INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

FINDINGS DOCUMENT ON THE INQUIRY INTO THE EFFECTS OF LOADSHEDDING IN THE ELECTRONIC COMMUNICATIONS AND BROADCASTING SECTOR

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ACKNOWLEDGEMENTS

The Authority received twenty-eight (28) written submissions in relation to the Inquiry from the following interested stakeholders:

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1. INTRODUCTION

The Purpose of the Inquiry

The purpose of the Inquiry was to solicit views and inputs from interested stakeholders on the impact of loadshedding and the regulatory relief measures the Authority could consider alleviating the impact thereof in the electronic communications, broadcasting and postal sectors during the various stages of loadshedding.

The Inquiry was in the form of a questionnaire wherein interested stakeholders were required to answer a series of questions within forty-five (45) days from the date of publication of the notice in the Government Gazette.

This Findings document consists of three sections:

- Section A: Outline of the process followed by the Authority.
- Section B: Submissions received from interested parties and the Authority Findings.
- Section C: Conclusion

2. SECTION A: OUTLINE OF THE PROCESS FOLLOWED BY THE AUTHORITY.

2.1. On 01 December 2023, the Authority issued a Notice of Inquiry which was published in Government Gazette No. 49795 under Notice 4139 of 2023. The notice was issued in terms of section 4B of the ICASA Act. The purpose of the Inquiry was to solicit views and inputs from interested stakeholders on the impact of loadshedding and the regulatory relief measures the Authority could consider alleviating the impact thereof in the electronic communications, broadcasting and postal sectors during the various stages of loadshedding.

2.2. The Inquiry was in the form of a questionnaire wherein interested stakeholders were required to answer a series of questions within forty-five (45) days from the date of publication of the notice in the Government Gazette.

2.3. The Authority received twenty-eight (28) written submissions in response to the Inquiry notice.

3. SECTION B: SUBMISSIONS RECEIVED FROM INTERESTED PARTIES AND THE AUTHORITY FINDINGS

THE QUESTIONS

3.1. (Question 1) Describe the impact loadshedding is having on your business and provide substantive reasoning around the following areas: economic, infrastructure, social and consumer impact from 5 April 2023 to the date this notice was published.

3.1.1. ACT

ACT made the following submission to the question:

Economic

a) Revenue generation – The impact of a loss of productivity due to mobile network outages extends beyond just immediate financial losses. When businesses are unable to operate properly or maintain communication with their supply chains and customers, there is a direct impact on revenue generation. Suppliers may suffer from reduced demand for their goods or services, leading to layoffs or reduced investment in their own operations.

b) Market share and brand reputation - Customers may turn to alternative providers if they experience prolonged difficulties in reaching a business, resulting in a loss of market share and potential long-term damage to brand reputation. Furthermore, the inability to implement emergency measures to improve production or customer service exacerbates the economic impact. Efficiency gains and improvements in service delivery are crucial for businesses to remain competitive and meet evolving consumer demands. When these

enhancements are delayed or stalled due to network outages, businesses risk falling behind their competitors and losing market relevance.

Infrastructure

c) 5G network roll-out - The implications for infrastructure stemming from the increase in loadshedding are multifaceted and far-reaching. With the need to divert Capital Expenditure (Capex) from expanding the 5G network and providing affordable internet connectivity beyond metropolitan areas, several key challenges emerge:

a. The diversion of funds from expanding the 5G network means that the rollout of advanced telecommunications infrastructure to new areas is delayed. This delay not only hampers technological progress but also limits economic development opportunities in underserved regions. Without access to high-speed internet connectivity, businesses in these areas may struggle to compete on a national or global scale, hindering growth and innovation.

b. The shift in Capex towards providing backup power and additional security measures presents its own set of challenges. While essential for ensuring continuous service during loadshedding, investments in backup power solutions divert resources away from other critical infrastructure projects. This can lead to a backlog of infrastructure maintenance and upgrades, exacerbating issues such as aging infrastructure, congestion, and reliability concerns.

c. The need for heightened security to protect backup power and battery solutions from vandalism during loadshedding periods adds another layer of complexity. Increased incidents of vandalism not only disrupt essential services but also incur additional costs for repairs and security measures. These further strains already limited resources and diverts attention away from long-term infrastructure planning and development.

d. The prioritisation of backup power solutions to maintain operation over maintaining or expanding network coverage to underserved areas may exacerbate existing inequalities in access to digital services. Rural and remote communities, already facing challenges in accessing essential services and economic opportunities, may fall further behind without adequate internet infrastructure.

3.1.2. Rain

Rain made the following submission to the question:

a) Rain had to divert capital expenditure from building their 5G network in new areas and proving affordable internet connectivity beyond the metros, towards spending on providing backup power and additional security to ensure that the backup power and battery solutions do not fall victim to vandalism that increases during loadshedding period. Rain further stated that this has resulted in them getting new customers in new areas below business targets, leading to lower revenue, while experiencing an increase in CAPEX as a result of loadshedding. Rain has spent in excess of R140 million to implement these measures.
b) Rain outlined the following challenges associated with loadshedding:
    a. Loadshedding shortens the useful lifespan of telecommunications network equipment due to constant power down and up cycles.
    b. Loadshedding negatively impacts network availability which affects essential services such as emergency response, financial transactions (OTPs), public safety and online commerce.
    c. Lack of access to essential services such as healthcare information, education, and social services when mobile networks are down. The inability to communicate can impede relationships (personal, business and government), and people's ability to remain informed via news and emergency service. This can have an especially significant impact on vulnerable parts of the population such as the elderly and those living in poverty.
    d. Loss of productivity and associated economic activity: Businesses may be unable to operate properly or keep in contact with their supply chains and customers when mobile networks go down. This combined with the above two reasons also hamstrung businesses' ability to implement emergency measures to improve production or customer service.
    e. Increased social isolation: The mental health and well-being impact of not being able to stay in touch with friends and family cannot be ignored

(especially combined with the impact of not having stable power). When mobile networks are down, people may feel cut off from the rest of the world and may experience increased stress and anxiety as a result. This can be especially true in times of crisis or emergency when people may feel a greater sense of urgency to stay in touch with loved ones.

3.1.3. SABC

SABC made the following submission to the question:

a) In 2023 there were more loadshedding hours than in the previous decade combined with almost 7,000 hours of loadshedding during 2023. Most of 2023 was under stage 4 loadshedding. 2023 saw 1,060 hours of stage 6, five times that of 2022. When viewers cannot switch on a TV due to loadshedding, this is bound to harm AR's (average ratings) quantified below, as discussed and also sales campaigns and subsequently also impacting revenue. The higher the stage of loadshedding, the higher the negative impact on ARs for Total TV and broadcasters. SABC1 being one of the most popular channels, will be impacted the most.
b) The SABC TV Group ARs (average rating) decline to follow the same pattern with Total TV ARs declining when there are high stages of loadshedding. With lower stages of loadshedding, some AR (average rating) recovery is noticeable though it does not recover to pre-non-loadshedding periods.
c) Image illustrating the impact on viewership illustrates high levels of loadshedding and the correlation with Total TV declining. The most significant levels of Total TV decline were recorded in the week 22 - 28 June 2022 where ARs dropped to 18,7 (in the first stage 6 loadshedding.
d) ARs declined from 8,9 to 5,9 indicating a 38% decline in SABC Group channels' viewership. 2023 saw high stages of loadshedding and ARs for SABC Group dropped to 5,8 (2023) from previous year 7,8 (2022) indicating a 26% decline in ARs.
e) The viewership decline is significantly higher during Monday to Friday, particularly during Prime Time (18:00 22:00) as this is the most concentrated appointment viewing timeslots due to high viewership of Dramas and Soapies.

Advertising revenue for SABC is also highest during this period as media buyers seek the highest Reach and OTS (opportunity to see) for their investments. Viewership on SABC prime time is driven by Skeem Saam (18:30), Generations (20:00) and Uzalo (20:30)

f) The image above depicts the average loadshedding days in 2018 being 14 days per annum and Total TV ARs averaging at 20,7. In 2023, loadshedding days peaked at 335 (Jan Dec) and the average viewership for SABC1 dropped from 5,00 ARs (2018) to 2,40 (2023) ARs this is a decline of 52%. In the same period SABC2 ARs declined from 2,30 (2018) to 0,80 (2023) this is a decline of 65%.

3.1.4. BitCo

BitCo made the following submission to the question:

BitCo submitted that it has been profoundly affected by the recurrent challenge of loadshedding. The consequences span various dimensions, significantly hampering our ability to maintain consistent service delivery and meet customer expectations.

- Loadshedding has severely disrupted business operations, resulting in decreased productivity and efficiency. These lead to financial penalties for not being able to meet agreed SLA's.
- The viability of the business is at stake as power cuts undermine the reputation as a reliable ISP

Infrastructure Impact

- BitCo has become dependent on backup power solutions to mitigate the effects of loadshedding, in some cases even on customer premises. The substantial cost has diverted resources away critical infrastructure upgrades and expansion
- Despite deploying backup power solutions, service interruptions during transitions between main and backup power sources remain a challenge. These disruptions not only compromise network reliability but also lead to customer dissatisfaction and increased support overhead. Furthermore, when frequent and long periods of loadshedding are enforced, batteries do not have enough time to charge

Social and Consumer Impact

- Reputation damage
- Customer losses
- SLA compliance and compensation
- Vulnerability to theft of backup power equipment including batteries and solar panels
- Increased expenditure on security to protect infrastructure sites

3.1.5. Cube ICT

Cube ICT made the following submission to the question:

- Higher than usual equipment failure causing increased infrastructure costs. Support overheads have increased due to additional verification that is required for outages.
- Customers business connectivity negatively impacted due to poor performing LTE network as backup during loadshedding.

3.1.6. Edelnet

Edelnet made the following submission to the question:

- It has equipped all main high sites with battery backups and the batteries life span has been reduced to between 2 and 3 years which is a costly exercise.
- Loadshedding do not only affect the battery life but also has an impact on other site electrical equipment such as routers and CPEs due to power surge when the power is restored.
- The impact of loadshedding on battery life and electrical equipment also affects number of support staff required as extra staff is required to replace batteries and damaged electrical components.

3.1.7. Primedia

Primedia made the following submission to the question:

- Loadshedding has impacted all aspects of Primedia's broadcasting businesses in both Johannesburg and the Western Cape.
- The total costs expended on the above amount to R1,997,407.84 (One Million Nine Hundred and Ninety-Seven Thousand, Four Hundred and Seven Rands and Eighty-Four Cents). Through expending such significant amounts, radio listenership and business performance has remained stable despite the impact of loadshedding.
- Primedia has experienced numerous complaints from listeners who state that they are unable to access the radio stations during loadshedding, particularly, if they are towards the edges of the coverage area.
- Engagements with the signal distributor Sentech, points to them seeking to provide attempt seamless back-up power sources to ensure non-disruption of its signal distribution services.

3.1.8. Vodacom

Vodacom made the following submission to the question:

Economic Impact

- Vodacom's (and other operators) network had and are continuing to rely more on back-up power which was not designed as the primary source of energy for the network. As a result of regular periods of power outages, there is not sufficient time for back-up batteries to recharge and consequently the availability of power supply becomes reduced. As back-up batteries do not get sufficient time to recharge, this ultimately has an impact on the lifespan of the battery by shortening its life, thereby resulting in frequent replacement.
- Licensees must rely more on diesel generators (which comes at a high running cost) to ensure consistent power supply to equipment.
- The inconsistent power supply from the national grid significantly impacts network availability and reliability, resulting in call failures and dropped calls.

- Uncertainty around the stability of electricity supply in South Africa has led to a decline in investor confidence as a result of higher risk and therefore higher operating costs.

Infrastructure Impact

- Power outages have forced operators to make trade-offs to ensure that core components of the network remain operational to sustain businesses and the broader economy.
- The capital expenditure that was earmarked as investment towards network expansion and modernisation, must now be redirected towards ensuring that there are additional resources for power supply at critical sites.
- Although all network sites are equipped with back-up power, the higher stages of loadshedding result in network outages that impact network availability and other network performance parameters.
- Power cuts render telecommunication infrastructure vulnerable to theft and vandalism due to the lack of visibility during periods of power cuts.

Social Impact

- Where the network quality of service has been severely compromised by loadshedding, critical calls such as those directed to emergency services may be compromised. Communities may struggle to report incidents of theft and vandalism that become prevalent during loadshedding.
- During prolonged hours scheduled for loadshedding, customers may struggle to recharge their end-user devices, rendering them incapable of accessing the network. This has an impact on other rights such as the right to access to education and other government service content.

Consumer Impact

- During higher stages of loadshedding customers may experience dropped calls and poor quality of connectivity to the network.
- Individuals and businesses that depend on online transactions (business-to-business or business-to-customer) may have the quality of their services compromised, leading to their financial loss.

- Lack of access to emergency services as a result of network unavailability which may result in loss of life.
- Consumers may not be able to access services which they have purchased such as data bundles and which provide them access to the network for a defined period of time for example, short validity bundles resulting in them forfeiting the unused services.
- Consumers may be subscribed for services to which they only have access to half of the time as a result of network unavailability due to loadshedding.
- High input costs associated with securing alternative sources of energy supply may lead to higher prices for access to ECS.

3.1.9. SACF

SACF made the following submission to the question:

- Networks and communications facilities are the backbone of the economy.
- Networks are designed with a reliance on the grid as the primary source of electricity.
- Rolling blackouts have however transformed the role of back-up power to become supplementary power.
- The state of security in the country has had a further impact on the ability of networks to provide services. Network providers have to deal with high levels of theft, vandalism, and sabotage with little support from law enforcement.
- Network operators are increasingly forced to rely on diesel and battery power. Frequency of outages and the duration thereof results in shorter battery recharge period.
- Network operators have to divert funds away from expansion projects and the migration toward new technology, in favour of security and fuel costs.
- Network operators are accordingly also battling to meet quality of service requirements while keeping the cost of communications as low as possible for consumers, as loadshedding impedes their ability to meet service level obligations.
- Network operators are forced to consider different site locations to optimize coverage as a result of loadshedding.

- Network operators are further compelled with maintaining legacy 2G and 3G networks to support the economic means of poorer customers.
- Type approval processes for new and more energy efficient network equipment is furthermore lengthy and restrictive.

3.1.10. eMedia

eMedia made the following submission to the question:

- Loadshedding has severe impact on eMedia's business as it relies heavily on power to keep studios operating. Loadshedding has a greater impact on free-to-air as compared to subscription broadcasters, which relies on Satellite, of which subscribers are more likely to afford alternative energy source.
- eMedia has two buildings, in Cape Town and Johannesburg, which both require 24-hour power and needs to be running even during loadshedding resulting on substantial cost of back-up generators and diesel.

3.1.11. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Business performance

Loadshedding has disrupted their normal business operation leading to the disruption of the services they offer and efficiency. As an ISP, they rely on electricity to run their operations and provide their services. Interruptions can lead to disruptions of business operations services, deadlines and lost revenue.

Business viability

Continuous loadshedding stretches their cash flow as they have incurred increased costs associated with alternative power sources such as generators.

Infrastructure

They have incurred additional maintenance costs to their network infrastructure because they're trying to be proactive in ensuring that loadshedding does not damage their infrastructure.

Social and consumer impact

Their customers have had to incur additional cost through buying UPS devices to back up their power on their fibre networks to ensure uninterrupted Internet services.

3.1.12. Extim Pty Ltd

Extim made the following submission to the question:

Loadshedding has had a large impact on their ability to provide a cost-effective service to their clients. They have eighty (80) wireless high sites and 104 fibre networks all of which require stable power. At all those locations they have had to implement expensive backup power systems with Lithium batteries, inverters and chargers as well as implementing security systems to protect the investment. Total cost has been around R5m. They also needed to add more redundancy to their network which increased the cost further. So far, they have not passed the cost on to subscribers reducing their profitability.

3.1.13. Fine Music Radio

Fine Music Radio made the following submission to the question:

Fine Music Radio has managed to contain the negative effects of loadshedding since November 2020, there was one or two events where their broadcasts have been interrupted. The economic impact relates to listeners being affected by loadshedding, which effectively reduces the audience numbers. With the current research methods, the actual impact was difficult to quantify, but responses via

their social media channels indicated that the drop-off in numbers were substantial. That had a knock-on effect on their advertising sales.

Infrastructure has been affected with some systems taken off air due to failure of circuit breakers protecting them from surge damage. That has fortunately not caused any serious permanent damage. The major infrastructure problems occurred with Sentech, their signal service provider, with some delays in stand-by power supply to transmitters causing silence on air at the start and end of loadshedding.

The social and consumer impact related to the loss of listener numbers during loadshedding, especially the digital listeners, who lose streaming via computers and DSTV.

3.1.14. NEXUS NET WIRED & WIRELESS

Nexus made the following submission to the question:

Nexus indicated that they encountered poor business performance, outages / financial impact, extra costs and loss of revenue.

3.1.15. Simigenix PTY Ltd

Simigenix made the following submission to the question:

Simigenix stated that their business operations remain unaffected by loadshedding as they have sufficient processes in place to mitigate the effect of loadshedding. However, they still rely on the larger telco's cell towers to be operational at all times to ensure SMS messages reach subscribers/customers' handsets. Therefore, the quality of service has decreased due to them not being able to reach a large portion of MSISDN’s during extended periods of loadshedding.

3.1.16. Smile FM

Smile FM made the following submission to the question:

- The impact of loadshedding increased their overheads, namely they needed to replace their UPS batteries and extend their lift which cost them R48 162. In addition to the above they had to pay their landlord monthly generator costs which have amounted to R91 528 over the last 3 years. These costs continue to increase.
- They have also suffered reputational damage as they go off air when the transmitter moves from Eskom power supply to back up generator – experience 48 seconds of dead air and 42 seconds when they return to Eskom power. It makes listeners either switch off their radio or try and find another station, so it is potentially lost listeners.
- Their listeners get annoyed who are expecting an uninterrupted product – especially noticeable when the news bulletin or spoken content is on air and then there is silence. Again, this is potentially lost listeners.
- The fact that it happens at different times makes it more difficult for listeners to understand the issue and for them to plan appropriately.
- They have also had to replay adverts that fell into the times when they were off air loss of airtime and potential revenue, not to mention unhappy clients.
- They have had failures in their infrastructure chain – the axia engine that drives the desk failed and could not be repaired and required them to purchase a new engine. They were told the cause was due to loadshedding and it cost them R183 388,50 to replace.
- Outside broadcasts could not be done as power failures in areas of the city were sporadic and both the client and they could not guarantee that said broadcast would be possible – by virtue of constantly changing stages of loadshedding. This resulted in loss of revenue – R120k per cancelled Outside Broadcast.

