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Strategies Used by B&B's and Guesthouses to Mitigate the Impacts of Load Shedding in South Africa

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Abstract

Eskom has been struggling to satisfy the growing demand for electricicity, and load shedding is regarded as the country's biggest economic risk. South Africa's precarious power supply regarded as a national crisis, has been disrupting businesses, B&B's and Guesthouses included for the past 15 years. Eskom applies load shedding by stopping power distribution block-by-block for 2 hours. The study aimed to investigate the qualitative impacts of load shedding, and suggest survival strategies as used by selected B&B's and Guesthouses in Pietermaritzburg. The study found that load shedding as a problem, was not limited to South Africa, but an anomaly in many developing economies, and that it was not about to end due to ageing infrastructure, underinvestment, demand exceeding supply and inefficiencies. It also discovered that B&B's and Guesthouses as SMME's, were more vulnerable because of limited resources and lack of economies of scale. The implication is for owners to learn from each other, move beyond the disruption stage and find alternative sources of energy to return to former homeostasis, or even reach the integration stage of resilience. For the government to rapidly invest in the renewal of infrastructure, develop new power stations, invite other power suppliers to compete or partner with Eskom, actively deal with inefficiencies, and find alterantive and more sustainable sources of energy.

Keywords: Load shedding; strategies; organisational learning; resilience; B&B's; guesthouses

Introduction

South Africa is the second largest economy on the African continent after Nigeria (Statistics South Africa [StatsSA], 2017), responsible for around 35% of the GDP in the region. Its economy is quite energy-intensive, with 'consumption as high as that in many European countries, and far higher than that in any other African country' as of 2014 (Kenny, 2015: 3), resulting in the electricity system coming under considerable strain as from 2008 (World Bank, 2011). Eskom, a state owned entity, produces roughly 95% of South Africa's (SA's) electricity (Kenny, 2015, and Eskom, 2020), with 6 716 201 million direct customers (Eskom, 2020). According to Baigrie et al. (2020) the Electricity Supply Commission (Escom), Elektrisiteits Voorsienings Kommissie (Evkom) in Afrikaans (Kenny, 2015), was established in 1923 in terms of the Electricity Act No. 42 of 1922 as a state-owned entity. Its mandate was to deliver cheap electricity to the railways and mines, but its mission was to supply the general public was covert (Baigrie et al., 2020: 1). When the price of electricity started going up, in 1984 the government set up the de Villiers Commission to investigate and review Escom's operation and planning processes. The name was changed from Escom to Eskom to mark a new stage in its development, which was aligned with the Eskom Act of 1987 (van Niekerk, 2021). Eskom's

new mandate was 'to supply stable electricity in an efficient and sustainable manner, to contribute to lowering the cost of doing business in South Africa, and enable economic growth (Eskom, 2020).

While Eskom remains the principal electricity supplier with no competition, it has been battling to satisfy the growing demand for electricity throughout the country (Makgopa & Mpetsheni, 2022). Du Toit (2019) argues that the energy deficit is due to a significant loss of vital skills, poorly maintained infrastructure and deficient labour, (Botha, 2019; Lenferna, 2021) resulting in load shedding that has been going on for 15 years, disrupting and closing businesses and affecting households. Load shedding is a purposeful rotation of electricity outage, following accurate prediction of the system's decay, used to ease strain on Eskom whenever consumption exceeds availability (Makgopa & Mpetsheni, 2022; Shahgholian & Salary, 2012) (Figure 1). Developing countries, South Africa included, face massive socio-economic agendas with insufficient investments in power generation, which ironically is expected to fuel such development (Ansu-Mensah & Bein, 2019; Ansu-Mensah & Kwakwa, 2021).

Brown (2020) points out that Eskom's power reliability was at its all-time lowest in 97 years, and was set to worsen if load shedding was to reach stages 4, 6 or 8. Staff Writer (2020), and Bloomberg (2020) claim that load shedding has reduced the country's GDP growth over the period of three years: by 0.3% in 2019, and was expected to reduce by 0.8 in 2020, and a further 1.3% in 2021. In total South Africa's economy had shrunk by between 8% and 10% due to Eskom's inefficiencies and inadequacies. StatsSA estimated that the economy would have been between R360 billion and R450 billion larger, after inflation adjustment (Staff Writer, 2021) had it not been for load shedding. The World Bank forecasted that South African economy would grow by a mere 0.9% in 2020, averaging 1.4% between 2021 and 2022 if structural reforms were not fast tracked (Bloomberg, 2020). On the same note, Peter Attard Monalto (Head of Capital Market Research at Intellindex) asserted that only groundbreaking reforms would cause Intellindex to shift from its 0.4% economic growth forecast to a higher percentage (Engineering News, 2019). Goldberg (2016) points to the dynamic and complex impact of load shedding on consumers across all industries including tourism and hospitality. Steenkamp et al. (2016) concur, stating that impact on small hospitality facilities was significant because most did not possess standby power due to their size (Duminy, 2019), a further complexity to the perishable nature of the services.

