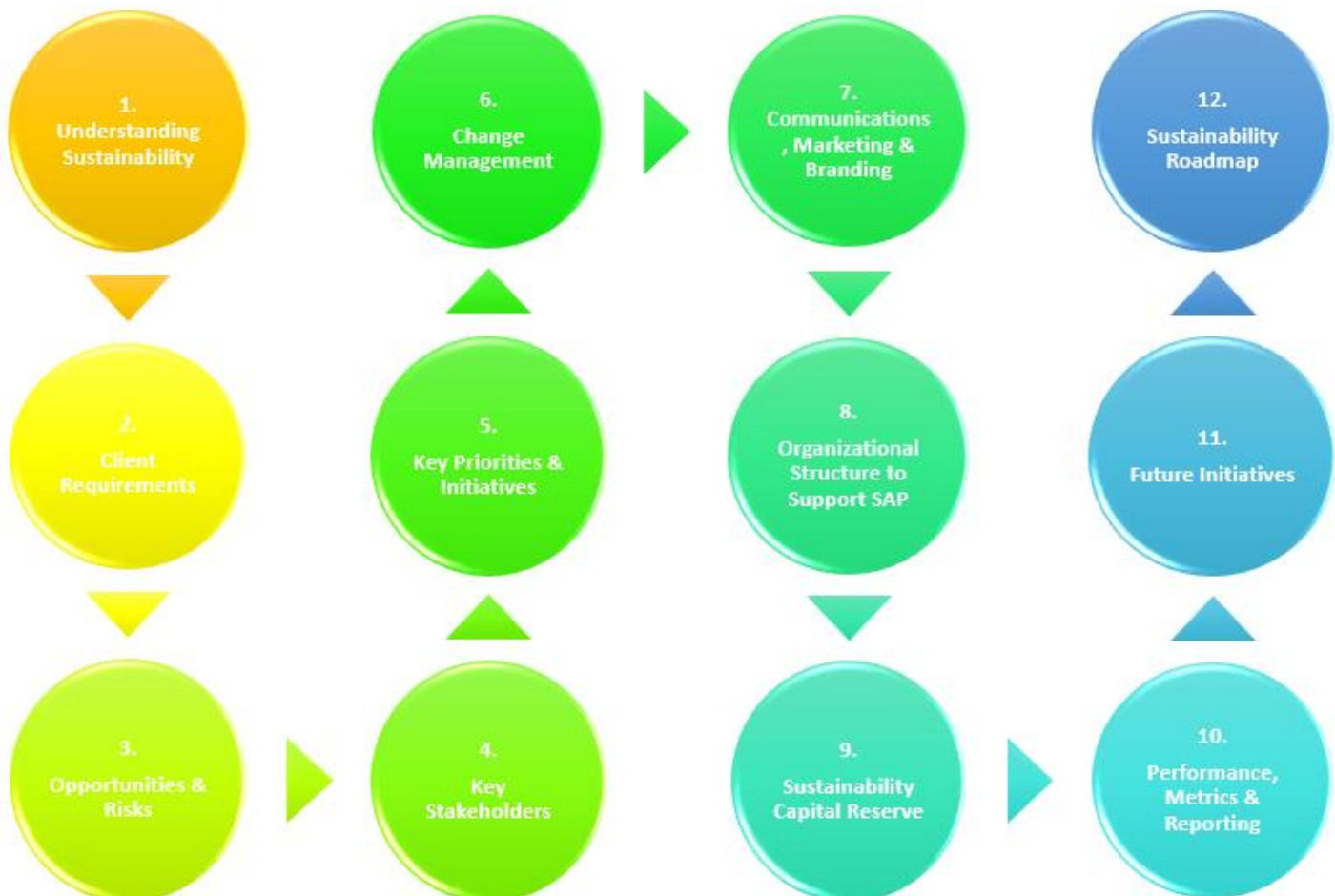
The Sustainability Action Plan is centred around ‘action’. The SAP intends to provide Bonpak with the necessary framework to develop, implement and innovate sustainable changes that not only provide benefit to the environment and society, but to the company’s bottom-line as well. The SAP will aim to further act as a resource for Bonpak to take part in meaningful stakeholder engagement and integrated annual reporting. The plan additionally highlights measures Bonpak can take to reduce its GHG emissions, energy use and waste while increasing its social responsibility, optimising its costs and influence in the marketplace.

This SAP is focused specifically on Bonpak’s facility based in Longmeadow, Johannesburg. The 4500 sq. ft. building acts not only as an office space but as a warehouse and distribution facility. This SAP was developed to identify and provide implementation frameworks and strategies for Bonpak to undertake to increase its sustainability profile.

A critical point to note is that the SAP must be treated as a “living” document, as it is the first step in the sustainability journey of Bonpak. Consistent engagement and accountability are required from Bonpak and its employees to ensure the success of the plan.

To effectively integrate and promote sustainability and sustainable practices within the operations, Bonpak requires strategic planning to identify and effectively action these initiatives (Blackburn, 2007). Further, actions require implementation planning and prioritization in order to best make use of the organizations resources on actions that provide greatest value. The SAP assists Bonpak in prioritising and aligning its key priorities that are able to produce the greatest value while making use of the least amount of resources.

## SAP Overview



## Understanding Sustainability

“The sustainability race is a global one”

Corporate sustainability is becoming more and more commonplace in the business sector, however, not many organizations understand what exactly the need for sustainability is. In a world where the climate and environment are actively changing, there is a need to develop strategic approaches to ensuring that businesses are able to mitigate their risks associated with these changes, but also ensuring that the business is able to thrive through considering all dimensions of its operations in social, environmental, cultural, ethical and economic domains.

Corporate sustainability creates long-term value to the business itself but also to the stakeholders of the organization, as it builds strategies to foster organizational longevity through transparency and employee growth.

In the book, ‘*Greening Your Business*’, author Dan Sitarz notes that businesses drive the global economy like never before, as they are continually trying to meet the growing need of the global population (2008). This has resulted in business having an overwhelming impact of almost every facet of life on the planet. It is widely viewed that as the sector that employs the most people, makes use of the most resources and also has the most impactful level of influence, businesses should lead the change to creating and fostering sustainability.

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## Vision for Bonpak

Companies that are viewed as leaders in their fields as well as leaders in sustainability can successfully link sustainable practices and the related financial benefit into their vision statement. In order for Bonpak to properly integrate sustainability into its operations, the same approach should be undertaken.

Through the provision of a vision statement, Bonpak is able to identify and communicate how sustainability relates to the organization. The vision is essential for the integration of sustainability into the business, not only in the present, but to maintain long-term organizational sustainability. Once the vision is defined, it becomes far simpler to determine the sustainable goals and actions that are appropriate for Bonpak.

In the development of Bonpak's vision statement, it is crucial to align the organizations value with the interests of all stakeholders including, employees, suppliers, customers, communities as well as environmental and regulatory agencies. The vision is shaped and influenced through successful stakeholder engagement (Goggins, 2007).

Bonpak's slogan of "Anything's Possible" can be used as a base from which to create a clear and inspirational sustainability vision. The aim of the vision is to strengthen the sustainability actions and impacts of all Bonpak stakeholders to integrate the pillars of social, economic and environmental sustainability into a holistic story. The proposed sustainability vision for Bonpak is;

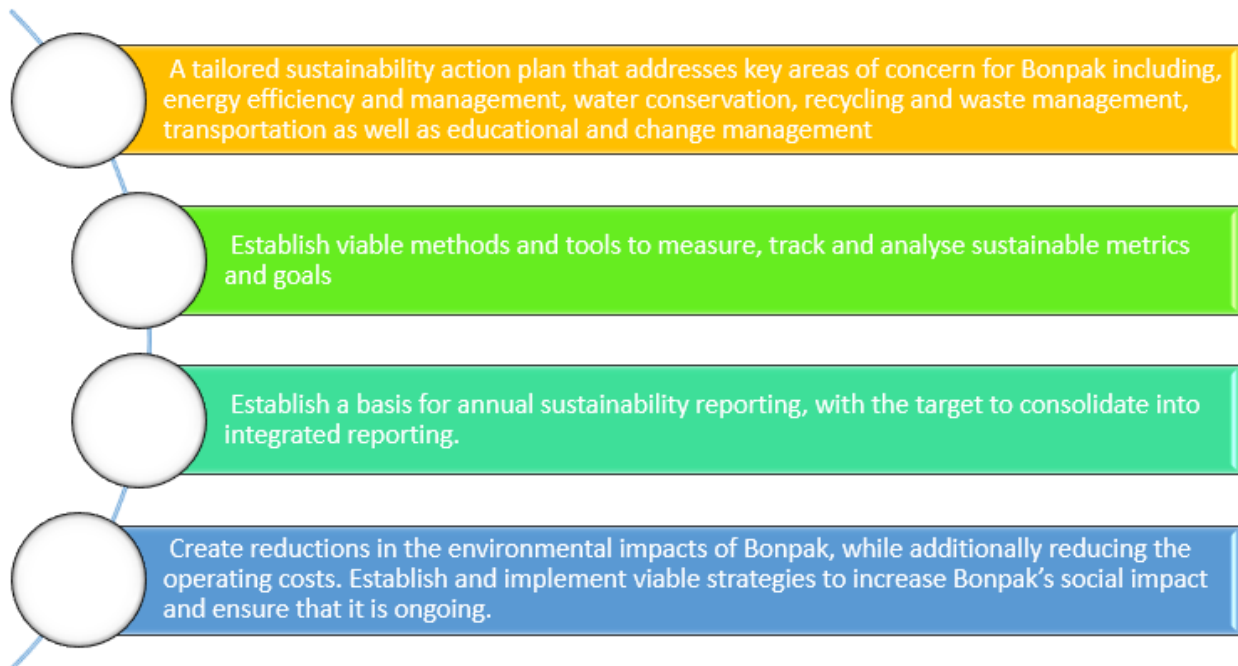
***Bonpak is committed to  
environmental stewardship and  
diverse social engagements  
while continuing to provide  
excellence in service delivery.***

This initial vision may evolve as time passes and more and more avenues of innovative sustainability are explored, however, it is important to specify a vision in the early stages of planning for sustainability, as the vision often provides context and a new perception to how Bonpak aims to tackle its specific sustainability issues.

## Client Requirements

Bonpak, being a business that operates in the packaging space, has begun to realise the importance of optimizing their operation and creating sustainable change within their organization. Further, having roots in a nation that is developing, Bonpak have a better understanding of the vulnerability of the country to the changes in climate. These vulnerabilities ultimately lead to impacts in business and economy, but through sustainable risk mitigation strategies, Bonpak may be able to respond better to these issues.

As sustainability is a new space for Bonpak, their requirements are as follows:



## Opportunities & Risks

A Sustainability Action Plan may be used by an organization for an array of reasons. Sustainable corporations understand the opportunities around the implementation of an SAP, including increased profitability, increased efficiencies, reduced cost, increased market share, and reduced business risk, both reputational and financial (Carbon Report, 2015). These opportunities present exciting new ways for organizations to lead the charge into the era of new business. There are also risks associated with the implementation of the plan, but these risks are outnumbered by the risks associated with not implanting an SAP.

### The opportunities that are presented by the SAP for Bonpak include

- Reduction in operational costs
  - Optimization of processes & productivity
  - Reduction in CO2 footprint / environmental impact
  - Change in staff attitudes and behaviors to sustainable practices in the organization
  - Increase in organizational transparency and staff engagement
  - Revenue generation from waste recycling processes

### The risks associated with the SAP include

- Initial reduction in profits – Capital Expense
  - Implementation may be difficult unless a “Sustainability Champion” is selected

The risks associated with not implementing an SAP could be far worse for Bonpak, as the new global business climate is demanding more sustainable operations. These risks include:

- Consumers demanding more sustainable practices to ensure brand loyalty and trust – lead to customer loss
  - Higher operational costs
  - Vulnerability to future risk

## Key Stakeholders

Stakeholders are highly influential in the success of any project (Liang, Yu & Guo, 2017). Their input, experience, engagement and commitment to a given project ultimately determines the level of success. Therefore, to create and establish a successful Sustainability Action Plan, key stakeholders are imperative.

The success of the SAP requires commitment and dedication from Bonpak, particularly from the highest levels, as their influence can foster significant change throughout all levels of the organization.

**Derek Bondi** – Financial Director (capstone project sponsor). Responsible for business financials and operational management at C-level.

- Sustainability Executive
  - Review and approve SAP initiatives
  - Manage financing
  - Allocate resources
  - Motivate and report on SAP to the Executive Board

**Tony Rhodes** – Warehouse Manager (on-the-ground contact). Responsible for day-to-day operational and facility management.