3.1.17. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

Loadshedding resulted in equipment damage and decrease in output where their ads were not able to go out. Loss of productivity was also a challenge when their PC's were down. They also experience downtime periods when trying to reconnect into the systems damaged by loss of power.

3.1.18. Globecast

Globecast made the following submission to the question:

The economic impact:

- The massive increase in infrastructure costs in both installing and having to regularly service generators.
- The need to install larger and longer lasting UPS systems and replacement batteries.
- A secondary back-up generator had to be installed.
- The fuel spends of operating generators for extended periods
- The tripping of sub stations and the reaction time to re-establish power sometimes taking days.
- Globecast spent in excess of R1.2 Million to mitigate the effects of loadshedding.

3.1.19. Kagiso Media

Kagiso Media made the following submission to the question:

Loadshedding impacts the radio broadcasting business, and the KMR Stations, significantly, via indirect impact and direct business impact significantly impacted the broadcast infrastructure, leading to increased maintenance costs for backup power systems like UPS and generators. Rising fuel costs during loadshedding add to operational expenses.

Monthly impact of various stages on their cost of electricity generated on site:

- Stage 1-2: R13 000 diesel + R2 000 generator service costs

- Stage 3-4: R24 000 diesel + R4 000 generator service costs
- Stage 5-6: R40 000 diesel + R8 000 generator service costs
- Stage 6+ : R55 000 diesel + R10 000 generator service costs

3.1.20. Vumatel

Vumatel made the following submission to the question:

- Economical: Stage 4 and higher result in an increase in variable costs of labour and diesel.
- Infrastructure: Uninterrupted Power supply (UPS) and diesel generator for backup. Cable theft during loadshedding.
- Social: Small businesses that rely on Vumatel infrastructure lose income due to the unavailability of online communication and e-banking services, amongst others.
- Consumer: The poor network performance is communicated by ISPs to consumers impacting negatively the Vumatel brand.

3.1.21. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

- Economical: Loadshedding has severely impacted our ability to provide consistent and uninterrupted services
- Infrastructure: Generators and backup power solutions.
- Social: Interruption of Wi-Fi and Broadband services deployed to customers.

3.1.22. MultiChoice

MultiChoice made the following submission to the question:

MultiChoice submits that its business remains significantly impacted because subscribers are affected by loadshedding, which, in turn, affects viewership of, and

subscription to, the DStv service. It posits that loadshedding has impacted its business in the following manner:

- Loss of viewership and subscribers and an impact on subscriber earnings;
- Pressure on advertising revenue; and
- Increased operational costs.

Loss of viewership and subscribers

MultiChoice submits that one of the drivers of the decline in viewers and subscribers were the inability of new customers to purchase decoders and get them installed. Retailers have been hard hit by loadshedding, meaning fewer retail hours for decoder sales.

Additionally, MultiChoice indicated that DStv installers were also significantly impacted by loadshedding when installing DStv at a customer's home. Some of the issues identified include installers being unable to power their equipment, being unable to activate and demonstrate services to customers, telecoms network signal issues meaning that installers cannot complete jobs on the bespoke installer apps, and difficulties in contacting customers. Accordingly, MultiChoice submits that this has increased installer costs (due to repeat visits, fuel, data, generators) and resulted in many incomplete or delayed installations.

Negative impact on advertising

MultiChoice submits that the decline in TV audience due to loadshedding has led to pressure on broadcasters' advertising revenue. According to MultiChoice, this is because there is direct correlation between viewership (eyeballs) and advertising. More eyeballs translate into more advertising revenue. It follows that when audiences are unable to view television, lower viewership is reported and there is therefore lower advertising revenue.

Additionally, MultiChoice indicated that they have observed that marketers are increasingly choosing to move their ad spend to other media less affected by loadshedding in order to continue to reach audiences, for example, radio and digital platforms.

MultiChoice concludes that the negative impact of loadshedding on advertising also exacerbates the existing pressure which broadcasters face due to increased fragmentation and the flow of advertising revenue offshore to global digital players.

Increased operational costs

MultiChoice submits that Spend on diesel in just 5 months from September 2022 to January 2023 was approximately R25m and was set to more than double for FY24.

MultiChoice submits that other areas driving increased costs include:

- Generators have required more frequent major services which are costly;
- Compressors on the chiller plant have been damaged due to frequent start/stops;
- Problems have arisen with lift control boards;
- There are SMS costs for outage alerts for the business management system; and
- There has been more frequent replacement of UPS batteries, additional overtime costs for electrical, HVAC and generator contractors.

Additionally, MultiChoice indicates that in some instances, content suppliers have delivered content late due to loadshedding, resulting in rescheduling with a knock-on impact to operations and distribution teams.

Furthermore, MultiChoice indicates that Loadshedding related customer service calls take longer to resolve and on average loadshedding is mentioned 500 times per day during customer calls, with E48 errors being the largest call driver.

3.1.23. Telkom

Telkom made the following submission to the question:

Telkom submitted that it has had to divert a large portion of its CAPEX and Opex to alternative energy to keep its network running and this has negatively impacted its ability to build new networks or to extend the existing network as a large portion

of its funding has had to be diverted toward these energy-related initiatives. Telkom supports the call for a rebate on diesel. Telkom opines that this would not only alleviate the financial burden on providers of electronic communications networks and services, but also enable cost savings to be redirected towards network expansion, technological upgrades, and more sustainable energy solutions.

Telkom advocates for increased efforts by government to combat crime that negatively impacts the provision of electronic communications services such as vandalism and theft related to network infrastructure as these pose a severe threat to the integrity and resilience of networks.

Telkom further outlined the following impact of loadshedding on its economic, business and social outlook:

Economic Impact explanation:

- Loss in revenue, high customer churn
- Increase in network infrastructure sabotage, theft, and vandalism.
- Reduction in network expansion
- Increase in Opex (high diesel and maintenance cost, increase in site upkeep cost)

Business performance explanation:

- Increased operational cost to maintain network availability.
- Increased CAPEX spends towards network power resilience equipment.
- Loadshedding has negatively impacted Telkom's Environment, Social and Governance (ESG) strategy, roadmap, and targets. The ESG performance has an increasing dependency on fossil fuel (diesel gensets) to keep the network active and this militates against their ESG and climate change targets.

Telkom is of the view that the extra cost burden that is placed on the electronic communication sector cannot be recovered from Consumers, and that maintenance costs are higher on the standby generators due to the increased running hours.

Business viability:

- Certain electronic communication hubs do not have backup standby generators or batteries, and that negatively impact services to those consumers.
- The loss of man-hours (managers and technicians) dedicated only to loadshedding is lost for normal maintenance and increased over time, and
- Telkom Mobile's generators to maintain the network are not adequate/sufficient due to the quantity of sites affected nationally.

Infrastructure impact performance explanation:

- Increased vandalism to power and network infrastructure like power cables, batteries, equipment, shelters, etc. during loadshedding;
- Delays in project rollouts due to loadshedding and deferred working permits;
- Sites with mobile generators are running for extended periods of time incurring high diesel usage and reduced mobile generator availability (in addition to the costs to distribute diesel to remote sites); and
- Telkom Mobile sites are being vandalized which leaves no battery backup; hence sites fail as soon as power is affected or lost.

Social and consumer impact explanation:

Telkom provides that it had to reprioritize funding for social programs to address network energy security. Telkom further stated that it pays particular attention to social impact and as such, it has created 39 261 new jobs in small black owned businesses through its supply chain and investments in enterprise and supplier development in the financial year 2023. Telkom further states that it is working closely with the industry association for the resolution of the energy crisis and loadshedding and that some representations were submitted to the Authority led by the Association of Comms and Technology (ACT).

3.1.24. RADIO PULPIT

Radio Pulpit made the following submission to the question:

Economic

- Business performance: Loadshedding can significantly disrupt the broadcasting schedule of a community radio station. This can severely impact advertising revenue and sponsorship packages.
- Business viability: Community radio stations are totally reliant on advertising revenue and prolonged loadshedding can threaten its viability. Increased expenses for operational costs for backup power solutions coupled with decreased income will strain the stations financial viability.

Infrastructure

- Backup Power Systems: Radio Pulpit has invested in backup power solutions – a generator and UPS system, these systems require regular maintenance and very costly fuel supply. Extended loadshedding periods put immense strain on these backup systems and could result in the station not being able to connect to Sentech and broadcasting may be interrupted.
- Broadcasting equipment: All broadcasting equipment are sensitive electronic equipment and frequent power fluctuations during outages can cause damage to transmitters, studio equipment backup systems, computers and telephone system etc. Expensive maintenance and repair costs, as well as time to repair it may result in downtime of broadcasting services.

Social Impact

- Programming: Loadshedding might force the radio station to change its programme schedule or cancel live broadcasting. This might have a negative impact on community events, interviews and discussions. This will result in missed opportunities to communicate with the community and relay important information and might lead to loss of listenership.
- Community engagement: During loadshedding a community radio station cannot engage with its community effectively and it disrupts communication with the audience. This might lead to frustration in the community and result in a disconnection to the community radio station.

Consumer Impact

- Community Trust: Reliable and consistent broadcasting is essential for maintaining the trust and loyalty of listeners. Even though Radio Pulpit has backup systems, prolonged interruptions might result in break in broadcasting which could erode community trust in the radio station's ability to deliver timely and relevant content. Decreased listenership and engagement over time might be the result of possible break in transmission.
- Access to Information: Listeners' access to information and entertainment provided by community radio stations are affected during regular loadshedding periods. The community rely on community radio stations for news updates, educational content and entertainment, which might not be delivered during loadshedding periods.

3.1.25. Sentech

Sentech made the following submission to the question:

Sentech submitted that it has a fleet of 139 Generators that acts as a backup in the event of Eskom Mains supply failures. These vary in size from 75 KVA to 660 KVA. Since 2020 the grid supply has become increasingly unstable forcing the generators to run for a significant number of hours. This impacted on the increase costs of fuel for this purpose year on year. Further to this the cost of regular routine maintenance on the generators increased as well. The increase run hours impacted the reliability of the generators which resulted in unprecedented mechanical failures which resulted in repair costs to shoot through the roof.

3.1.26. LaserNet

LaserNet made the following submission to the question:

Increased fuel costs – having to run generators more frequently at our data centre, particularly in 2022 and 2023.

Increased battery costs – lead acid batteries no longer live out their expected life span due to the increased frequency of loadshedding. Batteries had to all be replaced with the much more expensive lithium-ion batteries.

Reputational damage – customers don't understand that network operators are under strain, their wholesale providers cannot keep up with their generator and battery bank failures and their clients think it's because they don't care.

SLA Violations – increased loadshedding and unreliable power backup systems from wholesalers have led to numerous SLA violations where refunds to clients have been necessitated causing loss of revenue.

Increased toll on support team – support team constantly on standby in the event of generator, inverter and battery failures, increased call outs at night and weekends

Increased CPE costs – client premise equipment experiences power surges when power restores leading to increased spend on CPEs or power supplies.

Increased costs from fibre network operators – FNOs have increased their last mile fees to cover their costs, but it's the ISPs who can't always pass those increases on to the consumers for fear of losing market share.

3.1.27. MTN

MTN made the following submission to the question:

MTN's network resilience programme has been a nationwide initiative to mitigate against the negative impact and frustration caused by power cuts, theft and vandalism by enhancing network availability and stability during loadshedding over the long-term. In this way, MTN has sought to ensure that South Africans across the country had access to mobile services even during periods of electricity outages.

This initiative is vital, as the availability of electronic communications services at all times of the day is imperative for all persons in South Africa. Down time in the

availability of the network commensurate to loadshedding hours would impact work productivity across all sectors, the ability of people to access emergency health services, access to information for education, and job creation, all which ultimately affect the health and functioning of the South African economy. This is notable as digital inclusion is made more vital for meaningful participation in the fourth industrial revolution.

MTN's resilience efforts are especially impactful as the MTN network enables the provision of electronic communication to all South Africans by not only MTN but various other licensees and non-licensees such as MVNOs and resellers.

Insufficient relief measures from the negative impact of loadshedding could delay investment in technological upgrades across the industry and widen the gap between technological development in South Africa as a whole, and the rest of the world.

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Network resilience investments include the installation of solar power, batteries, generators, fuel supply and logistics, and sustaining national and emergency services, as well as the enhancement of security features at base stations to ensure improved network availability during loadshedding, when many instances of theft and vandalism occur.

Statistics show that loadshedding has a direct correlation with spikes in vandalism and battery or generator theft at network sites. For instance, during stage six loadshedding in 2022, there was a major escalation of attacks and tower companies recorded a 250% increase in the loss of generators.

Even during stage one and two loadshedding, which has a lesser impact on telcos as batteries can still recharge, vandalism and theft are still widespread and severely impact network and service delivery of all network operators.

Crime is leading to ever more dire consequences for the connectivity of people, the smooth running of small businesses, the effective delivery of digital government services, and the safety of individuals during loadshedding. This problem is affecting all mobile operators and with the sharing of sites by multiple operators, damage to sites can impact many thousands of customers, across networks.

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These trends persisted across all regions in 2023 as loadshedding continues to provide a cover for criminals to operate.

Diesel theft, copper, battery and generator theft result in extended periods of downtime as recovery teams need to repair the damage and bring in replacement batteries or fuel.

Another trend is that as the country hits persistently higher levels of loadshedding, the vandalism of base stations has shifted from opportunistic criminality (petty thieves breaking into the stations and sites to get what copper or metals they can get) to a more organised form of criminality being run by syndicates. They will at times disguise themselves as third-party contractors so as not to be confronted by local communities and take that opportunity to specifically steal batteries.

With MTN having embarked on a major rural network rollout drive, the protection of these sites is paramount and numerous initiatives are being deployed. For instance, MTN and IHS, MTN's tower sites partner, have a three-phase resilience plan which is currently underway. IHS is looking at various hardening solutions such as concrete blocks to secure the batteries, concrete bunkers, and high security cabinets.

Close collaboration with the police and heightened security at sites is leading to more arrests, and MTN has started swapping DC copper cables with aluminium cables on masts at many sites, while a TX Ring resilience programme to protect sites across all provinces is on track, showing good results.

While MTN, and other mobile operators, have rerouted resources and efforts to manage the adverse impact of loadshedding, we believe that relief from regulatory obligations would play a significant role in assisting licensees to continue mitigating the adverse impact of loadshedding. The budgetary constraints experienced by licensees can be seen through market developments such as increases in prices in response to inflationary events, various employment effects (head count freezes, voluntary retrenchments / retirement packages), and assets disposals / market consolidations.

In this regard, MTN welcomes the Authority's initiatives to provide regulatory relief interventions to licensees to mitigate the adverse impact of loadshedding.

3.1.28. **The Authority findings:**

The Authority found that stakeholders did experience similar negative impacts due to the effects of loadshedding in that loadshedding significantly impacted the ICT sector through disruptions to their operations, increasing costs and damaging of their customer's trust.

Loadshedding caused ICT sector businesses to experience frequent disruptions on their operations. Without stable power supply, businesses such as telephone

companies, internet service providers, radio stations and other broadcasters were unable to function optimally. This leads to:

Downtimes: Frequent power outages did result in extended periods of downtime, leading to a significant loss of productivity and revenue.

Network Congestion: When the power was restored, network congestion occurs as all devices and systems simultaneously came back online, causing further delays and disruptions.

Revenue Loss: Communication sector businesses indicated that, a lot of revenue was lost due to downtime, reduced productivity and the inability to provide services to customers.

Increased Expenses: Businesses stated that, they did incur additional costs to mitigate the effects of loadshedding, such as investing in backup power systems, generators and fuel

Loadshedding further affects the customer experience, leading to:

- Frustration: Frequent disruptions to communication services cause frustration among customers, leading to a loss of trust and loyalty.
- Decreased Satisfaction: The unavailability of services during loadshedding periods negatively impacts customer satisfaction, ultimately affecting businesses' bottom lines.

The Authority notes that the stakeholders share similar negative impacts due to the effects of loadshedding. The cumulative effect of loadshedding have long-term consequences for communication sector businesses.

3.2. (Question 2) Quantify the severity of the impact of loadshedding in terms of the loadshedding stages

3.2.1. ACT

ACT made the following submission to the question:

As loadshedding progresses impact is felt from Stage 2 and beyond, the severity of the electricity disruptions intensifies, presenting increasingly challenging scenarios for network reliability and user connectivity.

In Stage 2, when the network availability drops below 93%, the strain on the infrastructure becomes palpable. Despite concerted efforts to provide batteries to critical sites, there remains a critical gap in ensuring uninterrupted service. Some sites may lack sufficient battery capacity to endure the entire loadshedding cycle, leaving them vulnerable to service interruptions and connectivity issues.

As loadshedding escalates to Stage 3 and beyond, a new set of challenges emerges, exacerbating the existing strain on the network. The frequency and duration of power outages increase, leading to accelerated battery discharge rates at affected sites. When the power is restored, there is insufficient time for the batteries to recharge adequately before the next loadshedding period begins. This cycle of discharge and inadequate recharge compromises the resilience of the network, leading to prolonged service disruptions and deteriorating user experiences.

While efforts have been made to implement innovative strategies to maintain user connectivity, such as alternative power sources and network optimization techniques, these measures become increasingly insufficient as loadshedding reaches more severe stages. Despite operators' proactive approach to addressing these challenges, the sheer magnitude and frequency of outages overwhelm even the most robust contingency plans.

3.2.2. RAIN

RAIN made the following submission to the question:

Stage 1: the impact of loadshedding is minimal due to the mitigations that Rain put in place. The typical network availability as a result of stage 1 is 98.6% or lower.

