BEFORE THE INDEPENDANT HEARING PANEL
AT SELWYN DISTRICT COUNCIL

Under The Resource Management Act 1991 ('**RMA**')

In the matter of an application by KeaX Limited to construct and operate a 111ha solar array at 115 & 187 Buckleys Road, Leeston.

STATEMENT OF EVIDENCE OF DONNA JAYNE KEWISH

04 March 2024

Duncan Cotterill
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INTRODUCTION

1 My full name is Donna Jayne Kewish.

2 I provide this evidence on behalf of myself and David Kewish, Michael Dalley and Anneka Dalley, Clark and Elizabeth Casey, Corey Krygsman, Anne and Donald Green, Simon Robinson and Donna Irons (the **Brookside Submitters Group**), who were all part of the limited notified group and lodged submissions in oppositions to the KeaX Limited proposal RC235464 to construct and operate a 111ha solar array at 115 & 187 Buckleys Road, Leeston (the **Application**).

BACKGROUND

3 My husband David and I live at 324 Branch Drain Road, on a small lifestyle block of 1 ¼ acres. We moved to Brookside for the lifestyle, but have grown to love the tranquillity and peaceful rural environment that our home and the wider Brookside area offers. We used to feel so lucky to live in such a beautiful and open space, but now feel like that aspect, so important to us, is just so close from being pulled out from under us.

4 Our property consists of a main house and a granny flat with a triple garage in between and our 100m northern boundary abuts the application site.

5 You buy a house as an investment, yes the market can go up and down and this would affect the surrounding properties however, what you don't expect is a house that will be singled out due to the 'quiet rural amenity' being developed into commercial/ industrial use.
Who, when looking for a new home in the country, would want to live beside a commercial power plant? Regardless of whether it will be screened out by plantings.

PROXIMITY

6 The proposal still has the panels positioned too close to my property. Documents state these are 76 metres to the closest part of my home (the living room). If you were to research 'what is a safe distance to live from a solar farm' various articles state that 200 metres for a small solar farm, and 500 metres for a large solar farm is appropriate. Living 76 metres away from a solar farm is entirely in tension with this guidance and neither I or anyone else would be keen to live in that proximity – especially, when considering the long term consequences of living so close to a solar plant. (*Appendix 1 – climatecafe.org*)

7 The 30 metre NH-Wildfire setback rule (REQ7) from a "new" shelterbelt to a residential unit does not comply. The most northern aspect of my home (according to correspondence with Mr Richard Bigsby) is approximately 13 metres off the northern boundary fence. The landscape plans provided by the applicant, state that the new shelterbelt will be situated 10 metres north of the boundary fence, therefore this would equate to a total of 23 metres. I also note that the same plan, which states the distance between my house and the boundary fence is 17 metres which is incorrect. (*Appendix 2 – Boffa Miskell; Landscape plan; Figure E*)

8 Whilst guidelines and articles provide information around safe living distances from solar farms, at present there are no rules or regulations around this matter and it is being taken advantage of by developers and councils all over the country. Another solar farm developer in New Zealand is allowing a distance of 150 metres from panels to houses. Notwithstanding the impacts that these still have on the environment and amenity of the surrounding environment, greater setback distances seem to have a far more positive outcome for close neighbouring properties at a minimum.

9 As you would have read with my submission, I conducted a survey into one's appetite to live at my property if the application were to be granted. I asked 105 people (who I may add were all over the age of 21) and when I showed them the map of the site covered in panels with my tiny little block of land on the southern boundary, every one of them voiced that they would have no interest in living there. These people hadn't even been inside the gate, just a sheer NO, they would not consider it.

10 Value of a property cannot be separated from an assessment of amenity. These concepts are intrinsically linked. The commissioner at the last hearing wanted proof of how my property will be affected. I have that proof, from an independent valuer which was also included with my submission.

NOISE

11 Not only is my house the closest to the solar farm. It is also the worst for noise whilst under construction at 69 decibels. Operational noise will be at 47 decibels. I am aware that it falls under the appropriate standards however, we will experience a change in the sound environment composition and level. The sound environment will be less than pleasant and will therefore bring a change in amenity.

12 According to William Reeves evidence there will be periods of days that the power plant will be clearly audible at my property. This apparently will depend on wind and local farming noise.

13 Tractor noise from the three farms that surround my property doesn't even happen once a week, not even fortnightly.

14 In regards to Mr Reeves acoustic assessment (which was also peer reviewed by the council) I can't see how you can compare a 4 hectare solar array in the Waiau Valley with that of the 111 hectares proposed here which has many more inverters and batteries.
Wind was also not factored into Mr Reeves assessment nor was the effect of temperature inversions.

15 The prevailing winds at my property are north easterly and north westerly. These winds will push and amplify all noise from the operation of the site towards my home.

16 On a warm day noise is dissipated into the air. During a frost on a cool, clear morning, noise is confined between an inversion layer and the ground. For this reason, on a frosty morning noise is not dissipated into the air. When it is trapped in a corridor, the intensity of the noise carries over a long distance. This will happen at the Brookside site over winter, where 80 decibels of noise at the inverters and 85 decibels at the transformers is translated into 60 decibels of noise at the closest houses because of the inversion layer. This added level must be factored into the equation during a canterbury frost and can't just be calculated on a "perfect day". (*Appendix 3 – Temperature inversions*)

17 There is also an increased noise at the inverters as they come under 'load' (Marshall day report for the Mangamarie Solar Farm, August 2022). Noise at the transformers and inverters is, on average 4 decibels greater when they are at 100% loaded capacity, than when they are at 10% load. This will increase the operation noise level at my property to 51 decibels.

18 Although the solar power plant doesn't intend to operate between the hours of 10pm – 7am, what guarantee have we got as a community that once batteries are installed, it won't operate overnight in the future without an acoustic assessment being undertaken. Other solar farms in New Zealand run overnight (Marshall Day report for Wellington Road, Marton)

19 The acoustic document states that the noise won't interfere with domestic activities, but it doesn't factor in the noise for outside activities, like BBQ's and gardening. We have three decks that face north. I spend a lot of time in my garden and the present peaceful amenity will change to a tonal hum from inverters, cooling systems and eventually batteries.

20 It is not something I nor a potential buyer would want to hear. Whether the site is fully screened eventually or not, this proposal (a noisy commercial power plant) will have major impacts on the peacefulness and rural amenity of my property.