Ansu-Mensah and Kwakwa (2021: 55), and Pollet et al. (2015) posit that electricity has become 'the mainstay for technological development,' the foremost economic growth driver (Pombo-van Zyl, 2017), and backbone of every modern economy (Kenny, 2015), whose interruption cost South Africa between R60 and R120 billion in 2019 alone. Brown (2020), Business Tech (2019), and Jika & Skiti (2020) opine that at about R1 billion per stage per day, the cumulative cost of an estimated 530 hours in 2019 amounted to between R59 and R118 billion. Ironically, in Eskom regards acceleration of economic growth as a trigger to power cuts (Njini, 2020), instead of proactively increasing supply to cater for growing demand (Shijia, 2021).

Kenny (2015) and Lenferna (2021) attributed Eskom's ongoing inefficiencies to political interference, government corruption and mismanagement characteristic of many developing economies (Blimpo & Cosgrove-Davies, 2019), which adversely impact socio-economic performance and development (Fakih et al., 2020). Azasoo and Boateng (2016) point out that power outrages are not only limited to South Africa nor Sub-Saharan countries, but experienced in other countries around the world such as Pakistan, Nepal, India, Bangladesh, Belgium (Vermeulen, 2014), New Zealand (Atendido & Zamora, 2017) and China (Heffner et al., 2010; Ou et al., 2016).

Mthimkhulu (2021) of the Business Leadership South Africa (BLSA) expressed extreme concern about the damage that load shedding was doing in the economy, a concern also raised by Baigrie et al. (2020: ii) when stating that load shedding 'closes businesses,' and 'cuts jobs,' while Swilling (2022) cautions that the grid's total collapse 'would cause greater economic mayhem than the pandemic did in 2020 and 2021. On the 1st March 2022 Price Waterhouse Coopers estimated that load shedding had increased by 38% (an equivalent of 2.400 gigawatt hours) in 2021. PwC further translated this figure to 1.136 hours of power cuts, equivalent to three full hours per calendar day, which could have led to 3.1% reduction in GDP growth, costing the country up to 400, 000 potential jobs. As recently as 9 March 2022, the Mayor of Cape Town listed load shedding as one of the challenges hampering the recovery of the tourism industry from debilitating impacts of the COVID-19 Pandemic (Githahu, 2022). Load shedding was further moved to stage 4 on the 9th March 2022 due to the tripping of units at four power stations (Kendal, Duvha, Camden and Kusile) resulting in the total loss of 15.439MW (Eskom Media Desk, 2022).

As small businesses, B&B's and Guesthouses were most likely to be negatively affected by load shedding (Banda et al., 2020; van Niekerk, 2020), as their survival was regarded as hanging in the balance (Mokwena, 2021). Steenkamp et al. (2016) posit that the health and viability of the tourism and hospitality industry is imperative for the stimulation of national economic growth, while Mandina and Kurwiravamwe (2016) argue that service failure contributes to customer complaints, negative publicity and litigations, as organisations fail to meet customer expectations. According to Sefako-Musi (2019) of SABC News Online, tourists would be sceptical about travelling to South Africa due to the uncertainty that load shedding casts over the tourism and hospitality industry, tarnishing the South Africa brand as a destination. It is in this context that this paper on strategies used by B&B's and Guesthouses to mitigate the impacts of load shedding, was conducted.

Literature review

Energy production, distribution and consumption has attracted a lot of attention in the global literature because of its significance in modern economies (Idahosa et al., 2017). Power generation and consumption is a continuous process of maintaining the balance between demand and supply (Figure 1).

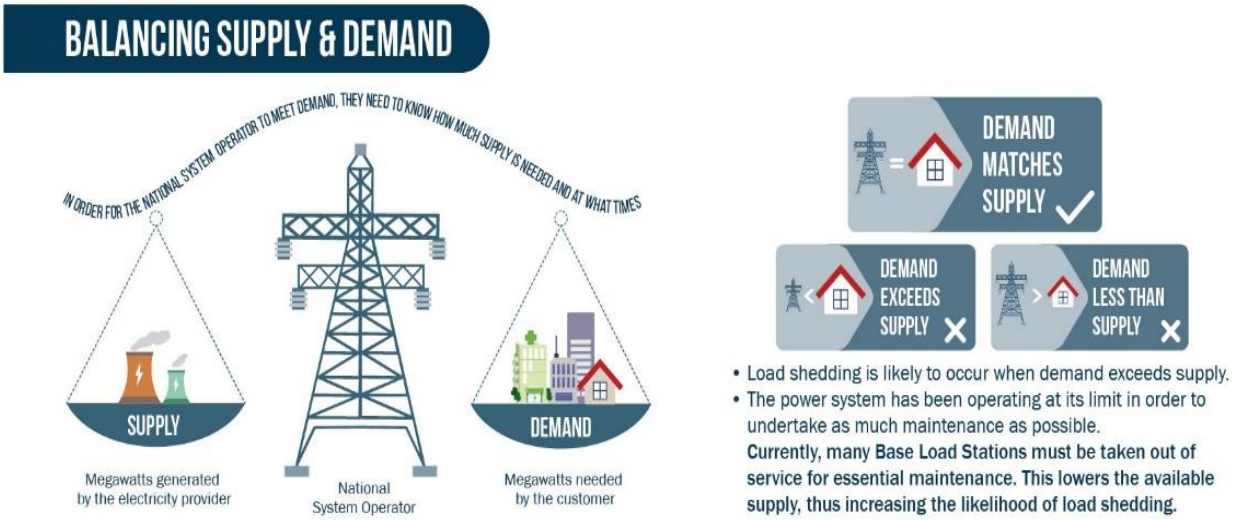

Figure 1: Rationale for load shedding
Source: EThekwini Municipality (2021)