- Sustainability Manager
  - Identify, motivate and manage SAP initiatives
  - Monitor and report on SAP initiatives
  - Allocate project specific resources

**Ray Bondi** – Managing Director, Bonpak Cape Town

**Douglas Livingstone-Blevins** – Managing Partner

**Chantel le Grange** – Business Development Manager

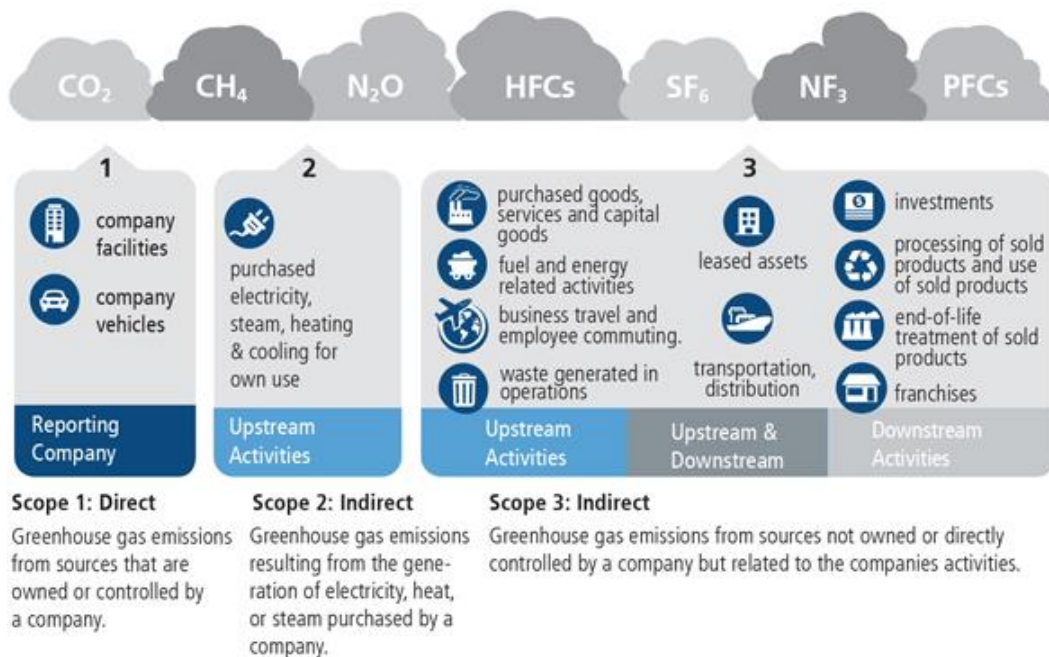


# Key Priorities & Initiatives

## Environmental Footprint

To create valuable and measurable change within the Bonpak Johannesburg facility, it is important to understand the current environmental footprint of the facility. Initiatives that are implemented will then have a baseline from which to measure the impacts. The standard measure, that is used by businesses globally, is the carbon footprint. The carbon footprint is defined as the measure of the greenhouse gas (GHG) emissions, or environmental impact, of an organizations operation, measured in units of carbon dioxide (Rouse, 2010).

GHG emissions are often among the primary key performance indicators requested by stakeholders when investigating the sustainability of a business. A Greenhouse Gas Protocol has been established to assist businesses in identifying areas in which they can reduce their footprint. The GHG Protocol has three categories of emissions (Scope 1, Scope 2, Scope 3), which assist organizations in identifying emissions that they are able to control versus emissions that they are able to influence (GHG Protocol, 2018). The table below further describes the GHG emission categories:



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## **Energy**

### **Background**

South Africa is a mineral rich nation and has been labelled as “coal rich” (DEA, 2011). However, the dependence of the energy market on coal-fired power stations to generate energy for the nation is inherently unsustainable. South Africa is a fossil fuel dependent nation, relying on coal for approximately three-quarters of the country’s primary energy supply, and for 85% of the country’s electricity generation capacity (GRSA, 2011). Nuclear power, coal-derived synthetic liquid fuels and renewable sources such as solar, hydro and wind power constitute the remainder of the energy contribution (DEA, 2011).

The lack of maintenance of existing infrastructure and the timely planning of new construction of energy production plants, has led South Africa to experience issues in meeting the national demand capacity. From approximately 2008-2016 South Africa experienced common periods of load-shedding, the deliberate shutdown of electric power in a part or parts of a distribution system, generally to prevent the failure of the entire system when the demand strains the capacity. The shutdown of energy plants due to their age, and the lack of maintenance, lead to a further strain in demand (Ndaba, 2017).

South Africa has an extremely volatile energy market, with an array of issues spanning from political corruption of State Owned Entities, to lack of infrastructure, to energy poverty, which further exacerbates the impacts of the energy market on climate change.

In order for businesses to achieve sustained operations while mitigating the risk of lack of energy supply, it is imperative to implement sustainable measures of behavioural change, energy efficiency and ultimately energy independence through the use of renewable sources.

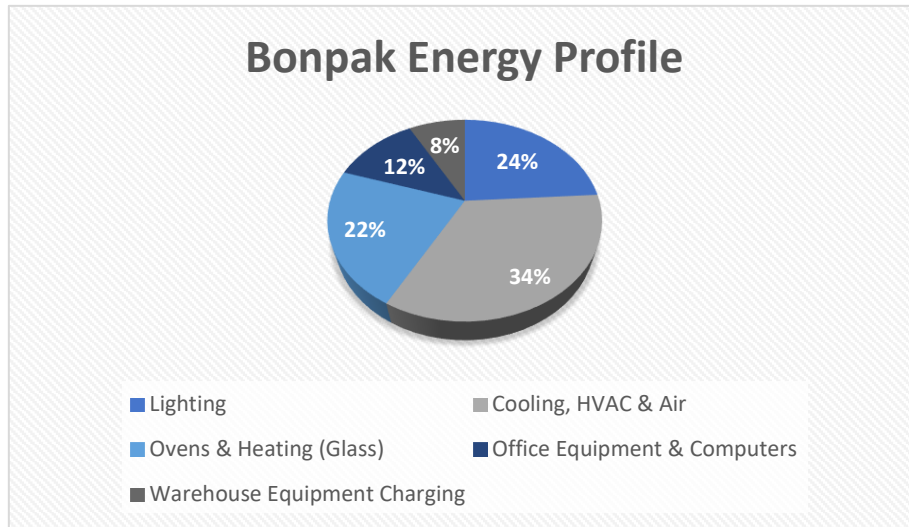
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### **Discussion**

Bonpak Johannesburg’s energy use (Feb 2018 – July 2018) is demonstrated in the table below.

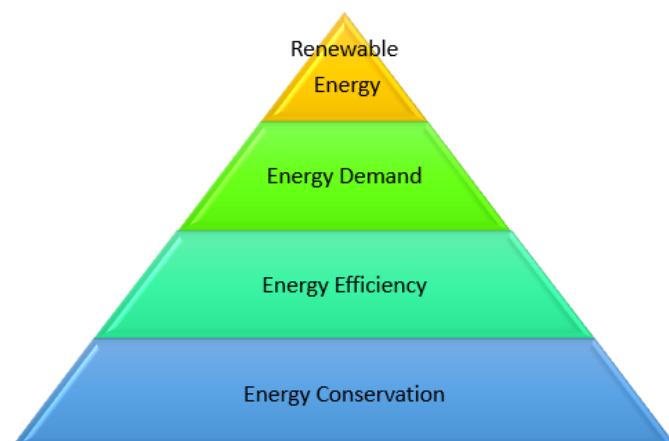
<b>Bonpak Energy Use 2018 (6-month)</b>						
	February	March	April	May	June	July
<b>kWh</b>	8235	10024	9070	7472	9078	11928

Bonpak makes use of its energy in the following areas, which have demonstrated according to percentage usage as best determined from the facilities manager as well as the utility bills:



The recommendations to address the energy use at Bonpak revolve primarily around the triangle of efficiency regarding energy. As demonstrated below, the triangle of efficiency is initially based on energy conservation through behavioural measures (CUSD, 2015). Once the behaviours of the energy users are as efficient as possible, energy efficiency measures can be implemented. Energy efficiency and energy conservation ultimately lead to a reduction in energy demand. Only once the energy demand is as low as possible, is it then viable to implement renewable energy measures.

Should renewable energy measures be implemented prior to addressing conservation, efficiency and demand, an organization will end up paying far more in set-up and running costs than is needed and will ultimately end up wasting time, money, resources and energy.



## Recommended Initiatives

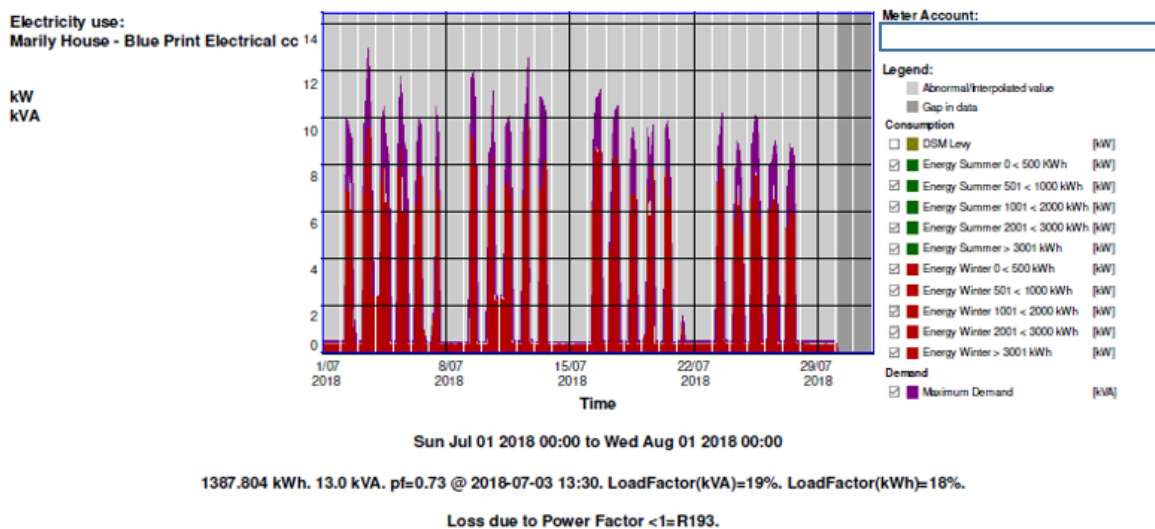
### Metering & Monitoring

To effectively implement any energy solution, it is recommended that Bonpak install metering and monitoring equipment.

Energy costs can be controlled once they have been accurately measured. When the energy usage profile has been established through reliable on-line metering, appropriate interventions can be developed and implemented to reduce energy consumption & cost. Meters also allow for early detection of anomalies that enable timely intervention to reduce the potential for wasteful expenditure. Accurate metering coupled with organisational change (appropriate policies, procedures, goals, measures, etc.) and behavioural change resulting from increased awareness will maximize the benefits flowing from investment in new energy efficient technologies. Often, just increased awareness of energy utilization within an organisation results in reduced energy consumption.

Green Power Energy Solutions, a specialist in providing green energy solutions, are able to provide a monthly rental solution for metering and monitoring the energy use of Bonpak. The rental includes the metering unit, monitoring and analysis, a monthly report, real-time access to energy data, as well as recommended interventions for any anomalies identified.

The energy management unit that is proposed for Bonpak is the Landis and Gyr ZMG310 metering unit. This can be coupled to a communications modem to provide remote access to the energy data. An example of the basic data analysis of this system can be found below:



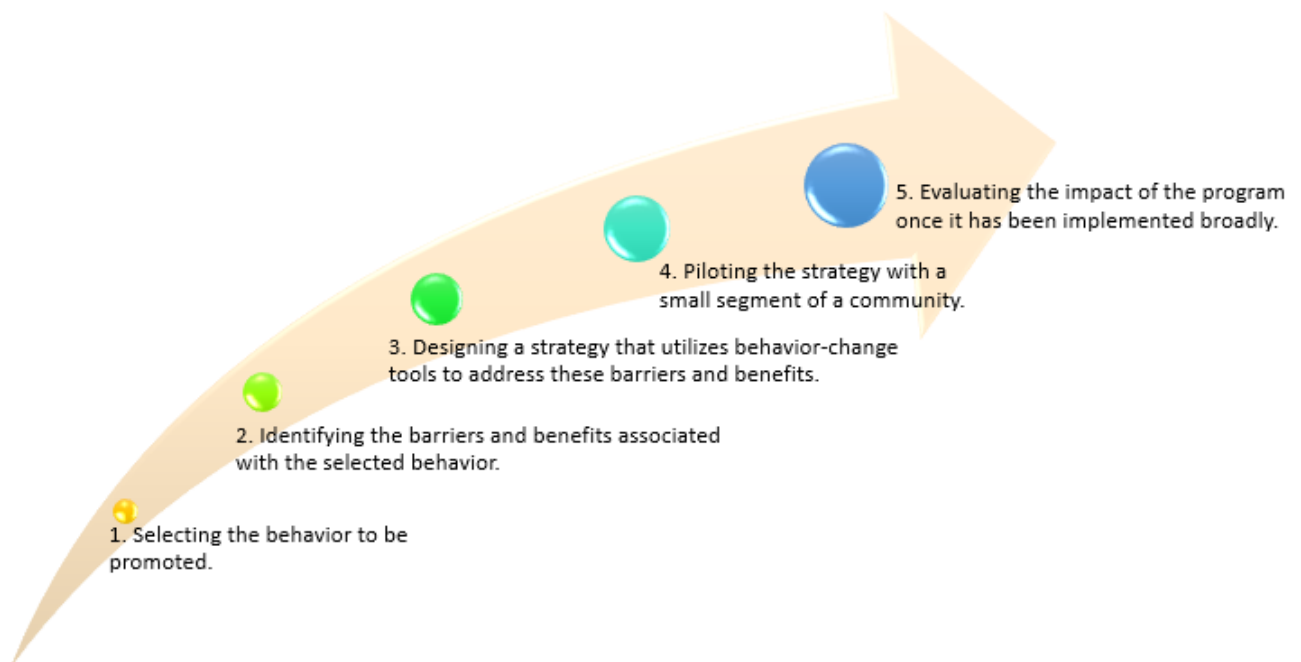
The monthly rental fee will total to R 633.75 (incl. VAT). Through this investment, Bonpak firstly, gain control of their energy monitoring and management and are accurately able to determine their usage and associated costs. Further, the monthly report allows Bonpak to track any changes and monitor the success of initiatives. The access to real-time data also allows Bonpak to make immediate changes, should they identify major spikes in energy use.