21 Brookside will be exposed to a low-frequency sound, that over time damages hearing by irritating the cochlea. Ongoing exposure causes swelling which then forms a plug that makes the ear 20-30 decibels more sensitive to low-frequency sounds for people with certain ear conditions such as vertigo, tinnitus or cochlea sensitisation. Thus meaning at my property the expected 47 decibel rating would then equate to 67-77 decibels.

CASE STUDIES

22 Solar farms do not need to be situated on flat land, nor do they need to be located right next to a substation if that location is inappropriate.

23 The nation with the highest per capita usage for solar energy is Spain. One of the larger solar farms in Spain is positioned on hill country away from urban areas and the homes of rural ratepayers; as is one of the largest solar farms in France. (*Appendix 4 – Photos of Solar Array on hillside in France & Spain*).

24 Glorit solar farm on the Kaipara Coast, north of Kaukapakapa, will be a 160 megawatt project spread over 220 hectares of land. Cables will run 2 kilometres east, back to infrastructure specifically built for that solar farm. (Appendix 5 – Glorit Solar Farm)

25 The developers will have to pay to transport their power to the nearest grid point, which they seem happy enough to do.

FIRE RISK

26 It is my understanding that a fire report needs to be undertaken for commercial businesses when applying for a resource consent. Why is it not the same procedure for a solar farm given that it too is a commercial operation.

27 A fire is a major concern for all neighbours. With a fire at the site there will be a discharge of toxic respiratory contaminants into the air, in which Brookside residents will need to evacuate. (Appendix 6 – Defects with battery storage systems)

SUBSTATION UPGRADES

28 The Application material acknowledges that the Brookside substation will need to be upgraded to service this application. An enlarged substation at Brookside will require an increased land area. Orion does not have that land available at the existing site, therefore land will have to be subdivided from the Ward property.

29 Brookside residents will object to this subdivision because they do not want a large substation omitting 80-100 microteslas of electromagnetic fields that will not only affect their health but will stop monarch butterflies and bees visiting their gardens.

CONSTRUCTION

30 Construction is now proposed to take place six days a week from 7.30am - 6pm, no mention of how public holidays are factored in. I understand piling was to take six months with two rigs operating. There is also no mention of how this extra day would reduce the overall construction timeframe. I would rather keep my sanity knowing we had the weekends completely noise free even if it takes a few extra weeks.

COMMUNITY ENGAGEMENT

31 Regarding community engagement, other solar developers have sent out brochures/flyers to the local community and held community drop-in sessions prior to applying for resource consent. Mr McMath's idea of community engagement is totally different to what us local residents would have liked and expected. Engagement is vital with all those living in the area, to hear about the concerns from a residents perspective, answer any questions and take on board suggestions from those greatly affected. If this approach had been taken by Mr McMath back in 2022 and again before this recent application was made, it may not have put us in the situation we find ourselves in here today. (Appendix 7 – Glorit Community Letter)

32 Mr McMath is not a Brookside resident, he lives some 9 kilometres away from the site in Leeston. I know of two couples that have given their written approval for this solar farm project, that already have land elsewhere and plan to relocate.

OTHER CONCERNS

33 I am concerned about the potential impact the panels could have on my phone/ internet connection. Our connection is via the cell tower in Burnham therefore our signal has to go over the site. I am concerned about signal loss or interference. (Appendix 8 – The impacts of solar panels on cell signal).

34 The exotic pine hedge that runs along our 100 metre northern boundary adjacent to the site was planted in a drain. The large tree roots and a build-up of fallen pine needles within this are causing drainage issues with heavy wet weather as our property sits lower than the site. The drain needs to be relocated further north to remove surface water before it gets onto our property like it currently does. It would also need to be maintained annually. This needs to be done regardless of whether the consent is granted or not. (Appendix 9 – Photos of boundary hedge)

35 I am concerned as to how you are going to prevent panels and equipment from freezing in the winter months? I understand other solar farms use a form of anti-freeze?

36 The most important thing I wish to get across today is the extreme impact this proposed development is having on my mental health. I first found out about this project in February 2022. For over two years now, I have been in a constant state of worrying and thinking, it has taken over my life. I am still suffering from panic attacks, these started with the build-up to the first hearing a year ago. I have been prescribed sleeping tablets. In July last year, well after the first hearing I was referred to Pegasus mental health for counselling.

37 My family and friends are concerned about my mental state. I need closure and the ability to be able to move on with my life and for me it feels like the only way is for me to give up on the tranquil and peaceful home and area I love so much, and get out. I appreciate that sometimes people have to put up with a level of impact for development, but these power plants shouldn't impose such a big change to the amenity of their surrounds, or the health of the members in the adjacent or nearby properties.

38 I fail to understand why our elected council representatives appear to be so supportive of a proposal that seriously negatively impacts so many people, and with seemingly so little consideration to those people and the community.

CONCLUSION

39 This will have an impact on the saleability of my home as the panels will be too close and 'there will be periods of days that the power plant will be clearly audible' from my property - amenity values will change. It will affect the wider community. My mental health will continue to decline.

Donna Kewish
04 March 2024

APPENDIX 1

climatecafe.org

View more on Instagram

537 likes

enelgreenpower

This is our El Paso power plant in Colombia 🇨🇴! The solar park is made up of around 250,000 panels installed on an innovative structure: thanks to cutting-edge technology, it allows photovoltaic modules to follow the movement of the sun ☀️ with the aim of maximizing energy production ⚡

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#Colombia #green #solar #solarpower #naturalpartnership #solarpanels #solarfarm #sun #landscape #solarenergy #light #sky #renewables #egp #enelgreenpower #instapower #energy #alternatives #sustainable #nature #gogreen #solarcity #photovoltaic #technology #climatechange

View all 15 comments

Add a comment...

The distance you can safely live from a solar farm depends on its size and the type of solar panels used.

In general, keep at least 500 meters away from a large-scale solar farm and at least 200 meters away from a small-scale solar farm.

For monocrystalline solar farms, it is recommended to keep at least 1000 meters away, while for polycrystalline solar farms, it is recommended to keep at least 500 meters away.

