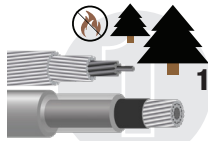
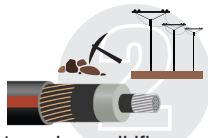


12 TOP PRODUCTS AND SOLUTIONS TO SUPPORT GRID HARDENING AND SUSTAINABILITY



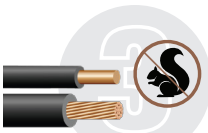
1. FROM BARE TO COVERED CONDUCTOR

Covered Aerial Medium Voltage (CAMV™) Cable, or Tree Wire, can replace bare overhead conductors to mitigate wildfire ignition in areas where trees crowd the right-of-way. The ruggedized covering has been proven to prevent arcing and flashovers. These products can be installed using the same methods as their bare wire counterparts, most commonly on distribution systems rated 15, 25, and 35 kV. The high-density, track & UV-resistant, cross-linked polyethylene (XLPE) allows the conductor to be operated up to 90°C for normal operation and 130°C for emergency overload. CAMV™ Cable also hardens the electrical grid by minimizing outages due to adjacent phase conductor slapping during windy conditions.



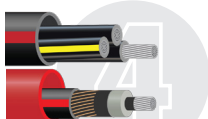
2. FROM OVERHEAD TO UNDERGROUND

With the increasing intensity of natural disasters including hurricanes, tornadoes, wildfires, and snowstorms, electric utilities have proactively converted overhead lines into underground systems to boost reliability. Approximately 80% of power outages occur in distribution systems. For example, 15kV distribution lines made of bare ACSR conductors can be direct-buried by converting to a 15kV primary cable with a water-blocked aluminum conductor, 133% TRXLPE insulation, water-blocking powder over one-third concentric neutrals, and an overall LLDPE jacket, which has become the preferred method to replace old lines or to install new circuits.



3. FROM EXPOSED TO PROTECTED GROUND WIRE

Protected Ground Wire (PGW), Covered Line Wire, and Covered Riser Wire are specified for applications where protection from momentary contact with wildlife is needed. Bare copper conductors can be extruded with either a thermoplastic polyethylene (PE) or a crosslinked polyethylene (XLPE) layer to shield the exposed copper wire. Because the metallic appearance is concealed by a black covering, it also helps minimize vandalism and deter copper theft. Larger ground wires are stranded to improve flexibility for handling and installation. For smaller sizes such as 2 AWG and below, Southwire offers a solid conductor, which is the best design to defend against water-intrusion.



4. FROM DIRECT BURIAL TO CONDUIT OR CIC

Cables buried directly in earth are subject to damage from nearby construction, corrosive soil, and wildlife including rodents and gophers. Installing these cables in conduit adds extra physical and mechanical protection from these environmental hazards. Southwire's SIMpull® Cable-in-Conduit (CIC) features flexible and coilable High-Density Polyethylene (HDPE) duct extruded around one or more cables. All underground products can be designed with an all-in-one CIC assembly in long length. The cables are lubricated prior to extrusion of the conduit, preventing them from sticking to the inside conduit wall. This allows ease of removal for future upgrades or cable replacement.

COMPOSED BY

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CABLETECHSUPPORT™ SERVICES

Southwire's CableTechSupport™ Services group features certified MV splicers, Professional Engineer (PE) certifications, Ph.D., MBA, and Master of Science degrees in Electrical Engineering (MSEE). Over 15,000 technical requests with 100 signed letters are fulfilled yearly for project submittals and to gain approvals from standards engineers or inspectors. Our whitepapers and online calculator tools help customers



select products and solutions using multiple sustainability attributes to reinforce the electrical grid. Scan the QR code to access our technical library.



SUSTAINABILITY AT SOUTHWIRE

Southwire is a U.S. Green Building Council (USGBC) Member. We continue to enhance product transparency and support LEED certification efforts. Over 100 of our products have independently verified Environmental Product Declarations (EPDs), representing over 90% of our wire and cable categories sold. Utility products from the ground up, including Service Entrance Cables, MV Primary Underground Cables, Cable-in-Conduit, 600V Service Drop, Transformer Riser Wires, ACSR, ACSS, AAC, and AAAC, have published UL-certified EPDs. EPDs utilize Life Cycle Assessments (LCAs)



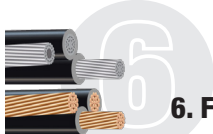
to verify the environmental impacts of specific Southwire product lines over their life spans. Scan to learn more about sustainability at Southwire.





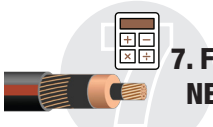
5. FROM STANDARD LLDPE TO RUGGEDIZED HDPE

Southwire's USE-2 HI-SCORE 600 Volt aluminum products incorporate a High-Density Polyethylene (HDPE) outer layer that meets the requirements of ANSI/ICEA S-81-570 Standard for 600 Volt Rated Cables of Ruggedized Design for Direct Burial Installations as Single Conductors or Multi-Conductors. This ruggedized layer provides superior resistance to mechanical damage when secondary cables are installed using direct burial or trenching. Once installed, HI-SCORE secondary cables are less prone to failure caused by dig-ins, rodent damage, or other disturbance of the cable such as landslides after hurricanes.