This is where customers who are running backup power at home start to feel the impact as the network backup starts degrading.

Stage 2: the network availably drops to below 93%. Despite the best effort to provide batteries to sites, not all sites have enough capacity to last the full loadshedding cycle.

Stage 3 and Above: Beyond stage 2, a new problem arises in that the frequency and length of the loadshedding means batteries get discharged until the sites are off and when the power returns, they are not charged enough by the time the new loadshedding period begins. While rain has implemented some novel strategies to keep the users connected to the network, beyond this stage, even those remedies are not enough.

3.2.3. SABC

SABC made the following submission to the question:

The SABC cautioned that not all its revenue decline can be directly attributed to audience decline as a result of loadshedding, however, because the mode of trade (currency) for SABC is based on audiences, lower audience delivery has deterred advertisers as the return on investment cannot be guaranteed.

Digital adverting has increased exponentially in the past 5 years. According to Statista digital adverting spend in South Africa has increased from US$352m in 2018 to US$667m this is an increase of 89%. Graph 4 depicts SABC group (SABC 1 2 3) share decline from 44% (2018) to 24% (2023), indicating a decline of 20% in 5 years. In the same period SABC TV revenue declined from R4,7bn to R2,6bn indicating a decline of 45% in TV revenue.

3.2.4. BitCo Telecoms

BitCo made the following submission to the question:

Although the severity of impact increases as the stages of loadshedding escalates, we are impacted from stage 1 loadshedding, as we must provision for any power outages.

- Stage 1: Low impact, minimal disruption apart from sites without power backup.
- Stage 2: Moderate impact, but noticeable as increased reliance on back-up systems escalates and strain on infrastructure increases.
- Stage 3: Significant, with notable revenue losses, increased costs for backup systems, and potential service interruptions affecting consumer confidence. The impact is significant, with critical disruptions to business continuity and economic strain due to prolonged power cuts and increased reliance on backup systems.
- Stage 4: Severe with substantial revenue losses, heightened costs for backup systems, and significant service interruptions impacting consumer trust and confidence. The impact is severe, with widespread disruptions to business continuity and economic stability. The inability of batteries to charge adequately between schedules exacerbates the strain on infrastructure and increases operational challenges.
- Stage 5 and Beyond: Catastrophic with the potential to lead to job losses, business closures, and economic recession. Severe damage to infrastructure and long-term repercussions on the economy.

3.2.5. Cube ICT

Cube ICT made the following submission to the question:

Loadshedding during business hours has the biggest negative impact.

3.2.6. Edelnet

Edelnet made the following submission to the question:

The network is able to cope with loadshedding up to stage 4 and from stage 5 Edelnet high sites do not have sufficient recharge time leading to internet outages/downtime.

3.2.7. Primedia

Primedia made the following submission to the question:

Lower levels of loadshedding don't necessarily show severe impact, however from stages 4 above there are trends of heavy impacts on TV as well as marginal levels on radio as accessibility (especially via traditional and digital) becomes impacted due to extended periods of battery power usage.

3.2.8. Vodacom

Vodacom made the following submission to the question:

Vodacom has provided a figure (figure 1) titled "Five-year view of the impact of loadshedding on network availability". According to Vodacom's submission, this figure shows the following:

- Over the period 2018 to 2022, the national electricity grid experienced a significant deterioration with higher stages of loadshedding being scheduled more frequently over prolonged periods of time.
- Between 2018 and 2022, electricity availability has dropped by approximately 10%, of which approximately 8% was observed between 2021 and 2022.

Vodacom (and other operators) have had to increase their investment in alternative energy sources such as generators and back-up batteries to manage lower stages of loadshedding. Vodacom's investments have assisted the company to maintain a network availability of over 88% even when the supplied capacity from the national electricity grid stood at 67%.

Vodacom has been able to capacitate its network to be able to handle loadshedding levels from stage 1 to stage 4. However, when loadshedding exceeds stage 4, the back-up system will not have sufficient time to replenish itself from the national grid as the required charging time for most back-up systems that support networks ranges between 9 hours and 12 hours.

Vodacom has provided another figure (figure 2) titled "A view of the impact of loadshedding over twelve months of the year 2022". According to Vodacom's submission, this figure shows that in December 2022, loadshedding levels increased to a sustained stage 6, which significantly compromised network availability and affected quality of service on the network.

3.2.9. eMedia

eMedia made the following submission to the question:

eMedia reported its loadshedding costs for the year ending 2023, in its integrated report, as a total of more than R15 million (taking account of the cost of generators and diesel). In addition, it reported the volume of diesel used being 554 000 litres, compared to only 21 000 in 2022. This of course has a knock-on effect on carbon emissions and our commitments in relation to environmental goals.

eMedia further indicated that it experienced frequent interruptions to the e.tv channel signal during the periods of loadshedding. These interruptions amount to 4628 hours in the past two years that viewers could not access e.tv.

3.2.10. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

The greater the stage, the most severe the impact of loadshedding.

3.2.11. Extim Pty Ltd

Extim made the following submission to the question:

Their systems currently work for up to stage 4 and some to stage 6. Stage above that result in outages and potential equipment failure due to power surges etc.

3.2.12. Fine Music Radio

Fine Music Radio made the following submission to the question:

All stages would impact similarly. Higher stages would mean more interruptions for listeners.

3.2.13. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

Stage 4 over a long period of time and Stage 6 do not enough time to recharge back up batteries.

3.2.14. Simigenix PTY Ltd

Simigenix made the following submission to the question:

No impact on all stages as sufficient battery backups are in place to carry through the highest loadshedding stages.

3.2.15. Smile FM

Smile FM made the following submission to the question:

They were "saved' by at least one stage in Cape Town but as they venture beyond stage 4 – the dead air experienced by their listeners is a giant turn off factor.

When loadshedding goes to levels 5 upwards there is a loss of confidence in the economy/country etc. and client's appetite for spending money on advertising drops.

3.2.16. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

Stages between 1 to 3 somehow impact but the effect is felt exponentially from stage 4 upwards as external systems are more impacted.

3.2.17. Globecast

Globecast made the following submission to the question:

The more hours of loadshedding the more services and fuel are required.

3.2.18. Kagiso Media

Kagiso Media made the following submission to the question:

Loadshedding has impacted disposable income in many direct and indirect ways. Consumers are finding it hard to deal with limited growth in their remuneration versus rising inflation.

During loadshedding stages 1 to 4, there's a moderate impact on operations, requiring regular use of backup systems and incurring related costs and backup systems are crucial, along with ensuring service providers maintain theirs for uninterrupted FM transmission and audio streaming services.

During 5 to 8, there is an increased expenses and heightened risk of system failures. Service providers face challenges, affecting transmission and internet bandwidth, impacting streaming quality.

3.2.19. Vumatel

Vumatel made the following submission to the question:

Loadshedding resulted in a total estimated additional expenditure of over R54 million during the last 4 years.

3.2.20. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

The company spend a large amount of money on generator deployments and backup power solutions to ensure our network stays active. No estimated amount was mentioned.

3.2.21. MultiChoice

Multichoice made the following submission to the question:

MultiChoice submits that there has been a clear reduction in television viewership as a result of loadshedding.

According to MultiChoice, it has been directly impacted by these trends. Permanent high stages of loadshedding have left a large portion of its customer base unable to watch video entertainment services. It submits that the average Cost-to-View has increased due to loadshedding, reducing the value proposition for customers who tend to feel that they receive less value-for-money for DStv.

Further, MultiChoice indicates that although its 90-day subscribers grew by 0.3 million years on year in FY23, lower levels of activity, represented by active days, were experienced which resulted in a 2% decline in revenue. This is evidenced by the disconnect between the 0.3 million growths in 90-day subscribers (that shows customers still value our products) and the 0.1 million declines in the active subscriber base at the end of March 2023. Customers are more selective when they sign up in an attempt to avoid periods of excessive loadshedding.

MultiChoice submits that through feedback received from customers, quarter of subscribers have indicated their DStv viewing had been impacted by loadshedding, with the result that they have cancelled or downgraded their subscription, watch less television and / or have moved to other viewing platforms. Half say they now watch less television because the loadshedding schedule clashes with their viewing time. More than half have indicated they have not made any provision to continue watching during outages implying that their viewing will continue to be impacted.

3.2.22. Telkom

Telkom made the following submission to the question:

Telkom provides that the impact of loadshedding increases exponentially as loadshedding stages increase. Beyond stage four (4), the cost of diesel increases substantially. Telkom further states that it has spent hundreds of millions of Rands on diesel over the past year and that at loadshedding stage six (6) and above, it is impossible to keep parts of the network operational. Telkom provided a graphical representation depicting loadshedding hours experienced over the 2022/23 and 2023/24 financial years. Indications from the graphical representations shows an average of 961,975 loadshedding hours experienced by Telkom in the 2023/24FY.

Telkom states that the average fuel consumption across the Group is 950 litres per hour during each loadshedding stage. Telkom provided the following mitigations related to loadshedding stages:

- Initially, Telkom deployed static Uninterrupted Power Supply (UPS) systems for temporary outages of approximately 30min duration.
- During loadshedding stages one or two, battery backup equipment can maintain continuity of power supply for approximately 2hrs.
- Higher stages of loadshedding; stage four and above, necessitate the use of diesel generators, which are more expensive to run.
- Infrastructure Vulnerability, and
- Quality of Service degradation.

Telkom provided the table below to highlight the impact of loadshedding per stage on network availability

3.2.23. RADIO PULPIT

Radio Pulpit made the following submission to the question:

Radio Pulpit had diesel expenses for the past two years as follows:

2021 – 2022: R69 268.60

2022 – 2023: R279 483.68

- The above figure excludes maintenance to the generator and UPS system.
- Increased diesel and signal distribution costs have also contributed to the expenses of Radio Pulpit.

3.2.24. Sentech

Sentech made the following submission to the question:

The impact of loadshedding was mainly felt with number of generator failures experienced due to excessive run hours. On average Sentech experiences between 5 to 15 generator failures per month of various nature and durations. The costs of such failures are quantified above. The consequence of these failures is a drop in Signal broadcasting network availability which has a major impact on FM and TV

service availability. The net effect of a generator failure on service delivery is that all FM and TV services on a transmission site, with its rebroadcasting/relay sites are affected during loadshedding periods as back up is not available. This renders thousands of households and towns without access to radio and tv services.

3.2.25. LaserNet

LaserNet made the following submission to the question:

Stages 1-4: Medium impact

Stages 5-6: Critical impact, especially because batteries don't have time to recharge fully. Especially when there are 7 hours of loadshedding in a 8.5 hour period (for example. 22:00 – 02:30 and then again from 04:00 – 06:30

3.2.26. MTN

MTN made the following submission to the question:

During 2021 and 2022, loadshedding hours fluctuated across different stages each month with the highest amount of loadshedding hours being experienced during Stage 2. Overall, however, loadshedding stages are variable, with certain months experiencing increased disruptions.

During 2023, loadshedding hours continued to vary, with Stages 3 and recording the highest hours in several months. February, March, and April experienced the greatest amounts of loadshedding.

In 2022, Stage 2 experiences the highest loadshedding hours, totalling 1343, indicating a substantial impact on the power supply. Stage 4 follows closely with 1062 hours, while Stage 3 and Stage 5 contribute significantly with 669 and 273 hours, respectively. Stage 1 and Stage 6 have comparatively lower loadshedding hours at 192 and 190, respectively.

In 2023, there is a noticeable shift in the distribution of loadshedding hours across stages. Stage 4 surpasses other stages, reaching a total of 1655 hours, reflecting an intensified strain on the power grid. Stage 3 follows closely with 1466 hours, signalling persistent challenges. Stage 5 also shows a considerable increase to 530 hours. Notably, Stage 1 and Stage 6 exhibit growth, recording 578 and 1049 hours, respectively, indicating an overall escalation in loadshedding incidents.

Analysis of the data suggests dramatic year on year increases in loadshedding hours and in the loadshedding stages.

Overall Insights and Recommendations:

- Loadshedding continues to pose significant challenges and affects network operations across the various stages. The correlation between loadshedding hours and network disruptions is crucial for strategic planning to maintain network availability.
- Proactive measures are required to mitigate the impact of loadshedding on network performance. Ongoing monitoring and adaptation of strategies based on historical trends are essential for optimizing network reliability.
- MTN's focus on upgrading sites has proven effective, but ongoing vigilance and strategic planning are essential to navigate the challenges presented by loadshedding and ensure the continued reliability of the network. However, MTN submits that to ensure that mobile operators continue to be able to achieve required levels of network availability, as well as to make strides into much needed technological development, support from State and its institutions will be required. We believe that the regulatory interventions proposed by the Authority are one way to provide relief to licensees.

3.2.27. **The Authority findings:**

The Authority found that loadshedding effects were experienced differently by stakeholders depending on the various stage(s) of loadshedding. Whilst the majority of stakeholders indicated that all stages of loadshedding had an effect on

their business operations, it was interesting to note the response from one stakeholder (i.e. Simigenix) who indicated that it did not generally feel the impact of loadshedding on its operations across the different stages as it had sufficient battery back-ups in place which enabled it to operate through the highest loadshedding stages.

In terms of the actual impact per each stage of loadshedding, the Authority found that when loadshedding was at stage 1, there was low impact on the business operations of stakeholders, i.e. stakeholders were, to a large extent, able to operate with minimal disruptions.

Between stage 2 and 4, the impact for most stakeholders appeared to be medium to moderate. The stakeholders further indicated that when loadshedding at between stage 2 and 4, the negative effects experienced included, among others:

- an increase in the reliance of back-up power systems increases which, in turn, resulted in the associated costs of running such systems increasing and thereby putting a financial strain on stakeholders' businesses.
- customers and consumers experienced service interruptions /connectivity issues due to batteries not being able to sufficiently recharge.

Beyond stage 4 and upwards, the challenges experienced by stakeholders significantly increased. These challenges include, among others:

- system failures (including generators failures due to excessive run hours),
- severely compromised network availability (which in turn affected quality of service),
- cancellation and/or downgrading of services (such as television subscription) by customers,
- damage to infrastructure, potential job losses and business closures.

The Authority found that loadshedding was unpredictable, and it was often implemented at short notice. Therefore, regardless of the stage(s) of loadshedding being implemented (even during the periods of its suspension as is currently the case), it was essential for stakeholders to continue taking proactive measures and

have monitoring systems in place (to the extent that they are able to) in order to mitigate the negative impact of loadshedding on their business continuity. Whilst we are currently in an extended period suspended of loadshedding there are still warnings of loadshedding returning.

3.3. (Question 3) What measures, if any, have you put in place to mitigate the negative impact of loadshedding?

3.3.1. ACT

ACT made the following submission to the question:

There are measures put in place and outlined in the response to question 3.1.

3.3.2. RAIN

RAIN made the following submission to the question:

RAIN installed batteries at all the base stations for the purposes of backup power. This imposed a huge CAPEX on the business. As indicated above, it is only effective to some degree and depends on the loadshedding stage. This also had a knock-on effect that caused the base stations to be vandalized, which exacerbated the situation. This resulted in additional financial loss for rain and nullified the measures we put in place for those sites.

Additionally, RAIN implemented strategies (RAIN did not elaborate on the strategies) for users to remain connected when there is no power available at the sites. However, because we lose capacity with sites being off, the consequence of keeping the users connected means putting additional load on the lower capacity portion of our network, impacting all the user cohorts in the area.

3.3.3. SABC

SABC made the following submission to the question:

The SABC is currently implementing a capex project to increase the capacity of uninterrupted power supply in all its offices. In addition, fuel storage capacity is also being increased with the erection of additional underground tanks to ensure that adequate volumes of diesel are available for use during the higher stages of loadshedding. The SABC has further appointed a consultant to explore solar power supply opportunities.

3.3.4. BitCo Telecoms

BitCo made the following submission to the question:

We have implemented several measures aimed at enhancing our power backup capabilities and ensuring uninterrupted service delivery. These measures include:

- Upgraded Power Backup Systems: We have invested in upgrading our existing power backup systems to improve their efficiency, reliability, and capacity.
- Replacement of Old Lead Acid Batteries with Lithium: Recognizing the limitations of traditional lead-acid batteries, we have transitioned to using lithium batteries for our backup power solutions.
- Purchase of Additional Generators: we have procured additional generators to supplement our power supply during extended periods of loadshedding. These generators provide a reliable source of backup power, ensuring continuity of our critical operations even in the event of prolonged outages.

3.3.5. Cube ICT

Cube ICT made the following submission to the question:

Backup power solutions have been upgraded and additional spare equipment had to be procured.

3.3.6. Edelnet

Edelnet made the following submission to the question:

Battery backup power installed at all main high sites.

3.3.7. Primedia

Primedia made the following submission to the question:

Primedia has instituted a number of measures to secure alternative power supplies as has been set out in 1, above.

Primedia has also tried to deal with the reduced coverage audiences experience during loadshedding by educating audiences and advertisers on multi-platform use to mitigate any loss in traditional listenership.

3.3.8. Vodacom

Vodacom made the following submission to the question:

Vodacom has deployed additional resources such as batteries and generators at multiple sites across the country. At certain sites where the impact of loadshedding is most severe, the company deployed movable generators that roam from one impacted area to another depending on the loadshedding schedule.

Vodacom has also concluded contracts with various suppliers of diesel to ensure that sufficient diesel to supply generators in critical core sites, and to avoid a collapse of the network during severe and prolonged stages of loadshedding.

Further, Vodacom has put in place energy efficiency measures aimed at reducing the company's dependence on fossil-fuel based energy sources. Vodacom's investment in energy efficiency projects is intended to deliver annual energy

savings of approximately 9.1GWh across its operations. The projects focus on base station sites and data centres, which account for 96% of total energy consumption.

In 2022, Vodacom completed the first phase of Midrand head-office campus solar project with the installation of solar panels. This 6MWp solar installation will yield 10.8GWh/year of renewable energy, saving 11 448 mt CO2.

In addition, and to manage energy supply over the long-term, Vodacom has signed a Virtual Wheeling agreement with Eskom that will help accelerate efforts to solve the country's energy crisis. This agreement will also play a significant role in moving Vodacom closer to its goal of sourcing 100% of its electricity demand from renewable energy sources by 2025.

