Sunnica Energy Farm | National Infrastructure Planning (planninginspectorate.gov.uk)

I am a resident in Kennett, a village which is on the edge of the planned area and will be affected largely by this application in many ways. I object to the application but would also like it to be noted that if the decision does go ahead there needs to be much more mitigation than planned to negate the impact it will have on mine and others daily lives.

I have lived in Kennett for 12 years now and love how rural we are and how much of a close-knit community we are with the surrounding villages, with such beautiful routes to use to travel between them all. I have two dogs that I walk through the surrounding areas on a daily basis. I feel that these beautiful walks will be lost to us due to the construction of the solar farm.

The construction works itself will greatly increase traffic on already overly congested roads in the area, it will also have direct impact on me due to the increased flow of traffic past my house. My work commute will also increase in time due to the extra construction traffic, this will also impact my leisure time as it will take longer to get to the shop and other facilities on the surrounding villages. The knock on effect from this will be that local businesses will see a drop in revenue as people look to purchase goods from the internet rather than fight through the traffic to visit the shops.

As mentioned previously I regularly take my dogs for walks in the area such as the Green Lane between Worlington and Badlingham, Snailwell to Newmarket Bridleway 5 Gallops, Chippenham 49/7 footpath, Chippenham 49/1 footpath, Chippenham 49/2 footpath, Chippenham 49/3 footpath among others. The construction works and final solar farm will seriously have an impact on the areas stated turning them into an eyesore rather than what they area at the moment which is an area of natural beauty.

My other concerns is around the lithium cells used to store the electricity generated by the solar panels. When lithium cells become damaged or short circuit then they can enter a state of thermal runaway. When in thermal runaway lithium cells release Hydrofluoric Acid either from a rupture in the cell wall itself or from the smoke and fumes which are produced by the fire. Hydrofluoric acid actively seeks out calcium and if breathed in will eat away at the bones within the person who has inhaled it unless it has been neutralised.

Some examples of thermal incidents are as follows
Vistra Energy's Facility in Moss Landing, California September 2021
Vistra Energy is the world's largest battery storage facility for storing solar and wind energy. The risk of combustion from overheating is higher, especially if the batteries are damaged in some way. This is exactly what hapapened at Vistra Energy. While systems prevented the battery storage facility from going up in flames, the fact that even a few packs melted is concerning.

Back in September, the 300 megawatt facility shut down when several overheating battery packs melted and triggered the fire suppression system to kick in. About 7,000 batteries were soaked by the system and damaged in the process. The company shut down the 300 megawatt facility, but a smaller 100 megawatt facility was still in operation at the site.

On February 13th, that smaller facility experienced a second incident. Again, it's believed that water hoses leaked and damaged some of the facility's battery packs. It was especially concerning as the company was about to reopen the 300 megawatt facility. Those plans have since been scrapped until the facility can figure out how to prevent additional meltdowns if there are hose leaks. While the fire

suppression system worked effectively both times, there are fears about what could happen if the systems failed and hundreds of these batteries exploded.

Fire at 20MW UK battery storage plant in Liverpool
By Andy Colthorpe
September 16, 2020

Carnegie Road BESS in Liverpool, UK, as it looked when completed in early 2019. Image: Ørsted.
There has been a fire at the Carnegie Road 20MW battery energy storage system (BESS) project in Liverpool, England, project owner Ørsted has confirmed.

Merseyside Fire & Rescue Service, local first-responders, said that crews were alerted shortly before 1am on 15 September and arrived to find a "large grid battery system container well alight".

The fire service said that it had used main jets and ground monitors in tackling the fire, asking residents nearby to keep their windows and doors closed due to smoke from the incident.

The blaze went on for several hours, with an update from the service at 7:30am noting that although operations at the site had been scaled down, firefighting was ongoing, with two ground monitor units and a main water jet still in use. A further update at 11:45am said one fire engine was still at the scene, with firefighting still continuing, although by that stage only one hand-held pump was in use.

