With the ClampStar units installed, these connectors will not be subjected to additional temperatures, which would degrade them. The shunts serve to carry the current, and are remaining system requirements of the conductor. The line will therefore be operated for higher current capacity and depending on the conditions of the conductor, provide an additional 50 to 75 percent available service life to the line. (Mark Camus, (markcamus@air2.com) is vice president of operations for AIR2, LLC.)

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**A New Hope for Aged Lines**

Utilities now have a cost effective means of increasing ampacity and thermal limits on aging power lines while maintaining technical, safety, reliability and regulatory requirements.

Installation of ClampStar® shunts, using helicopters and line crews, to replace traditional splice and dead end materials, can decrease total project time by 75 to 80%. This method also avoids expensive environmental preservation measures and emergency work associated with ground based methods. The utility industry and third party testing have proven that the results achieved are technically superior to other options.

Contact your Classic Connectors representative for additional information.
Evaluating Alternatives
Before installing the shunt technology, utilities generally placed single-stage splices and dead-end style insulator connections. However, there are several common single-stage splice types that utilities use. The most common single-stage splice types are: cal restraint, which will keep the line in the air should excessive loading occur at the dead-end. The capabilities of the ClampStar shunts are comparable to a conductor configuration.

The Effect of High Temperatures on Conductors
In addition to mechanical factors, the design and location of any shunt solution must be considered. Shunt technology must not only be able to withstand the necessary current and voltage ratings, but it must also be able to tolerate the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatures associated with line performance. This can be a problem, as many shunt technologies are not designed to withstand the high temperatur
Electric utilities must not only operate aging lines and perform required maintenance and upgrades, the organizations must ensure their lines are in compliance with all regulations and safety guidelines. Utilities often must replace single mid-span splices to recover the line’s emergency rating, which can result in a complete outage of the transmission line. To achieve this, utilities must either replace the corresponding full length of conductor, or install a mid-span shunt to carry the emergency current. This is where ClampStar shunts come into play.

ClampStar shunts are installed by first de-energizing the line section to be replaced. A mid-span shunt is then positioned around the conductor, followed by the installation of a new conductor section. Finally, the clamp is tightened to ensure that the shunt is properly locked into place around the conductor. This process is done at a relatively fast pace, and the clamp is backed off to ensure that the dead-end assembly has been properly attached to the new conductor section.

In many cases, utilities utilize a single mid-span shunt to recover the line’s emergency rating. To achieve this, the shunt must be capable of carrying the emergency current without overheating or failing. The ClampStar shunt is specifically designed to carry high currents without overheating, thereby ensuring the reliability of the transmission line.

Before installing the mid-span shunt, field crews will have to search for the proper location to insert the shunt. This is done by evaluating the insulator assembly and ensuring that it can accommodate the installation of the shunt. The insulator assembly must be lengthened, thus requiring the use of a helicopter to accommodate the additional length. This is where the use of ClampStar shunts becomes critical, as they can be installed from a helicopter without the need for a truck.

In many cases, utilities utilize a single mid-span shunt to recover the line’s emergency rating. To achieve this, the shunt must be capable of carrying the emergency current without overheating or failing. The ClampStar shunt is specifically designed to carry high currents without overheating, thereby ensuring the reliability of the transmission line.

The transmission lines run horizontal out of switchyard for several spans then roll to the self-supporting, steel structure. This span configuration has both advantages and disadvantages. One advantage is that the transmission lines are not exposed to the elements, which reduces the risk of damage caused by adverse weather conditions. However, this also means that the transmission lines are more susceptible to mechanical damage caused by vehicles or other objects.

In many cases, utilities utilize a single mid-span shunt to recover the line’s emergency rating. To achieve this, the shunt must be capable of carrying the emergency current without overheating or failing. The ClampStar shunt is specifically designed to carry high currents without overheating, thereby ensuring the reliability of the transmission line.

The ClampStar shunt comes with a total resistance less than 10 minutes and can be installed from a helicopter. Not only does this option reduce the time and cost of installation, but it also reduces the risk of injury to the field crew.

Connecting aluminum connectors and conductors in a single mid-span shunt takes time. However, ClampStar shunts can be installed from a helicopter, which reduces the time and cost of installation. Not only does this option reduce the time and cost of installation, but it also reduces the risk of injury to the field crew.

The ClampStar shunt is designed to provide an efficient solution for carrying high currents without overheating or failing. This is achieved by using high-quality materials and advanced engineering techniques. The ClampStar shunt is tested to ensure that it can carry the required currents without overheating or failing.

In many cases, utilities utilize a single mid-span shunt to recover the line’s emergency rating. To achieve this, the shunt must be capable of carrying the emergency current without overheating or failing. The ClampStar shunt is specifically designed to carry high currents without overheating, thereby ensuring the reliability of the transmission line.

One of the key features of the ClampStar shunt is its ability to carry high currents without overheating. This is achieved by using high-quality materials and advanced engineering techniques. The ClampStar shunt is tested to ensure that it can carry the required currents without overheating or failing.

