

Securing solar parks against theft and vandalism using video surveillance



Given finite resources and an increasing demand for energy, renewable energies rank as one of the most important sources of electricity for the future. An expansion in their use is of key importance in many countries, to guarantee their energy supply and make it more climate-friendly. The topic of energy transition has made it onto the political agenda and not only in Germany, but also in other European countries. At the same time, European solutions are also being worked on transnationally. According to the European Green Deal, Europe wants to become the first climate-neutral continent by 2050.

In this regard, wind and solar energy are the most important renewable energy sources. The use of sun and wind as energy sources plays a fundamental role in the development of economically viable and climate-friendly energy supplies.

High security requirements in the power generation sector

The expansion of renewable energies, especially in the area of photovoltaics, means the number of solar parks is also increasing. Valuable building materials are used and high-quality components employed. However, criminals are also aware of the value of these components. Solar modules, cabling and transformers fetch good prices on the black market and are thus popular with burglars. In solar parks, thieves mainly target inverters.

Due to supply shortages, especially during

the coronavirus crisis of the last year, it's becoming increasingly difficult to replace them. As a result, solar park operators have suffered financial losses in the mid-six-figure range in some cases. Acts of sabotage on solar plants are also being reported more and more frequently. The damage ranges from broken fences to the destruction of modules.

Due to the plants' remote locations and inadequate security, criminals often have an easy time of it. They effectively gravitate towards the parks' poor and fragmentary security. For the most part, these plants are only equipped with simple fence protection. This is no obstacle for planned thefts, particularly by professional thieves or organised gangs. As a rule, solar parks are located far away from housing estates and regularly frequented areas. Burglars can thus carry out their stealing almost undisturbed.



Arkadiusz Plaskowicki

Theft and vandalism cause high financial damage

Whether theft, sabotage or vandalism – tampering in solar and wind parks involve high risks and cause unforeseen costs. Operators not only have to replace their stolen modules, but also compensate for yield losses. Power generation as part of the electricity supply is of great importance for the functioning of the community and has a direct impact on the state, the economy and society.

In addition, massive image damage can occur and disputes with insurance companies can take up time and be draining on the nerves. If a plant is still under construction, it often comes to a standstill, which entails further costs. It's therefore essential for operators of such plants to invest in the security of their construction sites and facilities. Protection against theft is essential both during plant construction and operation. Although deploying security guards on site protects against attacks, it requires a correspondingly high financial outlay.



Protecting solar parks cost-efficiently and reliably

Operators can protect themselves against theft and vandalism using efficient surveillance systems. Mobile camera systems can be used flexibly and are also perfectly suitable as a temporary security measure. Video surveillance systems enable seamless monitoring of extensive areas of land and can be used 24 hours a day.

This makes them a cost-effective alternative or even an addition to conventional site security. Camera systems can also be supplemented by other useful warning systems such as fire detection systems. This provides even more security and cost savings. Any unnecessary travel to the facility can thus be eliminated.

Mobile video surveillance from LivEye International

Every site has different surveillance requirements. As a result, their security requirements are as diverse as the surveillance projects themselves. LivEye develops security concepts across Europe that are tailored to the applicable circumstances and requirements. 'With mobile surveillance systems and our own control centre, our company offers video surveillance at the highest level,' explains Arkadiusz Plaskowicki, CCO LivEye International Group & CEO LivEye sp.z o.o. As a result, areas that are difficult to access and potential changes of location are no problem.

State-of-the-art camera systems provide high-resolution video images in a radius of up to 200 metres. When it gets dark, their night vision mode switches on automatically. In this way, any threat is reliably detected and can be eliminated at an early stage. An orange illumination, particularly suitable for use in populated areas – also has a preventative effect and ensures that intruders are deterred at night.

If they wish customers can also observe the monitored area themselves at any time via an app. 'To ensure that privacy remains protected and the recordings are GDPR-compliant, partial areas of the surveillance image, such as public streets or residential areas, can be pixelated,' Plaskowicki explains further.

State-of-the-art video surveillance

State-of-the-art technology such as the LivEye® analysis software and intelligent parameters ensure reliable surveillance and reduce errors to a minimum. In order to continuously develop its systems and solutions, LivEye maintains its own research and development unit.

At its Schönecken site, new approaches and concepts in the field of mobile video surveillance solutions are researched and developed. This includes the development

of new software and IoT sensor and control technology as well as the development of innovative electronic components using 3D design and printing, including prototype production. One of the main focuses of the LivEye® Research & Development Centre is the ongoing further and new development of software to optimise LivEye® system components. And yet the modus operandi of the monitoring systems is as simple as it is efficient.