APPENDIX 2

Boffa Miskell; Landscape plan; Figure E

Boffa Miskell

www.boffamiskell.co.nz

This plan has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

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Data Sources: LINZ

Projection: NZGD 2000 New Zealand Transverse Mercator

BUCKLEYS ROAD SOLAR FARM, BROOKSIDE

324 Branch Drain Road

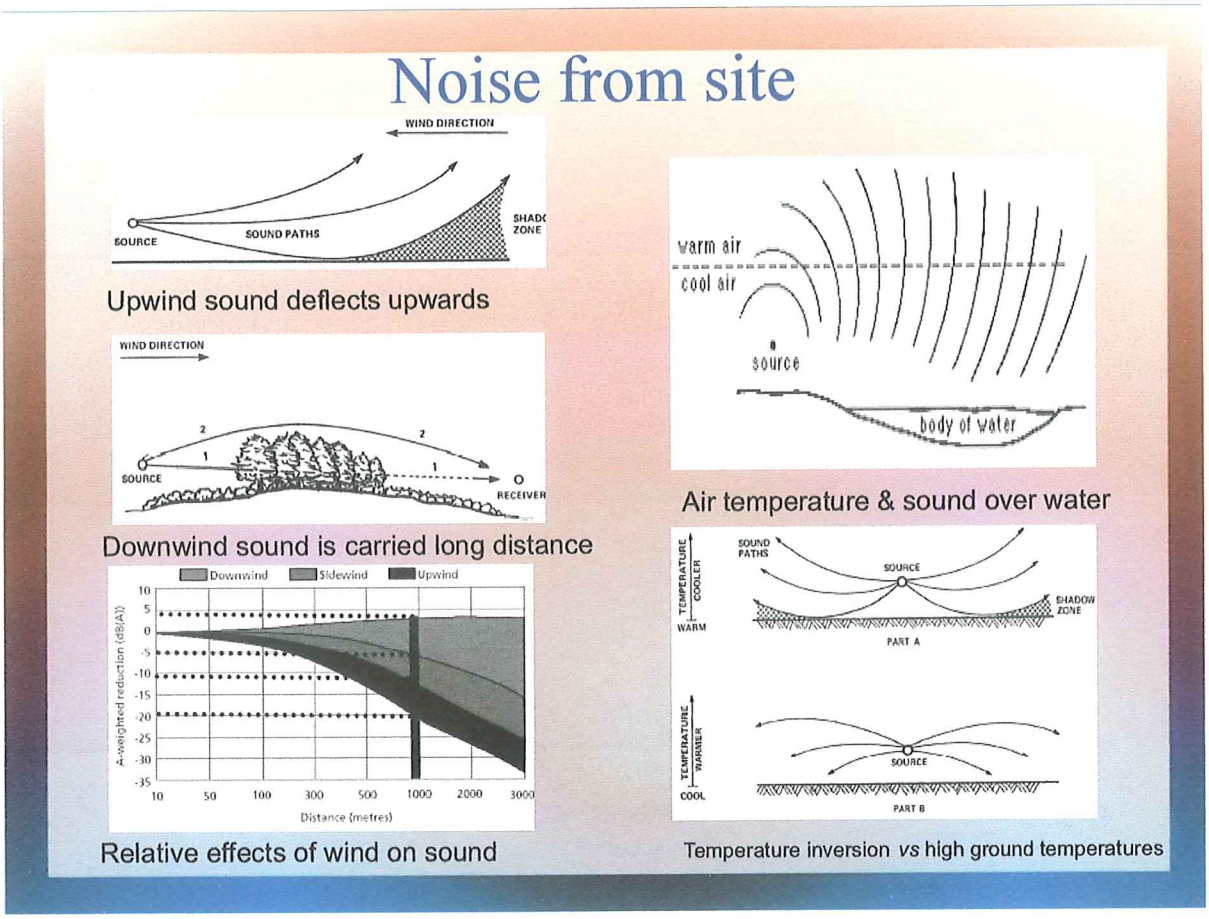
Date: 16 February 2024 | Revision: 0

Plan prepared for KeaX Limited by Boffa Miskell Limited

Project Manager: Amanda.Anthony@boffamiskell.co.nz | Drawn: AAn | Checked: EMc

Figure E

APPENDIX 3
Temperature inversions



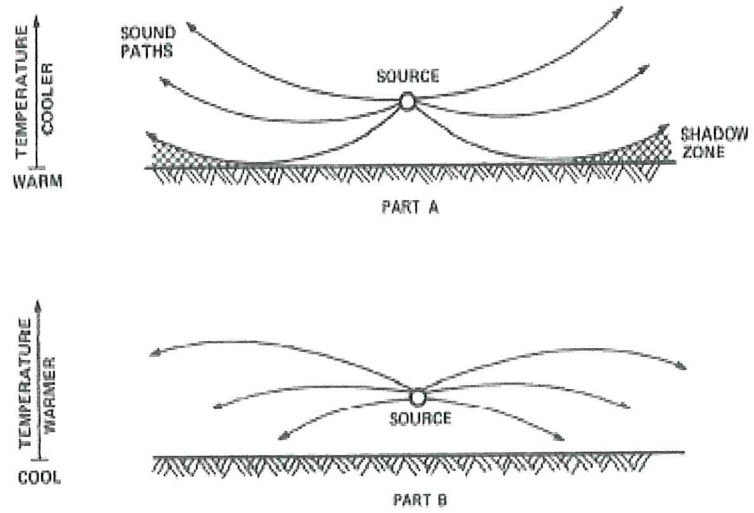


Figure 13. Temperature has a significant effect on noise dispersion, so a) on a warm day noise is dissipated into the air (top), but b) when there is a temperature inversion is trapped in a corridor just above aground. This allows noise on a frosty morning to travel long distances without losing intensity.