3.3.9. eMedia

eMedia made the following submission to the question:

eMedia has managed to install a back-up generator system in both of its buildings and further added that "To mitigate against the effects on audience decline and ensure that viewership remains as high as possible, eMedia launched a pop-up channel, "Power-Up", which shows 18 hours of e.tv's local daily dramas on a continuous loop. This ensures that viewers who miss a show as a result of loadshedding have an opportunity to watch it again at another time when the power is back. However, this is not an ideal situation as people prefer to watch television as it is broadcast. Moreover, "Power-Up" cannot be offered to those who watch television terrestrially. The pop-up channel is only offered on Openview, being a free-to-air satellite offering made available by an affiliate of e.tv. To watch television in this manner, there is a once off cost of purchasing a set-top box and installing a satellite dish. There are many who cannot afford this – for these people, the poorer section of the population who are unlikely to afford purchasing any form of alternative energy supply, loadshedding means no access to etv at all. They do not have the option of watching programmes they missed on the pop-up channel and the prejudice to this section of the population whose general entertainment and

access to news is television the impact is obvious and palpable and cannot be remedied in any way.

3.3.10. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Diversification of energy sources: Relying on both an inverter and backup generator for use during loadshedding.

Improving energy efficiency, they always promote and strive towards energy sustainability practices energy efficient appliances and technologies that minimize energy consumption.

3.3.11. Fine Music Radio

Fine Music Radio made the following submission to the question:

FMR is situated in the Artscape complex and has access to the Artscape emergency power generation. We have also upgraded our own inverter system, which allows critical systems to remain powered and keep the station on air during power disruptions.

3.3.12. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

They have generators and extra batteries / Decommissioning of high sites when no longer cost effective to operate.

3.3.13. Simigenix PTY Ltd

Simigenix made the following submission to the question:

Battery/inverter/generator backup solution as well as remote working.

3.3.14. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

They installed a generator and UPS although they are not sufficient for their upgraded studios, building and equipment, they are looking into having inverters installed for their studio and equipment's.

Authority Position: The Authority notes measures being put in place by the licensee to ensure business continuity.

3.3.15. Globecast

Globecast made the following submission to the question:

The installation of back-up to the back-up generator have mitigated the infrastructure failing being an impact but has dramatically increased the overall running costs which is not able to be passed onto a customer.

3.3.16. Kagiso Media

Kagiso Media made the following submission to the question:

- Ensuring optimal functioning of backup power systems, including increased UPS capacity.

- Investments in alternative power sources aim to reduce reliance on backups. One KMR station has invested in a solar PV panel, inverter and battery solution in tandem with their landlord.
- Collaboration with service providers like Sentech and ISPs ensures uninterrupted FM transmission and audio streaming services especially on main transmission sites.
- Meetings with providers address challenges during loadshedding, fostering cooperation to minimize customer impact.
- Generators are hired for events as a precaution, impacting budget but ensuring event continuity.
- Contingency plans for office power backups are in place.
- Online streaming is promoted as an alternative to consumers in the event that they do not receive FM signal via their radios, requiring battery power and data.

3.3.17. Vumatel

Vumatel made the following submission to the question:

Solar power, UPS and diesel generator.

3.3.18. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

Generators, maintenance, security fees, contractors' fees, batteries costs, and generators.

3.3.19. MultiChoice

MultiChoice made the following submission to the question:

According to MultiChoice it has implemented the following several high-impact initiatives in an effort to mitigate the effects of loadshedding on its customers and business:

- back-up power in the form of generators and a building management system to ensure that it continues to broadcast the DStv service seamlessly and without interruption throughout loadshedding.
- launched two pop-up channels called ""SWITCH'D ON"" on (channels 109 and 110). The channels re-air popular, prime-time content from Mzansi Magic, Mzansi Wethu and KykNET & Kie, giving viewers up to five opportunities to watch their favourite shows.
- commenced a trial to offer our top installers inverters and drills, financed over a 12-month period in order to alleviate some of the challenges installers face during loadshedding.
- internal technical playout changes to help mitigate the impact to customers with PushVOD and PVR issues including increasing playout durations, close asset playout monitoring and adjusting schedules to cater for late content delivery.
- budgeted for solar panels that will be able to run 38% of the Randburg head office energy requirements during the day.
- investigating creating a package for subscribers that offers a subscription with an inverter capable of powering a TV and decoder, all at one monthly fee.

3.3.20. Telkom

Telkom made the following submission to the question:

- supplying diesel generators and ensuring that diesel is available at most sites.
- alternative energy supply e.g. Lithium batteries, solar and diesel backup.
- Lithium-ion and solar solutions to augment energy mix.
- More power-efficient network equipment at the detriment of growing the network.
- Implemented extensive and costly service-level agreements with third parties to monitor power supplies.
- Reducing load on the Telkom sites to reduce fuel consumption.

- Delaying the start of standby generators.

Telkom has started a project to improve the national Network Availability through its "Hardening Project", which entails:

a) Installing new batteries on vandalized sites.
b) Speed up changing old lead-acid batteries to new improved Li-ion batteries which can sustain/keep sites up during lower stages of loadshedding, and
c) Increase the number of diesel generators to support the backup power.

3.3.21. RADIO PULPIT

Radio Pulpit made the following submission to the question:

Radio Pulpit has invested in backup power solutions – a generator and UPS system, these systems require regular maintenance and very costly fuel supply. Extended loadshedding periods put immense strain on these backup systems and could result in the station not being able to connect to Sentech and broadcasting may be interrupted.

3.3.22. Sentech

Sentech made the following submission to the question:

Over the past 5 years on the high impact sites such as Tygerberg (Cape Town), Constantiaberg (Cape Town), Nelspruit, Polokwane and Brixton tower, Sentech installed a 2nd, or third generator so mitigate the negative impact of loadshedding.

Spare generators have been procured since 2022 for Eastern Cape, Western Cape, Northwest and Northern KZN to augment its current fleet of 5 spare generators, that can be transported to a site where major STG failures may be experienced. These generators vary in sizes from 100KVA to 630KVA.

A number of generators have also been replaced as part of the annual refresh programme.

3.3.23. LaserNet

LaserNet made the following submission to the question:

"Constant client communication in addition to investment in online inverters, batteries, fuel and generators.

Increased support staff rotation to “spread the load” amongst the team."

3.3.24. MTN

MTN made the following submission to the question:

MTN has implemented a multi-faceted approach to combat the effects of loadshedding and, the consequent increase in theft and vandalism. To mitigate the impact of loadshedding and ensure uninterrupted power supply.

Increased the battery capacity, by purchasing additional batteries, at base stations to provide extended backup power thus ensuring that the network would continue to function during power outages;

Deployed static generators at critical sites and used mobile generators as backup power sources which enabled MTN to bridge power gaps during loadshedding; and

Installed high-efficiency rectifiers to optimize the charging of batteries and ensure that the rectifiers remain fully charged when the grid power is available.

3.3.25. **The Authority findings:**

The Authority found that licensees have taken a proactive approach aimed at mitigating the impact of loadshedding on customers/end users. Stakeholders' mitigation strategies underscored the significant impact of loadshedding on their

operations which affected their consumers/end users, revenue streams and operational costs.

The Authority's analysis revealed a multifaceted approach by stakeholders to mitigate the negative impact of loadshedding. The Authority found that licensees were investing and implementing broadly grouped strategies to mitigate the negative impact of loadshedding, namely: alternative energy investments, backup power solutions, customer engagement, and network optimization.

Companies such as Vodacom, Kagiso Media and Vumatel considered solar power investments to be a critical business strategy. Reliance on the grid and diesel generators had decreased due to renewable energy source offered by solar panels. Companies like Telkom and Vodacom had put energy-saving measures into place. These include optimizing energy utilization in base stations and data centres and utilizing more energy-efficient network equipment. That helped with loadshedding and in advancing long-term sustainability objectives.

Companies such as MTN and Telkom have indicated that, they have installed high-efficiency rectifiers and expanded base station battery capacities in order to guarantee network resilience. During disruptions, the Licensees stated that those steps do aid in keeping the network operational.

To make sure that broadcasting programming is still available during blackouts, companies such as MultiChoice and eMedia have introduced pop-up channels and re-airing techniques. The goal of the strategy is to keep consumers/end users and advertisers interested. Primedia's endeavours to educate viewers and advertisers on utilizing different platforms highlight the significance of educating customers to lessen the effects of decreased coverage during loadshedding. The tactic aids in preserving viewer interest on many media channels.

The Authority commends the licensees on the investment made in alternative power. However, the Authority remains concerned with the impact this unplanned investment will have on the end-user's cost to communicate and the commercial

sustainability of licensees. The Authority is mindful that these trade-offs will have an adverse impact on the cost to communicate and ultimately bridging the digital divide. The Authority is of the position that there is a need to mitigate the impact on end-users where possible.

The Authority further found that the mitigation strategies implemented by licensees to counter the effects of loadshedding were not sufficient to address the effects of loadshedding but only assisted in mitigating the impact of loadshedding.

3.4. (Question 3.1) Have the measures put in place been effective and sustainable?

3.4.1. ACT

ACT made the following submission to the question:

ACT continued to work on the uninterrupted power supply (UPS) given the continuation of loadshedding. Members of the ACT have been galvanized to strengthen their stances on energy solutions for the industry, in part by submitting stakeholder presentations on the repercussions of loadshedding and the mitigation strategies that can bolster the sector's resilience. A comprehensive submission regarding the effects of loadshedding on the telecommunications industry was submitted to DCDT on January 27, 2023. The request encompassed general requests made by the sector. The involvement and advocacy with the minister of electricity served to enhance the sector's importance.

Following this, on March 27, 2023, ACT also submitted to ICASA its responses to the ICASA Virtual Consultation workshop on loadshedding mitigation. The workshop was convened in response to the national state of disaster, as announced in Government notice 48009 on February 9, 2023. The consultation was revoked subsequent to the withdrawal of the state of disaster. ACT also submitted the

industry response to the invitation for public comment on the draft block exemption regulations for energy users/suppliers, 2023, which was issued on March 8, 2023. ACT additionally involved members in the deliberation of the proposal, which was informed by the ACT Information Sharing Framework and the energy users block exemption regulations.

Redesigned the Uninterrupted Power Supply (UPS). Operators have installed batteries in all sites and have diesel generators at specific sites the base stations for the purposes of backup power. Solar power augment operations in specific areas for buildings and systems infrastructures. This exercise imposed a huge capex on the business.

3.4.2. SABC

SABC made the following submission to the question:

The measures put in place are effective and are sustainable. This was evident when the Auckland Park substation was caught on fire some 18 months ago. The SABC had to run its head office operations on generators power supply for 8 conservative days without power failure and without any blackout. The SABC is confident that with the completion of the capex UPS project, the SABC will be in a better position.

3.4.3. BitCo Telecoms

BitCo made the following submission to the question:

The measures put in place to mitigate the impact of loadshedding have been effective in ensuring operational continuity during power outages. However, they have come at a significant cost to the business. While these measures have enabled us to maintain service reliability and meet customer expectations, the financial burden associated with upgrading power backup systems, replacing batteries with lithium alternatives, and purchasing additional generators has been substantial. The cost of fuel for the generators have also added a significant operational cost to the business.

However, in the long run, the sustainability of these measures is called into question due to their high cost and the strain they impose on our financial resources. Continuous loadshedding accelerates wear and tear on these systems, shortening their lifespan and necessitating more frequent replacements and upgrades.

3.4.4. Cube ICT

Cube ICT made the following submission to the question:

Yes, it has but at a cost to business.

3.4.5. Edelnet

Edelnet made the following submission to the question:

Edelnet measures in place has been effective up to stage 4 loadshedding.

3.4.6. Primedia

Primedia made the following submission to the question:

The measures have only been partially effective as they are wholly dependent on the backup power interventions at the respective transmission sites. The measures taken by Primedia and by Sentech are extremely expensive and the sustainability thereof is uncertain. Primedia's own additional costs are not necessarily sustainable in the long term.

3.4.7. Vodacom

Vodacom made the following submission to the question:

Vodacom submits that most of the measures it has put in place have been effective as evidenced by the fact that its network availability has always performed higher

than that of the national power grid (Vodacom's network has remained relatively resilient even during the most severe stages loadshedding).

However, Vodacom submits that the cost of counteracting the impact of loadshedding has been significant and has had an impact on budgeting decisions within the company. In this regard, Vodacom states that in the three years preceding April 2023, the company had spent approximately R4 billion in energy supply and security related solutions.

Further, an additional R300 million was spent in the 2023 financial year on additional running costs, including diesel, security, and maintenance.
Vodacom reiterates that the high cost associated with the purchasing of generators and diesel has compelled the company to divert resources that were meant to expand the network and increase its capacity. In addition, Vodacom submits that theft and vandalism of batteries, solar panels and generators continue to be a challenge that the company continuously contends with, and this has an impact on budgeting and investment decisions.

3.4.8. eMedia

eMedia made the following submission to the question:

The first mitigating measure is not sustainable considering that it relies heavily on diesel to power generators.

3.4.9. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Yes, as their office can function during loadshedding however the cost associated with the measures are not sustainable.

3.4.10. Fine Music Radio

Fine Music Radio made the following submission to the question:

These measures have proved effective. The costs of diesel may become prohibitive for the Artscape, but our inverter can power our systems for at least four hours.

3.4.11. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

They do have but sometime there is theft, which is out of our control, also the need for the replacement of equipment / hardware which has taken strain due to being powered on and off all the time.

3.4.12. Smile FM

Smile made the following submission to the question:

They held numerous meetings with Sentech to install a UPS into the Tygerberg transmission centre – but they cannot afford to do so.

3.4.13. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

With the generator installed, yes although they must often call the electrician when the electricity is unstable and there is power surge or when they have to replace or charge its batteries.

3.4.14. Globecast

Globecast made the following submission to the question:

The installation of back-up to the back-up generator have mitigated the infrastructure failing being an impact but has dramatically increased the overall running costs which is not able to be passed onto a customer.

3.4.15. Kagiso Media

Kagiso Media made the following submission to the question:

The measures have been effective.

3.4.16. Vumatel

Vumatel made the following submission to the question:

The measures are prone to theft and vandalism and are deemed infective and unsustainable for higher stages of loadshedding i.e. from stage 5 upwards.

3.4.17. Telkom

Telkom made the following submission to the question:

Telkom provides that some of the measures like installing diesel generators and alternative energy supplies have been effective; however, these are not sustainable for the following reasons:

- Diesel expenditure has increased drastically, and
- severely increased operational costs considering that grid power costs in the region or R2 per kWh and alternative power can vary from R6 – R20 per kWh, making it unsustainable.

3.4.18. RADIO PULPIT

Radio Pulpit made the following submission to the question:

- The generator and UPS systems are effective.

- Running a diesel generator and/or UPS system continuously during loadshedding events incurs significant fuel expenses, as diesel costs escalates rapidly, straining the station's budget.
- Backup power systems require regular maintenance to ensure reliability, including servicing the generator, replacing worn-out parts, and testing the UPS system. Maintenance costs accumulate over time, further burdening the station's finances. Continuous operation of backup power systems puts strain on the equipment, leading to increased wear and tear. This can over time result in equipment breakdowns and failures, compromising the station's ability to broadcast.
- Diesel generators produce noise pollution, which is disruptive to the surrounding offices and personnel.
- Running a community radio station solely on backup power limits its capacity to provide uninterrupted services. Broadcasters may need to prioritize essential programming or reduce airtime to conserve fuel, affecting the station's ability to comply with license conditions and engage with the community.
- The escalating costs associated with running a community radio station on backup power, coupled with potential revenue losses from advertising and sponsorships during loadshedding, raise questions about the station's long-term financial viability. Without sustainable funding sources, stations will struggle to maintain operations and fulfil its community service mandate.

3.4.19. Sentech

Sentech made the following submission to the question:

Panels of service providers that assists with specialized generator repairs are regularly enhanced to ensure that we have a big enough pool to assist us when such services are required.

3.4.20. LaserNet

LaserNet made the following submission to the question:

Yes, they have been effective but, no, they are not sustainable ongoing spend on these items may in time cause an increase in prices to the consumer.

3.4.21. MTN

MTN made the following submission to the question:

The analysis of network performance between 2022 and 2023 reveals both challenges and improvements. The persistence of and increase in loadshedding hours in 2023 highlights that resilient solutions are vital and still required. Efforts to enhance network availability, reduce drop call rates, and improve call setup success rates are evident in the data for 2023, signifying the commitment to delivering a reliable and robust mobile network. The positive trajectory in network performance, particularly in availability, and the effectiveness of the resilience project demonstrate that the MTN network is more dependable, even in adverse conditions.

3.4.22. **The Authority findings:**

The Authority found that the implementation of loadshedding has resulted in the unreliability and poor service quality in the provision of the broadcasting and electronic communication services. On the other hand, service providers that were employed to assist, were unable to deploy backup power (generators and batteries) in certain unsafe areas (due to crime), where services were disrupted by loadshedding. In certain circumstances, prolonged and frequent loadshedding caused equipment malfunction and regular maintenance. Subsequently, customer service was impacted causing customer disappointment and dissatisfaction.

The Authority found that there was significant impact on customer service during loadshedding even when there were contingency plans made by service providers in the delivery of broadcasting and electronic communication services. The Authority further recognised reported increased capacity constraints, service

interruptions, customer frustration, increased maintenance costs and reputational damage as part of the contributing factors of the impact of loadshedding.

3.5. (Question 4) How has loadshedding affected Customer Service?

3.5.1. ACT

ACT made the following submission to the question:

As a result of the unpredictability of mobile service during loadshedding, consumers in certain regions have altered their behaviour, resulting in a surge in demand for certain sites in the areas that have resumed operations (so-called ""comeback load""). In order to prevent network failure and guarantee the continued functionality and resilience of a substantial core segment of the network, network operators are allocating resources to meet the diverse demands of customers and businesses.