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Linemen Install Shunts on Energized Lines

Utilities confront the challenge of line uprates by installing shunt technology via helicopters.

By Mark Camus, AIR2, LLC

Electric utilities must not only operate at higher levels, but they must also adhere to technical and safety and reliability requirements. For example, the IEEE C37.100.2-2011 standard, “Guide for High-Voltage Transmission Line Clearances,” which was first published in 1965, begins adding criteria to consider actual field conditions when planning clearances. To meet these criteria, economists have discovered that using shunts to handle high operating temperatures. After reviewing clearance reports and conducting in-depth

Evaluating Alternatives

Before installing the shunt technology, utilities generally explored all single-stage splices and dead-end mid-span shunt

cost, utilities may need to conduct significant temporary work to en-

while temperatures, components such as single-stage compression dead-ends and splices are quite often inadequate. Using shunt

The AIR2 crew sets up the job site, where they will install 22 mid-span shunts on day one.

In some cases, utilities opt to use three lines to correct the problem, and in those cases, they must perform the work with the tower de-energized. The shunt installation can be performed in a single day with minimal disturbance to customers. The shunt installation is performed in stages to accommodate the emerging line conditions. In addition, to minimize the impact on traffic and wildlife, utilities can install the shunts using a helicopter. A helicopter facilitates installation efforts, making the use of a helicopter a more viable option.

The Effect of High Temperatures on Conductors

In many cases, utilities opt to use three lines to correct the problem, and in those cases, they must perform the work with the tower de-energized. The shunt installation can be performed in a single day with minimal disturbance to customers. The shunt installation is performed in stages to accommodate the emerging line conditions. In addition, to minimize the impact on traffic and wildlife, utilities can install the shunts using a helicopter. A helicopter facilitates installation efforts, making the use of a helicopter a more viable option.

In turn, many utilities have

utilities must spend significantly reducing the length of the con-

The installed ClampStar mid-span shunts are shown.

Moreover, the use of helicopter-based systems can significantly reduce the length of the construction schedule and minimize overall cost.

The Effect of High Temperatures on Conductors

In many cases, utilities opt to use three lines to correct the problem, and in those cases, they must perform the work with the tower de-energized. The shunt installation can be performed in a single day with minimal disturbance to customers. The shunt installation is performed in stages to accommodate the emerging line conditions. In addition, to minimize the impact on traffic and wildlife, utilities can install the shunts using a helicopter. A helicopter facilitates installation efforts, making the use of a helicopter a more viable option.

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utilities must spend significantly reducing the length of the con-

The installed ClampStar mid-span shunts are shown.
By installing ClampStar shunts, AIR2’s helicopter crews are technically superior to other options. And third party testing have proven that the results achieved are significantly expenses relative to other alternatives and avoid de-

The shunts served to carry the current, and are remaining tension requirements of the conductor. The line will therefore be uprated for higher current capacity, and depending on the condition of the conductor, provide up to an additional 30 to 50 years of available service life to the line.

With the ClampStar units installed, these connectors will enhance safety by minimizing linemen’s time in an energized environment and enhancing efforts to provide affordable, re-

Utilities now have a cost effective means of increasing ampacity and thermal limits in aging power lines as well as maintaining technical, safety reliability and regulatory requirements. Installation of ClampStar® shunts, using helicopters and line crews, to replace traditional splices and dead-end materials, can decrease total project times by 70 to 80%. This method also avoids expensive environmental preservation measures and emergency work associated with ground based methods. The utility industry and third party testing have proven that the results achieved are technically superior to other options.

Contact your Classic Connectors representative for additional information.

A New Hope for Aged Lines

Utilities now have a cost effective means of increasing ampacity and thermal limits in aging power lines as well as maintaining technical, safety reliability and regulatory requirements. Installation of ClampStar® shunts, using helicopters and line crews, to replace traditional splices and dead-end materials, can decrease total project times by 70 to 80%. This method also avoids expensive environmental preservation measures and emergency work associated with ground based methods. The utility industry and third party testing have proven that the results achieved are technically superior to other options.

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ClampStar® THE BEST METHOD TO PERMANENTLY UPRATE & PROTECT OVERHEAD CONNECTIONS

This new lightweight, three-piece design consists of three ClampStar® bodies weighing less than 20 lbs., and two indented 12” 3x3x3 screws. ClampStar® systems can be easily installed while in service, in any weather conditions, and can accommodate conductor diameters ranging from 1.2” to 3.125”.

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- Decreases total installation time by 70 – 80%
- Easy to install with common hand tools
- No mechanical grips, Come-Alongs, or tools required
- Installs with a hot stick or barehand

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A New Hope for Aged Lines

Utilities now have a cost effective means of increasing ampacity and thermal limits on aging power lines while maintaining technical, safety, reliability and regulatory requirements. Installation of ClampStar® shunts, using helicopters and line crews, to replace traditional splice and dead end materials, can dramatically increase total project time by 75% to 80%. This method also avoids expensive environmental protection measures and temporary work associated with ground based methods. The utility industry and third party testing have proven that the results achieved are technically superior to other options.

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