APPENDIX 4

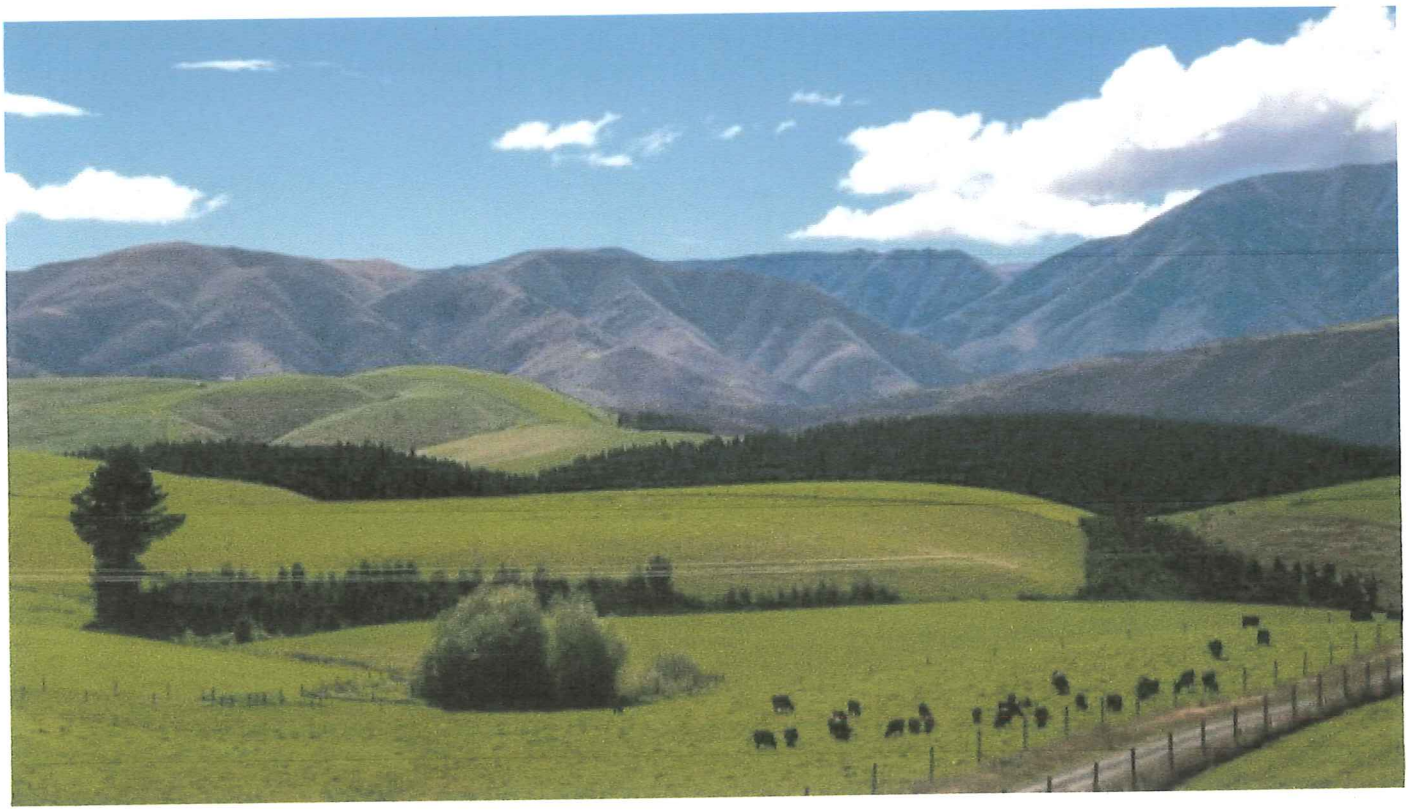
Photos of Solar Array on hillside in France & Spain

France - top photo
Spain - bottom photo

APPENDIX 5
Glorit Solar Farm

lightsource bp

NEW ZEALAND



KEY NUMBERS

160

MWdc installed capacity

260,000MWh

(Megawatts hours) renewable energy supplied per year

33,000

homes powered (equivalent)

CURRENT STATUS

- Site selection
- Preliminary assessments, site design & community engagement
- Planning application
- Discharge of planning conditions
- Construction
- Operation
- Decommissioning

A proposed 160MWdc solar farm north of Auckland

The Glorit Solar Farm is a 160MWdc project on the Kaipara Coast, north of Kaukapakapa, Auckland. Lightsource bp and Contact Energy will develop the solar farm, which is expected to have an operational life of at least 35 years. The site will connect to the existing Transpower 220kV transmission network via a 2km dedicated connection from the site to the transmission network. We are working closely with Transpower on this grid connection point.

We're in the early stages of design and planning for the project and will continue to engage with the community and key stakeholders as the project progresses and design is refined. Construction is expected to start in early 2024.

More information

You can learn more about the project in a letter which we shared with the local community regarding the proposal.

DOWNLOAD LETTER

Please submit any enquiries about this project using the form at the bottom of the page.

Get in touch

APPENDIX 6

Defects with battery storage systems

Survey finds 26% of battery storage systems have fire detection and suppression issues

The Clean Energy Associate's survey also found 18% of the energy storage systems had issues with the thermal management system.

FEBRUARY 15, 2024 KAVYA BALARAMAN

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Around 26% of energy storage systems that were inspected by Clean Energy Associates (CEA) during a recent survey showed quality issues connected to their fire detection and suppression systems, according to a report from the clean energy advisory company.

The findings led the report's authors to conclude that thermal runaway still poses a significant risk to the energy storage industry. In addition, the survey found 18% of the energy storage systems had issues with the thermal management system.

"Fire suppression and thermal management systems are critical for functional safety, and defects in these systems can lead to increased risk of fire," the report said.

CEA conducted more than 320 inspections on over 52 battery energy storage system factors, collectively auditing over 30 GWh of lithium-ion battery storage projects. In total, the exercise identified more than 1,300 manufacturing issues, the company reported.

Markets in the U.S. and across the world have been deploying increasing amounts of energy storage to help smooth out renewable power. In fact, the total amount of energy storage installed in the U.S. in the first three quarters of 2023 exceeded total deployments for the previous year, and would have been much higher, if it weren't for delays that affected 80% of projects in the pipeline, according to a report from Wood Mackenzie and the American Clean Power Association (ACP).

Experts say that multiple factors are driving the battery storage market, including price declines. Median prices for grid-scale lithium-ion battery storage systems shrunk 23% quarter over quarter, according to the report, thanks in part to easing supply chain challenges and lower commodity prices.

However, policy-makers are also keeping a close eye on the risks posed by lithium-ion batteries, which have been known to cause fires – such as the 2019 McMicken fire at an Arizona Public Service (APS) system, which injured eight firefighters and a policy officer. Last September, a fire occurred at a battery storage in northern San Diego

County, California – the Valley Center Energy Storage Facility, a 139 MW project. That fire necessitated evacuating people from homes and businesses within a quarter mile of the storage system's site.

CEA's analysis took a closer look at issues at the system, module and battery cell levels. It found that some 50% of quality assurance findings were system-level defects. Two factors drive this trend, according to the report: systems tend to be complex and vulnerable to problems that were actually caused further upstream and escaped earlier quality checks, and the integration process for battery storage systems tend to be highly manual and labor intensive, and don't always have stringent quality control procedures.

