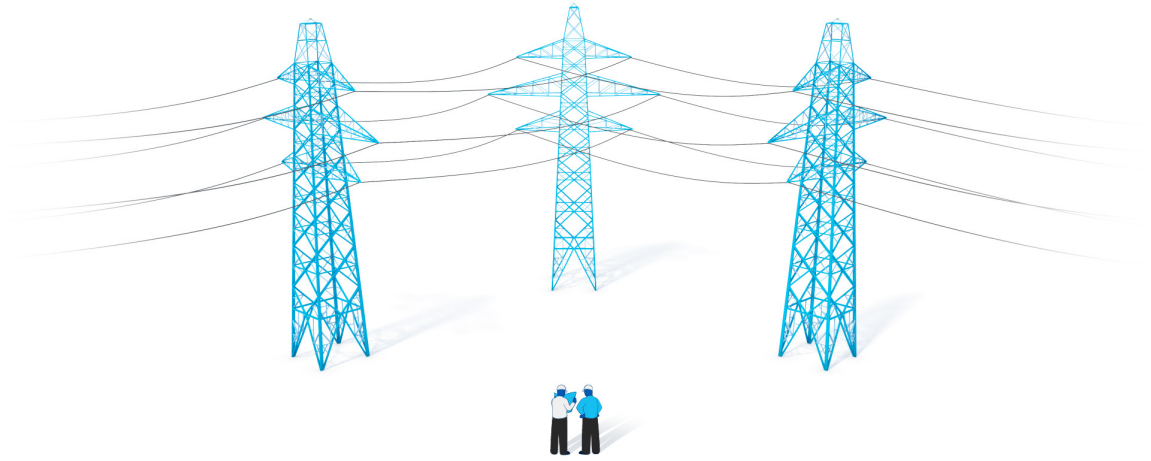
INSTALLING ADSS—QUICK REFERENCE GUIDE

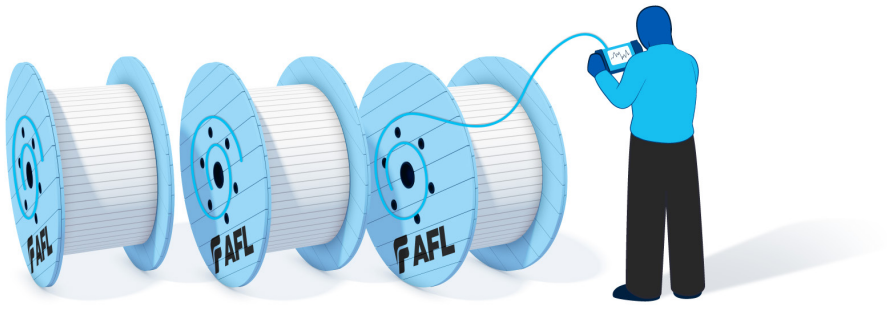
This Quick Reference Guide is intended to provide highlights of ADSS installation instructions needed in the field.