Kenny (2015) points out that as electricity consumption takes place concurrently with production, balancing demand with supply at any given time can be difficult even for efficiently managed power systems. A mismatch leads to such risks as (Gull et al., 2022) over-investment, over-generation, under-generation and the collapse of the power system. Insufficient energy supply (Samawi et al., 2017: 193) 'can negatively affect the development of a country and limit the potential growth of its economy.' The reduction in demand and supply mismatch is critical to ensure the safety and reliability of power system operation (Gull et al., 2022). As the grid becomes the foundation for all modern societies and a key driver for development and growth, tightly integrated with other important socio-economic activities (Botha, 2019, Oluwasuji et al., 2019; Umar & Kunda-Wamuwi, 2019), planning for reliable and uninterrupted supply of energy become imperative (Bie et al., 2017; Blimpo & Cosgrove-Davies, 2019; National Academies of Sciences, Engineering and Medicine, 2017). Chianese et al. (2014) observed that the electricity network in developing countries is often characterised by a weak stability of voltage and frequency and regular planned load shedding schemes.

As far back as 2002, Becken and Simmons observed that the major threat to the tourism industry is escalating demand for energy and resource depletion. While economic and tourism growth have become integral parts of modern societies, they have often been at the expense of sustainability (Khan et al., 2020). Energy demand is closely associated with tourism activities, along with related functions like accommodations, catering, transportation and communications (Frantál & Urbánková, 2017). Thus, the hospitality and tourism industry was likely to be the most hit by load shedding (Moore, 2019). As the United Nations World Tourism Organization (UNWTO) (2011) predicted that tourist arrivals would grow from 1 billion in 2012 to more than 1.8/9 billion in 2030, demand for energy is set to grow even for countries that cannot cope currently (Umar et al., 2019). FEDHASA (2015), and Steenkamp et al. (2016) were concerned about the impact of load shedding on small hospitality establishments in an industry already impacted by seasonality, perishability and inseparability of the service provider and prevailing circumstances.

The World Bank (2019) indexed 132 countries experiencing regular power outrages, and the top 10 were Pakistan, Bangladesh, Lebanon, Papua New Guinea, Iraq, Yemen, Nigeria Central African Republic, Benin and Niger, with South Africa ranking number 94. In Pakistan urban regions were experiencing load shedding of between 10-14 hours, while in rural areas it was 16-20 hours (Kessides, 2013; Khalil & Hussain, 2014). As Nepal was not able to meet electricity demand of Kathmandu, the government introduced load shedding of up to 20 hours per day to deal with the shortages (Chianese et al., 2013). Despite rapid expansion of electricity infrastructure, electricity shortage remained as a very common phenomenon in China, as the country experienced power shortfall exceeding 20% since the 1960s (Ou et al., 2016). Ramachandran et al. (2018:3) ranked the Central African Republic as the most hit at 24.0 outrages per month of 6.4 hours duration, followed by Benin (23.6 times of 4.1 hours duration), Chad (22.0 times of 7.0 hours duration), Burundi (20.7 times of 4.8 hours duration) etc. South Africa was second from the bottom (1.2, times of 2.3 hours duration), with Namibia ranking lowest (0.8 times of 1.9 hours duration). Clearly, most African countries were burdened with overloaded grid infrastructure (Boakye et al., 2016), and substantial capacity shortfalls (Umar & Kunda-Wamuwi, 2019) mirrored in unprecedented rotational power cuts.

In support, Nwokolo in Europa (2020) drew a comparative analysis of energy supply between the United States of America's 13,000kWh per capita for an estimated population of 331, 002, 651; Europe's 6,500kWh per capita for a population of 448 million, and 180kWh per capita for an estimated 1, 106, 958 population of the Sub-Saharan Africa. Boakye et al. (2016) argue that Ghana had been experiencing massive load shedding for several years, which they regarded as spiralling out of control, and attributed the to lack of competition for the Electricity

Company of Ghana (ECG), which enjoyed monopoly over power supply. The monopolistic ECG (Khalil & Hussain, 2014), Zambia Electricity Supply Corporation Limited (ZESCO) (Umar & Kunda-Wamuwi, 2019), just like Eskom, were underperforming due to underinvestment in infrastructure, increased economic activities, inefficiencies, and lack of competition. ECG inefficiencies led to monumental negative effects on businesses thus forming a serious barrier to further economic development and growth (Fritsch & Poudineh, 2016). Zambia was not spared, as the increase in economic activities had put massive strain on the hydroelectric power generating water resource (Nuwagaba, 2015), while in Zimbabwe load shedding lasted up to 18 hours (Staff Writer, 2019). Blimpo and Cosgrove-Davies (2019) point out that the proportion of firms experiencing outages was higher in the sub-Saharan Africa (78.7%) than in any other region worldwide. Governments which cannot balance their electricity demand and supply, cannot fulfil their obligation for socio-economic development and poverty reduction (Ansu-Mensah & Kwakwa, 2021).