"A takeaway is there is no perfect production line or supply chain or manufacturer... So definitely doing due diligence before procuring and then in the factories is a must for buyers. The industry has matured a lot, but it's not there yet – I think that's quite obvious," said George Touloupas, senior director, technology and quality with CEA, during a webinar conducted by Energy-Storage.news.

But while lithium-ion batteries present these risks, Touloupas said they remain the prominent storage technology being purchased today.

"[I]f we need a lot of hours of storage, then maybe flow batteries or other technologies become competitive – but as we are today, there's nothing else than lithium-ion," he said, adding that he's optimistic that the industry is reacting and addressing these safety challenges.

Noah Roberts, senior director of energy storage with the American Clean Power Association, noted that the report's findings do not mean that these faults exist in energy storage facilities connected to the grid. In fact, he said, under current industry standard practices, and the nationally recommended safety standard, NFPA 855, all of the faults identified in this report would be corrected during the project installation and commissioning process.

"It is critical that the topic of this report—a subjective evaluation of manufactured products still on the assembly floor—is not conflated with the highly regulated, evaluated, and tested energy storage equipment currently serving the electric grid," Roberts added.

APPENDIX 7
Glorit Community Letter

March 2023

COMMUNITY DROP-IN SESSION – GLORIT SOLAR FARM

As you may already be aware, Lightsource bp and Contact Energy are proposing to develop a solar farm on land off Omaumau Road, Glorit, as part of our 50/50 joint venture to develop, construct and operate new solar farms across New Zealand. The joint venture's initial ambition is to create enough clean, affordable electricity to power 50,000 homes across New Zealand by 2026.

The Glorit Solar Farm would consist of an (approximately) 160 megawatt (MWdc) photovoltaic solar farm and associated infrastructure, as well as a transmission line to connect the site with the existing Transpower transmission network located approximately 2km east of the site. The proposed grid connection location is still being investigated, but is expected to be in the vicinity of the Glorit Hall. We are working closely with Transpower to firm up this detail.

To find out more about the project, we would like to invite you to a drop in session to discuss the project in more detail.

Date: Tuesday 4th April 2023
Time: 5.30pm until 8pm
Location: Glorit Hall, 2995 Kaipara Coast Highway (SH16), Glorit, Auckland

Members of the project team will be present to answer any questions you may have and take on board any feedback. This information evening is a vital part of our development process, and will help inform the final design of the project.

CAN'T ATTEND THIS INFORMATION EVENING?

If you cannot attend this information evening and would still like to discuss the project with us, please get in touch with us via the contact information below. We'd be happy to arrange an alternate time to meet.

KEY PROJECT STATISTICS

- 160 MWdc of solar energy.
- Potential for co-located battery storage on site.
- 220 ha project site.
- Equivalent to the energy needs of approximately 33,000 households.
- Connecting to the existing 220kV overhead transmission line to the east of the site, in the vicinity of Glorit Town Hall.
- Expected to employ up to 200 people during the construction period.
- Operational life of at least 35 years.
- We will be looking to utilise local companies and services in the first instance throughout the construction and life of the solar farm.

WHO WE ARE

Contact Energy is one of New Zealand's largest energy retailer and generators. We generated 8.3 terawatt hours of electricity from hydro, geothermal and gas in the last financial year and have over 550,000 customers with electricity, gas and broadband connections. Our vision is to build a better Aotearoa New Zealand by leading New Zealand's decarbonisation journey.

Lightsource bp is a global market leader in the funding, development and long-term management of large-scale solar projects and smart energy solutions. We work closely with local businesses to deliver sustainable renewable energy projects.

Lightsource bp and Contact Energy are supported by Beca as lead consultants on this project.

If you would like to arrange a meeting or have any other questions with regards to this letter, please do not hesitate to contact us. We look forward to hearing from you.

Many thanks,

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Head of Wind and Solar
Contact Energy
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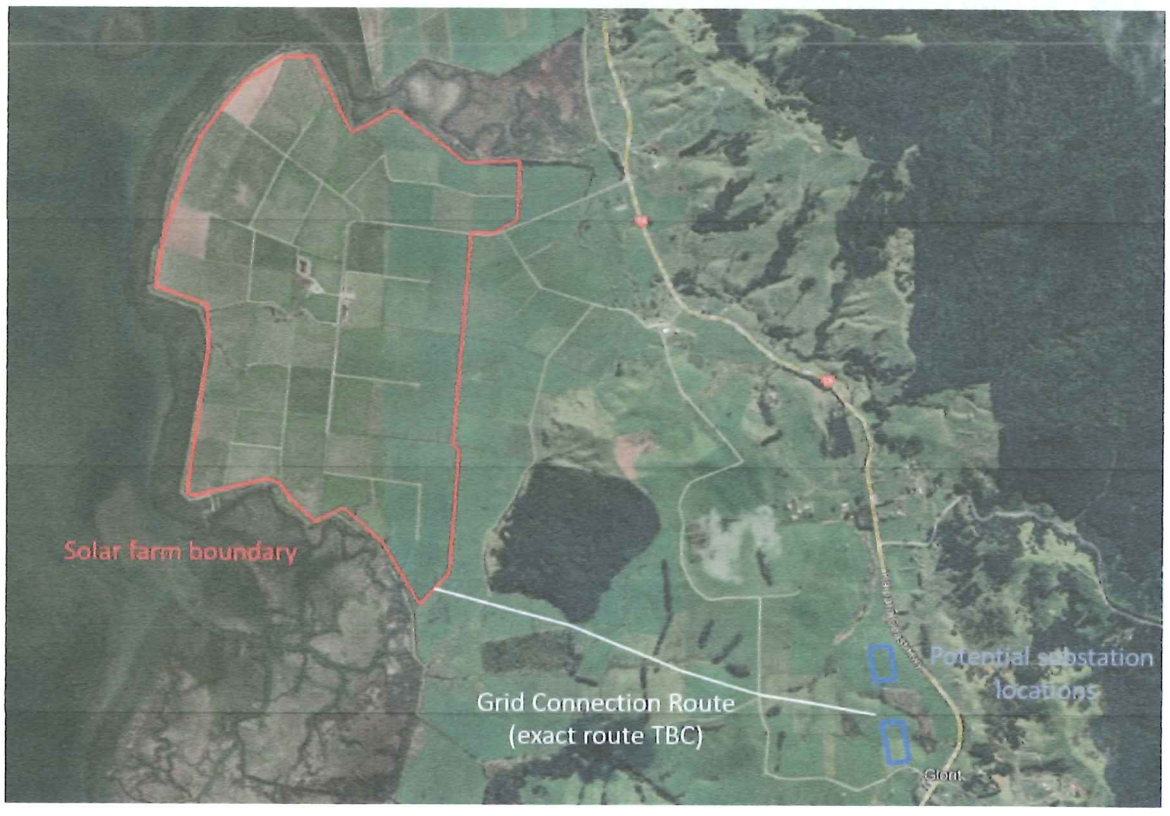
CONTACT US
Email: gloritsolar@lightsourcebp.com
Website: https://www.lightsourcebp.com/nz/