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### Behavioural Changes

*“It is not the strongest species that survive,  
nor the most intelligent, but the ones who  
are most responsive to change”  
– Charles Darwin.*

It is a well-known fact that it is generally difficult to change the behaviours of people, particularly if they have become used to performing it. Doug Mckenzie-Mohr developed a strategy called community-based social marketing (CBSM) that has shown to be effective in promoting sustainable behaviour changes (Mckenzie-Mohr, 2011). Community-based social marketing is broken down into 5 steps, namely:



Strategic tools, based on the CBSM strategy, that can be applied to behavioural changes within Bonpak regarding energy include:

Tool	Description	Applicable to Energy Behaviour Changes for Bonpak	Examples
Convenience	Remove barriers (or misperceptions)	Yes	Lighting - Motion Sensors, Day/Night Switches, Daylight Harvesting HVAC/AC - Temperature Control, Timers
Commitment	Ask for public, written commitments		
Social Norms	Exhibit behaviour as commonplace	Yes	Switching off lights, turning off machinery in the evenings.
Social Diffusion	Use social interactions to spread behaviour		
Prompts	Remind people to act	Yes	Signage & stickers
Communication	Craft effective messages	Yes	Positive, clear messages
Incentives	Provide benefits to encourage behaviour		

### Lighting Upgrade

The legacy technologies that are currently installed consume significantly more energy than their LED counterparts. Further, there are areas where the current lighting is positioned above racking in lieu of the aisles.

The energy savings that may be achieved with new lighting technologies varies from 50% to 90% depending upon the replacement and existing technology.

The benefits of replacing legacy lighting technologies and related fittings with LED lighting include:

- reduced operating cost as a result of reduced energy consumption;
- reduced maintenance cost as a result of longer rated life of LED technology;
- reduced cooling costs (and ceiling repair) as a result of the reduced heat output of the

LED luminaires and lamps;

- improved light output;
- improved light quality and colour temperature consistency; and
- new, aesthetically pleasing light fittings

Green Power Energy Solutions, a specialist in providing green energy solutions, conducted a brief energy audit of the Bonpak facility and provided a summary of the investment and returns for Bonpak to upgrade its lighting while reducing its energy consumption.

Total Cost of Ownership - New Lighting for: <b>Bonpak Johannesburg</b>	
Capital expenditure (excluding VAT)	R 419 189
<b>Payback and IRR Summary</b>	
Payback period	39,9 months
IRR from investment (over rated life to L70)	33%
<b>Environmental Impact Summary</b>	
Energy savings from new light technology	68 222 kWh p.a.
Demand savings from new light technology	16,76 kVa
Reduction in carbon footprint	36,64 tons p.a.
<b>Total Cost of Ownership Summary</b>	
Total cost of ownership over rated life (L70) - new lights (including capital expenditure)	R 1 763 038
Total cost of ownership over rated life (L70) - existing lights (including purchasing replacement lamps)	R 3 437 599
Total net savings over rated life with Green Power's energy saving products	R 1 674 562
<b>Simple delay implications</b>	
Cost of delaying investment decision for month 1 (energy and maintenance costs)	R 9 550 per month
<i>*Cost of delay does not take into account escalation over time</i> <i>*Cost of delay includes the cost savings through energy reduction, as well as the cost reduction through maintenance associated with the longer lifespans of LED lights over traditional technologies</i>	

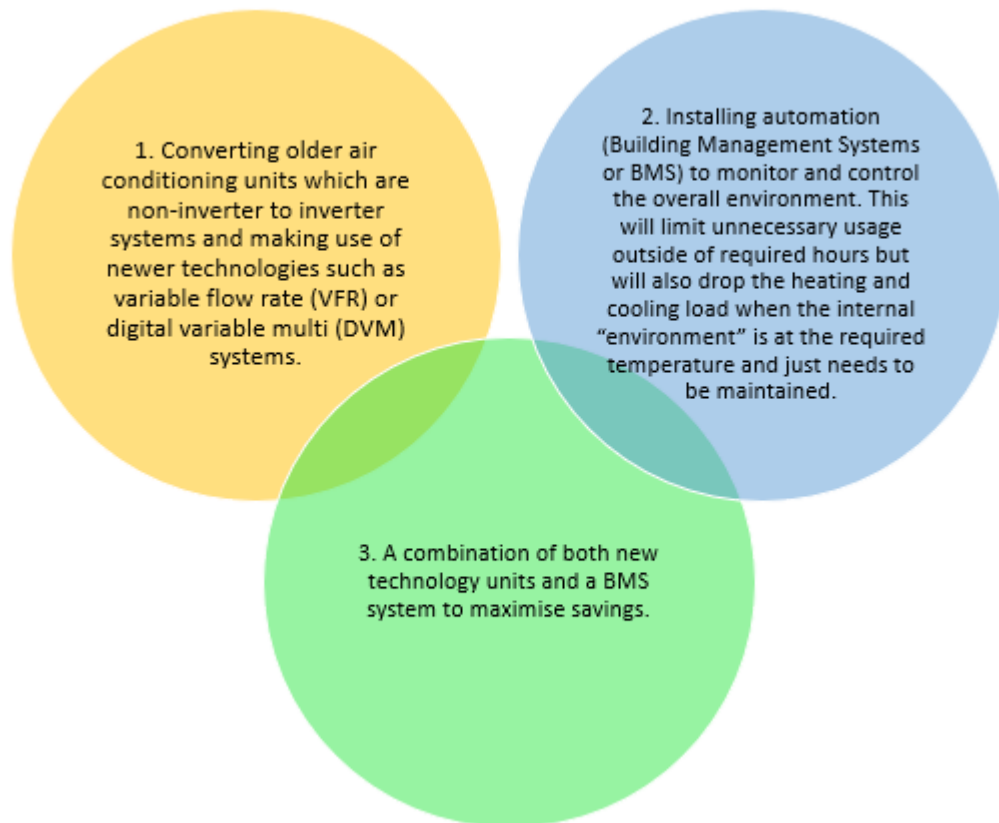
From this evaluation we see that a lighting upgrade is not only financially viable, but also provides a positive environmental impact and reduced operating costs.

### HVAC Optimization

Heating, Ventilation and Air Conditioning is the largest energy consumer in the Bonpak facility. Through simple control interventions, Bonpak is able to reduce their energy consumption significantly.

Further, the upgrade to LED lighting reduces the build-up of internal heat and therefore the load on the HVAC system.

There are three main investment considerations for those aiming to reduce their energy consumption in a financially feasible manner:



Whilst installing new technology is capital intensive, equipment warranties can be up to 10 years, providing some peace of mind regarding the investment. However, the return on investment in new equipment is normally less than if interventions are planned for the existing cooling equipment.

As part of this solution, sensors and actuators are retrofitted to the HVAC system to provide the necessary data to the BMS. The sensors and actuators are wirelessly linked into a centralised logic system. Once the agreed occupancy, temperature and timer “rules” for operation have been captured into the system, the BMS will run the building algorithmically to optimise energy consumption and air conditioning within the facility.

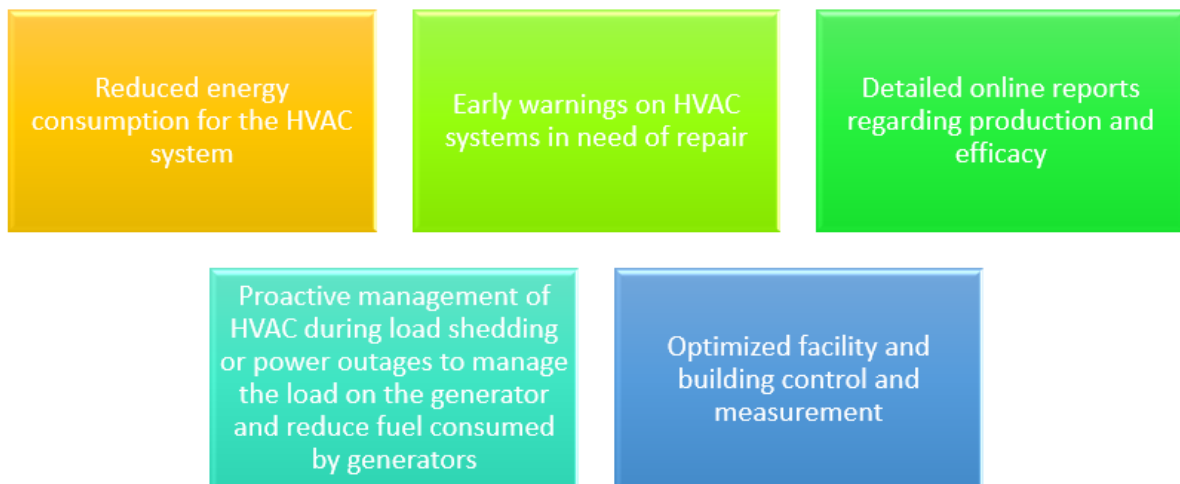
The main purpose of the BMS system is to use data collected from occupancy and temperature sensors to control and monitor the HVAC unit, such that power consumption is reduced by the



unit only being activated when certain pre-set conditions are met (Burns, 2018). This is achieved through the following methods:

- Staggering start-up times to reduce peak demand.
- Limit the use of HVAC systems during peak tariff periods.
- Limit the maximum and minimum setpoints of the HVAC components to minimise compressor load.
- Presence monitoring integrated into HVAC control to ensure energy is not used when the facility is unoccupied.
- Smart shutdown/start-ups, again to limit peak demand load.

Benefits of the BMS include:



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## Water

### Background

The largest impact of climate change on South Africa is currently, and will likely continue to be, water. The recent, three-year long drought that struck the Western Cape and filtered through the nation, highlighted the vulnerability South Africans face regarding water resources.

South Africa's vulnerability lies not only in the fact that water resources are relatively scarce, but also in the lack of infrastructure and maintenance of existing infrastructure as well as in the inaccessibility to clean and healthy water for a large portion of the population.

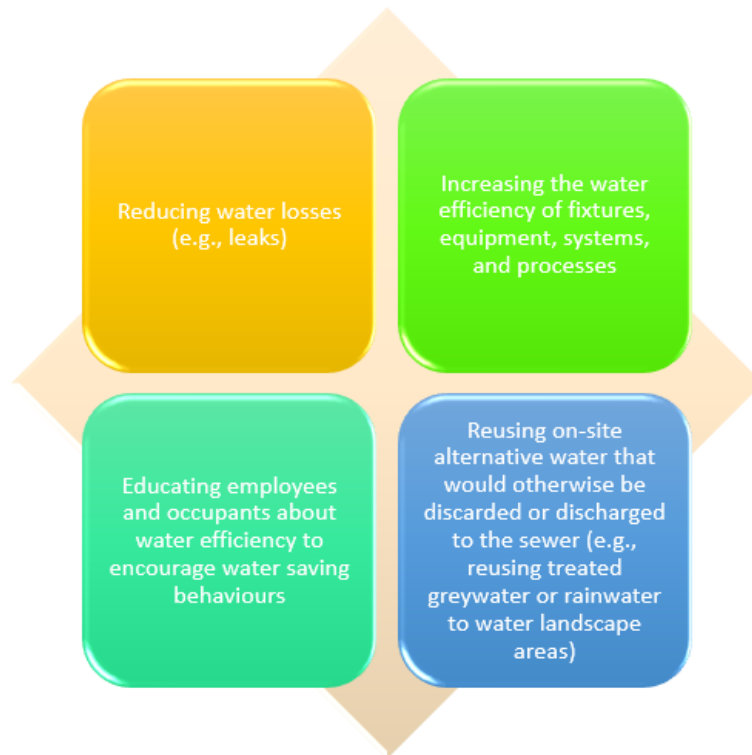
South Africans, now, more than ever, realise the importance of preserving and making use of water resources wisely.

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### Discussion

The nature of Bonpak’s operation does not make use of a significant amount of water. This however does not discount the fact that there are still viable methods to reduce their current water consumption and save on associated costs.

Water management and planning are the foundation to ensure water reduction efforts are successful. Water management planning generally addresses water use reductions in four areas (Facility Executive, 2016):



Currently, Bonpak are relatively sustainable in their water use, and employees are aware of water efficiency measures and water-saving behaviour. Bonpak Johannesburg also only make use of a 2-min a day watering cycle, as they have made use of water wise landscaping and plants.

To further optimize their water usage, Bonpak can implement simple control measures. However, in order to create change, it is important to implement metering and monitoring.