Qualitative impacts of load shedding

The Royal Academy of Engineering (2014) points out that as the UK is becoming rapidly more dependent on electricity and networks, processes and value chains have become increasingly complex and interdependent. Consequently the social impacts of electricity shortfalls will even be far reaching. Knock-on-effects include reduced productivity, fewer sales and exports, reduced tax revenue, price hikes and increased unemployment rates (Instinctif Partners, 2020). In a study conducted in the UK, the Royal Electricity Academy of Engineering (2014) found that electricity shortfalls lead to rising prices, which could fuel poverty. Moreover, several respondents suggested that there was evidence that outages lead to considerable knock-on-effects between interconnected sectors, especially as economies are now so interconnected. Examples could include (Makgopa & Mpetsheni, 2022) diminished business reputation, riots due to loss of confidence in local governments as consumers change into citizens, impact on power-reliant transport system, cash in circulation running out because of a lack of power to process payments.

Power outages have an influence on businesses' total expenditure, the quality of operations, malfunctioning devices and decay of goods (Raza et al., 2020). Raza et al. (2020) further state that a rapid surge in demand, power theft, seasonal reductions in the availability of hydropower and transmission losses, and time wasting have deteriorated the situation. Moore (2019) highlights withdrawal of investments, destruction of equipment and appliances, decreased productivity, increased criminality, spoilage of perishable goods as cold chain is broken, increased operational cost, and overall decreased customer satisfaction as some of the affective impacts. Losses incurred may be direct damages (loss of value caused by direct loss of assets such as products or food) or indirect damages (loss of opportunity caused by loss of time or productivity), which may both be hard to quantify and express in monetary terms. Furthermore, Moore (2019) seems to think that the very fabric of society is altered due to increased theft and robbery, unwillingness to leave homes at night, and (Laher et al., 2019) reduced mental health due to fear and anxiety induced by darkness.

Load shedding leads to drop in the level of productivity and a fundamental disturbance of the normal rhythm of the production cycle (Phiri, 2017). In Zambia, residential areas are cloaked in darkness resulting in 20% increase in crime rate, and (Umar & Kunda-Wamuwi (2019) reduced patronage impacting negatively on the accommodation sector. Sichone et al. (2017), and Umar and Kunda-Wamuwi (2019) also reported on interruption of activities, damage to electrical appliances and food spoilage in B&B's and Guesthouses that could not afford other sources of power, with some consequently having to shut down their operations due to huge gaps between service demand and supply (Mhaka et al., 2020) exacerbating the

problems of unemployment, poverty levels, and inflation. In the absence of reliable power supply, B&B's and Guest houses are not able to efficiently offer their service, resulting in lower customer satisfaction and more complaints (Botha, 2019; FEDHASA, 2021).

Electricity has a significant influence on economic operations including storage, operational procedures, manufacturing and overall guest engagement (Botha, 2019). B&B's and Guesthouses tend to lack economies of scale and resources, which impacts negatively on guest experience as they use risky, dirty and noisy sources of energy such as candles, paraffin, coal, firewood, and small generators (Cissokho & Sech, 2013), which leads to embarrassment, loss of confidence as well as the opportunity cost of repeat business. Guests get affected when electric doors jam due to dying batteries for those with backup systems, cold showers do not add to desirable experience, time gets wasted and the overall morale of the guests and staff is lowered (Steenkamp et al., 2016). Key operating systems such as air conditioning, guest room lights, computer networks, cooking and refrigeration systems, and elevators shut down affecting service delivery. Azasoo and Boateng (2016), and Mandina and Kurwiravamwe (2016) argue that load shedding results in early damage of appliances and machinery due to the sudden ON and OFF turning, thus increasing replacement costs. Joubert (2019) and Villiers (2019) highlight the creation of conducive environment for criminal activities, while Fiawoo (2016) points to late arrivals due to heavy traffic caused by failed, and job losses due to reduction in productivity.

Operation efficiencies are affected, leading to a downturn in the rental of lodging, foodservice and events (Assan & Masibi, 2015; Botha, 2019), and the permanent closure of some. Events hosted at the B&B's and Guesthouses such as weddings and parties, which are popular pastimes of most Ghanaians, became more costly and brief because organisers had to rely on the use of generators (Moore, 2019). The possibility of robberies and burglaries resulted in people being unwilling to leave their homes at night as they feared for their lives and properties (Moore, 2019). Severe deficiency in electricity capacity in South Africa has led to low business confidence (Khobai et al., 2017; Makgopa & Mpetsheni, 2022). Outages push energy security right to the top of the political agenda, as it puts considerable strain on government policy and its political legitimacy.

Strategies used by resilient B&B's and Guesthouses to reduce the impact of load shedding

Learning organisations find ways to adapt and mitigate the impact of any disruptor. Greiner's 2004 model of organisational growth advocates for organisational learning as every crisis is seen as an opportunity to grow. Long-term resilience focuses on vulnerability and adaptability analysis, identifying and prioritising resilience enhancement strategies, and cost/benefit analysis (Jufri et al., 2019). Jufri et al. (2019) further identify robustness, resourcefulness, rapid recovery and adaptability as principles of resilience.