APPENDIX 8

The impacts of solar panels on cell signal

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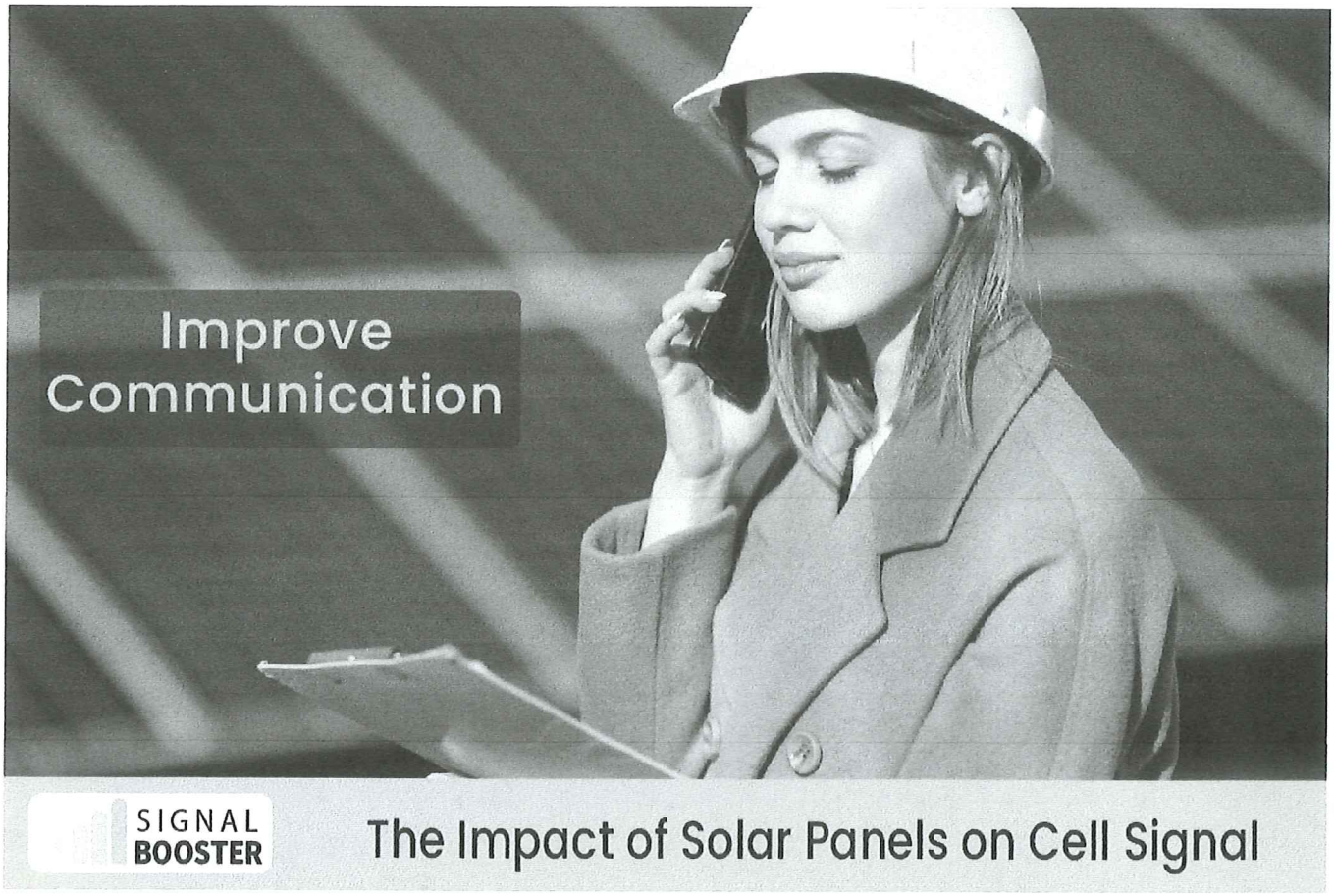
The Impact of Solar Panels on Cell Signal



Solar panels have become increasingly popular as a sustainable energy solution, providing numerous benefits such as reduced electricity costs and environmental friendliness. However, one concern that arises when installing solar panels is their potential impact on cell signal reception. The presence of solar panels can sometimes interfere with the strength and quality of the cellular signal, leading to dropped calls, slow data speeds, and poor overall connectivity.