Implementing metering allows a facility to monitor water use and quickly find and fix leaks or other unnecessary water use. It also has the added benefit of enabling the facility management department to identify cost-effective water use reduction opportunities and to track project savings

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### Low Flow Faucet Aerators

Low-flow aerators reduce the flow of water from the faucet without reducing pressure, saving both water and energy (Eartheasy, 2018). The Bonpak facility in Johannesburg has twelve basins in their bathroom facilities. Their current faucets flow at a rate of approximately 15 litres/min. Through the installation of a low-flow faucet aerator, the flow rate can be reduced to 2 litres/min (Faithfultonature, 2018).



Below is a table demonstrating the benefit related to the installation of low-flow faucet aerators.

<u>Given:</u>	
<ul style="list-style-type: none"> <li>- 12 x basins</li> <li>- 76 x employees</li> <li>- 21 average working days per month</li> </ul>	
<u>Assumptions:</u>	
<ul style="list-style-type: none"> <li>- 30sec per hand wash</li> <li>- 1x wash per employee per day</li> </ul>	
<hr/>	
30 sec x 76 employees = 2 280 seconds/day (38 min/day)	
<b>Conventional Faucets</b>	
38min/day x 15 litres/min = 570 litres/day	
570 litres/ day x 21 = <u>11 970 litres/month</u>	
<b>Low-Flow Faucet Aerator</b>	
38min/day x 2 litres/min = 76 litres/day	
76 litres/ day x 21 = <u>1 596 litres/month</u>	
<b><u>Total Saving = 10 374 litres/month</u></b>	
<b>Summary - Low-Flow Faucets for: Bonpak Johannesburg</b>	
Capital expenditure	R 1 440
<b>Payback Summary</b>	
Payback period	7,2 months
<b>Environmental Impact Summary</b>	
Water Savings	124 kilolitres p.a.

### Behavioural Changes

While South Africans have for-the-most-part adopted water-saving behaviours, there are still viable methods to remind and encourage further water saving behaviours. Using the CBSM strategy developed by Doug Mackenzie-Mohr (2011), as discussed earlier, we are able to identify water-saving behaviours to be adopted.

Tool	Description	Applicable to Water Behaviour Changes for Bonpak	Examples
Convenience	Remove barriers (or misperceptions)	Yes	Low-flow faucets
Commitment	Ask for public, written commitments	Yes	Create or sign up to existing water pledges
Social Norms	Exhibit behaviour as commonplace	Yes	Turning off faucets, washing dishes once a day
Social Diffusion	Use social interactions to spread behaviour		
Prompts	Remind people to act	Yes	Signage & stickers
Communication	Craft effective messages	Yes	Positive, clear messages
Incentives	Provide benefits to encourage behaviour		

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## Waste

### Background

The waste industry in South Africa is driven primarily by waste collection and landfilling. Only approximately 10% of waste produced in South Africa is recycled. Household waste is managed by the local municipality and their related service providers, which commercial waste is generally managed by the private sector (GreenCape, 2017).

The challenges faced by South Africa, regarding waste, are the increasing population, the increasing demand on established and existing resources as well as the aim to provide basic needs. The influence of waste on the health of people and communities as well as the environment are also a critical concern.

Legislatively, South Africa aligns with global trends, however monitoring and enforcement have been poor due to a lack of suitable waste expertise and implemented practices. The South African Government has however mandated waste management as a critical area of concern when discussing service delivery and sustainability. South Africa placed 11<sup>th</sup> on the list of countries that generated the highest volumes of “mismanaged plastic waste”, surpassing both India and the United States (Green Cape, 2017).

There has, however, been a shift in the waste management landscape, that results from the increasing pressures on municipalities (limited landfill airspace), an increased awareness of sustainability from business and consumers, as well as the extensive investment by voluntary

material and producer responsibility organizations. Waste management strategies are moving towards diversion of waste to landfill, and increased recycling and recovery of waste.

The ‘business as usual’ waste management approach, generates approximately R15 billion worth of revenue, with approximately 90% of waste going to landfill. Approximately 30 000 people are employed in this approach, however, their employment stems primarily from the recycling/reclamation sector (DST, 2014.)

It is estimated that approximately 65% of waste produced (around 38 million tonnes) is in fact recyclable and can be diverted from landfills to be recovered and repurposed or reprocessed. Additional revenue that is estimated from diverting waste to landfill is between R 9.2 billion and R 17 billion, based on global trends. Recognizing the opportunity, the South African Government is aiming to develop socio-economic opportunities and create employment, and thus growth can be expected from the waste sector (Green Cape, 2017).

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### **Discussion**

The waste disposal for Bonpak is perhaps the most complex initiative in the SAP. Bonpak, being an industry operator in the packaging and bottling space, essentially handles items that are likely to end up in landfills and exacerbate the waste issues faced by South Africa.

Bonpak act as a distribution facility, which entails the unpacking and repacking of certain items to meet the consumer needs. The repacking process generally produces a significant amount of plastic and cardboard waste. Bonpak supplies a variety of consumers with a variety of different products, which increases the complexity of creating a sustainable waste stream.

Due to the large array of different customers and needs, this SAP will focus specifically on sustainable waste management initiatives relating to Bonpak’s largest client, Consol. Sustainable office waste management initiatives will also be included.

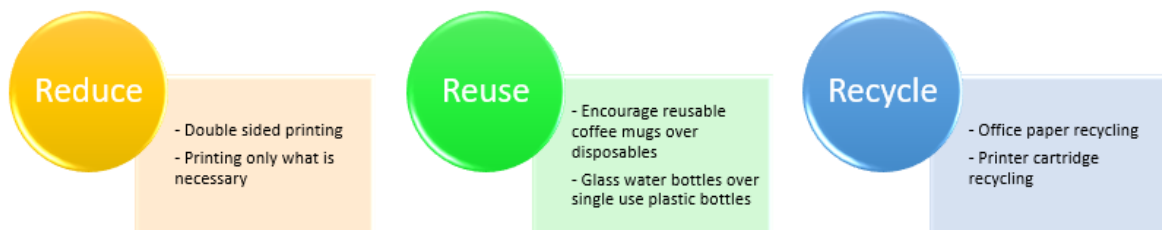
Similar to the energy efficiency pyramid, there is also a waste hierarchy as demonstrated below (Sustainability Victoria, 2008):



### Office Waste Management

According to the United States Environmental Protection Agency (U.S. EPA), approximately 80% - 90% of solid waste in the average workplace is recyclable. The establishment and implementation of an office-recycling initiative will not only reduce the environmental footprint of Bonpak but will also lead to cost savings (Sustainability Victoria, 2008).

The diagram below identifies potential strategies for Bonpak to implement a sustainable office waste management system.



Beyond the efficiencies and reduction in costs due to office waste management, there is also a small amount of return that can be generated from the implementation of the sustainable waste management strategy.

While rates may differ slightly between recyclers, Bonpak can expect the following recycling rates for their office waste management:

	White Paper (per kg) R 0,25 – R 1,50
	Cardboard (per kg) R 0,10 – R 0,30
	Glass (per kg) R 1,50 – R 2,00
	Plastic Bottles (per kg) R 1,20 – R 2,00

### Distribution Waste Management

The distribution facility of Bonpak is an essential element to their business operations. Through the packaging and repackaging of product, Bonpak generates a significant amount of plastic and cardboard waste. As previously mentioned, due to the extent of Bonpak’s operations, this SAP will specifically address the waste generation relating to Bonpak’s largest client, namely, Consol.

An average of 50 pallets of product for Consol, enter and exit Bonpak’s facility in a month. Each of the pallets is wrapped in Linear Low-Density Polyethylene (LLDPE) plastic, which is simply removed and disposed of in order to repackage according to the clients needs. As the plastic is wrapped many times around the pallet to secure the product, there is a significant amount of plastic used per pallet, approximately 250 grams per pallet.

This leads us to calculate that Bonpak create approximately 12.5 kg of plastic waste in one month from one client. This is a simple calculation based on the shrink-wrap plastic only and does not take into account rejected product nor additional packaging waste from smaller consolidated items on the pallets.

The recycling of the LLDPE plastics can generate an additional income for Bonpak, based on the following recycling rates:





LLDPE Plastic (per kg)  
R 1,40 – R 4,90

Below, is a table highlighting the potential financial benefit of recycling LLDPE plastic generated through the repackaging for Consol by Bonpak.

Given:

- Average – 50 pallets per month
  - Average – 250g LLDPE plastic per pallet
  - Average – 12.5 kg LLDPE plastic waste per month
- 

**Annual LLDPE Waste (Consol)**

$$12.5 \text{ kg} \times 12 = 150 \text{ kg}$$

**Recycling Payback**

- $150\text{kg} \times \text{R } 1.40 = \text{R } 210$
- $150\text{kg} \times \text{R } 4.90 = \text{R } 735$

**Therefore, recycling the LLDPE plastic from a single client can generate between R 210 – R735 per annum**

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Behavioural Changes

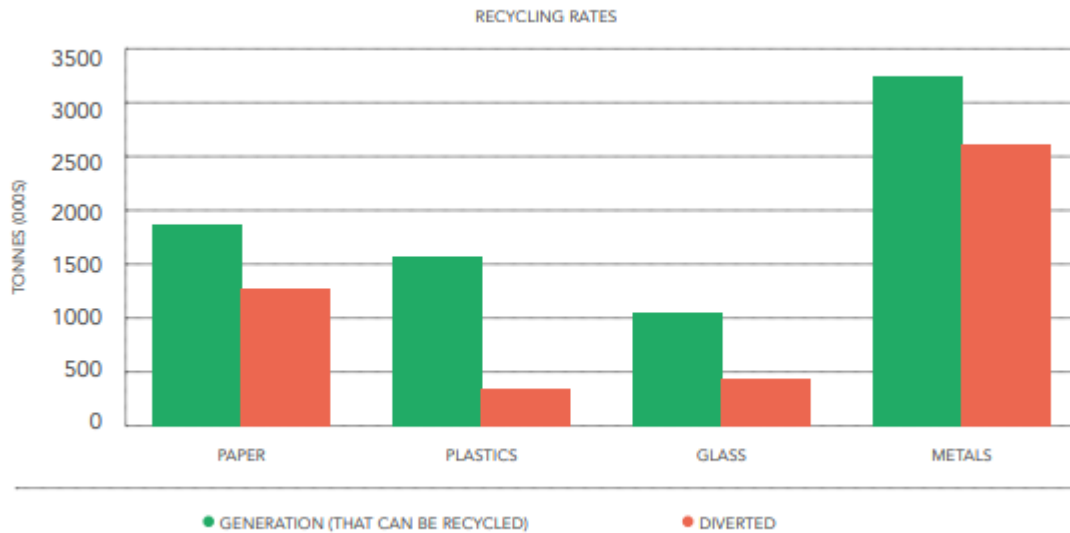
In order for Bonpak to establish a successful sustainable waste management strategy, employee behaviours will need to be addressed and change in these behaviours facilitated. The table below identifies behavioural change strategies according to the CBSM tool as engineered by Doug Mackenzie-Mohr (2011).

Tool	Description	Applicable to Waste Behaviour Changes for Bonpak	Examples
Convenience	Remove barriers (or misperceptions)	Yes	Recycling bins strategically placed
Commitment	Ask for public, written commitments	Yes	Create Bonpak waste pledge
Social Norms	Exhibit behaviour as commonplace	Yes	Establish a waste champion, recycle openly
Social Diffusion	Use social interactions to spread behaviour	Yes	Create office competition to use less waste
Prompts	Remind people to act	Yes	Signage & stickers
Communication	Craft effective messages	Yes	Positive, clear messages, training of staff
Incentives	Provide benefits to encourage behaviour		

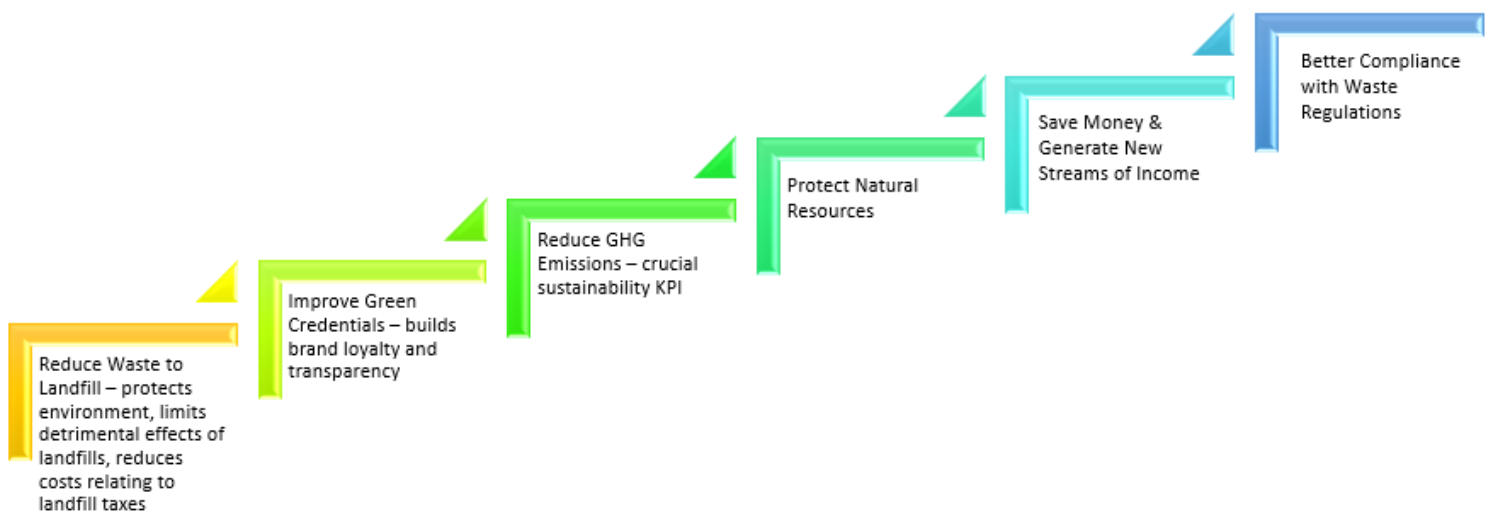
### Recycling

The economics of recycling are simple: if the cost of collecting, cleaning and processing recycle to create a new material that is cheaper than the virgin material, then recycling makes sense and a viable market exists.

