

LENSEC

The Power of Perspective

CASE STUDY

Oil & Gas Solution

ORGANIZATION

Private Oil & Gas Company
Texas, United States

APPLICATION

LENSEC's Solar Solution is designed with Perspective VMS® for remote deployment in environments with limited infrastructure.



OIL & GAS COMPANY RELIES ON LENSEC TO DESIGN A SOLAR SOLUTION FOR REMOTE DEPLOYMENT WITH PERSPECTIVE VMS®

SCENARIO: Oil & Gas Remote Sites

Many organizations find a need for security cameras in locations that do not provide standard IT infrastructure. For example, an oil and gas company equipment at

rural sites where well equipment is located might experience obstacles in monitoring the site. These sites do not provide standard infrastructure such as covered structures, electricity, and data transmission capabilities.

PROBLEM: Lack of Infrastructure

This creates a problem for organizations looking to observe site activity either in real-time or after events have occurred. Oil and gas well sites are typically remote and unmanned. They may not even have a building or work trailer onsite.

These oil and gas sites may be miles away from standard traffic corridors. They may be accessible only by dirt roads and far away from populated areas. Despite this, the criminal element still exists. People take advantage of the remote site and may feel that the unmonitored nature of the location provides them with a sense of anonymity.

Customer personnel are fighting problems like unauthorized access, vandalism, and theft of equipment. Copper theft at these remote facilities is an ongoing problem. So, monitoring activity is important to operators to keep their property and physical assets protected from thieves and vandals.

PROBLEM: Extreme Conditions - Power

Sites lack basic utilities like electricity. Some of the oil and gas equipment may run on generators. But, in general, power is limited at oil and gas well sites.

Due to lack of electricity site, a solar solution may be optimal in some locations. This means designing an equipment solution that could receive power from a solar panel and battery backup.

Due to collection and distribution of solar power, the component equipment must use a limited amount of power. Keeping the power draw to a strict minimum is crucial to the success of the project. It's important to keep the equipment functional. Therefore, equipment power draw shouldn't exceed the ability of the solar panels and batteries to provide the electricity necessary to run cameras, server, 4G LTE modem, and a PoE switch.

PROBLEM: Extreme Conditions - Environmental

In some circumstances, the well sites are spread across a geographical region that has harsh environmental conditions. Temperatures in South Texas can range widely year-round with excessive heat in the summer months. Once you enclose the network equipment into a NEMA enclosure, heat build-up from the required equipment can increase the severity of conditions the equipment must withstand. So, providing ruggedized equipment such as servers, PoE switches, etc. is crucial to ensure the longevity and reliability of the deployment.



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SOLAR ENERGY FACT

Solar panels should always face true south if you are in the northern hemisphere. Correction for magnetic declination is recommended.

As a general rule of thumb, the angle of tilt should equal your location latitude plus 15 degrees in the winter and minus 15 degrees in the summer.



PROBLEM: Limited Equipment Space

Necessary equipment for a required solution must also fit into a limited amount of physical space. When designers are evaluating efficient ways to install the components into an enclosure, they are choosing an enclosure that is large enough to house the gear. However, they do not want to exceed size restrictions required when mounting the enclosure on a pole during deployment. This means choosing equipment that is compact and relatively light weight.

In addition to the NEMA enclosure, the pole will also hold the security camera and solar panels. Some of these solutions are also designed to be portable – installed on a mobile work trailer. So, size matters when the equipment needs to be transported to multiple locations.

PROBLEM: Network Data Path

At remote sites, system engineers need to determine a data path to transmit network information back to the head-end so system users can monitor live-streaming video or review recorded video. Due to the lack of buildings and support services at the remote sites, the equipment collecting and storing the video and data can be many miles removed from the standard data transmission paths. This will require some creative design and reliance on out-of-the-ordinary network design techniques.

The remote sites do not have fiber access or ISP access due to the rural nature of most locations. Microwave or radio transmission may not be an option due to the miles between the site and the head-end where the network is located. Satellite transmission is not cost-effective for most security scenarios.

Data transmission technology has advanced to the point where video can be sent via a 4G LTE connection. Previous 3G cellular connections had difficulty in streaming quality video due to a lower bandwidth. Now the customer can access the video stream as needed and see optimized live or recorded video. The customer can also download the video remotely without needing to visit the remote site. This has greatly improved the operational efficiency for the customer.

Users now have a choice to transmit video data via a 4G LTE broadband connection. This is not typically robust enough for 24/7 transmission of megapixel surveillance video. But, it can be used for spot monitoring, responding to onsite alert notifications, and review or download of recorded video as needed. While this scenario is limited compared to some sites with robust network infrastructure, the ability to remotely monitor video and call up recorded video is a great advantage when considering the alternatives: driving to the site or not having security video coverage.

PROBLEM: Activity Notification

When video is not monitored 24/7 and remote sites are unmanned, it can be days or weeks before vandalism and theft is discovered. If no surveillance is present, personnel would have to be assigned to

SOLAR SOLUTIONS FOR OIL & GAS AS WELL AS OTHER PHYSICAL SECURITY PROJECTS



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SOLAR ENERGY FACT

Solar energy is a reliable source of power. With advancements in scientific research, solar energy is becoming more affordable as costs decrease and efficiency increases.

The earth receives about 1,366 watts of direct solar radiation per square meter. Harnessing this power with battery storage allows equipment to operate when no source power is available.



checking on well equipment. This is not cost-effective and takes personnel away from other duties that need to be performed.

Customers expressed a desire to be able to receive notification when activity occurs at the remote sites. LENSEC's solar solution with Perspective VMS® includes an ability to configure customized notifications to support personnel. The PVMS workflow management tool can pair site activity with custom parameters for notification. This means, the end-user can keep tabs on site activity even though they may be far away from the location.

PROBLEM: Industry Scope

This project is important in the physical security industry and in the oil and gas industry due to the need for advanced surveillance technology in rural locations without appropriate infrastructure. Customers have struggled with this need for quite a while and now. Existing technology has been unable to provide a solid solution, until now.

LENSEC's solar solution combines common-off-the-shelf (COTS) components with Perspective VMS® software in order to provide an efficient and cost-effective solution to the problem. PVMS is a powerful enterprise-level program that is accessible through modern web browsers to simultaneously keep tabs of property and assets at multiple remote locations.

SOLUTION: Overview

A Technology is now able to provide a solution with tools such as a ruggedized mini-server. These servers provide cutting-edge advancements for a remotely deployed solution. Previously, this type of solution came with an excessive cost. The size of the solution was large. And, the power draw was too much to be viable for most customers specifications.

LENSEC partners with component manufacturers that are breaking ground with compact, power-efficient servers that integrate 4G LTE capabilities. The equipment specifications are suitable for a solution that solves these problems. We have put together a Perspective VMS® product datasheet that details general specifications for the LENSEC Solar Solution with Perspective VMS®. Visit the LENSEC.com website and look for the datasheet on our downloads page.

PVMS SPECIFICATIONS LINK: <http://lensec.com/support/download/>

LENSEC'S SOLAR SOLUTION IS MANAGED BY PERSPECTIVE VMS®

LENSEC HQ
3151 Briarpark Dr. #125
Houston, TX 77042
Phone: (713) 395-0800
Email: sales@lensec.com
www.lensec.com