6. FROM BARE TO INSULATED NEUTRAL

Several large utilities have specified insulated neutral conductors for service drop in coastal areas to harden their 600V overhead circuits. The standard bare neutral messenger is extruded with a layer of polyethylene insulation. The crosslinked polyethylene (XLPE) protective covering not only minimizes spark ignition due to tree contacts but also reduces neutral corrosion in saltwater-rich areas. One can also upgrade the standard aluminum conductor and ACSR messenger to hard-drawn copper if there is extreme high risk of corrosion or wildfires. Copper conductors are naturally more corrosion resistant and yield a much higher rated breaking strength compared to their aluminum counterparts.



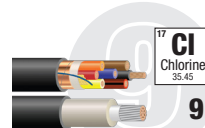
7. FROM LOW TO HIGHER NEUTRAL RATINGS

The outer insulation shielding for many primary MV cables contain "One-Third" neutrals relative to phase conductor size when used for a 3-phase supply or "Full-Size" neutrals for a single-phase system. With modern rapid switching equipment at substations, short circuit current and duration are reduced compared to decades ago. Using a reduced neutral rating from 1/4 to 1/12 saves material cost upfront but can pose a risk due to an insufficient short circuit capacity. Southwire offers calculations to customize cables with a reduced neutral to match system requirements. Additionally, the insulation system can be made more robust by constructing the cable with a 133% insulation level instead of the standard 100% insulation level.



8. UNBLOCKED V.S. BLOCKED CONDUCTORS & CABLES

Water intrusion is one of the main causes of cable system failures. Moisture accelerates the dielectric breakdown of insulation and triggers metallic corrosion. Corrosion-resistant designs, such as solid conductors in place of stranded wires, and copper tinning over uncoated counterparts, have proven to be effective. A strand-fill compound to fill the interstices between the conductor strands to moisture blocking is frequently specified for underground MV cables. For water-swallowable powder can be applied over any shielding type (concentric neutrals, tape shield, etc.) to absorb and retain moisture. The addition of Hi-Dri-Plus® powder under the jacket hinders water penetration along the installed cable length.



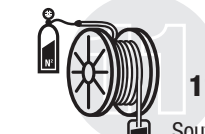
9. FROM HALOGEN-RICH TO ZERO HALOGEN

Heavy-duty network cables rated 600V, 1kV, or 2kV are often installed in vaults or manholes located below congested downtown streets and are operated to meet peak power demand. They are designed to withstand high temperatures, moisture ingress, and chemical exposure, and are flame-retardant and inherently abrasion resistant. Insulation material options include leaded or lead-free EPR/EAM, Chlorinated Polyethylene (CPE), and Low Smoke Zero Halogen (LSZH). LSZH is ideal for use in establishments where reduced smoke and low acid emissions are desired for public health and safety. LSZH insulation and jacket materials are gaining popularity due to the more stringent environmental requirements in recent years.



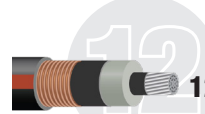
10. REPAIR VS. REPLACE NEW CABLE

Southwire's Re3™ cable repair kit (SPEC 10911) can be applied to both single and multi-conductor products, including jacketed primary MV, service entrance (USE-2), service drop, substation control cables, and more. Damaged conductors (i.e., metal) or products exposed to significant weather events or incidents such as storms, fires, or floods are beyond repair. This all-in-one package includes an abrasive strip, a solvent wet wipe pack, one primary repair tape roll, one protective finishing tape roll, and a step-by-step instruction sheet. With same-day shipment available, this cost-saving solution can restore new cables with minor damage to their original integrity and minimize scrap.



11. FROM WET TO DRY

Southwire has delivered emergency field support for over 20 years, including onsite nitrogen-purging services to mitigate unforeseen water intrusions in new cables. Moisture migration might occur during transit, storage, or installation due to unprotected ends or rainwater exposure during construction. The service life of a cable with trapped moisture will be shortened, and its performance will be compromised even if the cable is rated for wet locations or direct burial. High-pressure dry nitrogen gas is applied to the stranded copper or aluminum conductor ends to push moisture out of the cable and restore it to factory condition. Contact Southwire today to schedule a wet cable consultation or a purging service to remove water in new MV or 600V cables to prevent premature failures.



12. FROM AGED TO RENEWED

Aging cables with growing water trees can be restored close to their original state by utilizing a proven cable rejuvenation service with a 35 year record. Our patented technology injects silicone fluid into underground cables via the stranded aluminum or copper conductors. The liquid migrates outward to the conductor shield and saturates the insulation. This process raises the dielectric breakdown strength (kV/mm) of the old insulation by removing water and filling voids. The cable service life is extended, without costly and time-consuming replacement. Through this technology, over 300 utility customers globally have successfully restored more than 165 million feet of aged cables.