The impact of customers is significant, the following is mentioned by operators:

- Unavailability of Services
- Compromised delivery on regulatory obligations
- Compromised Customer Experience
- Compromised Investor Confidence
- Decreased Employee productivity
- Impact of school programmes (E-Learning services disrupted)
- Safety and Security of infrastructure
- Revenue decrease
- Data Lost

Domino effect to support services which network operators provide to other businesses, including SMMEs.

3.5.2. RAIN

RAIN made the following submission to the question:

RAIN does not measure complaints specifically related to loadshedding. The complaints also manifest as a change in service quality from the customer, which as stated above is a result of keeping the customer connected.

3.5.3. SABC

SABC made the following submission to the question:

The SABC receives complaints/requests to repeat programmes due to loadshedding and why there are no programmes being broadcasted when transmitters are not functioning for the same reason.

3.5.4. BitCo Telecoms

BitCo made the following submission to the question:

Loadshedding has affected customer service drastically. In areas where it is not safe to deploy generators or where batteries are regularly stolen, we have experienced significant challenges in maintaining consistent service levels. The inability to provide uninterrupted service due to power outages has led to frustration and dissatisfaction among our customers in certain areas.

The loss of numerous customers underscores the severity of the impact of loadshedding on our customer base. Despite our best efforts to mitigate the effects of loadshedding through backup power solutions, the inability to ensure reliable connectivity in certain areas has resulted in customer attrition.

Moreover, the perception of unreliability caused by frequent service interruptions has damaged our reputation and eroded customer trust. This, in turn, has further

compounded the challenges we face in retaining and attracting customers in affected areas.

3.5.5. Cube ICT

Cube ICT made the following submission to the question:

Yes, due to outages caused. Directly related to loadshedding and backup power systems not being able to keep up with the demand of loadshedding.

3.5.6. Edelnet

Edelnet made the following submission to the question:

Licensee could not attend to customer fault within 24hrs after the customers reported a fault.

3.5.7. Vodacom

Vodacom made the following submission to the question:

Although cellphone towers are fitted with back-up batteries and generators, extended and frequent loadshedding can result in these alternative sources of power getting completely depleted. Once a cellphone tower goes offline, calls are routed through the closest adjacent tower.

However, the rerouting of calls effectively increases the distance that the call signal needs to travel to sustain the call connection. The additional distance can significantly impact call quality to the frustration of customers. If sufficient cell towers are affected, customers may experience intermittent signal breakages.

When loadshedding occurs, a cellphone tower remains fully functional for as long as the batteries can supply power, or the back-up generator continues running. Once the alternative power is fully depleted, the tower will stop working. Depending on the configuration of nearby towers, there may be a partial coverage blackout in parts of a neighbourhood where customers will have no connectivity or intermittent service disruptions.

During certain instances of loadshedding, the cellphone tower with the strongest signal (i.e. the primary cell) may loses power and customers could then be connected through a secondary cell. In this case, customers who are at the edge of that cell will experience service degradation and a loss of quality in the call. The network service quality will also start degrading if more customers connect to the network through the secondary site.

3.5.8. eMedia

eMedia made the following submission to the question:

Customers have been severely affected by loadshedding. An analysis of Total Television Universe shows that during the period April 2022 – March 2023 an average of 12.8% of the TV Universe was impacted by loadshedding. In comparison, in the April 21 – March 22 period this was 7.2%.

For the past year (from April 23 – until 28th Jan 24), the impact of loadshedding on the total Television Universe has been 6.6%. This will be explained more fully at the hearings.

3.5.9. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

During loadshedding, their internet services or links are either poor or they are not available at all more specially for customers that do not have backup systems like UPS.

3.5.10. Extim Pty Ltd

Extim made the following submission to the question:

Above stage 4 some services may be intermittently unavailable.

3.5.11. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

They are not able to supply the guaranteed uptime that they were able to supply before.

3.5.12. Simigenix PTY Ltd

Simigenix made the following submission to the question:

No impact. All customer support staff have sufficient battery backup in times of loadshedding.

3.5.13. Smile FM

Smile FM made the following submission to the question:

With most of the switch off and on times happening close to the top of the hour where most of their news bulletins, weather and sports are located – listeners miss out on vital information that informs their day – this has shown that radio cannot deliver its primary message.

3.5.14. Kagiso Media

Kagiso Media made the following submission to the question:

Radio stations have lost consumers due to consumers switching off and moving to other stations.

3.5.15. Vumatel

Vumatel made the following submission to the question:

ISPs are best placed to respond to this question as Vumatel liaises with ISPs as its wholesale customers.

3.5.16. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

Ensured zero tolerance by investing in infrastructure.

3.5.17. Telkom

Telkom made the following submission to the question:

Telkom stats that it has experienced an increase in customer service degradation such as lower throughput and intermittent connection issues caused by coverage holes and capacity constraints on site when loadshedding occurs.

Telkom provided the following supporting evidence: customer complaint numbers caused by power or loadshedding:

Year	Total	Power	Ratio
2020	14355	1708	12%

2021	12714	846	7%
2022	12479	2380	19%
2023	20194	5600	28%

3.5.18. LaserNet

LaserNet made the following submission to the question:

Increased call volumes to the support team. Increased call outs lead to delays in installing new services.

3.5.19. **The Authority findings:**

The Authority found that the implementation of loadshedding has resulted in the unreliability and poor service quality in the provision of the broadcasting and electronic communication services. On the other hand, service providers that were employed to assist, were unable to deploy backup power (generators and batteries) in certain unsafe areas (due to crime), where services were disrupted by loadshedding. In certain circumstances, prolonged and frequent loadshedding caused equipment malfunction and regular maintenance. Subsequently, customer service was impacted causing customer disappointment and dissatisfaction.

The Authority also found that there was significant impact on customer service during loadshedding even when there were contingency plans made by service providers in the delivery of broadcasting and electronic communication services. The Authority further recognised reported increased capacity constraints, service interruptions, customer frustration, increased maintenance costs and reputational damage as part of the contributing factors of the impact of loadshedding.

3.6. (Question 5) What are the impediments that are a result of the existing regulatory framework on your business, particularly related to loadshedding?

3.6.1. ACT

ACT made the following submission to the question:

The Authority can proactively remove regulatory impediments as long as loadshedding persist. Regulatory forbearance on compliance with license terms and conditions, such as network roll-out, universal service and access targets and quality of service obligations; its suspension should be in place as resources are diverted to power infrastructure investments.

During loadshedding the following compliance requirements are an impediment:

- End-User and Subscriber Service Charter ("EUSSC").
- Code of conduct.
- Code for persons with disabilities (NRS).
- Standard licence T&Cs.

3.6.2. RAIN

RAIN made the following submission to the question:

There is a need to use spectrum as efficiently as possible. With loadshedding making parts of the networks unavailable, there is a requirement to accommodate more customers on the remaining sites that have some protection against loadshedding. To achieve this, all spectrum that is currently available to the operators must be allowed to be used for whichever purpose they require to increase capacity and resilience, subject to not causing harmful interference.

3.6.3. BitCo Telecoms

BitCo made the following submission to the question:

The existing regulatory framework set by ICASA can pose several impediments to our business, particularly in relation to managing the impact of loadshedding. Some of these impediments include:

- Lack of Exemption for Communications Infrastructure: ICASA's regulatory framework may not provide exemptions or special considerations for communications infrastructure during loadshedding events. This lack of recognition for the critical nature of telecommunications services can hinder our ability to maintain essential communication networks during power outages, leading to disruptions in connectivity and service delivery.
- Regulatory Compliance: Compliance with ICASA's regulations and licensing requirements can be demanding, diverting resources and attention away from implementing effective mitigation measures for loadshedding. The administrative burden associated with regulatory compliance may delay our response to customer needs during power outages and hinder our ability to ensure uninterrupted service provision.
- Financial Constraints: Regulatory fees, levies, and licensing costs imposed by ICASA can impose financial strain on our business, limiting our capacity to invest in infrastructure upgrades or backup power solutions necessary to mitigate the impact of loadshedding. These additional costs may impede our ability to deploy resilient technologies and maintain service quality during power outages.
- Regulatory Uncertainty: Uncertainty surrounding regulatory decisions or changes in regulations can create challenges for long-term planning and investment in loadshedding mitigation strategies. Without clear guidelines or stability in regulatory policies, we may hesitate to make significant investments in infrastructure or technology to enhance our resilience to power outages.

3.6.4. Edelnet

Edelnet made the following submission to the question:

Extra cost.

3.6.5. Primedia

Primedia made the following submission to the question:

Various submissions have been made to ICASA during the Signal Distribution Inquiry (which is still ongoing) regarding Sentech's ownership of the high sites which are used for distributing the signal of commercial sound broadcasters which in turn adversely impacts the state of competition in the signal distribution market. This status quo makes a nimble, targeted alternative energy response to loadshedding impossible in relation to signal distribution.

3.6.6. Vodacom

Vodacom made the following submission to the question:

A major impediment to ECS and ECNS licenses that arises from the existing regulatory framework is the burden of compliance to some provisions of the End-user and Subscriber Service Charter Regulations ("EUSSC").

In the year 2016, when the EUSSC was published, and 2017, the country experienced no loadshedding. It is thus evident that the period under which the Regulations were considered, was significantly different to reality operators found themselves in during the period November 2020 to date. It is a common fact that loadshedding has worsened over the years following 2020 and has had a detrimental impact on various sectors of the economy.

3.6.7. eMedia

eMedia made the following submission to the question:

The limitation on advertising as contained in e.tv's licence as well as the limitations imposed by the advertising regulations prove to be impediments. Limits on hourly advertising time should be left to the broadcaster to decide as it knows what its audiences can tolerate.

eMedia further adds that even one extra minute would make a significant difference to us as a broadcaster and our ability to mitigate against the harm of loadshedding. It requests the Authority to consider removing the limitation in our licence, bearing in mind that there is no equivalent limitation placed on subscription broadcasters.

3.6.8. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Regulatory compliance costs:

Compliance with ICASA's regulations, such as licensing fee requirements imposes a financial burden on them. The additional cost associated with regulatory compliance may limit investment in backup power system and infrastructure redundancy, exacerbating the impact of not shedding on the reliability of their services.

Regulatory uncertainty:

Uncertainty regarding regulatory policies, licensing procedures, and compliance requirements can deter investment in infrastructure resilience and innovation. He counsels regulatory framework may lack clarity or consistency in addressing the challenges posed by loadshedding, leading to uncertainty among stakeholders and hindering efforts to mitigate its impact on business and consumers.

Overall, while ICASA's regulatory framework focuses on promoting competition, consumer protection and innovation in the communication sector, it may need to be adapted all supplemented to address the specific challenges posed by

loadshedding and ensure the resilience of communication infrastructure during power outages. This could involve revising regulations, providing incentives for investment in backup power solutions, and fostering collaboration between industry stakeholders to enhance the reliability of communication services during emergencies.

3.6.9. Smile FM

Smile FM made the following submission to the question:

With their signal distribution limited to Sentech and their refusal to install better backup solutions, it has been detrimental to their flawless broadcast mandate.

3.6.10. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

Sometimes during loadshedding, their audio logging resources are damaged or lost which leaves them with gaps in their records.

3.6.11. Globecast

Globecast made the following submission to the question:

Globecast had a critical failure of the loss of all services for 28 minutes June 2022. This was due to a major failure of the generator during loadshedding.

3.6.12. Kagiso Media

Kagiso Media made the following submission to the question:

ICASA's existing regulatory framework impedes the ability for broadcasters to sustain themselves in an economy afflicted by loadshedding.

3.6.13. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

Regulations 9 and 16 of the End-User Regulations appear not to be on par with the current developments such as loadshedding. Regulation 9 of the End-User Regulations has intense targets which were previously designed before these regular Eskom loadshedding. Moreover, regulation 16 of the End-User Regulations require licensees to notify the Authority (ICASA) about impossibility of performance. Liquid is of the view that with this regular loadshedding stages, regulation 16 seems not in par with this development. Calculation of USAF contributions and General License Fee as per both USAF Regulations and General License Fee Regulations appears not to take into account the implication of additional expenses such as Diesel Cost, Generators Maintenance Costs, Security Costs (for guarding infrastructure during loadshedding), contractors fees (appointed to refill generators), batteries costs, generators replacement costs emanating from existing loadshedding.

Furthermore, though the Authority (ICASA) review spectrum license fees annually in accordance with the average CPI, the spectrum license fees computation appears not to take into account additional expenses incurred as the results of loadshedding as to assist operators to quickly bridge digital divide.

Again, the USAO obligations and Social Obligations by IMT appears not to be in par with the negative implications faced by the operators. For example, timelines set by these obligations appears not to take into account loadshedding impacts to the performance of operators."

3.6.14. Telkom

Telkom made the following submission to the question:

"Telkom provides that the stringent availability requirements as prescribed in the End-User and Subscriber Service Charter (EUSSC) Regulations are difficult to comply with during periods of loadshedding, with an increasing impact during the higher stages of loadshedding. Telkom acknowledges its objectives and obligation in relation to network availability and states that it has put measures in place to mitigate against the challenge of loadshedding. However, Telkom provides that loadshedding is negatively impacting network availability even with all the measures. Therefore, Telkom proposes an overall exemption or relaxation of the EUSSC Regulation while loadshedding is still with us. Telkom provides that compliance with obligations, for example, the Code for Persons with Disabilities (National Relay Services) and spectrum-related obligations (zero-rating, connectivity, network coverage, throughput (uplink and downlink), etc. requires a diversion of limited funds needed for maintaining the existing network to achieving obligations.

Telkom recommends for a holiday period in complying with obligations to allow licensees to focus on maintaining the current network.

Additionally, Telkom states that access to additional (available) spectrum on a temporary basis will assist in alleviating the pressure on the mobile network during periods of loadshedding.

Furthermore, Telkom recommends for a suspension of the payment of annual spectrum general licence and USAF fees is required.

Telkom further states that the impact of loadshedding and vandalism, the current economic situation of the country should lead to a postponement of the consideration of the anticipated second spectrum auction as this process demands huge resource investments such as finances and human resources."

3.6.15. RADIO PULPIT

Radio Pulpit made the following submission to the question:

Although ICASA's is not responsible for loadshedding, there are several ways in which existing regulations can exacerbate the challenges community radio stations have under loadshedding:

- **Compliance Costs**- Community radio station must comply with licensing and compliance requirements set by ICASA. To comply with these conditions community radio stations have associated costs such as technical equipment upgrades and associated costs to comply with monitoring expenses such as meetings with the audience. Loadshedding also brings additional costs for backup systems to ensure uninterrupted broadcasting, which can strain the financial resources of the community radio station to invest into compliance of their license.
- **Technical Standards and Requirements**- Community radio stations must adhere to standards of compliance pertaining equipment and signal distribution. However, complying with these standards can be challenging during loadshedding, as the functionality of electronic equipment and backup systems can be damaged with frequent, regular and prolonged loadshedding periods, and maintenance costs might be a non-budgeted financial burden on community radio stations, which might result in downtime and non-compliance.
- **Regulatory Reporting and Monitoring**- Regular compliance reports must be submitted to ICASA. Power outages that might affect access to broadcasting equipment, computer systems and internet connectivity, can disrupt the ability of community radio stations to compile and submit these reports on time, potentially leading to sanctions from ICASA.

Radio Pulpit asserts that some flexibility and support to community radio stations might be necessary, such as relaxing compliance requirements. Additionally, ICASA could collaborate with other stakeholders, such as government agencies, MDDA and energy providers, to develop coordinated strategies for mitigating the impact of loadshedding. Ensuring the continued provision of essential broadcasting services to communities.

3.6.16. Sentech

Sentech made the following submission to the question:

Signal broadcasting is an important essential service we offer to our customers and to maintain a high level of service availability, it could be better if the broadcasting sites were exempted from loadshedding.

3.6.17. LaserNet

LaserNet made the following submission to the question:

Wireless licensed frequency bands not allowed for use for TDD equipment, example is lower 6Ghz only available for FDD equipment and not TDD equipment.

3.6.18. MTN

MTN made the following submission to the question:

The ICT industry had deliberated on some measures for consideration by, inter alia, the Authority, to alleviate the impact of loadshedding. Some of the measures requested, which fall under the jurisdiction of the Authority include:

- Support for initiatives to sunset older generation network technologies to reduce telecommunications energy demand;
- Payment holidays for spectrum auction fees, USAF and license fees for reallocation toward network resilience efforts by licensees;

Suspension/delay of social obligations rollout for a reasonable time period until network resilience efforts have reached optimal effectiveness and costs have been recouped by licensees;

Speed up type approvals, spectrum applications, and other regulatory processes; and

Exemptions from regulatory obligations within the Authority's regulatory framework including:

- Quality of service benchmarks and testing requirements, monitoring of the network 24/7, service calls SLAs, and impossibility of service requirements per the End-User and Subscriber Service Charter Regulations, 2016 as amended; and
- The parameters for the provision of a National Relay System in terms of the Code for Persons with Disabilities Regulations, 2021.

While events have surpassed these requests, they remain in large part relevant today. We briefly elaborate on these points, and additional points below.

Social Obligations

The Authority recently published amended social obligations in Radio Frequency Spectrum Licence No.: IMT/AMD/RF0003/November/2023 Amended Spectrum Licence grated and issued to MTN for the use of radio frequency spectrum licence in the IMT800, IMT2600 and IMT3500 bands on 15 January 2024 ("Amended Licence"). These social obligations are applicable nationwide to serve education, healthcare, and public services institutions in South Africa; and have major impact on licensee budgets, network planning, and commercial operations. We deal with these social obligations below:

- Zero-Rating Obligation: According to the Amended Licence, MTN must zero-rate websites of Public Benefit Organisations registered with SARS, Non-Profit Companies per the Companies Act, and.gov.za websites. Further, licensees must zero-rate the URLs previously zero-rated under the Covid-19 Regulations that have reapplied to the Authority for zero-rated services.
- PSI Connectivity Obligation: The Amended Licence, 2024 obligates MTN to connect 7 390 PSIs within a period of 5 years and further requires MTN to rollout the connectivity solution to 50% of the allocated PSIs by March 2025. The PSI Connectivity Obligation places a substantial financial burden on licensees in many ways of which the Authority has previously been informed, but which are briefly included herein for ease of reference:

The connectivity targets - Rollout of this magnitude of targets in 12 months will have severe budgetary and network implications and not achievable within the context of consistent loadshedding. As explained in this submission, MTN has diverted its resources to its network resilience programme due to loadshedding and will continue to have to do so for as long as loadshedding continues.