The below graph demonstrates the market in South Africa where the generation of viable waste for recycling is measured against the diversion of this waste to landfill. From this graph we can determine that a significant portion of waste that can be recycled is ending up in landfills. The graph also highlights potential market opportunities to address recycling and profitability (Green Cape, 2017).



### Benefits of Recycling for Bonpak:



### Social Initiatives

A potential initiative for Bonpak to undertake, that can benefit their social responsibility, is the collaboration with ‘Waste Walkers’.

‘Waste Walkers’ alternatively referred to a trolley-men or trash-hawkers, are extremely common around the world and an estimated 1% of urban population in developing nations make their living through reclaiming recyclables from waste (Suliman, 2011). Many of these

walkers are extremely poor and are often not skilled workers due to their poverty-struck upbringings.

These people earn and generate their income through sorting, collecting, recycling and reselling the waste, however, this is not an ideal job as it is both unsafe and unsanitary.

Bonpak is able to establish a social outreach program in which they ‘donate’ their recyclable waste to ‘waste walkers’. Any money generated from the sale of the recyclable material then belongs to the waste walker.

This initiative not only assists less-fortunate individuals, but also fosters a business relationship by empowering the waste walkers to handle and manage their resources.



## Change Management

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Globally, we see a major trend towards sustainability as it represents not only operational cost savings but further increases market share, productivity, stakeholder engagement while mitigating risk.

The problem that is often encountered by organizations that have tried to implement sustainable initiatives is the challenge of change management. According to Bob Doppelt, author of *Leading Change Toward Sustainability*, the implementation of sustainability initiatives requires behavioural change instead of political, technical or financial factors (2016).

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### Fostering Sustainable Behaviour & Change

In an organization such as Bonpak, that is well-established and has been operating for many years, behavioural change does have cause for concern. However, the value of strategic implementation in fostering sustainable behaviour, as described by John Kotter in his article '*Leading Change*' is the key to successfully changing behaviour (2011). The strategic implementation is based on the following 8 steps, which lead to sustainable transformation within an organization.

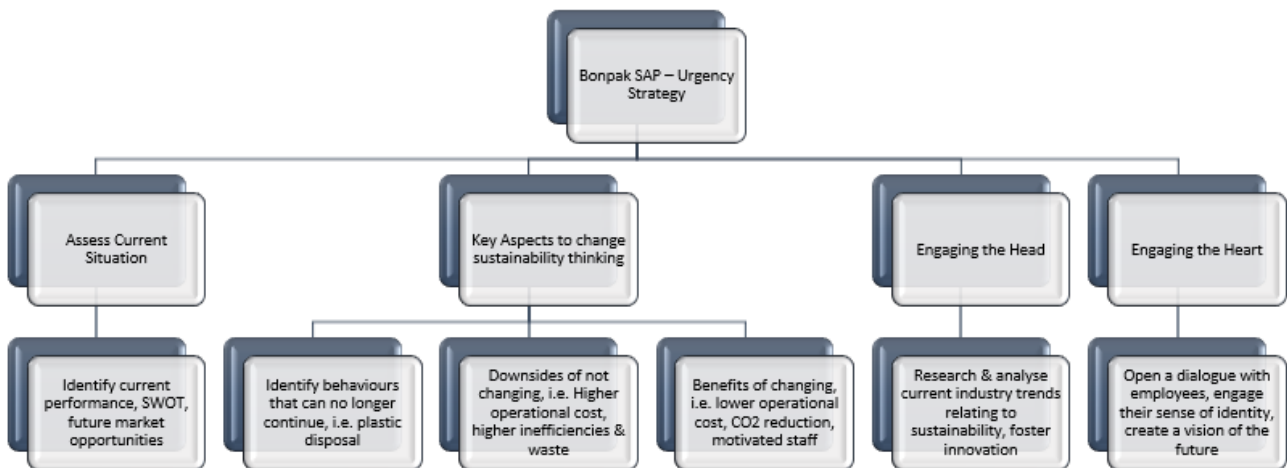


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### Establish a Sense of Urgency

The first step in fostering sustainable change is perhaps the most difficult, and yet is the most essential. In order to begin creating transformation an organization requires the aggressive cooperation of a group of individuals. Through the creation of a sense of urgency, individuals become more motivated.

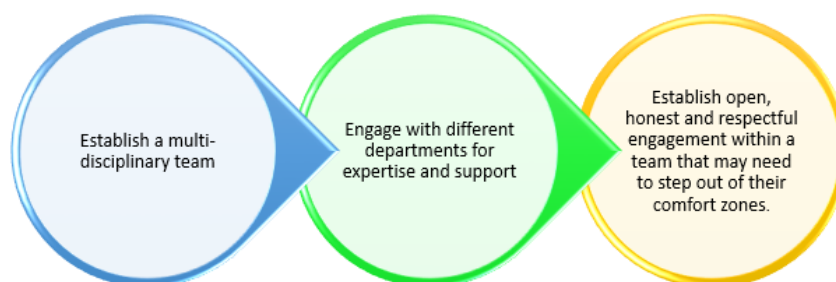
The strategy for Bonpak to create a sense of urgency can be found in the diagram below (Isaac-Elmadah, 2016):



### Form a Powerful Guiding Coalition

In order to ensure commitment to sustainable action, a powerful sustainability coalition must be established. People with decision-making power, expertise, and power in terms of information, reputation and relationships are highly influential in the success of any initiative. The wrong team can lead to initiatives stalling, or a lack of expertise and knowledge that may lead to the failure of initiatives.

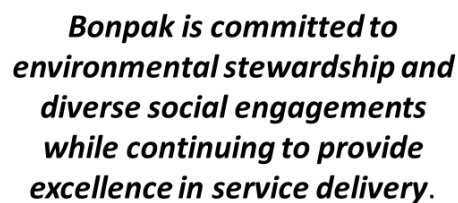
The process below can be used by Bonpak to engage this step:



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### Form a Strategic Vision

The established coalition will collaborate to create a sustainability vision for Bonpak. A clear and inspirational vision creates employee motivation and direction. This leads to greater focus, productivity and working together because a clear outline is provided. It is also crucial for Bonpak to align its vision with any other strategic visions or missions that may be established.



***Bonpak is committed to environmental stewardship and diverse social engagements while continuing to provide excellence in service delivery.***

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### Communicate the Vision

The importance of communicating the vision cannot be overlooked. Often leaders tend to under communicate important information in methods that are tedious. Instead it is suggested that the vision is communicated clearly, quickly and as often as possible, for as Kotter states, “Without credible communication, and a lot of it, the hearts and minds of the troops are never captured.” (2011).

Communication of the vision is not only through verbal or written means but is also closely tied to the success of sustainable initiatives.

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### Empower Others to Act

The success of transformation is closely tied to employee engagement and the development of a ‘sense of ownership’ of the transformational efforts. The guiding coalition should foster and encourage employee engagement in sustainable initiatives and change through not only communication, but also through the elimination of obstacles to change.



These obstacles present themselves in a variety of manners, but it is crucial to encourage all stakeholder to take risks on non-traditional ideas and actions that tie into the vision. It is also important for Bonpak to foster change through opening itself up to organizational system or structural change that aids their sustainability vision.

The Community-based social marketing strategic tools can be applied to the removal of obstacles or barriers that may arise for Bonpak (Mckenzie-Mohr, 2011).



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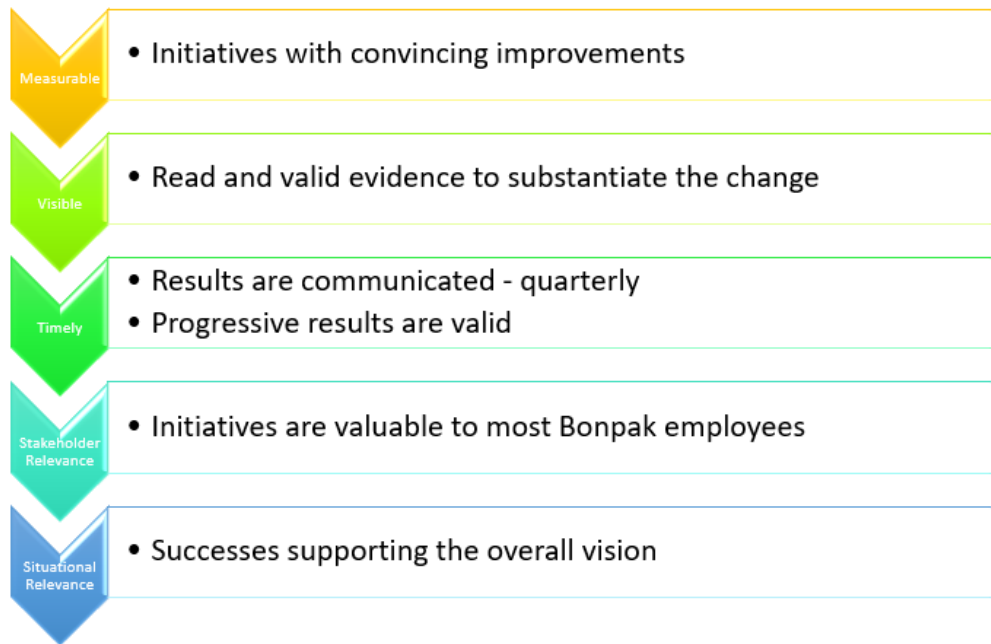
### Generate Short-Term Wins

Effective transformational efforts are not an overnight process and do require a significant amount of time for implementation. In order to maintain momentum and motivation for consistent change, planning for short-term success is required.

The sense of urgency created in the first step can be destroyed if people feel that their transformational efforts are not coming into effect soon enough. The commitment to producing short-term wins assists with keeping the level of urgency up, as well as fostering new ideas.

Successful short-term initiatives are driven by managers who actively search for performance improvements, establish their goals per annum, achieve the established objectives and pay recognition and reward to all members involved in the success. The performance improvement must be made visible and must be well communicated throughout the organization.

The below guide will assist Bonpak in determining which short-term wins to report on and communicate (Isaac-Elmadah, 2016):



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### Consolidate Improvements & Foster Accelerated Change

At this point in the change management process, there should be some traction being made in change implementation. The primary objective of this step is to use the momentum, motivation and credibility created by the short-term wins to push the organization to address more intensive change initiatives to further align Bonpak with their sustainable vision.

This step in the change management process also opens the opportunity to hire, promote and develop committed and experienced employees to reinvigorate processes, project and strategies.

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### Institutionalize New Approaches

In this final step, the aim is to establish the new change behaviours as permanent and embed them into the organization. This is the step where making sustainable change seeps into the bloodstream of the organization.

There are two crucial factors in ensuring that Bonpak are able to successfully implement this step:

- 1) Articulating and highlighting the connections between the new behaviours and corporate success. This is a conscious attempt to inform people about how the new behaviours and initiatives have created value and improved performance.
- 2) Developing the means to create sustained leadership and ensuring that the next generation of top management personify the new approaches. Leadership development is a crucial factor in ensuring that the right successor is selected and that the transformation is not degraded or lost over time, but rather, grows exponentially.

# Communications, Marketing & Branding

## Marketing & Branding

One of the key roles of marketing for any product or service is the development and updating of strategies to ensure profitability and growth of the organization and its related brands over a given period of time.

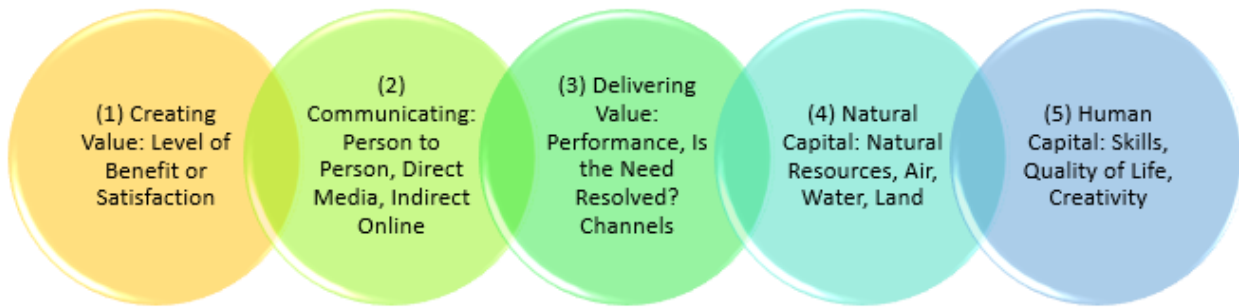
The below illustration demonstrates the basic key elements in designing a marketing strategy. This is a very broad strategy that can be applied to almost all products, however, sustainability marketing strategies are slightly more complicated, as they have additional elements to consider (Murphy, 2017).