1. Planning and Design



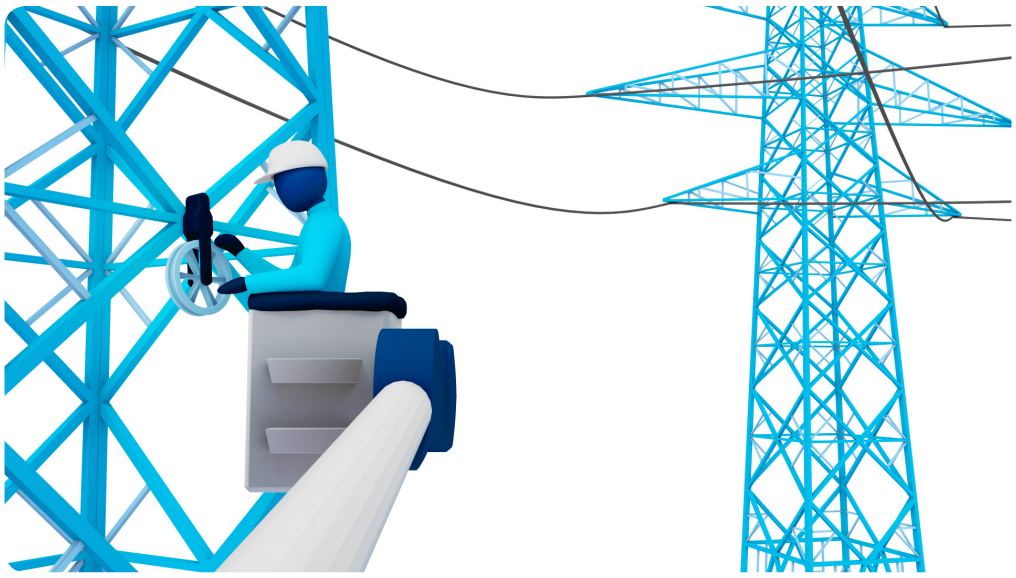
- Review route layout and perform ride out of entire route to identify critical areas such as heavy line angle changes and road crossings.
- If the line voltage is 115kV or greater, request an AFL Application Engineer to complete a complementary E-Stress analysis.
- Adhere to local, state, federal and industry codes and regulations.

2. Cable Acceptance and Storage



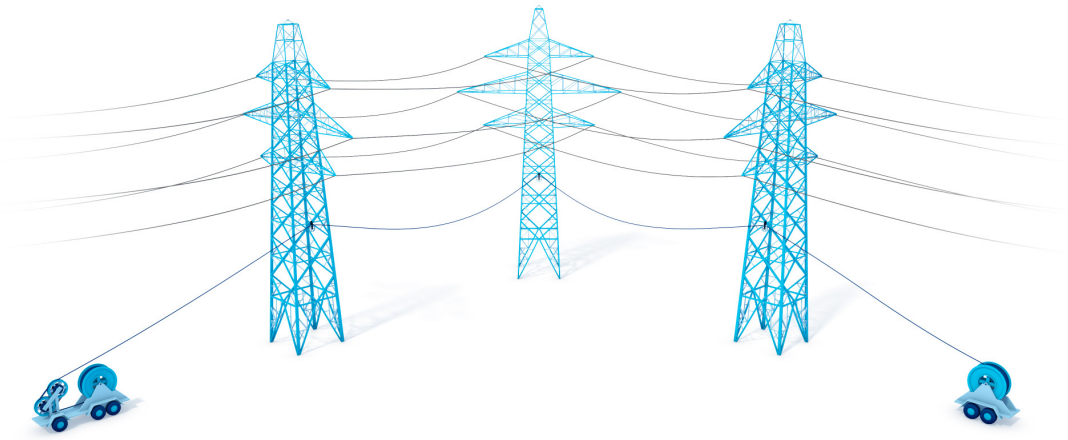
- Visually inspect all reels for any damage and check reel tag(s)/label(s) to verify correct cable(s).
- Perform a continuity check on all fibers using an OTDR upon arrival.
- Be sure to chock reels when not moving them.
- Refer to 'Cable Storage & Handling Guide'