The speed target: MTN is obligated to provide connectivity to the PSIs at a up and download speed of 10mbps. Effectively this translates to an expansion of MTN's throughput and coverage obligation as now MTN will have to ensure that in areas where PSIs are located, the throughput is more than the licence requirement of 5mbps at the cell edge. Again, this places a significant amount of pressure on network planning and budget during the severe loadshedding stages.

The duplication issue: The Authority has indicated that it has not considered whether allocated PSIs have an existing relationship / commercial arrangement with any of the licensees. This may translate to situations where, for example, MTN must provide connectivity to a PSI which is already connected by another licensee and ultimately results in wastage and unnecessary increases in costs at a time when budgets are already severely constrained.

MTN submits that the current social obligations, combined with the rigid rollout commitments are not practical in the current environment and will serve ultimately to harm licensees and undermine the greater goal of social upliftment and universal access. MTN therefore submits that the Authority considers granting concessions which have the effect of lessening the financial burden associated with social obligations as a form of regulatory relief.

MTN submits that the Authority could consider deferring the obligations to a time when the power crisis stabilizes in future and allow time for licensees to recoup budget redirected towards resilience efforts. The Authority may also conduct regular assessments to evaluate progress in this regard. In any event, the duration of the Amended Licence is 20 years, and the Authority will still be within its powers to defer and reinstate these obligations within this period.

Outdated and/or Ineffective Regulatory Obligations

There are several outdated regulations which licensees remain subjected to and which increase the costs of compliance of licensees during a time when budgets are less flexible due to network resilience efforts.

For example, the Covid-19 Pandemic resulted in significant increases in demand for electronic communications services at affordable prices.

This pressure resulted in a variety of efforts to satisfy this demand, including network upgrades and densification. To assist, the Authority made spectrum available on a temporary basis to alleviate some of the pressures experienced by mobile operators and facilitate speedy rollout. Alongside the temporary spectrum release was the obligation to provide virtual classrooms for free. Although the consequences of the Covid-19 Pandemic on society have somewhat reduced, and spectrum has been permanently allocated with its own set of social obligations, these Covid-19 obligations have not been formally withdrawn and therefore continue to unnecessarily increase OPEX of licensees.

In addition, the General Notice – MTN Amended Universal Service Obligations, 2014 ("2014 Amended USO") to which MTN is subject are obsolete but still require compliance and commensurate budget. These obligations include the requirement to provide Community Service Telephones, which are now defunct and unused, and USO school obligations for mainstream schools.

MTN completed the rollout of the USO for 1360 mainstream schools in line with the 2014 Amended USO in November 2017. Stringent signoff and handover procedures were implemented to ensure that quality ICT solutions were provided to these schools. All schools had staff trained in how to use and set up the ICT solution. The 2014 Amended USO provides that deployments of upgrades to the ICT solutions must be provided by USAF, and that maintenance of the ICT solutions will be performed by USAF. However, this was not done, and the solutions are now obsolete and for the most part no longer used.

MTN submits that the Authority formally removes these requirements, and the concurrent reporting requirements attached thereto, as they no longer serve their intended objective. The removal of these outdated compliance requirements will

therefore have no negative impact on the intended "beneficiaries" while relaxing the compliance burden on licensees.

These requirements must be formally removed to provide regulatory certainty to licensees, as well as mitigate any adverse reputational impact which may be associated with the suspension of these services in the absence of a formal withdrawal by the Authority.

The National Relay System

MTN submits that the requirements imposed by the Authority through the Code for Persons with Disabilities, in particular the National Relay System, should be revisited.

Licensees have attempted to engage the Authority on several occasions in respect of the regulatory requirement to provide a National Relay System. This is due the fact that the system is expensive to obtain and is not commercially viable. Furthermore, the individuals for whom the service is intended will not be able to afford those services. MTN has conducted two procurement processes to find a viable solution while simultaneously remaining compliant through the operation of a proof of concept, the costs of which are borne solely by MTN at an exorbitant cost. None of the procurement processes have yielded solutions which will be affordable to subscribers.

Accordingly, MTN submits that the specifications of this requirement be made less onerous in a way that enables licensees to find a practical and affordable solution. MTN urges the Authority to engage with licensees in respect of this requirement to ensure that a practical, sustainable, and affordable solution is found.

In addition, the National Relay System will have its own added challenges regarding network resilience through loadshedding stages, which will increase the costs thereof. Therefore, MTN submits that this requirement be formally delayed until the effects of the network resilience programme on budget have been sufficiently absorbed.

End-User and Subscriber Service Charter Regulations (EUSSCR)

While MTN continues to comply with the requirements of the EUSSCR, the requirements pose regulatory risk in that loadshedding, which is beyond the control of MTN and other licensees, has and still does cause significant pressures in meeting requirements of the EUSSCR. These requirements do not overtly take the impact of loadshedding into account. Specific requirements of the EUSSCR which require relaxation to account for the impact of loadshedding include:

- Quality of service requirements to account for loadshedding and loadshedding induced vandalism and crime, in regulation 9;
- The monitoring of network by licensees 24/7 contained in regulation 10;
- The resolution of complaints within 14 days, per regulation 12. Complaints related to service degradation due to loadshedding should be treated differently and the 14-day resolution turnaround time should be extended as 14 days is insufficient for QoS related complaints;
- The service care centre line SLA requirements of regulation 15 to account for the impact of loadshedding; and
- The notification of impossibility of performance of the network per regulation 16. MTN would like to note that during the period 2020 to 2024, MTN submitted approximately 63 notices to the Authority on how loadshedding is impacting our network, especially during higher stages of loadshedding. We would like to extend our gratitude to the Authority's cooperation in this regard.

Payment Deferrals & Improved Administrative SLA's

MTN would also like to propose that USAF contributions and licence fees (where possible) be deferred until the energy crisis and its impact on the activities of licensees has stabilised.

In addition, type approval, spectrum related applications and other regulatory processes should be expedited to provide licensees with increased flexibility to implement measures which may have the effect of improving network related aspects (coverage, modernisation, availability etc), and/or increasing network resilience against the continued impact of loadshedding.

Future Regulations / Amendments to Regulation

Although the Authority has requested that the submissions pertain to existing regulatory measures, MTN submits that all of the Authority's future regulatory initiatives must consider the pressures currently experienced by licensees caused by loadshedding in the future development of regulation.

3.6.19. **The Authority findings:**

The Authority found that the impediments to compliance according to various licensees, were on the following regulations:

- End-User and Subscriber Service Charter Regulations 2016.
- Code of Conduct Regulations of 2007.
- Code for persons with Disabilities Regulations of 2021.
- Standard Licence Terms and Conditions of 2010.

Furthermore, the stakeholders highlighted the following challenges:

- Lack of exemptions for the ICT Infrastructure.
- Financial constraints due to: Regulatory fees, levies, and licensing costs imposed by ICASA on business.
- Lack of network capacity: Loadshedding is making parts of the networks unavailable, there is a requirement to accommodate more customers on the remaining sites that have some protection against loadshedding.
- The timeliness to execute the USAO obligations and Social Obligations.

3.7. (Question 6) What regulatory interventions within the Authority's mandate should the Authority consider in order to provide relief to the electronic communications, broadcasting and postal sector concerning each stage of loadshedding? The interventions should be limited to what is within the Authority's mandate.

3.7.1. ACT

ACT made the following submission to the question:

The Authority can assist consider ameliorating the impact of loadshedding not limited to the following:

- Compliance Forbearance: (End-User and Subscriber Service Charter ("EUSSC"), Code of conduct, Code for persons with disabilities (NRS) and Standard licence T&C).
- Resources Access: (Temporary spectrum, Rapid deployment, Collaboration between licensees and other stakeholders, speed up type approvals, spectrum applications, facility leasing requests and other regulatory processes.
- Reprioritisation of Funds: Extension of ITA obligations including uplink and throughput, coverage obligations, and social obligations. Payment holiday related to spectrum auction fees, radio frequency spectrum fees, USAF and annual license fees.

3.7.2. RAIN

RAIN made the following submission to the question:

Fast-track approval of applications for spectrum and/or network sharing between MNOs, as well as making temporary spectrum available will also assist in ensuring spectrum at each site is used optimally to keep as many customers as possible connected.

Limited resources will have to be used as efficiently as possible, resulting in the operators having the current difficult choice between pausing continued rollout and

instead spending capex on building network resilience. The coverage obligations of should be relaxed, in order to give the operators room to continue focusing efforts and capital on preserving network resilience in order to keep current customers connected.

3.7.3. SABC

SABC made the following submission to the question:

Primetime regulation on TV

a) The relevance of Primetime for certain genres and also on digital needs to be revisited – different audiences are available at different times and viewing patterns due to digital content have changed.
b) Primetime to be extended for the official time for primetime to 17h00 to 23h00 allow for us to propose and submit our plans to deliver against mandate and realistic quotas and extend the overall calculation of quotas delivery to DTT and OTT platforms. As it stands, the SABC provides its content across multi-platforms and all that content should be counted towards mandate delivery and license obligations.

SABC proposed the following that regulatory relief be considered:

a) Lift the channel per channel delivery and allow for an overall network delivery against the self-regulated quotas for television/audio-visual services.
b) Apply leniency when reports and submissions are delayed due to loadshedding implications.
c) Relax primetime obligations for television/audio-visual services, as per the abovementioned reasons.
d) Process channel authorization applications speedily to allow for agility.
e) Allow programme syndication up to 45%, especially in cases of high stages of loadshedding, as the recording of content could be disrupted.

3.7.4. BitCo Telecoms

BitCo made the following submission to the question:

Exemption or Prioritization of Communications Infrastructure: ICASA could consider implementing regulations that exempt or prioritize communications infrastructure, including telecommunications networks, from loadshedding schedules. By recognizing the critical role of these services in supporting public safety, emergency response, and essential communications, exemptions or prioritization measures would ensure uninterrupted operation during power outages.

3.7.5. Primedia

Primedia made the following submission to the question:

Primedia submits that the fact that Sentech has Significant Market Power as articulated in ICASA's Supplementary Discussion Document on Signal Distribution Services Market must be urgently addressed. To this end, Primedia submits that ICASA must facilitate access to the high sites by formally identifying them as essential facilities as this will foster competition and enable alternative operators (or the stations themselves) to provide signal distribution services.

3.7.6. Vodacom

Vodacom made the following submission to the question:

The Authority should endeavour to reduce the regulatory burden for ECS and ECNS licensees particularly for regulations whose compliance is dependent on consistent power supply. Vodacom has also identified areas that could be considered for regulatory forbearance by the Authority. Examples of these areas are as follows:

- End-user and Subscriber Service Charter Regulation:

- adherence to QoS parameters and testing (End-User and Subscriber Service Charter ("EUSSC") parameters in Regulation 9(1)(2)(4)(5)(8)(9)(12)(13) of the 2016 and 2023 EUSSC & ICASA quarterly drive test).
- Rebate (Regulation 14 of 2016 EUSSC).
- Impossibility of performance (Regulation 16 of EUSSC).
- Notify customers of bundle depletion at 50%, 80% and 100%. (Regulation 8A(1)and 8B(1)(a) of 2018 EUSSC).

- General concessions over the longer term:
  - Social obligations be held in abeyance (zero-rating, connectivity) to direct resources to energy infrastructure that supports telecommunications infrastructure.
  - Speed up type approvals, spectrum applications, facility leasing requests and other regulatory processes.
  - Temporary assignment of unused spectrum to unlock capacity across the network.
- Assignment of temporary spectrum:
  - IMT spectrum that is currently unassigned and unused can temporarily be made available to operators that can demonstrate that they are experiencing congestion on their networks. The available spectrum in the 600MHz, 700MHz, 800MHz and 2600MHz bands may be assigned to operators under similar conditions to those adopted during the Covid-19 disaster management period.

3.7.7. SACF

SACF made the following submission to the question:

Regulatory Obligations:

a) SACF, proposes the deferment of QOS obligations contained in the End-User and Subscriber Service Charter for the duration of loadshedding with periodic reviews. The End User and Subscriber Service Charter should exclude all parameters related to QOS and network issues including targets, complaints, and remedies.

b) Social obligations that have been attached to recently licensed high demand spectrum be deferred for the duration of loadshedding. ICASA engage with the affected licensees to agree on a more appropriate and practical plan for the roll-out of social obligations.
c) Permit operators to offset licence fees and spectrum fees to allow the use of funds for building alternative power supplies or upgrading networks with more energy efficient equipment for a period of three years to coincide with the investment cycle of operators.

Type Approvals

d) Expedited type approvals to enhance spectral efficiency towards improved service.

Spectrum

e) Coverage/umbrella spectrum (this refers to 700 MHz, 800 MHz – (WOAN reservation) and 600MHz).
f) It is proposed that temporary access to this spectrum would provide consumers with access to basic services during loadshedding from stages 4 and above.
g) Access to higher bands of spectrum to support network operators if they can provide evidence of lack of capacity and motivation to the Authority why it should be allocated to them. Access to this spectrum is proposed to be negotiated directly between network operators and the Authority.

3.7.8. eMedia

eMedia made the following submission to the question:

Reduction in signal distribution fees – a matter dealt with during eMedia's presentation in the signal distribution enquiry in respect of which the Authority has avoided making a finding despite finding that Sentech's dominance placed it in an advantageous negotiating position.

Indirect compensation to deal not only with audience losses, but direct costs (as set out above) in respect of the annual licence fee paid to ICASA. This can be in the

form of a rebate while loadshedding continues in terms of a formula-based calculation or a reduction in the % fee paid as set out in the relevant licence fee regulations."

3.7.9. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Funds: ICASA can either decrease their licence fee requirements, to allow ISPs to focus their limited resources on buying solar panels, inverters, and generators. Alternatively, the Casa can create fund to assist ISPs with mitigating loadshedding, they can even create a criterion to ensure that ISP's that are really in need get the required assistance.

Service resilience requirements: ICASA could mandate that electronic communications and broadcasting service providers implement measures to enhance the resilience of the infrastructure during loadshedding. This could include requirements for backup power systems, redundant network configurations, and disaster recovery plans.

Emergency communication protocols: ICASA could establish guidelines for emergency communication protocols to ensure that critical information is disseminated effectively during loadshedding events this could involve coordination between service providers, government agencies and other stakeholders to prioritize emergency communication traffic and maintain service continuity.

Regulatory flexibility: ICASA could provide regulatory flexibility to allow service providers to implement temporary measures to mitigate the impact of loadshedding on service delivery. This could include temporary exemptions from certain regulatory requirements pause streamlined processes for obtaining permits or approvals to deploy backup infrastructure.

Stakeholder engagement: ICASA could facilitate stakeholder engagement forums to gather feedback from industry stakeholders, consumers, and other relevant parties on the impact of loadshedding and potential regulatory

interventions. This could involve public consultations, workshops, and collaborative initiatives to develop best practices and guidelines for addressing loadshedding challenges.

Infrastructure investment incentives: ICASA could introduce incentives or subsidies to encourage infrastructure investment that enhance the resilience of the electronic communications, broadcasting, and postal sectors. This could include tax breaks, grants, or regulatory concessions for deploying backup power systems, upgrading network infrastructure, and implementing disaster recovery measures.

The regulatory impact assessment: ICASA could conduct regulatory impact assessments to evaluate the potential effects of its regulatory decisions on the resilience of the sector to loadshedding and other emergencies. This could help ensure that regulatory interventions are proportionate, effective, and aligned with the long-term interests of stakeholders and the public.

3.7.10. Fine Music Radio

Fine Music Radio made the following submission to the question:

Relief in instances where stations were off air due to loadshedding for periods longer than the limit to submit off-air reports to ICASA.

3.7.11. Simigenix PTY Ltd

Simigenix made the following submission to the question:

Consider providing relief via a rebate of a portion of their licencing fees in lieu of increased costs of purchasing back-up solutions for the office premises as well as for providing certain key staff with backup solutions at their home.

3.7.12. Smile FM

Smile FM made the following submission to the question:

The Authority should consider being less stringent on compliance with radio station's meeting of their license conditions, especially when loadshedding is from Stage 3 upwards. It is extremely difficult to manage the listeners expectations with continual interruptions etc. Talk content becomes more difficult to execute when there are continual interruptions.

3.7.13. Globecast

Globecast made the following submission to the question:

ICASA could lobby Eskom for broadcasters to be made be exempt from Loadshedding.

3.7.14. Kagiso Media

Kagiso Media made the following submission to the question:

Delays in providing the regulatory frameworks to enable DAB transmission as a lower cost and lower power-utilisation alternative to AM and FM signals has meant that the country has potentially missed the opportunity to migrate its frequencies similar to experiences in other parts of the World.

3.7.15. Vumatel

Vumatel made the following submission to the question:

ICASA should reconsider targets for the availability of ECNS and ECS services in light of loadshedding. When imposing additional obligations on licensees, ICASA

should conduct regulatory impact assessments to first quantify the impact of loadshedding before imposing additional obligations with onerous financial implications on licensees.

3.7.16. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

ICASA should suspend Regulations 16; revise the targets stipulated in Regulation 9 of the End-User Regulations; offset additional costs on spectrum licence fees; and revise social obligation timelines.

3.7.17. MultiChoice

MultiChoice made the following submission to the question:

MultiChoice indicates that the Authority should reduce the annual licence fees paid by licensees to commensurate the adverse impact of loadshedding. MultiChoice submits that it is important that any intervention is applied evenly to all licensees so that no single licensee or sector of the industry is unduly advantaged by relief granted.

3.7.18. Telkom

Telkom made the following submission to the question:

Telkom requests the Authority to consider, either complete exemption of the QoS KPIs as prescribed in the EUSSC, or relaxing specific KPIs until loadshedding has been eliminated, for example:

- Availability of services (%) – to be reduced from 95% to 80%
- Drop Call Ratio (DCR) (%) – to be increased from 2% to 5%

- Call Setup Success Ratio (CSSR) (%) – reduce from 98% to 95%
- All throughput measurements (downlink) from 5Mbps to 4Mbps and uplink from 1.5Mbps to 1Mbps.