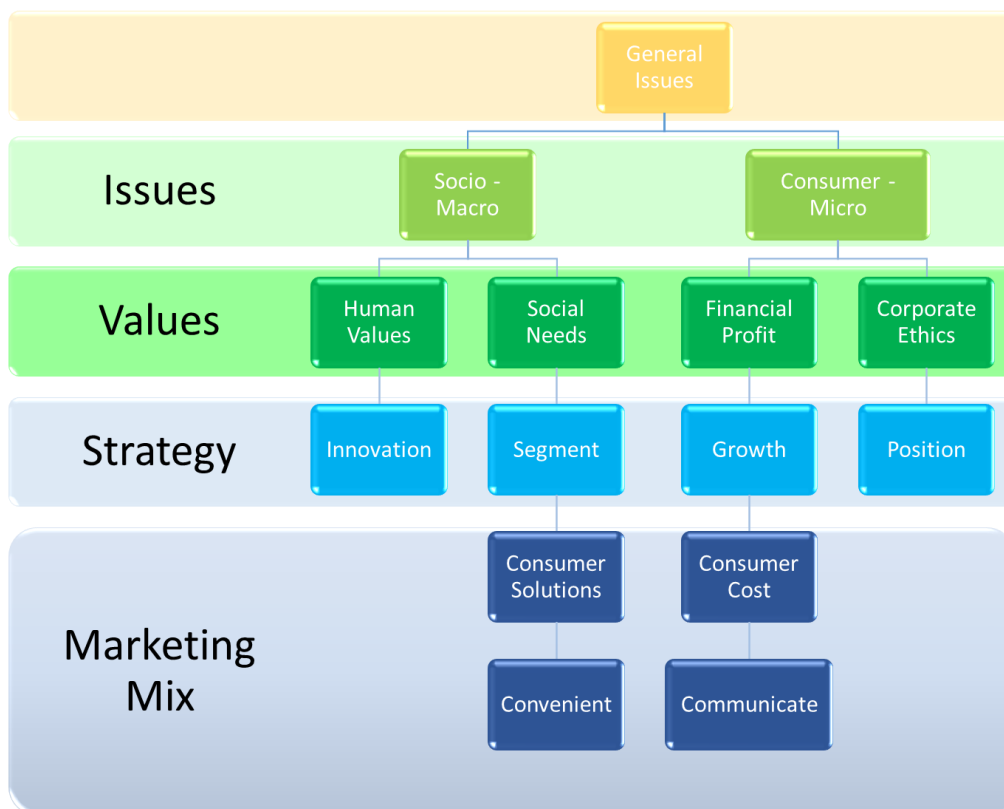
Sustainability marketing is based on traditional marketing techniques, but has developed further to include new market segments, as well as new areas of focus to address. A marketing mission is created to define the value that a company seeks to provide, the customers it serves and how the value will be delivered. A sustainability marketing mission must include all of the

above, as well as, benefits provided to socio-economic issues, environmental issues and broader ethical value of the organization.

Sustainable marketing can be defined as, the process of creating, communicating and delivering value to customers in a way that both natural and human capital are preserved or enhanced throughout. The five elements of this definition are elaborated further in the below diagram (Murphy, 2017).



A sustainable marketing framework that can be applied to Bonpak is demonstrated in the diagram below, which highlights sustainability marketing elements:



It is also extremely important to be able to measure and track marketing success both quantitatively and qualitatively. Sustainable marketing is strongly linked to the factors of qualitative measures.



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## Communications

The ability to effectively communicate internally as well as externally, will play an important role in the success of the SAP implementation. Without the support and input from employees, sustainable initiatives are much less likely to succeed, so it is imperative to develop strategies to communicate internally. Further, external communication on sustainability is strongly related to credibility, transparency and innovation.

Potential tools to communicate sustainability news or initiatives, for both internal and external stakeholders are as follows (Vlahov, 2015):



**Website**

-Including a sustainability tab on the website to communicate Bonpak’s commitment to sustainability. The tab should include information on current practices, vision, goals, metrics and progress.

**Social Media**

-Including sustainability into media messages over social media platforms (Facebook, Twitter, LinkedIn)  
 -Create a dialogue – invite stakeholder participation in conversations about Bonpak’s sustainability to strengthen the brand and relationships.

**Fact Sheet**

-Create a fact sheet that includes an overview of the sustainability vision and actions relating to Bonpak  
 -Distribute the fact sheet to Bonpak visitors (contractors, suppliers, investors, auditors, etc.).

**Collaboration with influencers – NGO’s, policy makers**

-Engage industry influencers to engage employees and increase participation in sustainability initiatives.  
 -Create awareness to Bonpak’s environmental and social impacts

**Education & Motivational Programs**

To increase motivation and knowledge around the action plan for Bonpak, educational and motivations programs can be put into place to provide employees with a clarity on a purpose that extends beyond simply doing a job and earning a living.

Employees play a crucial role in fostering positive change in their workplaces and communities, so it is imperative to eliminate barriers that may stand in the way of their behavioural changes.

The following list identifies potential motivational and educational programs that may be well-suited to Bonpak.



### Incentives & Competitions

- Create engaging and fun competition amongst different departments to embrace and implement certain sustainability initiatives
- Establish rewards or recognition for positive sustainable behaviors

### Environmental/Social Volunteer Programmes

- Create and foster volunteer programs to encourage employee engagement in sustainable initiatives
- Use employee compassion, sense of altruism and empathy to create commitment and motivation for positive change

### Green Awards

- Rewarding and recognizing employees or departments that exceeded sustainability goals.

### Employee Recommendations

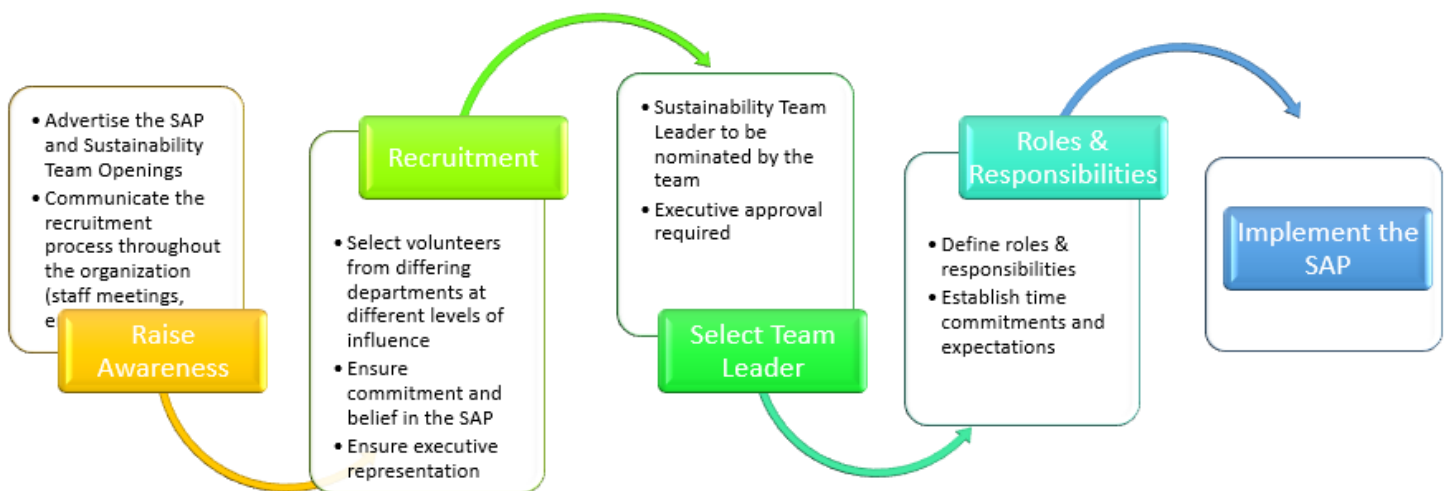
- A “suggestion box” may be used for different employee recommendations
- Quarterly meetings can be held, to engage employees from different backgrounds on their ideas around a specific initiative.
- Provide online surveys to evaluate and assess current practices, progress on implemented initiatives and to obtain feedback

## Organizational Structure to Support SAP

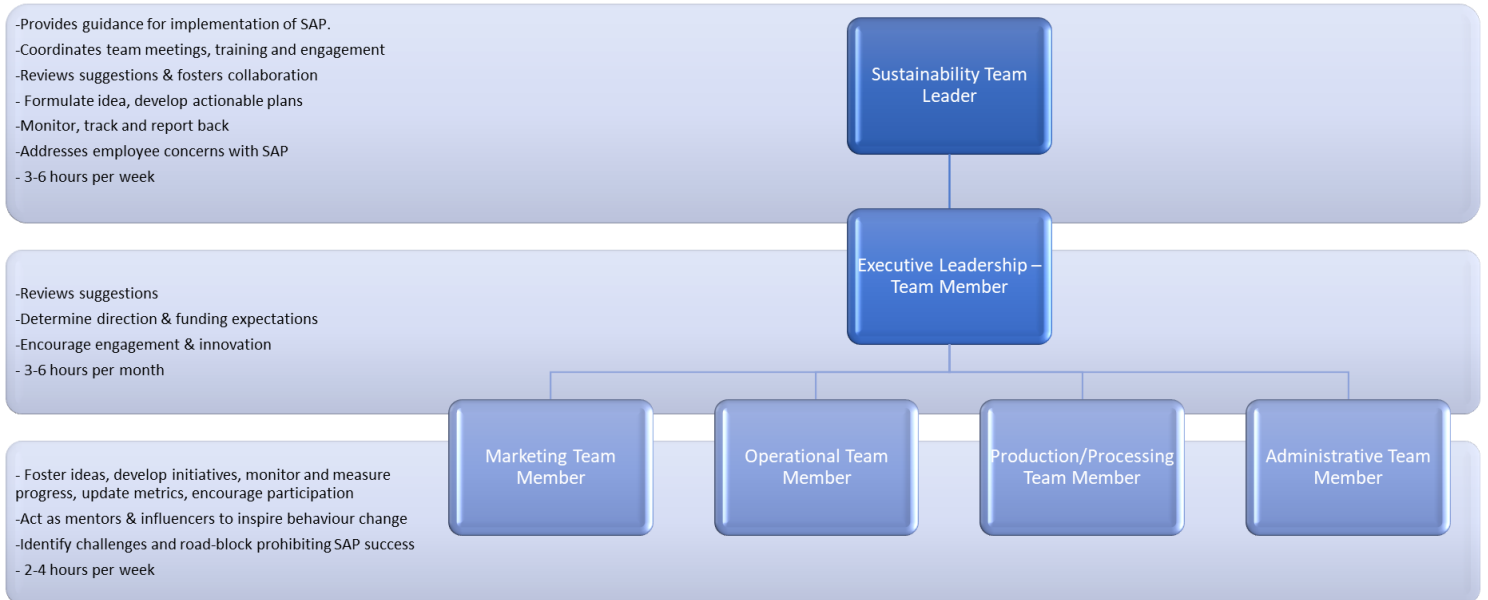
As previously discussed in the change management section of the report, an effective way to assist the implementation of the SAP is through the establishment of a guiding coalition. The guiding coalition may also be referred to as the sustainability team.

This approach provides employees of Bonpak with an awareness and understanding of the program, as well as fostering active participation. The team approach further allows the SAP to be divided amongst different people with certain skills and expertise and fosters cross-functional departmental engagement.

The following diagram describes the Sustainability Team Selection and Implementation Process (Isaac-Elmadah, 2016):



The diagram below shows a proposed structure as well as roles and responsibilities for the different members of Bonpak's Sustainability Team.



## Sustainability Capital Reserve

The implementation of the SAP involves sustainability capital projects, which like all capital projects, require funding. Organizations most often make use of payback periods and return on investment (ROI) to make the decisions on whether a project will receive funding or not.

The Sustainability Capital Reserve acts as the mechanism that Bonpak is able to use to allocate and distribute funds towards the implementation of sustainability related projects. The establishment of a capital reserve for sustainable initiatives is an important part of Bonpak's strategic and sustainable development (Indvik, 2013).

Bonpak can seed the capital reserve from operational cost savings achieved through implementing sustainability projects, or from designated cash donations. The more cost-saving initiatives that Bonpak implement, the quicker the rate of reserve replenishment and the cycle further perpetuates itself. To ensure that the appropriate savings from the operational budget are injected back into the sustainability reserve, tracking of sustainability projects and their relate cost-reductions are essential. This approach must be methodical and does not need to be complicated.

### Recommendations

- Seed money achieved through new revenue sources/ operational cost savings of sustainable initiatives, or donations
- Create an option for donations/funding on the website (in sustainability tab)
- Establish a simple mechanism to account for and capture savings generated from initiatives, based on key performance metrics

## Performance Metrics & Reporting

### Performance Metrics

Accurate, clear and comparable key performance indicators (KPIs) are essential for measuring Bonpak’s sustainability performance. The KPIs are used to establish and communicate current standings and progress in Bonpak’s sustainable focus areas, with the idea of using the KPIs to compare performance at different periods of time.