When a disturbance (load shedding in this case) hits, those measures assist a business to absorb the pressure. The resilience theory (RT) has its roots in the study of adversity and how adverse experiences impact people. Load shedding causes vulnerability, and is therefore regarded as an adversity (Figure 2). This paper investigated such protective factors as used by owners and managers of B&B's and Guesthouses to survival, reintegration and resilience. Ways of thinking about resilience are based on the process and capacity to (Fletcher & Sarkar, 2013) rebound from adversity strengthened and more resourceful (Theron, 2016: 636; van Breda, 2018) as 'manifested capacity of a dynamic system to adapt successfully to disturbances that threaten the function, survival or development.' According to Brown et al. (2018) B&B's and Guesthouses can use the RT to overcome the adversity of load shedding, sustain and thrive as they reinvent themselves. The RT includes reducing the consequences of failure and assuring business continuity under adverse conditions. For B&B's and Guesthouses, resilience will help

translate into normality, a changed business environment and employ adaptive strategies to achieve resilient reintegration (Figure 2). If a facility is too rigid, its resilience may be lower, and so will be its survival chances. Resilient organisations have improved responses to more common daily challenges such as load shedding, because they have an increased awareness, greater ability to manage their vulnerabilities, and have learnt to adapt and innovate (Brown et al., 2018).

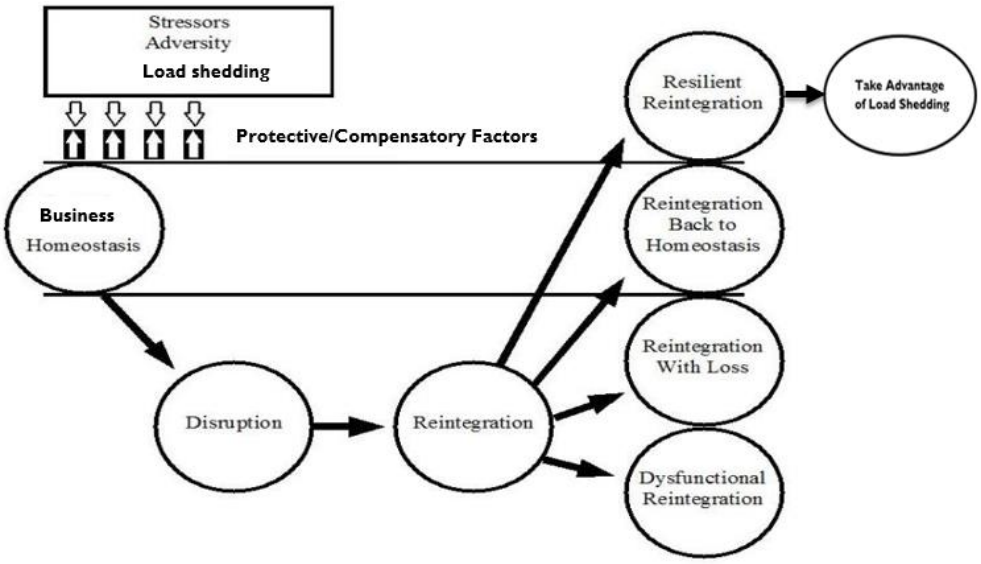

Figure 2: Protective factors and resilience
Adapted from Thomas (2011:2)

Reliable power supply is interconnected with multiple dimensions of socio-economic development, income generating activities, production activities, social networks, among others (Mhaka et al., 2020). Learning organisations identify the stressors, attempt to understand the disruption, and then reintegrate the disruption by finding coping mechanisms. In South Africa, the 15 year old disruption of load shedding has been shown to be an effective driver of change and forward planning in some organisations (Coetzee & Els, 2016). Small businesses such as B&B's and Guesthouses can plan to use biomass (wood and charcoal) for cooking and heating, and generators for lighting, modern appliances, pumps and communication (Umar & Kunda-Wamuwi, 2019). However, Laher et al. (2019) caution that the use of alternative sources of energy such as biomass, paraffin, gas and petrol may be unsafe for guests at B&B's and Guesthouses, and unsustainable as some cause pollution. SATSA (2021) advises owners and managers to plan activities that do not require electrical power for the duration of load shedding such as sightseeing, ecotourism activities, game drives, beach activities, a braai, and other, depending on the location of the facility and weather conditions.

Methodology

Qualitative data were collected through interviews from 35 of 39 B&B's and Guesthouses that were formerly registerd with the Tourism Hub in Pietermaritzburg. The aim was to determine the impact that load shedding had on these businesses, as well as the strategies put in place to mitigate the impact. Data were collected from owners and managers of the establishments. A non-probability sampling design was used to select only B&B's and Guesthouses as they were the target of the study, excluding hotels and lodges. All COVID-19 protocols were followed. Masks were worn throughout the interviews by both the participants and the researcher. Social

distancing was maintained, and the participants and the researcher sanitised before the interviews started. To help prepare participants for the interview, a link of the interview guide was created and emailed to all the participants. Qualitative techniques such as thematic analysis, use of cause-and-effect diagrams, and in some cases verbatim responses were used to present and analyse data.

Results

Figure 3 illustrates that the majority of respondents (94%) suffered financial losses due to load shedding. Another 77% indicated that they suffered the loss of guests and repeat visits, 23% complained about stock damage and the remaining 6% were not affected.