3.7.19. RADIO PULPIT

Radio Pulpit made the following submission to the question:

ICASA could provide flexibility for community radio stations to adjust their broadcasting schedules during loadshedding, including extensions for compliance with broadcasting time slots to accommodate interruptions caused by power outages.

3.7.20. Sentech

Sentech made the following submission to the question:

The Authority should consider suspending compliance with certain regulations for the period under review. Such regulations may include End-user Subscriber Charter regulations, in respect of network availability, quality of service quotas. Etc. The Authority must specifically suspend the sanctions and fines for non-compliance occasioned by loadshedding.

3.7.21. LaserNet

LaserNet made the following submission to the question:

Open and increase the free space band for wireless. If ISPs can offer wireless backups in less congested frequencies clients will have more reliable options when one network operator fails.

3.7.22. MTN

MTN made the following submission to the question:

MTN submits that the Authority's interventions should mainly be centred around lowering the cost of compliance for its licensees at least until licensees recover from the unplanned adjustments in budget to invest in alternative energy supplies and security which ensured resilient networks during challenging times in South Africa.

MTN submits that interventions aimed at lowering the cost of compliance would serve to further the Authority's mandate of ensuring that licensees are socially responsible and remain committed to universal access, in that less onerous and stable regulation incentivises infrastructure and other long-term investment, and more practical social obligations would ensure speedier rollout while ensuring the sustainability of licensees.

These types of interventions would pave the way towards certain primary objects of the ICT White Paper such as:

- Ensuring that all South Africans have affordable access to communications infrastructure and services.
- Promoting and stimulating domestic and foreign investment in ICT infrastructure, manufacturing, services, content and research and development.
- Promoting innovation, fair competition and equitable treatment of all role players to ensure a range of quality services to end-users.

In addition, regulatory relief measures would take into account the visions of the National Infrastructure Plan ("NIP"), which recognises that there must be a strong and competitive base of private sector that continues to invest, maintain, upgrade and innovate in order to achieve the 2050 vision for digital infrastructure.

3.7.23. **The Authority findings:**

The licensees are of the view that the Authority must consider:

- suspending some of the compliance requirements. This includes regulations such as End-User and Subscriber Service Charter Regulations 2016 as amended ("EUSSC Regulations"), Code of conduct, Code for persons with disabilities (NRS) and Standard licence T&C. This can be achieved through relaxing the regulatory obligations.
- Redirect funds towards implementing more resilience networks during loadshedding. This can be in the form of discounted spectrum fees, USO contribution and delaying the social obligations during the loadshedding period.
- issuing unused temporary spectrum to licensees that can prove that they are experiencing congestion on their network during loadshedding.
- lifting the channel per channel delivery and allow for an overall network delivery against the self-regulated quotas for television/audio-visual services for the broadcasters.
- Extending official time for prime time for the broadcasters.
- Engaging with ESKOM on critical infrastructure to be exempt from loadshedding.

3.7.24. **The Authority Position:**

The Authority position on the affected regulations is summarized below as follows:

Regulations in Respect of the Code of Conduct for ECS and ECNS Licensees[1]

The Code of Conduct regulations afford licensees an opportunity to develop voluntary key commitments to provide services within their respective parameters or means possible as a good practice. The Authority is of the view that there is no link between Loadshedding and the Code of Conduct provisions.

Standards Terms and Conditions

The Authority is of the view that the Standard Terms and Conditions regulations provides general standard terms and conditions to all licensees to ensure regulatory certainty to demonstrate compliance with the principles of the primary legislation.

[1] Published in Government Notice No. 1740 (Government Gazette No. 30553) of 7 December 2007

It should be noted that the current Standard Terms and Conditions should also be amended to allow licensees to apply for the exemptions from compliance with the regulations when they experience any form of crisis. It must be noted that during COVID-19 the Authority increased the limit for broadcasting programme syndication and programme sharing from 20% to 45% in order manage restrictions.

The Authority believes that during crisis periods, the Regulations should be responsive to the needs of the sector and allow for this increase in order to manage any form of national crisis.

Type Approval Process

Association of Communications and Technology (ACT) and South African Communications Forum (SACF) advised the Authority to consider automatic type approval of equipment with prior approvals in other recognised jurisdictions. This approach would expedite market access for equipment that will aid to alleviate the effects of loadshedding or provide connectivity during loadshedding.

The Authority notes the suggestion but is however of the view that its current Type Approval process is sufficiently responsive to the urgent needs of the industry. Additionally, the newly developed Equipment Authorisation Regulations, published in Government Gazette 46146 on 31 March 2022 ("Equipment Authorisation Regulations") make allowance for Type Approval Exemptions and for Applicants to provide a statement of conformity from a certification body for class 2 devices. Once these Equipment Authorisation Regulations are in force, they will provide a soft touch regulatory approach that will ease the regulatory burden thereby enabling quick market access.

End-user services charters /QoS parameters Standard

The Authority has noted the submissions by licensees on the EUSSC Regulations. The EUSSC Regulations cover in the main, a situation similar to loadshedding and its consequent impact on Licensees vis-à-vis the services they provide to the end user. Regulation 16(1) of the regulations deals with impossibility of performance and states that in the event a licensee fails to provide end-users with the service due to circumstances beyond its control for a period of more than two (2) hours, a licensee must

a) "As soon as it becomes aware of the outage:
   i. to notify the Authority in writing;
   ii. issue the public notice to the affected end-users;
b) Indicate timeframes within which end-users should expect the service to be restored; and
c) Submit a report to the Authority detailing the events that lead to the impossibility of performance including:
   i. the cause of outage;
   ii. steps taken to minimise a repeat of the outage if applicable; and
   iii. steps taken to inform the end-users of the outage"…….

Therefore, licensees should have regard to and invoke Regulation 16, titled "Impossibility of Performance" in the EUSSC Regulations 2016 as amended, in response to any loadshedding event they may experience.

The Authority is further encouraging licensees to utilise the provisions of regulation 6(2) and 6(3) of the Standard Terms and Conditions amendment regulations as published in Government gazette No. 48317 of 28 March 2023[2].

3.8. (Question 6.1) How should these interventions vary depending on each stage of loadshedding?

3.8.1. ACT

ACT made the following submission to the question:

These interventions ought to remain unaffected by the stages of loadshedding, as they serve the consumers interests and the enable the industry and government agencies to unite and partner in a coordinated effort to ensure that South Africa

[2] Standard Terms and Conditions amendment regulations as published in Government gazette No. 48317 of 28 March 2023

remains connected, thus seizing the opportunities facilitated by internet connectivity.

3.8.2. RAIN

RAIN made the following submission to the question:

Interventions should be independent of the stages of loadshedding as they are for the benefit of the consumers and will allow the industry to mobilize with a coordinated effort to continue ensuring that Sout Africa is always connected as able to benefit and extract opportunities that are made possible by internet connectivity.

3.8.3. BitCo Telecoms

BitCo made the following submission to the question:

It should not vary significantly depending on each stage of loadshedding. This is because communications are considered essential services vital for public safety, emergency response, and daily life. Therefore, ensuring their resilience and continuity should be a priority regardless of the severity or duration of loadshedding.

3.8.4. Primedia

Primedia made the following submission to the question:

The above measures are needed for all stages of loadshedding but become particularly acute if there are no available power sources to charge batteries and the like.

3.8.5. Vodacom

Vodacom made the following submission to the question:

The interventions should not be varied according to loadshedding stages because the ***loadshedding stages are very volatile and unpredictable***. It would be difficult for operators to track the loadshedding stages and to determine the degree of compliance that is applicable to each loadshedding stage.

Further, operators would ordinarily strive to design their networks to be resilient to the worst cases of loadshedding depending on the resources available (i.e. worst-case scenario planning). Vodacom believes that the interventions should be simplified to ensure that there is compliance across the sector.

3.8.6. SACF

SACF made the following submission to the question:

Temporary Spectrum Access

(g) It is proposed that temporary access to spectrum would provide consumers with access to basic services during loadshedding from stages 4 and above. (This refers to 700 MHz, 800 MHz (WOAN reservation) and 600MHz).

Areas where the Authority is requested to collaborate with other bodies

(h) Wayleave applications

The Authority is requested to collaborate with municipalities to ensure a standardised process and standardised fees, to support the faster roll-out of sites adjusted to energy requirements.

(i) Exemption of import duties

The Authority is requested to engage with the National Treasury Department to request and exemption of tax duties on smart devices and energy efficient network equipment.

(j) Fuel Levy

It is requested that the Authority engages with the National Treasury Department and South African Revenue Service (SARS) to remove the RAF levies from any fuel specifically used for generators during loadshedding.

Framework for Wheeling and Exemption from Loadshedding

(k) The Authority is requested to engage with the Minister of Electricity and Eskom to determine and attend to the implementation of a standard wheeling agreement to be used by the ICT industry for grid and PPA wheeling agreements and to this end to facilitate negotiations in this regard.

(l) The Authority is further requested to discuss the exemption of base stations and data centres from loadshedding with the Minister of Electricity and Eskom, especially considering the economic impact of loadshedding on ICT infrastructure on the country.

Rapid Deployment by-laws

(m) The Authority is requested to collaborate with CoGTA to ensure the roll-out of the rapid deployment guidelines.

3.8.7. eMedia

eMedia made the following submission to the question:

The advertising limitations contained in e.tv's licence should be lifted permanently particularly due to the discriminatory effect of subscription broadcasters able to broadcast advertising in an unregulated manner. Similarly, the suggested softening to the advertising regulations taking into account eMedia's suggestions in this regard (rejected without good reason) should be relooked at. Insofar as the licence

fee rebate or reduction, this could vary with the different stages of loadshedding but calculated over a 12-month period.

3.8.8. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

ICASA should prioritize the funding intervention, all other intervention can follow depending on the extent of the stage.

3.8.9. Fine Music Radio

Fine Music Radio made the following submission to the question:

Stages may result in longer periods off-air. This would apply to particularly Community Broadcasters in areas affected by loadshedding and electricity failures.

3.8.10. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

Stage 4 over a long period of time and during Stage 6.

3.8.11. Simigenix PTY Ltd

Simigenix made the following submission to the question:

Interventions should be kept simple and standard and not change according to the loadshedding levels

3.8.12. Kagiso Media

Kagiso Media made the following submission to the question:

The interventions were general and not outlined in terms of stages.

3.8.13. Vumatel

Vumatel made the following submission to the question:

As the impact of loadshedding is more severe from stage 3, ICASA should consult with licensees in instances where licensees are unable to meet regulatory obligations due to loadshedding.

3.8.14. MultiChoice

MultiChoice made the following submission to the question:

MultiChoice proposes that that the Authority consider implementing amendments to its General Licence Fee regulations to provide for a reduced licence fee in proportion to the severity of loadshedding stages. An example of how this could work is provided below.

3.8.15. Telkom

Telkom made the following submission to the question:

Telkom recommends for the exclusion of key network points from loadshedding for all stages. Moreover, Telkom is of the view that relaxation of availability requirements could scale with loadshedding stage broadly.

3.8.16. Sentech

Sentech made the following submission to the question:

Sentech should be allowed to consider failures due to loadshedding to be deemed exclusions with its broadcasting customers. ICASA should encourage ESKOM to allow certain high impact sites in JHB, Cape Town, Pretoria, Durban, Polokwane, Nelspruit, Port Elizabeth, Mthatha and Bloemfontein to be exempted from loadshedding.

ICASA should consider the totality of its regulations and determine which regulations or part thereof should be relaxed. For the period under review ICASA should consider exempting and relaxing its requirements on network and service availability due to all stages of loadshedding.

Compliance on regulations impacted by loadshedding such as End user Subscriber charter regulations should be suspended for the period under review. Loadshedding impacts network availability and quality of service across the board. Although operators have made interventions in respect of loadshedding like procuring generators and other alternative power sources, the operators' revenues have experienced a serious dip as a result. This will in no doubt affect the amount of fees to be paid to ICASA, which ultimately impacts the ability of operators to comply with ICASA General Licence Fees Regulations.

ICASA should proactively exempt operators on payment of portions of the annual fees payable to the Authority based on evidenced financial figures. Depending on the determination to be made by ICASA, an operator may be exempted from paying a certain percentage of the fees payable to enable the operator to recoup the loss occasioned by loadshedding. The cost of acquiring alternative power sources, inclusive of generators, solar and wind power, amongst others, should be considered in computing the percentage rebates on fees in the period under review.

Where it is proven that loadshedding has occasioned a dip in quality and availability of service, operators should be exempted from complying with applicable regulations for the period under review. The sanctions and fines applicable under such regulations should be suspended for the period under review.

3.8.17. LaserNet

LaserNet made the following submission to the question:

No variation should be applicable through all stages.

3.8.18. MTN

MTN made the following submission to the question:

MTN submits that the interventions of the Authority to a large extent, must be broad and meaningful, and not enacted on a piecemeal basis. The interventions must be uniformly applicable across the loadshedding stages and apply similarly across all categories of licensees. Loadshedding stages tend to vary once or twice a day, and as such, regulatory interventions tied to stages may be impractical to monitor and enforce.

The relief offered by the Authority should ultimately result in a lessening of costs of compliance in a manner which allows licensees to effectively reroute budget towards efforts of resilience, network upgrades and developments, security efforts, and national rollout.

3.8.19. **The Authority findings:**

The Authority found that these interventions ought to remain unaffected by the various stages of loadshedding as they serve the consumers' interests. Therefore, regardless of the stage(s) of loadshedding being implemented (even during the periods of its suspension as is currently the case), it was essential for stakeholders to continue taking proactive measures and have monitoring systems in place (to

the extent that they are able to) in order to mitigate the negative impact of loadshedding on their business continuity.

3.9. (Question 7) Are there agreements in place in terms of the Energy Users Block Exemption, 2023? If so, have they yielded positive results?

3.9.1. ACT

ACT made the following submission to the question:

a) ACT is facilitating the energy user block exemption, a guideline framework is proposed for members, areas of collaborations were identified and the Competition Commission is engaged to assist in the process in compliance with the competition law.
b) Facilitating agreements on Joint Investment in shared energy infrastructure are explored. Batteries and Diesel generators are the most common systems network operators have been using to keep the network running. Given the demand across sectors securing specific diesel generators and batteries has become a challenge. Further to this Potential savings can be realised.
c) Agreements on Joint procurement and the sharing of security services for purposes of securing infrastructure can be explored. During this period of loadshedding valuable battery assets and diesel generators are allocated to strategic sites and this has become a security risk. Vandalism of infrastructure has also been prevalent problem in the South African society.
d) Logistics on the provision energy to various sites, agreements towards collaboration on optimising the level and timing of energy supply related to logistics on the provision of energy. Network operators have a number of sites that requires agile supply of diesel and maintenance on an ad hoc basis. This has been a costly exercise to coordinate. Collocated sites can be jointly coordinated to reduce cost and to improve efficiency.
e) Industry large scale energy projects agreements on joint financing and risk-sharing in energy projects associated with greenfield projects that aim to supply electricity to the telecommunication infrastructure using solar, gas, wind, and

other innovative solutions. This infrastructure projects can be costly to pursue individually. With Independent Power Producers (IPP) becoming more prevalent in South Africa and even supplying energy directly to private companies, private investment opportunities have become feasible. This investment can have a multiplier effect if industries jointly provide IPPs with uptake guarantees. Eskom introduced the principles of virtual wheeling in July 2023. 'Wheeling' means the transportation of electricity by a Third-Party Supplier to a Consumer through an electricity grid not owned, controlled, or leased by either party.

3.9.2. SABC

SABC made the following submission to the question:

The SABC has entered into an agreement with City Power to be exempt from loadshedding during implementation of stages 1-4. The agreement means that the SABC will be loadshedding from stage 5 and above. Further negotiations are continuing with city power to get SABC completely exempted from loadshedding.

3.9.3. BitCo Telecoms

BitCo made the following submission to the question:

BitCo does not have any direct agreements in place, but some of our colocation and DC suppliers might have taken advantage of the exemptions.

3.9.4. Primedia; eMedia

No, there are no agreements in place.

3.9.5. Vodacom

Vodacom made the following submission to the question:

Vodacom has not concluded any agreements in terms of the Energy Users Block Exemptions yet. The company is still exploring opportunities in this regard.

3.9.6. Globecast

Regardless of the stage the broadcaster should be made exempt.

3.9.7. Vumatel

Vumatel has not applied for the abovementioned exemption.

3.9.8. MultiChoice

No response.

3.9.9. Telkom

Telkom made the following submission to the question:

Telkom provides that it currently has no agreements in place and that there are high level engagements with ESCOs (IGPP/IPP) on the potential of large-scale self-generation of green power.

3.9.10. LaserNet

We operate in remote areas, there aren't really any other ISPs with whom we can share energy.

3.9.11. Edelnet; Blue Shadow Investments (Pty) Ltd; Extim Pty Ltd; NEXUS NET WIRED & WIRELESS; Simigenix PTY Ltd; Voice of Cape Town; Kagiso Media; Liquid; RADIO PULPIT; Sentech

The respondents do not have agreements in place the Energy Users Block Exemption, 2023

3.9.12. **The Authority findings:**

The Authority found that there currently no agreements in place in terms of energy user block exemptions, however the Authority noted that the ACT was facilitating energy user block exemption for its members.

3.9.13. **The Authority Position:**

The Authority noted that licensees who took part in the inquiry did not apply for Energy Users Block Exemption. The Authority has no mandate to facilitate energy user block exemption as the mandate rest with the Competition Commission.

3.10. (Question 8) Have you concluded any wheeling agreements with Independent Power Producers (IPPs and ESKOM)? If not, are there any plans to conclude such agreements in future?

3.10.1. ACT

ACT made the following submission to the question:

It is important to note that Wheeling does not exempt telecommunication sites from loadshedding. Some ACT members have reached a virtual wheeling agreement with Eskom, where the network operator will be enabled to secure and supply electricity as an independent power producer. The is a national attempt to contribute the operation of the network provider to renewable energy source hoping that if other industries follow loadshedding in the national grid will be lesser.