The Carnegie Road project was Danish power company Ørsted's first standalone grid-connected battery project, built using storage system equipment supplied by the now-defunct Energy Solutions division of NEC Corporation, housed in three containers. The project's completion was announced at the beginning of 2019.

Ørsted sent a statement to Energy-Storage.news in response to a request for confirmation of the story and for further details:

"We can confirm there has been a fire at our Carnegie Road battery storage facility in Liverpool. This facility does not have permanent members of staff and no-one was on-site at the time of the fire," the spokesperson said.

"We would like to thank the firefighters at Merseyside Fire and Rescue for their rapid response and professionalism in getting the fire under control. It is too early to speculate about the cause of the fire but as soon as we can get on-site we will be conducting an urgent review to understand what has happened."

Merseyside Fire & Rescue Service also said that "an investigation will be carried out".

The Institution of Fire Engineers.
"18 July 2022Solar power fire risk

Government figures confirm that the use of solar PV to generate electricity in the UK has grown rapidly since 2010 and there are now over one million solar PV installations in the UK.[1]

There are a wide range of issues when fighting fires involving PV systems. If solar panels are exposed to light, they will continue to produce potentially lethal amounts of direct current (DC) electricity, even if elsewhere in the building the electricity has been isolated. In practice, this means anyone

operating near a solar panel system during daylight hours is effectively engaging with live electrical equipment.

Parts of the system are always live while light falls on the panels, even artificial lighting may generate small currents. The only way to stop the PV panels generating electricity even after they have been isolated, is to block out the light. In the US portable covers are being trialled, while in the UK London Fire Brigade has successfully trialled a black liquid polymer film that is discharged from a standard 9-litre cylinder, or fire extinguisher which can be used to seal the units to stop them generating energy from sunlight. [2]

Jim Foran, who has pioneered award winning solar PV safety solutions in Australia and the UK[3] and demonstrated their use at previous IFE international conferences, explains: “Once solar panels are up, they don’t make any noise, they are out of out of sight and out of mind. When it comes to causes of fires in solar panels it can be something as simple as a branch falling on the roof that then cracks the panels. Those cracks become hotspots which then become arcs, which then become fires. It can be vermin, rats and birds pulling or chewing at the wiring. But globally, poor installation or poor-quality componentry is the biggest factor. For example, in Australia around 1 in 5 installations inspected has issues.[4]”

Another potential risk to firefighters is the properties of the panels themselves. Sandwiched between the protective glass, frame and back sheet of the solar panel, solar cells present no risk to health, but once a panel burns and the solar cells are exposed, the burning panels can be highly toxic and dangerous to humans, so precautions are essential.

Increasingly, solar PV installations are both connected to the grid so that building owners can earn feed in tariffs if they export their excess energy or being installed with the option of battery storage where this excess energy can be stored in the building for future use.

They will be mounted within garages next to normal household possessions, next to parked cars many of which will have similar battery storage systems as well. They will not always be easily accessible and the risks of lithium-ion batteries from a fire safety perspective, especially have been well-documented.

The implications of on-site solar PV generation for fire and emergency services personnel are significant and as part of its sustainability strategy, the IFE is building the knowledge base of fire safety challenges arising from new technologies and materials driven by sustainability to enable global knowledge sharing and development of best practice.”

Arizona
Four Firefighters Injured In Lithium-Ion Battery Energy Storage System Explosion - Arizona
July 29, 2020
FSRI releases new report investigating near-miss lithium-ion battery energy storage system explosion.
Funded by the U.S. Department of Homeland Security (DHS) and Federal Emergency Management Agency (FEMA) Assistance to Firefighters Grant Program, Four Firefighters Injured In Lithium-Ion Battery Energy Storage System Explosion - Arizona is the first report issued as part of the Study of Firefighter Line of Duty Injuries and Near Misses.

This report details a deflagration incident at a 2.16 MWh lithium-ion battery energy storage system (ESS) facility in Surprise, Ariz. It provides a detailed technical account of the explosion and fire service response, along with recommendations on how to improve codes, standards, and emergency

response training to better protect first responders, maintenance personnel and nearby communities.