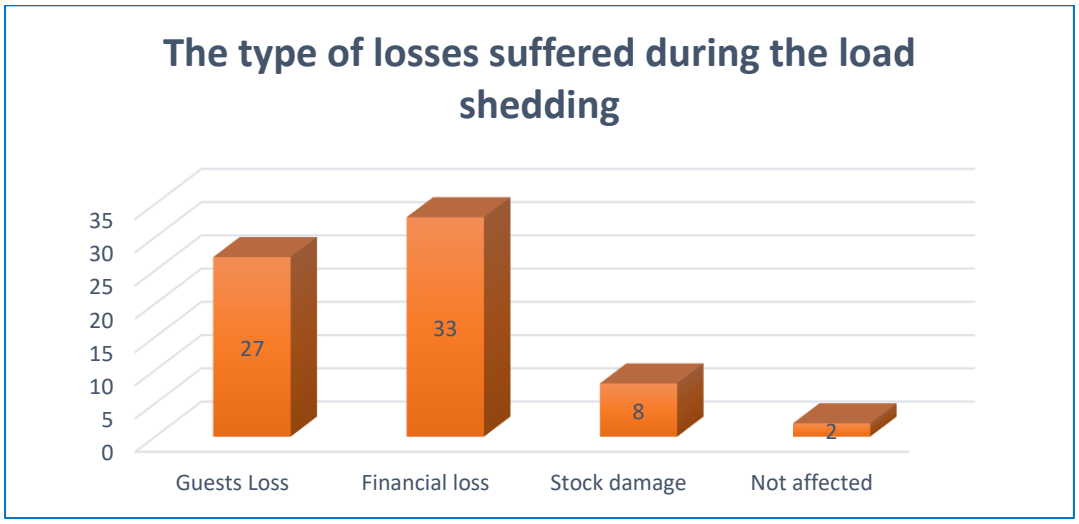

Figure 3: Types of losses suffered during load shedding

Respondents experienced breakage of appliances, for which surge protectors have been suggested. This was followed by dissatisfied customers who had 'had enough,' which consequently tarnished their brand image. Their areas and businesses became prone to increased criminality facilitated by darkness, for which solar lighting has been recommended. Load shedding also affected their budget and profitability as they had to find alternative sources of power. They also mentioned having to pay staff for doing nothing, costly inventory due to frequent ordering, and staff retrenchments. In some cases, where water supply was linked to power, load shedding resulted in there being no water available. The challenges identified in this study were similar to those determined by Fritsch and Poudineh (2016) who stated that Ghana's electrical problem had had a massive detrimental impact on industries posing a severe impediment to economic growth. As confirmed by Raza et al. (2020) power outages have an influence on enterprises' overall expenditure, and the quality of service suffers as a result of expiry of goods and malfunctioning devices.

Figure 4 reflects the effects of load shedding as experienced by the participants. From the 35 businesses that were interviewed, (33) acknowledged to have been negatively impacted by load shedding as the remaining participants had prepared for it. From these 33 businesses, staff and guest morale was affected, daily routines were disrupted, staff clocked-in late due to traffic congestion, staff arrived without uniforms, and rotational roster shifts had to be used. Load shedding also meant that they had to do everything manually, which was labour intensive. Staff also tended to be sluggish when power returned. Some B&B's and Guesthouses had to cut salaries in order to survive, which had negative knock-on-affects on staff morale, culminating in despondency and frustrations due to reduced salaries. Most of the respondents

shared that guests were both irritated by noisy generators, and bored as they were not able to watch television. Respondents also reported that there were more complaints due to guest dissatisfaction about service that they regarded as substandard. Other impacts on guests included weak network and failure for guest to stay connected. Unavailable cooling devices, dark guests rooms, inoperational web servers and elevators made the facilities feel gloomy. The findings were in line with Raza et al. (2020) who enumerated loss of time and failure to complete tasks, Banda et al. (2020), Muhammad and Nabi (2017) and Sichone et al. (2016) who observed a decline in staff performance and a loss jobs in Zambia and Pakistan.