KPIs can also be established per project to provide clarity and perspective to the existing conditions, for example, occupancy rates to understand fluctuations in energy use. KPIs can also be intangible, such as customer satisfaction. Customer satisfaction is an extremely important factor in any business and gauging this performance can assist in the development and planning for sustainability initiatives.

The KPIs listed in the table below are potential indicators that can be used to monitor, track and communicate progress in key areas of Bonpak’s SAP. As new goals and targets are developed, additional KPIs are likely to be required.

KPI	Source	Focus Area	Baseline (2017-2018)	2025 Goal	Annual KPI Progress		
					2019	2020	2021
Total Energy Consumption	Utility Bills, Energy Metering	Energy Conservation	55 807 kWh (6-month)	50%	TBP	TBP	TBP
Total Water Consumption	Utility Bills, Water Metering	Water Conservation	TBD	20%	TBP	TBP	TBP
Reduce Office Waste	Waste Collection, Diverting, and Recycling Bills	Waste Management	TBD	30%	TBP	TBP	TBP
Reduce Distribution Waste	Waste Collection, Diverting, and Recycling Bills	Waste Management	TBD	50%	TBP	TBP	TBP
Reduce GHG Emissions	Energy metering, surveys	GHG Emissions (Scope 1 & 2)	TBD	50%	TBP	TBP	TBP
Customer Satisfaction	Surveys, Feedback Forms	Branding & Consumer Experience	TBD	80%	TBP	TBP	TBP
Employee Engagement	Surveys, Feedback Forms, Focus Groups	Branding, Transparency, Experience	TBD	80%	TBP	TBP	TBP

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## Sustainability Report

Sustainability Reporting has become more and more common, as it has been established that through voluntary reporting, an organization is viewed with greater credibility by its stakeholders. A Sustainability Report further assists in the driving of cultural and behavioural change throughout the organization.

Bonpak does not currently report on any sustainability initiatives, as it is in the early stages of investigating sustainable viability. It is strongly recommended that Bonpak undertake Sustainability Reporting in the future to discuss the efforts undergone to reach their established KPI's, their current standing toward sustainability as well as their view of the future regarding sustainable innovation and change.

The process of creating a formalized report is fairly long, particularly in the case of Bonpak, where sustainability practices are at the early stages of investigation and implementation. To assist in the establishment of reporting, Bonpak can make use of existing sustainability frameworks, such as the Global Reporting Initiative (GRI), to facilitate reporting, assist in guidance for KPI's as well as highlight potential issues that may arise. The GRI framework is a widely accepted form of sustainable reporting and is used by an array of organizations across the globe. The GRI framework requires transparent reporting on an organizations strategy, structure, governance, stakeholder engagement as well as its commitments to sustainability practices (GRI, 2015).

The following table provides KPI's adapted from the GRI that are applicable to Bonpak:

<b>GRI-G4 Indicators applicable to Bonpak General Standard Disclosures</b>	
<b>Category</b>	<b>General Standard Disclosure</b>
Strategy & Analysis	G4-1
Organizational Profile	G4-3 to G4-6
Stakeholder Engagement	G4-24 to G4-27
Governance	G4-34
Ethics & Integrity	G4-56

GRI-G4 Indicators applicable to Bonpak Specific Standard Disclosures	
Category	Specific Standard Disclosure
Economic	
Economic Performance	G4-EC1 to G4-EC4
Indirect Economic Impacts	G4-EC7 to G4-EC8
Environmental	
Materials	G4-EN1 to G4-EN2
Energy	G4-EN3 to G4-EN7
Water	G4-EN8 to G4-EN10
Emissions	G4-EN15 to G4-EN21
Effluents & Waste	G4-EN22 to G4-EN26
Compliance	G4-EN29
Overall	G4-EN31
Supplier Environmental Assessment	G4-EN32 to G4-EN33
Social	
Employment	G4-LA1 to G4-LA3
Labour/Management Relations	G4-LA4
Occupational Health & Safety	G4-LA5 to G4-LA8
Training & Education	G4-LA9 to G4-LA11
Diversity & Equal Opportunity	G4-LA12
Equal Remuneration for Men & Women	G4-LA13
Society	
Local Community	G4-SO1 to G4-SO2
Anti-Corruption	G4-SO3 to G4-SO5
Compliance	G4-SO8
Product Responsibility	
Customer Health & Safety	G4-PR1 to G4-PR2
Product & Service Labelling	G4-PR3 to G4-PR5
Marketing Communications	G4-PR6 to G4-PR7

## Sustainability Snapshot

The below is a visual example of a 'Sustainability Snapshot' for Bonpak's and includes its goals, initiatives and achievements. The snapshot can be considered a condensed version of an Annual Sustainability Report.

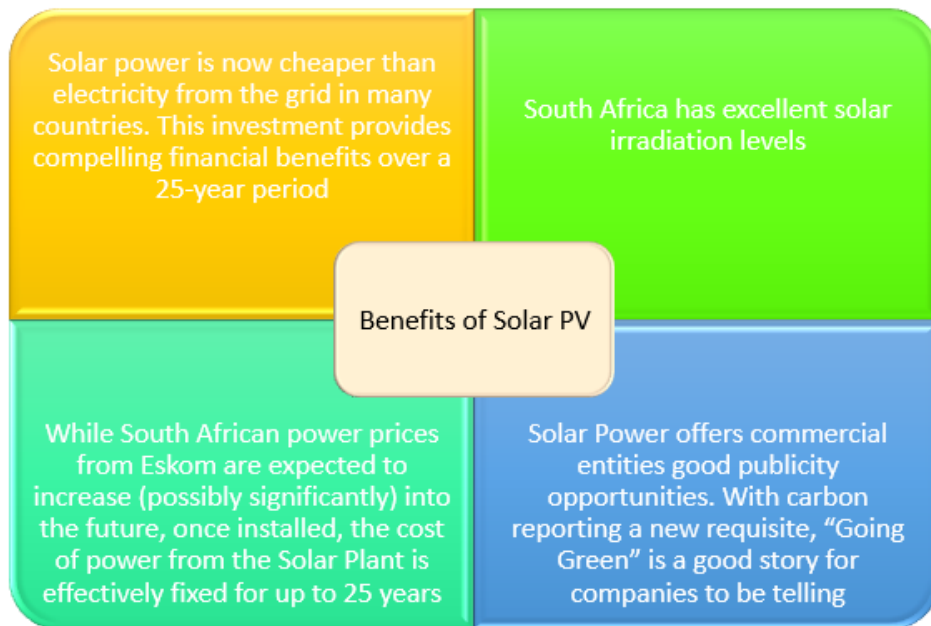




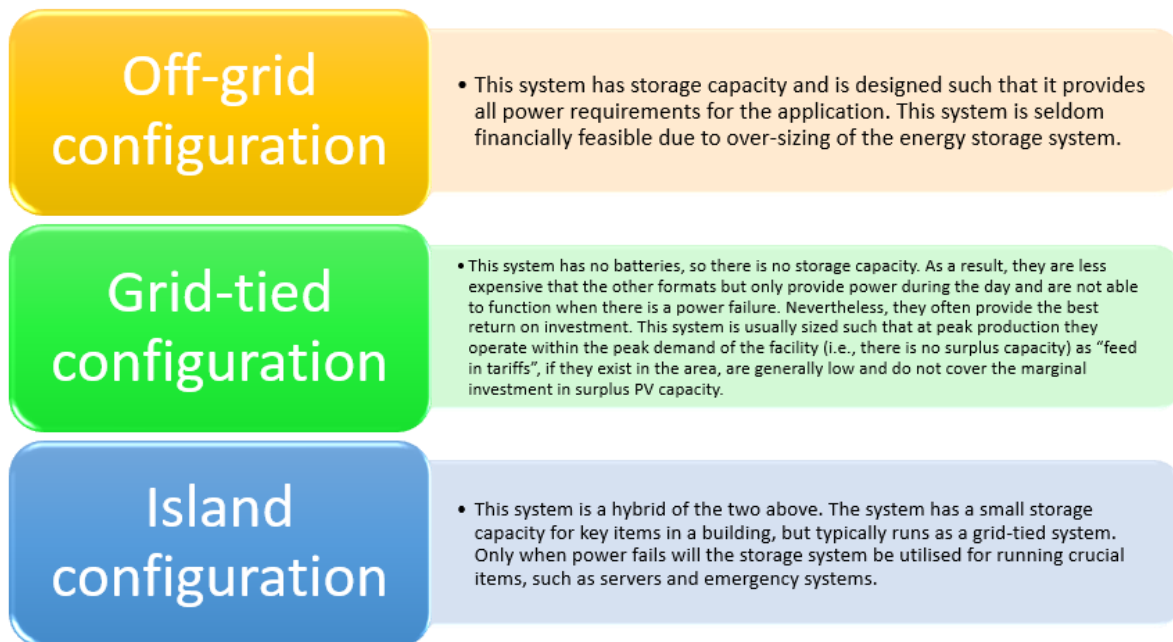
## Future Initiatives

### Solar Photovoltaic System

The benefits of installing PV generation capacity include:



Solar photovoltaic, or a PV system, utilises the photovoltaic effect to convert sun light into energy using semiconductor materials. PV systems are typically come in three formats:

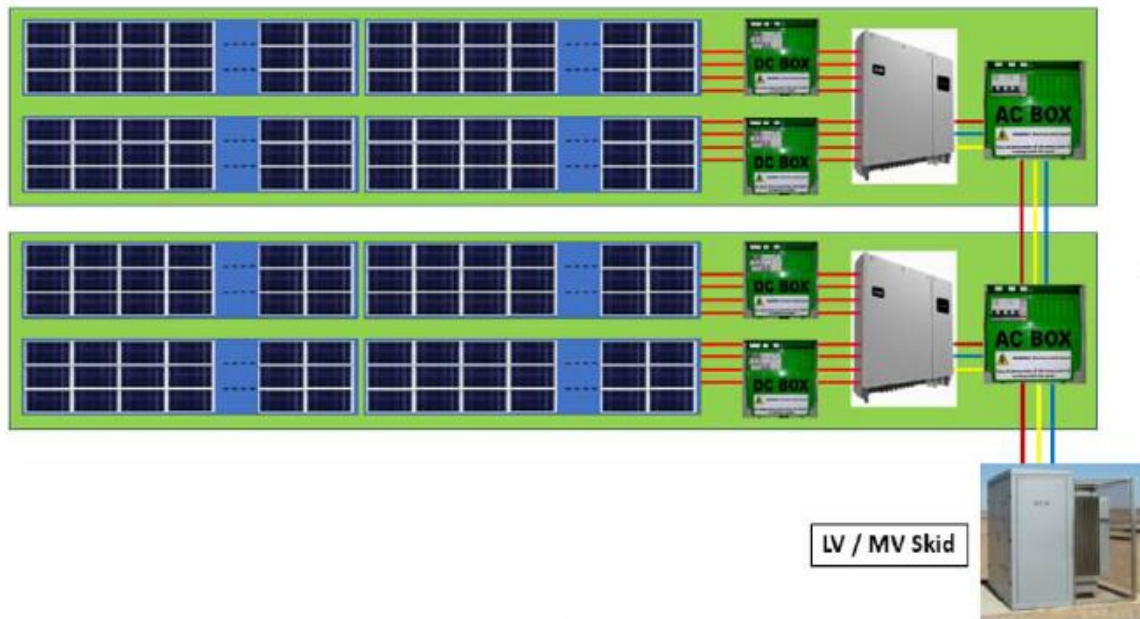


Given the energy profile of Bonpak, as well as the amount of power consumed, the grid-tied solution will provide the optimal solution. Where a generator is already in place, the addition of batteries for the island configuration makes little sense.

The solution proposed for Bonpak is a rooftop, grid-tied system. The benefits of this mounting solution are:

- There is an existing structure upon which to mount (rooftop) the PV panels. However, the load bearing capabilities need to be confirmed in a more detailed study should you progress this with us. The cost reduction of having a basic structure is significant and improves the financial feasibility of a PV installation.
- There is an existing infrastructure environment to tie into. The cost of tying the PV array into the grid can be significant. Being able to tie in through existing on-site infrastructure and reduce the load of a specific microcosm is far more economically viable.

A simple diagram of a typical grid-tied layout is included below:



PV panels are arranged in series and in parallel to achieve the required voltages and wattages. The power is then converted to AC current by the pure sinewave inverter and fed into the facility's infrastructure, parallel to the main grid incomer (Connear, 2018).