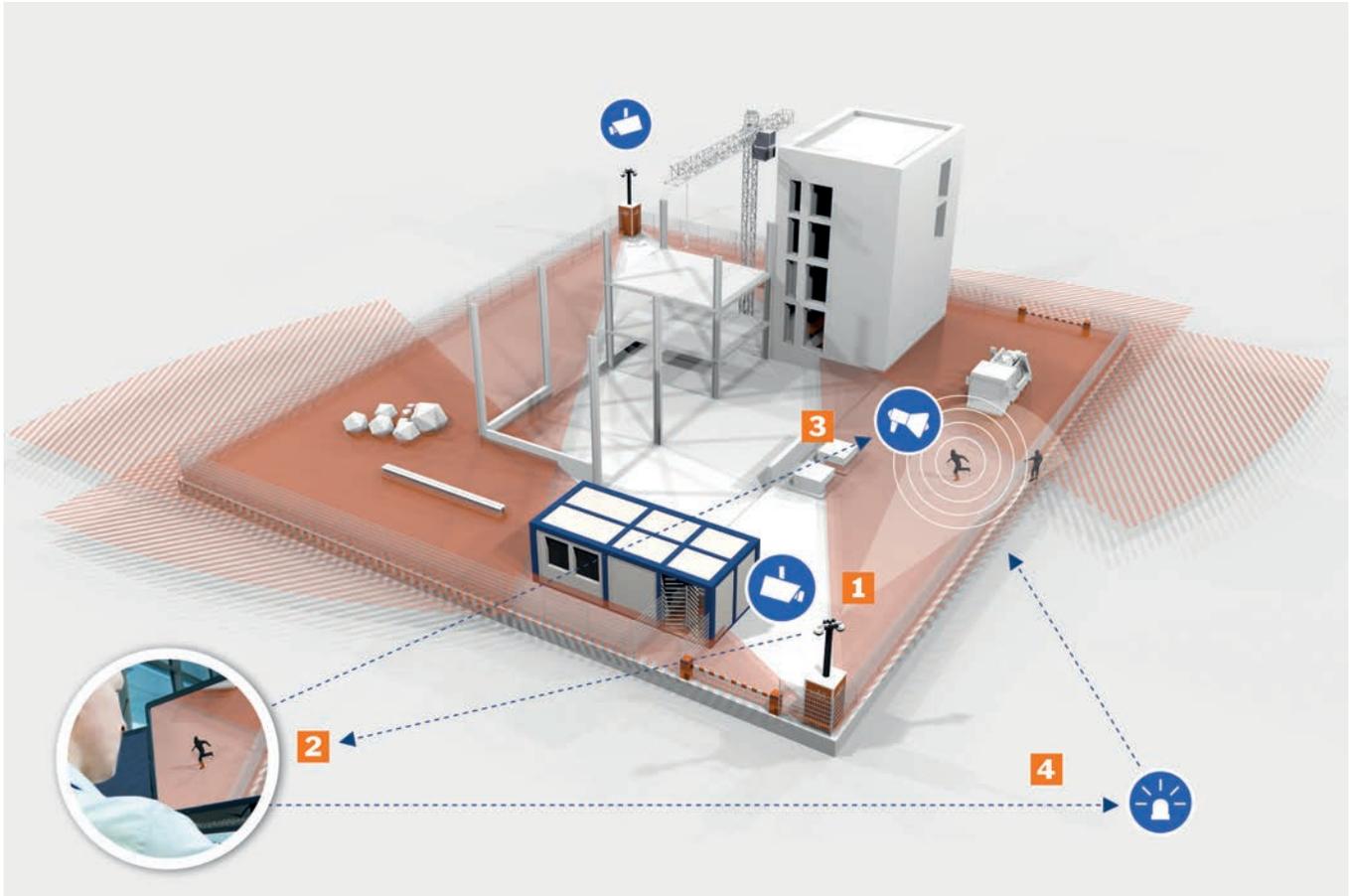
How LivEye® video surveillance works

LivEye® uninterruptible video surveillance efficiently protects solar parks of any size

against intruders. This highly efficient camera technology easily captures large areas and extensive grounds and provides security particularly where solar parks are easily accessible. When motion is detected, the intelligent analysis software reliably differentiates between people, animals, vehicles and recurring movements. Errors are thus reduced thanks to the latest motion analysis software and intelligent parameters. As soon as an intruder is detected, our continuously staffed Video Monitoring & Alarm Centre is notified.

The operator on duty first checks the alarm and initiates further measures if necessary.





1. Cameras recognize suspicious activity
2. Notification to the alarm centre
3. Live announcement to the intruder
4. Notification of the police or security guards

If unauthorised persons have gained access to the site, the persons concerned are first requested to leave the area immediately by a live announcement via the integrated loudspeaker system. If this request is not complied with, the police or security guards are alerted. The stored video material also provides investigators with valuable evidence that will assist in solving the case.

Reliable protection even away from infrastructure

Solar parks are usually located in remote areas, away from residential areas and without the appropriate infrastructure or sufficient power supply. 'LivEye® monitoring systems are available in both power-connected and stand-alone versions. This means that even remote areas without the corresponding infrastructure can be comprehensively secured,' says Plaskowicki.

With the LivEye® PRO 2.0 surveillance system, protection via video surveillance is no problem. Highly functional PTZ cameras are installed in a theft-proof manner, have a dust- and weatherproof housing and enable targeted surveillance.

'In contrast to residential areas, we usually do without night-time lighting for remote locations so as not to attract undue attention to them,' explains Plaskowicki. Thanks to a suitable power supply system, the LivEye® PRO 2.0 system can operate completely self-sufficiently for up to three months, ensuring a fail-safe power supply and thus continuous recording. This makes it flexible and ideal for use on extensive grounds and in remote locations.

React flexibly to changes

However, solar parks are not only affected by theft and vandalism during their operation, but also during their construction. If a plant is

still under construction, there is also the fact that the site is constantly changing and its security must be adapted to the respective construction phase.

'Our mobile systems can be set up anywhere and flexibly repositioned depending on the progress of construction,' Plaskowicki stresses. In order to secure the site efficiently and comprehensively right from the start, individual needs are first determined and a corresponding security concept created.

LivEye's security experts accompany projects through all construction phases and take over the coordination, site adaptation and installation of the surveillance systems. Repositioning of the surveillance technology, adapted to actual construction progress, ensures optimal and continuous site monitoring.

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