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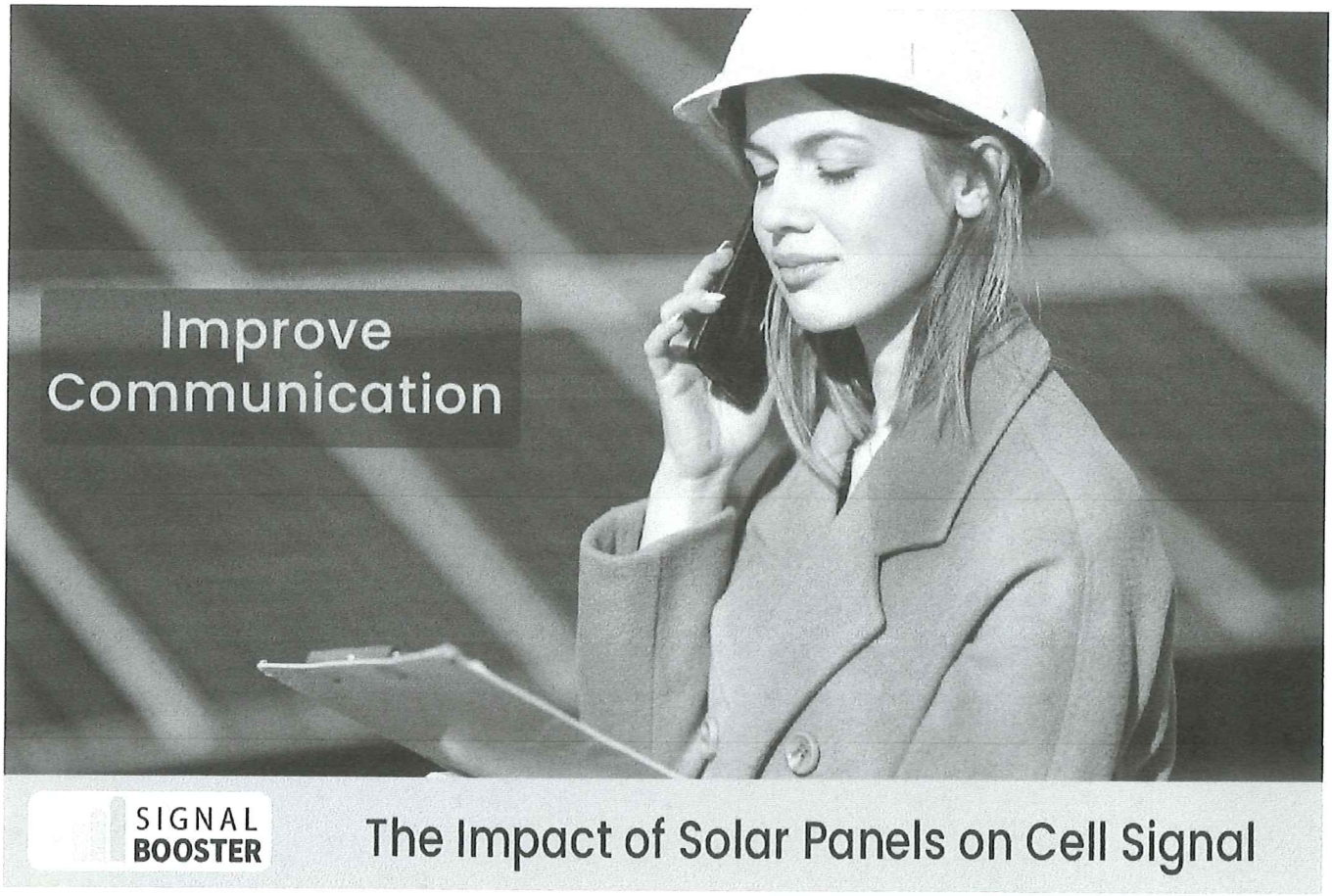
The Impact of Solar Panels on Cell Signal



Solar panels have become increasingly popular as a sustainable energy solution, providing numerous benefits such as reduced electricity costs and environmental friendliness. However, one concern that arises when installing solar panels is their potential impact on cell signal reception. The presence of solar panels can sometimes interfere with the strength and quality of the cellular signal, leading to dropped calls, slow data speeds, and poor overall connectivity.

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Understanding the Impact of Solar Panels on Cell Signal

The presence of solar panels can affect cell signal reception due to the materials used in their construction and their position in relation to cell towers. Some solar panels are built with metal frames and other conductive materials that can block or weaken cell signals. Additionally, solar panels can create a physical barrier between cell towers and the location where the signal is needed, causing signal loss or interference.

Factors Affecting Cell Signal Near Solar Panels

Several factors can contribute to the impact of solar panels on cell signal strength. These include:

1. **Distance from the Cell Tower:** The proximity to the nearest cell tower plays a crucial role in determining the strength of the cell signal. If solar panels are installed far away from cell towers, the signal may already be weak, and the presence of solar panels can exacerbate the problem.
2. **Type and Positioning of Solar Panels:** Different types of solar panels and their positioning can affect signal reception. Panels with conductive materials or reflective surfaces may have a more significant impact on the signal compared to panels with non-conductive materials.
3. **Signal Frequency:** Different cell service providers use various frequency bands for their signals. Some solar panels may specifically interfere with certain frequency bands, causing signal degradation for specific service providers.

Boosting Cell Signal Near Solar Panels

If you experience poor cell signal near solar panels, there are several solutions to improve signal strength:

External Antennas

Installing an external antenna on the roof or near the solar panels can help capture stronger cell signals and transmit them to the nearby area. This can be particularly effective when the solar panels are obstructing the direct line of sight to the cell tower.

Signal Boosters

Cell signal boosters, also known as repeaters or amplifiers, are devices designed to improve cell signal strength. They consist of an outside antenna to capture the weak signal, an amplifier to boost the signal, and an inside antenna to distribute the amplified signal within the desired area.

Proper Antenna Placement

If possible, positioning the outside antenna away from the solar panels or at a higher elevation can help reduce signal interference. This allows the antenna to receive a clearer and stronger signal from the cell tower.

Consultation with Professionals

Seeking guidance from professionals who specialize in signal enhancement solutions can be beneficial. They can conduct a site survey, assess the signal conditions, and recommend the most suitable solutions based on your specific requirements.

Line-of-Sight Obstructions

Apart from solar panels, other objects or structures such as buildings, trees, or hills can also obstruct the line-of-sight between the cell tower and your location. These obstructions can further weaken the cell signal. Identifying and addressing these obstructions, such as by installing higher antennas or using signal repeaters, can help improve signal strength.

Cellular Carrier and Network Coverage

Different cellular carriers may have varying network coverage and signal strength in specific areas. It's essential to consider the coverage of different carriers when evaluating cell signal near solar panels. Researching and selecting a carrier with stronger network coverage in your area can help mitigate signal issues.

Grounding and Shielding

Proper grounding and shielding of solar panel installations can help minimize any potential signal interference. Ensuring that the solar panels are grounded properly and implementing shielding measures can reduce the impact on cell signal reception.

Solar Panel Orientation

The orientation of solar panels can also impact signal interference. Adjusting the angle or position of the solar panels to minimize their obstruction of the cell signal path can improve signal strength.

Regular Maintenance

Periodic maintenance of both the solar panels and the cell signal-boosting equipment is crucial. Keep the solar panels clean and free from dust, debris, or any other substances that could interfere with signal reception. Similarly, ensure that the signal-boosting equipment is functioning optimally by regularly checking connections and performing necessary maintenance tasks.

Signal Boosting Solutions

Explore various signal-boosting solutions specifically designed for use near solar panels. These solutions, such as solar-compatible signal boosters or specialized antenna installations, can help mitigate signal interference and enhance overall signal strength.

Signal Amplification Techniques

Signal amplification techniques refer to various methods used to boost or enhance the strength and quality of the cell signal in areas affected by solar panels. Solar panels can sometimes interfere with the cell signal due to their structure and material composition. To overcome this issue, several techniques can be employed.