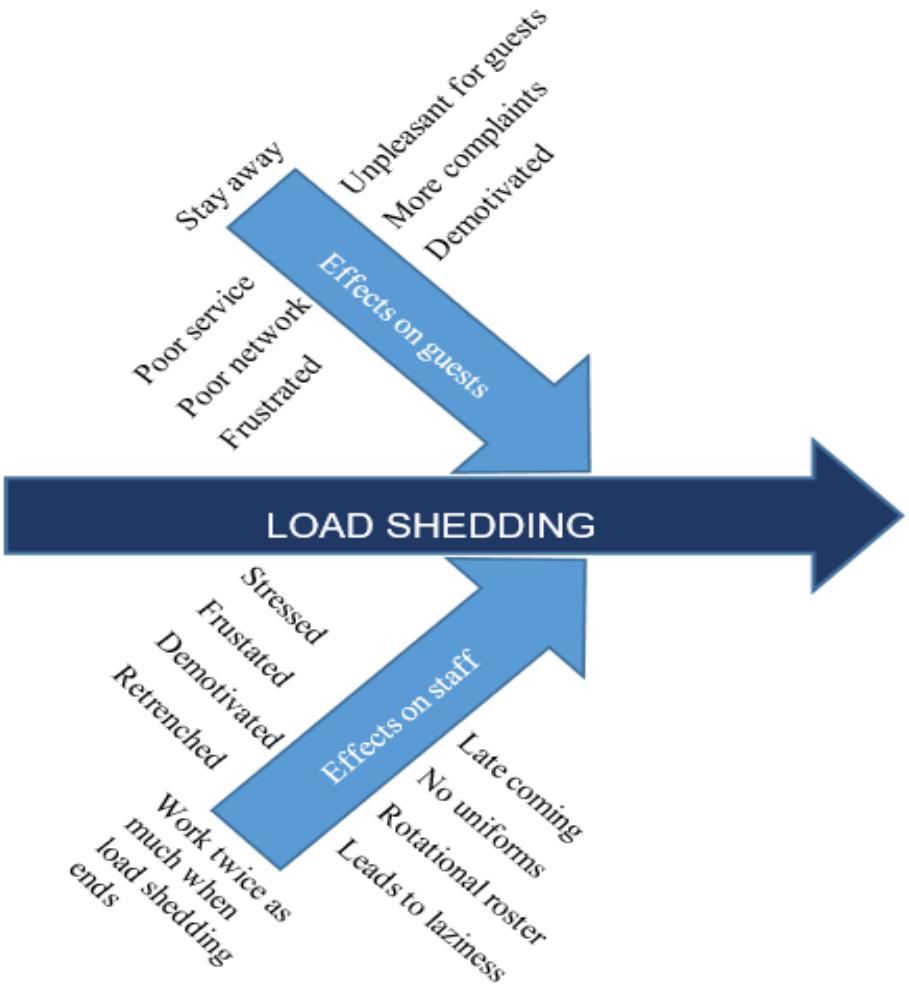

Figure 4: Effects of load shedding on staff and guest morale

Figure 5 illustrates the thoughts and feelings about the impact of the load shedding on business. All the 35 businesses who responded to this question stated that they faced detrimental effects on their equipment, staff and business in general. Their responses fell into two broad themes, namely: negative and progressive. Under negative thoughts and feelings emerged words such as: frustrating, stressful, poor service delivery, more guest complaints (23%), drop in occupancy rates, labour intensive, small businesses affected more, financial drain, business slow (71%), high crime rate as a result of darkness. The majority of participants (31) felt that the problem of load shedding was political, which was supported by Lenferna (2021). Almost all the participants (33) faced an issue of not being proactive in putting effective plans in place

for persistent load shedding, which could be linked to financial constraints as indicated that as small businesses were more vulnerable (Banda et al., 2020, and Mokwena, 2021). All 35 participants expresses a wish that the government share financial costs with Eskom to deal with the problem of load shedding once and for all as suggested by Shijia (2021).

Some of the responses reflected in Figure 5 were progressive, looking beyond the disruption to thinking about possible solutions to grow and be resilient, albeit fewer. As suggested by Swilling et al. (2021), it is possible to imagine a prosperous future in which load shedding has no effect on a business anymore. Those forward looking responses of participants who seemed to have accepted that load shedding was part-and-parcel of doing business in South Africa included: securing alternative sources of power such as solar panels, generator and installation of 'behind the metre' on-site battery storage as suggested by the National Academies of Sciences, Engineering and Medicine (2017), adjusting business operations to reduce the effects of load shedding and aligning activities with the load shedding schedule.

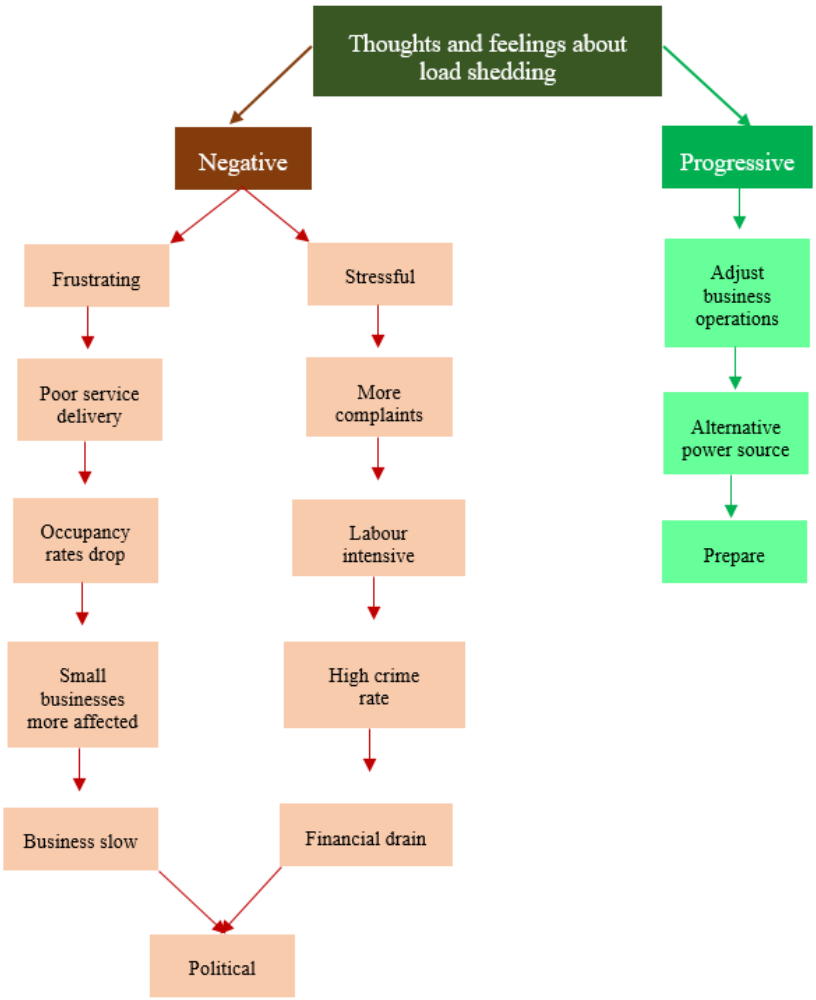

Figure 5: Thoughts and feelings about the impact of load shedding on businesses

The strategies adopted by B&B's and Guesthouses, included the installation and use of solar panels, gas systems and generators (63%). The following most used strategy was bringing awareness to the guests (13%) by proactively informing them in due time of the load shedding schedule. To avoid financial losses during load shedding period, various owners use the strategy of requesting full upfront payment (11%) from the guests to reserve their stay, which