This report is a first-of-its-kind research effort from FSRI to capture the experience of surviving firefighters to better understand a potentially devastating situation. Four career firefighters with specialized hazardous materials (HAZMAT) training were severely injured in the explosion. They recounted their experience to help inform the report, the investigation team's understanding of how the fire and gases behaved, and subsequent recommendations for ESS safety training.

"The ability to study lithium-ion battery-related fires on this scale with first-person accounts from the responding firefighters is critically important to protecting the lives of first responders in similar situations. We're dealing with new technology, which brings about new fire-related hazards. We have an opportunity to learn from this incident and improve future outcomes by sharing resources and enhancing training and safety protocols."

— Steve Kerber, Vice President, Research and Director of FSRI

Lithium-ion battery ESS facilities have proliferated in recent years, presenting a new challenge for the fire protection community. Sourcing the experiences of the firefighters, FSRI's report recommends new standards and codes for ESS sites, research programs, and curricula. Recommendations include HAZMAT training with an emphasis on ESS safety, remotely accessible gas monitoring systems, explosion prevention protection, and full-scale testing research to understand the most effective and safest tactics for fire service response to lithium-ion battery ESS incidents.

Abstract
On April 19, 2019, one male career Fire Captain, one male career Fire Engineer, and two male career Firefighters received serious injuries as a result of cascading thermal runaway within a 2.16 MWh lithium-ion battery energy storage system (ESS) that led to a deflagration event.

The smoke detector in the ESS signaled an alarm condition at approximately 16:55 hours and discharged a total flooding clean agent suppressant (Novec 1230). The injured firefighters were members of a hazardous materials (HAZMAT) team that arrived on the scene at approximately 18:28 hours. The HAZMAT team noted low-lying white clouds of a gas/vapor mixture issuing from the structure and nearby components and drifting through the desert. The team defined a hot zone and made several entries into the hot zone to conduct 360-degree size-ups around the ESS using multi-gas meters, colorimetric tubes, and thermal imaging cameras (TICs). The team detected dangerously elevated levels of hydrogen cyanide (HCN) and carbon monoxide (CO) during each entry. The team continued to monitor the ESS and noted the white gas/vapor mixture stopped flowing out of the container at approximately 19:50 hours.

The HAZMAT leadership developed an incident action plan with input from a group of senior fire officers and information about the ESS provided by representatives from the companies that owned, designed, and maintained the ESS. The HAZMAT team made a final entry into the hot zone and found that HCN and CO concentrations in the vicinity of the ESS were below an acceptable threshold. In following with the incident action plan, the team opened the door to the ESS at approximately 20:01 hours. A deflagration event was observed by the firefighters outside the hot zone at approximately 20:04 hours. All HAZMAT team members received serious injuries in the deflagration and were quickly transported to nearby hospitals. Note: The lithium-ion battery ESS involved in this incident was commissioned prior to release of a first draft of the current consensus standard on ESS installations, NFPA 855; the design of the ESS complied with the pertinent codes and standards active at the time of its commissioning.

Research Project: Study of Firefighter Line of Duty Injuries and Near Misses
Report Title: Four Firefighters Injured In Lithium-Ion Battery Energy Storage System Explosion - Arizona
Report Authors: Mark McKinnon, Sean DeCrane and Steve Kerber

This is just a few examples of recent fires at battery plants across the globe, so far Sunnica has been reluctant to state what its controls measures are in the event of a fire/ thermal runaway situation, this must be clarified before any work commences.

It is also well known that the high amounts of electricity generated at the solar panels and sent to the battery storage sites will generate Electromagnetic Fields (EMF), these can cause major disruption to persons in the area who have pacemakers fitted, at the very least EMF can cause these to malfunction and in some cases cause them to stop. How is Sunnica going to mitigate against this hazard? Are they going to put warning signs up around the solar farms stating keep away if you have a pacemaker?

Once again all these points must be addressed before work commences.