One approach is the use of high-gain antennas, which are designed to capture and transmit a stronger signal compared to standard antennas. These antennas are strategically positioned to maximize signal reception, even in areas with solar panel installations. They can be mounted on rooftops or other elevated locations to minimize interference from solar panels.

Another technique involves the use of signal amplifiers or boosters. These devices are designed to amplify weak cell signals, compensating for any signal loss caused by solar panels. Signal amplifiers capture the existing signal, enhance its strength, and distribute it throughout the area, ensuring improved signal coverage and reception.

In some cases, signal repeaters or extenders may be employed. These devices capture the existing cell signal, amplify it, and retransmit it to extend coverage in areas affected by solar panels. Signal repeaters act as intermediaries, bridging the gap between the cell tower and the area with solar panels, providing a stronger and more reliable signal.

By implementing these signal amplification techniques, individuals and businesses can mitigate the impact of solar panels on cell signal strength. These methods help ensure uninterrupted connectivity, enabling smooth communication, data transmission, and access to mobile services.

Antenna Placement

Proper antenna placement is crucial when addressing the impact of solar panels on cell signal. The positioning of antennas plays a significant role in minimizing signal interference and maximizing signal strength in the presence of solar panels.

When installing antennas, it is essential to consider their placement in relation to the solar panels. Direct line of sight between the antennas and the solar panels can lead to signal interference and degradation. Therefore, it is recommended to position the antennas away from the direct path of the solar panels.

By placing antennas strategically, such as on rooftops or in locations where they are shielded from the solar panels, signal interference can be minimized. This allows the antennas to capture and transmit the cell signal without obstruction, leading to improved signal quality and strength.

Additionally, antennas should be positioned at an optimal height and orientation to maximize signal reception. Factors such as the distance to the nearest cell tower, the frequency band being used, and the surrounding environment should be taken into account when determining the ideal antenna placement.

Proper antenna placement is a critical consideration when dealing with the presence of solar panels. By ensuring that antennas are positioned away from the direct line of sight of the solar panels, signal interference can be minimized, leading to enhanced signal strength and improved overall cell signal reception.

Signal Monitoring and Testing

Regular monitoring and testing of the cell signal near solar panels are essential to ensure optimal signal performance and identify areas for improvement. By utilizing signal testing apps or professional equipment, individuals can assess the strength and quality of the cell signal in real time.

Monitoring the signal strength allows users to identify any fluctuations or inconsistencies in the signal caused by the presence of solar panels. This information can help determine the effectiveness of signal amplification techniques and indicate if further adjustments are needed.

Signal testing apps or professional equipment provide accurate measurements of signal strength, signal-to-noise ratio, and other relevant metrics. By conducting periodic tests, users can gather data on the impact of solar panels on the cell signal and track any changes over time. This data is valuable in assessing the effectiveness of signal amplification measures and identifying potential areas for improvement.

Regular monitoring and testing also enable users to identify any potential issues or sources of interference that may be affecting the cell signal. This proactive approach allows for timely troubleshooting and adjustments to optimize signal performance near solar panels.

In conclusion, regularly monitoring and testing the cell signal near solar panels is crucial for ensuring optimal performance and identifying areas that require attention. By utilizing signal testing apps or professional equipment, users can gather valuable data to optimize signal strength and minimize any interference caused by solar panels.

Consultation with Professionals

Seeking advice from professionals in the field of both solar panels and telecommunications can be highly beneficial when dealing with cell signal issues near solar installations. These experts possess specialized knowledge and experience in understanding the intricate relationship between solar panels and signal reception.

By consulting professionals, individuals can receive customized solutions tailored to their specific situation. These experts can assess the configuration of the solar panels, the surrounding environment, and other factors that may impact cell signal performance. Based on their expertise, they can recommend optimal antenna placement, signal amplification techniques, and other strategies to mitigate any signal interference caused by solar panels.

Professionals in the field can also provide insights into the latest technologies and advancements in signal-boosting equipment. They stay updated with industry trends and best practices, ensuring that the recommended solutions align with the current standards and regulations.

Moreover, these experts have access to advanced tools and equipment for conducting precise signal measurements and analysis. They can perform site surveys to identify potential sources of interference and suggest remedies to optimize signal strength.

Collaborating with professionals not only saves time and effort but also ensures a more effective and efficient resolution to cell signal issues near solar panels. Their expertise and tailored recommendations can significantly improve signal performance, allowing individuals to enjoy uninterrupted communication and data connectivity.

Consideration of Future Expansion

Considering future expansion plans is crucial when addressing cell signals near solar panels. As the demand for renewable energy continues to grow, it's important to anticipate the potential increase in solar panel installations in the vicinity.

Expanding solar panel installations can have implications for cell signal strength, especially if the current infrastructure is not designed to accommodate the added load. Therefore, it's essential to consider the future growth of solar panels and plan for effective signal-boosting solutions in advance.

By proactively assessing the potential impact on cell signals, individuals and businesses can make informed decisions regarding their signal enhancement strategies. This may involve deploying more robust signal amplification equipment, upgrading antennas or repeaters, or implementing other measures to maintain optimal signal strength amidst increasing solar panel installations.

Additionally, planning for future expansion allows for better integration of signal-boosting solutions with the solar panel infrastructure. It provides an opportunity to design and implement a comprehensive and scalable system that can accommodate the growing demands of both solar energy generation and reliable cell signals.

By considering future expansion plans, individuals and businesses can avoid potential disruptions or signal degradation as more solar panels are installed. They can stay ahead of the curve and ensure that their communication and connectivity needs are met even as the solar panel landscape evolves.

Conclusion

Solar panels can have an impact on cell signal strength due to their materials and positioning. However, with the right strategies and equipment, it is possible to mitigate the signal issues near solar panels. Installing external antennas, using mobile signal boosters, optimizing antenna placement, and seeking professional assistance are effective ways to improve cell signal strength and ensure reliable connectivity even in the vicinity of solar panels.

If you are experiencing poor cell signal near solar panels, consider investing in signal-boosting solutions from reputable providers like MySignalBoosters.com. By choosing the right equipment and implementing effective strategies, you can enhance your cell signal and enjoy uninterrupted connectivity, even in the presence of solar panels. If you have any questions regarding any of our products please contact us.

APPENDIX 9

Photos of hedge in drain