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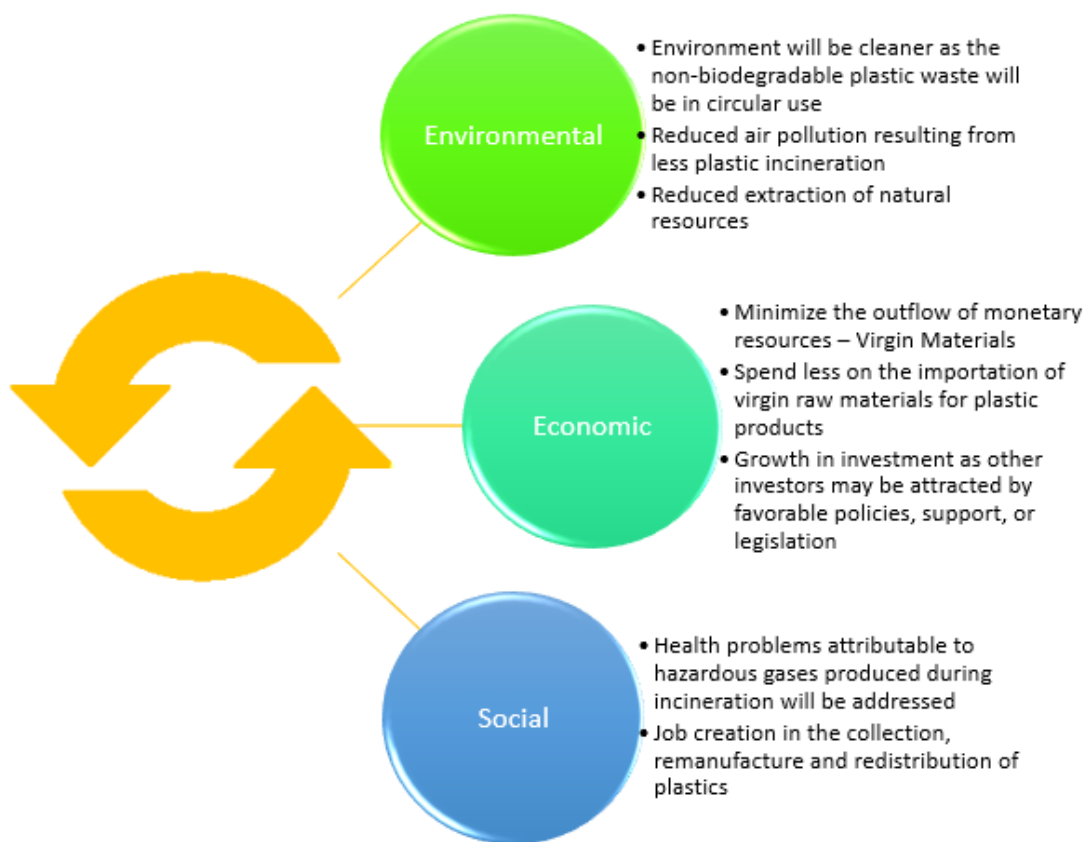
## Circular Economy

Plastics are an important and versatile material in our daily lives, as well as in our economy, as they have an array of functions that assist in addressing a number of challenges facing our society (European Commission, 2018). However, the reliance on plastic has led to major environmental and social harm, due to the current linear business model resulting in depletion of resources, and increased waste from the reliance of virgin resources. The linear model is further described in the diagram below:



“The concept “Circular Economy” (CE) describes an industrial economy in which material flows keep circulating at a high rate (in terms of quality, property, function, range of use) without the materials entering the biosphere, unless they are biological nutrients” (Edelmann, 2014)

The current methods of producing, using and discarding plastics fail to capture the economic, environmental and social benefits of a ‘circular’ approach. Benefits that are captured through the implementation of a circular economy are as follows:



A model of the ‘Circular Economy’ as described by Dr Xaver Edelmann in his paper titled “Circular Economy: Improving the Management of Natural Resources” is displayed below (2014):

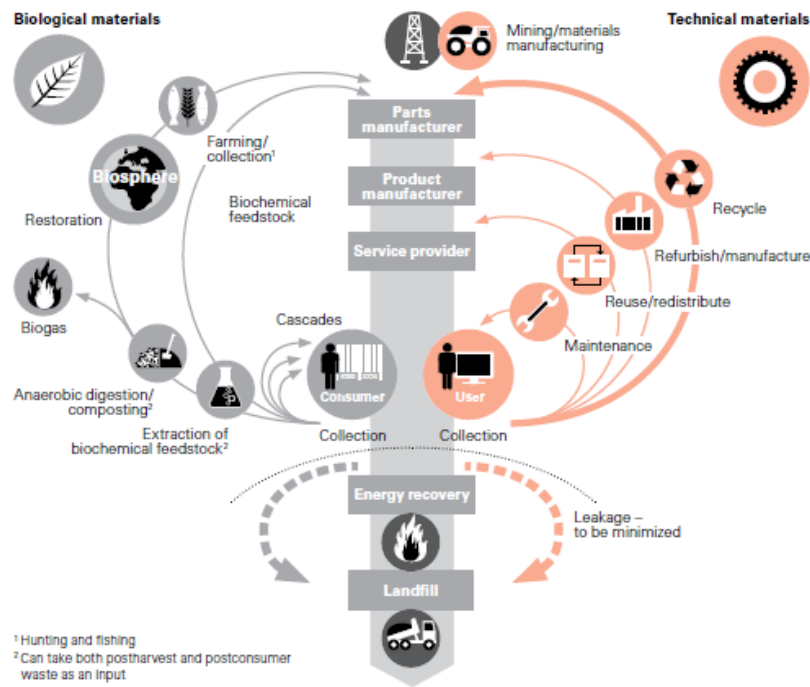
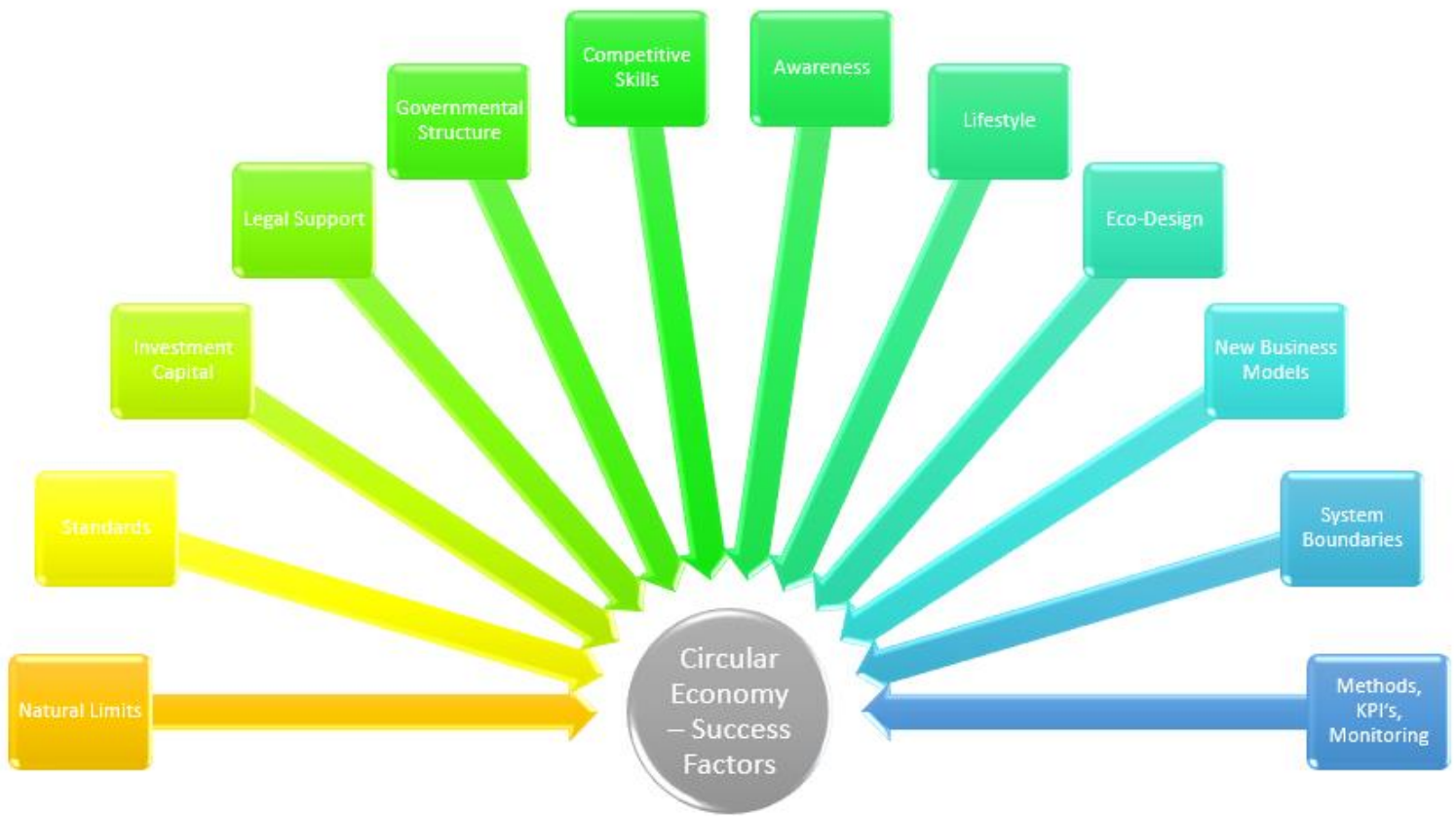


Figure 1: The Circular Economy

From the diagram, we see that plastic waste is diverted, as fully as possible, from landfill sites and injected back into the economic model to be reused or remanufactured. The concept of a circular economy is heavily based on success factors that need to be addressed in order to effectively implement the model. These factors are identified below:

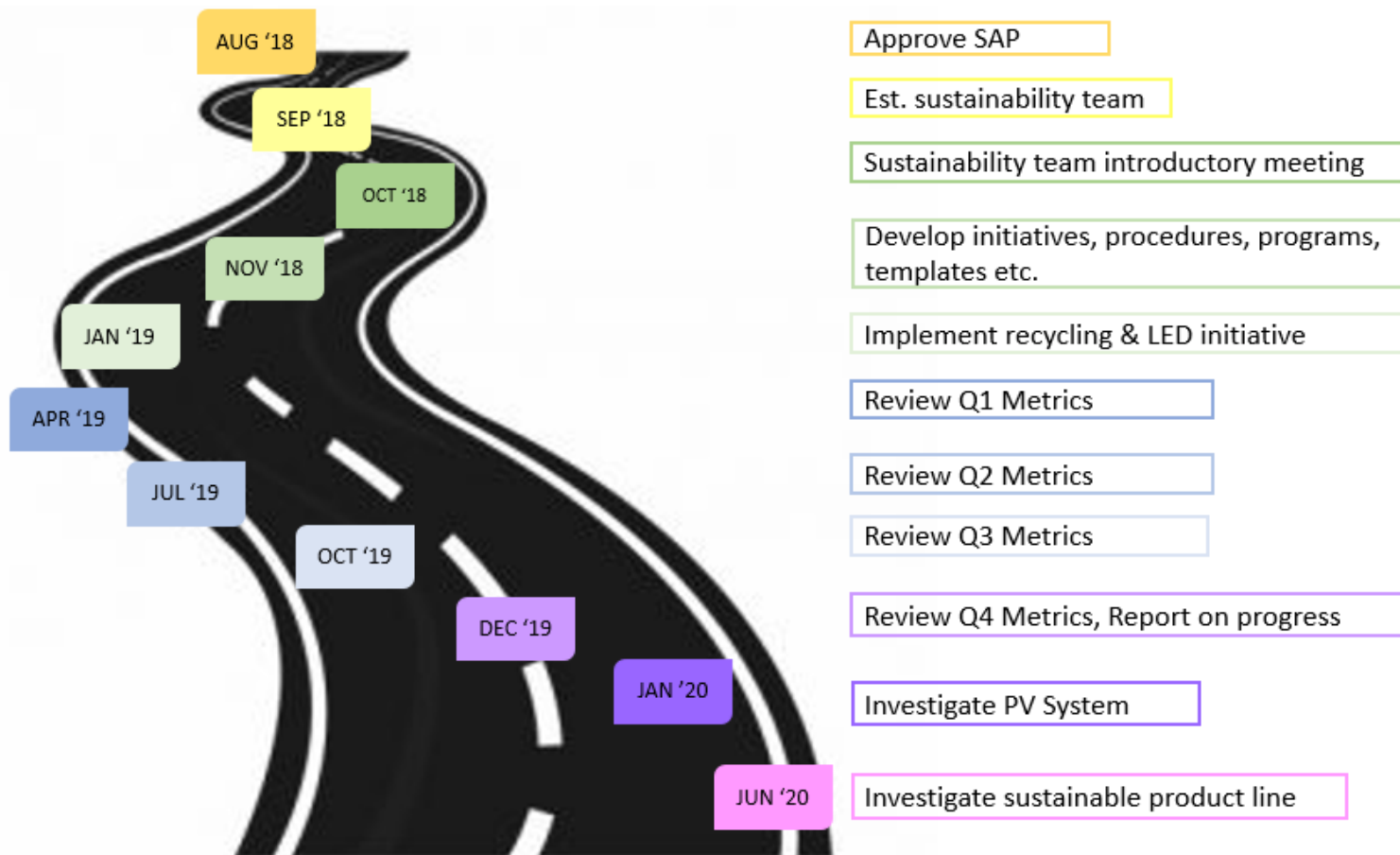


The implementation of a ‘Circular Economy’ requires a great deal of commitment and is likely to be a process that needs to be slowly implemented over time. There is an array of factors to consider for Bonpak, as well as framing and positioning Bonpak optimally to provide and reap the benefits of a circular economy.

While a circular economy may not be a crucial undertaking for Bonpak at the moment, the changing global climate will likely demand this in the near future, so it is imperative that Bonpak begin investigating and planning to adjust their operations, service offering and business model to align with a circular economy model.

## Sustainability Roadmap

The following diagram serves as a recommended roadmap for the activities that the Bonpak Sustainability Team need to accomplish to successfully implement the Sustainability Action Plan.



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