may be perceived as cunning. A total of (5%) of businesses interacted with the local municipality regarding load shedding schedules, while the other (5%) employed the strategy of offering staff awareness on using the solar energy systems. The remaining 3% offered discounts as a way of promoting their facilities. Survival strategies are in line with the resilience theory, which indicates the importance of identifying the stressors (load shedding), putting protective factors in place, and reintegrating the business to return to former homeostasis, or even above the initial level (Figure 2). This would be a demonstrated ability of a system to efficiently adjust to disruptions that jeopardise its operation, survival, and progress (van Breda et al., 2018) as the system learns from its environment.

Recommendations to other facilities owners and the local government to deal with the issue of load shedding

Most participants recommended having back-up system/s that included generators and solar power. Participants also suggested the use of gas appliances such as stoves, heaters, geysers and fridges, or getting off the grid completely, a notion supported by Swilling (2022) when suggesting an installation of 10,000MW of new solar and wind generation, and opposed by Lenferna (2021) when pointing at the dangers of using gas. Other respondent recommended that the businesses must keep track of the load shedding schedules, proposed effective communication to be the strategy - through offering updates of the load shedding to the guests. Others suggested the development of a strategic plan for the staff and customers as well as research (such as this one) on how to counter the negative impact of load shedding.

These suggestions would help B&B's and Guesthouses improve business confidence and morale, reduce negative events such as jammed electric doors, cold showers, robberies facilitated by periods of darkness, feelings of gloom and helplessness, the cost of buying additional linen in the event that laundry cannot be done (Lyndsay Jackson of Guest House Association of South Africa). Some respondents, just like Ansu-Mensah and Kwakwa (2021), and Kwakwa et al. (2021) observed the increase in criminal activities under the cover of darkness, reluctance to tour the area, and saw Eskom as sabotaging the country's economic development and growth agenda.

Table 1: Comments and questions for the study

Comment/question	Link to overall paper
"Keep water in containers start using gas for stoves, heaters and geyser use brooms instead of hoovers,"	Forward thinking though labour-intensive
"At this stage I believe we are all well prepared for load shedding in that some of the larger establishments have been able to become self-sufficient with installed generators."	Forward thinking and resilient
"How are other B&B's and Guesthouses handling different special events while coping with the load shedding in other parts of KwaZulu National and other provinces?"	Implications for further research
"What are the plans of the KwaZulu Natal tourism and hospitality department in ensuring that local establishments are supported in events like load shedding?"	Responses can be found in the literature review, that this is a common problem for developing economies
"How are other B&B's and Guesthouses dealing with crime during load shedding, more like ensuring the safety of their guests and stealing of business equipment from thieves?"	Implications for further research
"The country should have an alternative service provider to share costs with Eskom rather than to have small businesses closing down due to impact of load shedding."	Implications for further research
"I think the Eskom needs to pull up their socks and provide better services, we can't go on this long. We are at risk of losing our business."	Defeatist attitude of an owner who has stayed below the homeostasis level

Table 1 was used to link the comments and questions of respondents to the stage at which the businesses were in the lifecycle of the resilience theory and the overall paper. It illustrates that some of the responses were forward-oriented, having achieved resilient integration, while a few displayed a defeatist attitude of expecting the government to solve their problem.

Implications and conclusion

The growing demand and consumption of energy services is linked to socio-economic development and growth. It is therefore understandable that developing economies such as South Africa, with limited investment in grid infrastructure, would experiencing load shedding. In the long run, the government needs to make a big push to promote industrial transformation, encourage the development of industries with low energy consumption and promote the replacement of non-renewable sources with wind and photovoltaic power (Engineering News, 2019; Shijia, 2021).

As per the suggestions of Minister of Mineral Resources and Energy (25 May 2021), municipalities were allowed to purchase power from Independent Power Producers or generate their own if they are licenced. While the National Energy Regulator of South Africa (Nersa) supported the ministerial bid to procure 11,813MW of generation infrastructure under the integrated resource plan of 2019 (IRP2019) as a significant step towards ending load shedding (Generator King, 2020), the problem of illegal connections still has to be dealt with. As Swilling et al. (2021) argued, South Africa needs to replace its ageing coal-dependent power stations, which could trigger an upstream industrialisation programme that will catalyse the re-industrialisation of the South African economy, creating an estimated 50,000 jobs per annum in construction and operation of wind and solar plants.

As some of the respondents indicated that they thought the issue of power supply was political, a view supported by Kenny (2015: 5) when stating that 'the main curse of any state-owned industry is political interference,' more and more B&B's and Guesthouses would be better moving off the Grid following suggestions of Chianese et al. (2014) and Swilling et al. (2022) of using decentralised and partly autonomous power supply, solar and wind power. As Swilling et al. (2021) mentioned, it is possible for B&B's and Guesthouses to imagine a prosperous future in which load shedding is not a factor for their their businesses anymore.

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