3.10.2. SABC

SABC made the following submission to the question:

The SABC has appointed a consulting firm to conduct an assessment and feasibility study on alternative power source supply in the Auckland Park Campus. The report will look at solar and other available or alternative sources that will result in reduced dependence on a national power grid. The report is expected to be concluded in August 2024.

3.10.3. BitCo Telecoms

BitCo made the following submission to the question:

We have not. There are no plans for the immediate future as we self-provide backup systems through battery backup and generators.

3.10.4. Vodacom

Vodacom made the following submission to the question:

Vodacom has signed a Virtual Wheeling agreement with Eskom which will help accelerate efforts to solve the country's energy crisis and contribute significantly to Vodacom's objective of obtaining all its electricity from renewable energy sources by 2025.

Through the Virtual Wheeling agreement, Vodacom will be able secure electricity from Independent Power Producers ("IPPs") under the same terms and conditions as its agreement with Eskom.

The Virtual Wheeling blueprint provides a clear plan for involving the private sector in stabilising South Africa's supply grid. The platform can be fast-tracked depending on the licensed capacity of independent power producers.

3.10.5. eMedia

eMedia made the following submission to the question:

No. Unfortunately do the nature of the equipment which we are required to keep on our roof for the purpose of broadcasting (cables, satellites etc), we are unable to also fit solar panels that would provide sufficient capacity for our building. As such, currently the only way to maintain constant power is through a generator back-up system.

3.10.6. Liquid

Liquid Intelligent Technologies made the following submission to the question:

The interventions that we currently have in place are referred to in 2.3 and 2.4 above i.e. batteries, generators, and security, amongst others.

3.10.7. Telkom

Telkom made the following submission to the question:

Telkom provides that it has not concluded any power purchase agreements with IGPPs or Eskom. However, Telkom does have plans to purchase renewable energy. The details and the approach to wheeling solutions are still under investigation.

3.10.8. RAIN; Cube ICT; Edelnet; Primedia; SACF; Blue Shadow Investments (Pty) Ltd; Extim Pty Ltd; Fine Music Radio; NEXUS NET WIRED & WIRELESS; Simigenix PTY Ltd; Smile FM; Voice of Cape Town; Globecast; Kagiso Media; Vumatel; RADIO PULPIT; Sentech; LaserNet

The respondents do not have wheeling agreements with the IPPs and ESKOM.

3.10.9. **The Authority findings:**

The Authority found that the majority of entities that took part in the inquiry have not concluded any wheeling agreements to date and to a large extent, there is no indication that the wheeling agreements will be concluded in the near future except for Telkom who submitted that it was still investigating wheeling solutions.

The Authority further found that Vodacom has concluded a virtual wheeling agreement with Eskom and this submission is supported by ACT. In terms of the arrangement, Vodacom indicated it will secure electricity from independent power producers (IPPs).

3.11. (Question 9) Are there any efforts in place to combat theft, vandalism and destruction of infrastructure during loadshedding?

3.11.1. ACT

ACT made the following submission to the question:

"a) ACT has collaborated closely with COMRiC to address the challenges of infrastructure sabotage and vandalism. COMRIC's efforts focus on sharing intelligence across sectors to combat crimes impacting operators, resulting in a notable decrease in store robberies within the sector.

b) Memorandums of Understanding (MOUs) have been drafted between ACT, COMRiC, and various industry associations like SABRIC. These MOUs outline cooperation on research and industry support to bolster the telecommunications sector as a unified entity. They also entail the sharing of pertinent information to advance the industry in compliance with competition laws, while preventing redundant efforts. Collaboration on specific projects related to public relations, such as stakeholder management and raising public awareness, is also agreed upon to benefit the telecommunications industry.

c) ACT has engaged responsible departments to declare telecommunications infrastructure as essential and critical infrastructure as it enables the provision and supply of essential services such as water and sewerage facilities for all critical and or national key point sites and the provision of Emergency Services and Response. The result harsher sentences to criminals will act as deterrence."

3.11.2. RAIN

RAIN made the following submission to the question:

- Adding batteries to sites and fibre data centres
- Fortifying existing cabinets with extra security
- Replacing high risk sites with high security cabinets

- Adding environmental sensors, motion detection and vibration sensors to sites
- Adding security cameras
- Contracting security response companies

3.11.3. SABC

SABC made the following submission to the question:

It is worth noting that sabotage of distribution networks, hacking of broadcast systems (cyber-terrorism), current loadshedding crisis, riots, etc. could all have an impact on broadcaster's ability to deliver mandated programmes and reach its total audience base. This will impact on Radio's ability to retain and grow listenership in affected areas.

3.11.4. BitCo Telecoms

BitCo made the following submission to the question:

Yes, at high-risk areas and where we have numerous theft problems, we have cemented the batteries into the enclosure. This makes maintenance of these batteries extremely difficult, but it does act as a deterrent.

3.11.5. Cube ICT

Cube ICT made the following submission to the question:

Enhanced security has been implemented where applicable and reasonable.

3.11.6. Edelnet

Edelnet made the following submission to the question:

Yes, increased private security patrols which comes at an extra cost.

3.11.7. Primedia

Primedia made the following submission to the question:

The only measure in place are the normal office/studio security arrangements.

3.11.8. Vodacom

Vodacom made the following submission to the question:

- The impact of theft and vandalism incidents has been severe, affecting both Vodacom's network infrastructure and the communities it serves by disrupting services. Vodacom has, however, taken a number of steps to improve security around its infrastructure which includes the following:

- Installation of closed-circuit television remote monitoring; installation of alarm systems and the appointment of armed response units.
- Installation of high-quality "hardened" security cabinets such as concrete containers or steel vaults for critical equipment. These cabinets make it more challenging for criminals to access and steal valuable infrastructure components.
- Substituting copper with aluminium in certain equipment to render the equipment less attractive to criminals.

- In addition to the above, Vodacom has implemented the following measures:

- Established a new working model where Vodacom recruits local community members to serve as on-the-ground monitoring personnel for its infrastructure and provide the company with critical information that police can use to effect arrests. As part of this initiative, Vodacom provides the locals with necessary training and accreditations, and links them to policing community forums as

well as local South African Police Service ("SAPS") to provide support when arrests must be effected.

- Partnered with other operators to establish a non-profit organisation, namely, the Communication Risk Information Centre ("COMRiC"), whose objective is to protect network investments and advance the country's participation in the Fourth Industrial Revolution.
- COMRiC has established the Critical Infrastructure Monitoring Operations Centre ("CiMOC"), which prioritises the collective monitoring of critical network infrastructure, theft and vandalism on the combined South African telecoms network footprint. This includes working with the SAPS to identify and apprehend suspects in network vandalism, store robberies, battery theft and fraudulent applications, including commercial crimes, among other things.

3.11.9. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

Yes, they have security surveillance systems, and they always ensure that their gate/doors are locked during peak times of theft, vandalism, and infrastructure.

3.11.10. Extim Pty Ltd

Extim made the following submission to the question:

Yes, increased security at their nodes.

3.11.11. Fine Music Radio

Fine Music Radio made the following submission to the question:

Yes, security personnel on duty.

3.11.12. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

Yes, but only what Nexus Net Wired & Wireless can as many are on farms which are greatly effected.

3.11.13. Simigenix PTY Ltd

Simigenix made the following submission to the question:

No additional measures have been added.

3.11.14. Smile FM

Smile made the following submission to the question:

Yes, they have upped their security to ensure access to the building and their floor is strictly controlled. They also have extremely strict procedures in place where access to vital equipment is limited.

3.11.15. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

They do have a 24-hour security on their premises, a tactical response unit available for 24/7 which all guards and managers have access to and alarm monitoring.

3.11.16. Globecast

Globecast made the following submission to the question:

We currently looking at Solar Power Options.

3.11.17. Kagiso Media

Kagiso Madia made the following submission to the question:

KMR stations have installed and upgraded security systems to protect the assets under their control.

Improved access control systems running on backup power, and new surveillance camera systems at its stations.

3.11.18. Vumatel

Vumatel made the following submission to the question:

Yes. We have identified certain "red" zones for where we have introduced additional security measures. Over and above our normal maintenance partners who visit areas where our network is particularly vulnerable to criminal activity due to loadshedding, we have installed external surveillance cameras, infrared motion sensor beams and sirens, and linked the solutions to a national armed response company.

3.11.19. Liquid Intelligent Technologies

Liquid Intelligent Technologies made the following submission to the question:

No measures in place, rely on government monitoring and policing measures.

3.11.20. Telkom

Telkom made the following submission to the question:

Telkom provides that it joined a Task Team aimed at addressing the effects of theft and vandalism of critical infrastructure. The Task Team consists of Eskom, Prasa, Telkom and Transnet early in 2021.

3.11.21. Sentech

Sentech made the following submission to the question:

CCTV and Access control systems have been put in place on a number of sites. Armed response services have been contracted at theft prone sites. On-Site physical guards have been contracted for sites that are extremely unsafe.

3.11.22. LaserNet

LaserNet made the following submission to the question:

Yes, we have a partner provider with excellent early warning systems and monitoring systems for the network.

3.11.23. MTN

MTN made the following submission to the question:

To counter the rise in theft and vandalism at base stations, MTN has implemented the following enhanced security measures:

Epoxy coating applied to batteries, which seals batteries to the ground and makes them harder to steal.

Security gates installed to restrict unauthorized access.

Safes and secure enclosures ("cubes") utilized to protect batteries and other sensitive equipment from theft and damage.

Generator Security Cages installed to secure generators, ensuring that they remain operational during power outages.

Smart Locks and tamper-evident technology employed to secure access points, and protection measures implemented for generator plug points.

Reinforced concrete bunkers, vaults and cubes to house critical equipment, and protect them from theft and vandalism.

3.11.24. **The Authority findings:**

The Authority found that licensees are collaborating closely with Communication Risk Information Centre (COMRiC) through ACT, to address the challenges of infrastructure sabotage and vandalism. COMRIC's efforts focus on sharing intelligence across sectors to combat crimes impacting Operators.

The Authority also found that other licensees have sought to protect batteries for their towers and related signal distribution apparatus with cement or concrete enclosures especially in high-risk areas.

Licensees have also indicated that they have installed Closed-Circuit Television (CCTV) for the remote monitoring and appointed armed response security to assist secure their infrastructure.

The Authority further found that licensees have recruited local community members to serve as on-the-ground monitoring personnel for their infrastructure.

The Authority supports the initiatives made by the licensees and further encourages the involvement of Law enforcement agencies where the crime of sabotage and vandalism occurs. The Authority encourage licensees to continue working with

relevant stakeholders to ensure safeguarding of their infrastructure from criminal syndicates.

3.12. (Question 10) What measures, if any, have you put in place within your space to mitigate the impact of loadshedding on the business and your customers?

3.12.1. ACT

ACT made the following submission to the question:

Operators' priority during loadshedding is to ensure connectivity is maintained and to avoid network collapse during extended hours of loadshedding. They have made Investment in backup systems such as diesel generators and batteries, they have also upgraded their logistics supplies to timeously act on the supply and energy based on the schedule of loadshedding.

3.12.2. RAIN

RAIN made the following submission to the question:

RAIN's primary business is providing affordable connectivity to customers and as such all efforts have been directed towards maintaining network availability during loadshedding.

3.12.3. BitCo Telecoms

BitCo Telecoms made the following submission to the question:

Upgrading backup power solutions where possible. Provide alternative connectivity methods in the event that primary services are affected.

3.12.4. Cube ICT

Cube ICT made the following submission to the question:

Upgrading backup power solutions where possible. Provide alternative connectivity methods in the event that primary services are affected

3.12.5. Edelnet

Edelnet made the following submission to the question:

Battery power backup.

3.12.6. Vodacom

Vodacom made the following submission to the question:

Vodacom has undertaken an energy transformation project at its main campus in Midrand, Gauteng. The project, when completed, will see more than 11 000 photovoltaic (PV) panels will be installed the main campus converting the commercial office park into a grid-based solar PV plant capable of generating 10.8 GWh/y. This solution will assist the company in reducing its reliance on coal-generated electricity from the national grid in-line with the company's sustainability strategy. The project will reduce the effects of loadshedding on staff, customers and the equipment that is deployed on the mega-campus.

3.12.7. Blue Shadow Investments (Pty) Ltd

Blue Shadow Investments made the following submission to the question:

They make use of generators and inverters. When the link is down due to loadshedding, they have systems that send mass emails to all their affected customers.

3.12.8. NEXUS NET WIRED & WIRELESS

Nexus Net Wired & Wireless made the following submission to the question:

Back up batteries and generators.

3.12.9. Simigenix PTY Ltd

Simigenix made the following submission to the question:

The organisation has a tested Business Continuity Plan that incorporates the possibility of loadshedding at the primary office premises. The office park is on a non-loadshedding grid, but also has a generator for power. They also have a work from home policy in place to cater for possible loss of power at the office to ensure that employees can still continue working.

All the Production systems run across multiple active sites with the various instance nodes always running in active-passive or active-active mode. The IDCs are geographically separated by 10 to 30 kilometres and all have backup generators to fully power the datacentres for up to 7 days without refuelling.

3.12.10. Smile FM

Smile FM made the following submission to the question:

Upgraded all their infrastructure to ensure that they can withstand the minimum 2 hours of no power (When purchasing IT equipment, they have to opt for power efficient hardware which increases equipment costs) Again at a cost to the station.

- They have added more IT infrastructure onto the UPS for example TV's, DSTV decoders, streaming services devices etc to ensure they can stay online with breaking news and current events.
- Added more batteries to their UPS.
- Scheduled charging of portable equipment so that they are always available events.
- Added more batteries to their UPS.
- Scheduled charging of portable equipment so that they are always available.

3.12.11. Voice of Cape Town

Voice of Cape Town made the following submission to the question:

They installed inverters at outside broadcast UPS and generators in the building. Power conditioning and watching the loadshedding schedule carefully.

3.12.12. Globecast

Globecast made the following submission to the question:

Yes, we have 24/7 security. CCTV cameras. 24/7 staff on duty. This is all in place serviced by the installed redundant power supply.

3.12.13. Kagiso Media

Kagiso Media made the following submission to the question:

KMR is of the view that appropriate mitigation strategies have been implemented to counter the impact of loadshedding on its businesses and its customers; These include but are not limited to the installation and upgrading of primary backup power solutions; additional backup solutions to backup the generators; improved security installations to protect the equipment; installation of water

backup systems at East Coast Radio, planning and provisioning for power contingencies at external events; provision of content to audiences that educate them on power-saving and power alternative options; assisting clients with discounted inventory to continue to be sustainable in tough economic times, and engaging with appropriate stakeholders, shareholders, regulators and legislators to provide as enabling an operating environment as possible given the circumstances.

3.12.14. Telkom

Telkom made the following submission to the question:

Telkom provides that it introduced a hybrid model for staff members (working from home and office on specific days of the week). Telkom implemented OneCloud and co-location at Hartebeeshoek data centre offering 20 days with critical loads. Telkom provides that it implemented the following:

Backup of workloads in strategic centres

- Additional on-site diesel supplies at Hartebeeshoek and Bellville Data Centre Complex.
- BCX is planning to extend the availability of satellite phones for BCX staff and key clients to provide their own satellite phones to ensure continued communications during disaster events.
- Replacement of Lead acid with Li-ion batteries, which charges faster.
- Increase the pool of mobile generators and installation of static generators at critical sites.
- To reduce the negative effects of vandalism by increasing SAPS visibility.
- Deployment of Telkom Mobile Cabinet and Battery security active Alarm cage (Aegis Cabinet system) is being tested in Southern and Gauteng regions at high risk sites.
- Capital Investments in network power resilience infrastructure.

3.12.15. RADIO PULPIT

Radio Pulpit made the following submission to the question:

- Backup Power System: Radio Pulpit invested in a robust backup power infrastructure, including a generator and uninterruptible power supply (UPS) systems. During power outages, these systems are designed to automatically kick in, ensuring uninterrupted power supply to our broadcasting equipment, studios and admin personnel.
- Regular maintenance: Regular maintenance checks and servicing of the backup systems are conducted to ensure effectiveness and reliability. This is a very costly exercise, but necessary to minimize the risk of downtime during loadshedding.
- Continuous Improvement: Management regularly evaluate and update our loadshedding mitigation strategies based on past experiences and feedback from our staff members. This approach allows Radio Pulpit to plan for evolving challenges and ensure the effectiveness of our broadcasting. By implementing these measures, we aim to maximise the service we deliver to our community, advertisers and sponsors.

3.12.16. Sentech

Sentech made the following submission to the question:

The company procured backup power at certain of its sites.

3.12.17. LaserNet

LaserNet made the following submission to the question:

Backup power at every pop.

3.12.18. **The Authority findings:**

The Authority found that licensees have invested in backup power systems to guard against loadshedding stages to ensure business continuity during power outages. Licensees stated that, they have devised loadshedding mitigating strategies to ensure that their business continues to run and that consumers remain connected during power outages. There has been a considerable investment made by licensees towards procurement of back-up systems in the form of diesel generators, backup batteries and solar panels.

The Authority also found that the mitigation strategies implemented by licensees to counter the effects of loadshedding were not necessarily sufficient to address the effects of loadshedding but only assisted to mitigate the impact of loadshedding.

4. CONCLUSION

The Authority has noted that Eskom's generation capacity of electricity in South Africa has not yet stabilised.

The Authority has further noted Eskom approved generation recovery plan which is being implemented to address the challenges of loadshedding in the country.

The Authority will consider providing regulatory forbearance to the licensees on a case-by-case basis in terms of the existing regulations and investigate amendment of some Regulations which impede licensees from full compliance with their regulatory obligations to the Authority and end-users during loadshedding.

Currently, some of the regulations, such as Standard Terms and Conditions for ECS/ECNS and Broadcasting Services, have provisions that allow licensees to submit to the Authority the applications for exemption/s from compliance with certain elements of compliance requirements when they encounter force *majeure* elements which hinders them from meeting their compliance requirements.

5. The Authority further recommends that licensees continue to invest in renewable energy as a form of ensuring that their services continue to run effectively and efficiently when they experience loadshedding in future.