3. Pre-Installation and Make Ready Work



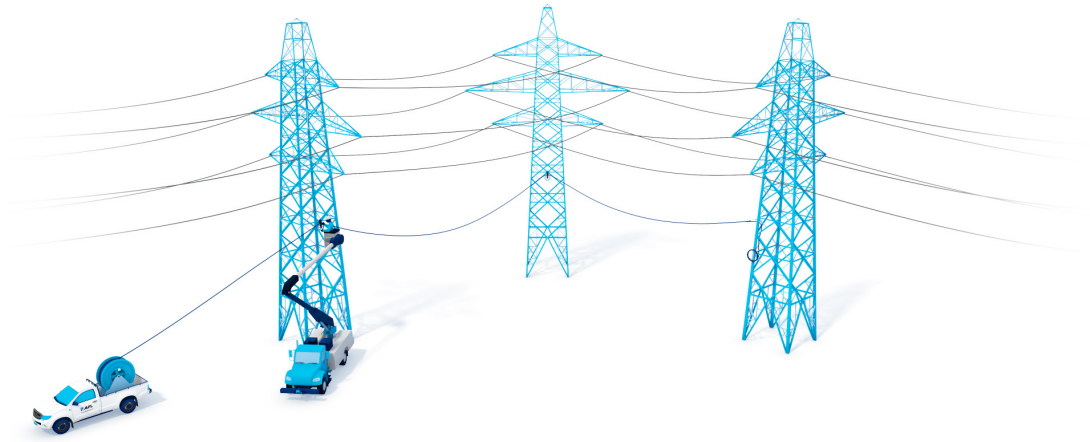
- It is critical to ensure all hardware and equipment is for use on ADSS cable and of the correct diameter or range. Such as but not limited to pulling grips/socks, temporary grips, bull wheels, and sheaves.
- Install appropriately sized sheaves that are free of burrs and gouges and in good working order. AFL's recommendation is to use a minimum of a 12" root diameter sheave. AFL's ADSS trunnion can be used in place of a sheave if the maximum line angle is not greater than 15 degrees and the number of structures does not exceed 30.
- The tail of the cable secured to the outside of the reel should be loosened prior to pulling the cable in to allow for it to grow during installation.
- At all times the cable should travel down the center of the sheave groove. At angle structures it may be required to have the sheave supported in order for this to occur.

4. Installation Method – Back-pull (Stationary Reel)



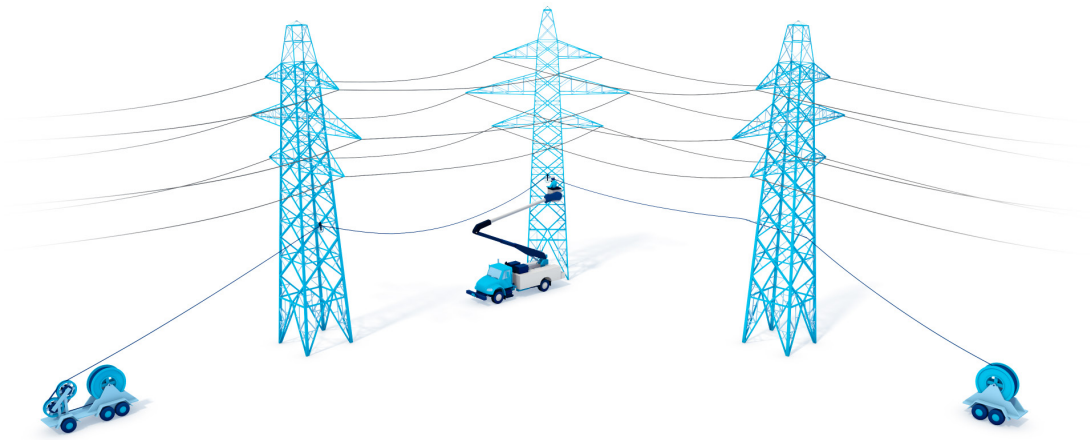
- This is the most common method of installation for ADSS cable. It is utilized in both transmission and distribution applications and allows for the fastest deployment of cable.
- The cable reel is placed on a reel stand or trailer at a stationary location in line with the first two structures and with a 3:1 lead-to-height ratio.
- The braking device on the reel stand or trailer should be engaged to apply minimal braking tension to prevent overrun during the pull.
- A low elongation pulling line of similar diameter and weight as the ADSS should be ran through the sheaves and trunnions, if pulling through them, and attached to the ADSS with a swivel and wire mesh grip.
- The ADSS is then pulled through the entire section with the puller and tensioner while keeping it under constant minimal tension. Maximum stringing tension at the tensioner is 20% of the ADSS's rated breaking strength (RBS).
- The puller and tensioner should also be in line with the last two structures and with a 3:1 lead-to-height ratio.
- Multiple pulling stages may be required to place the ADSS throughout the entire system.

5. Installation Method – Drive-off (Moving Reel)



- While an accepted method, the drive-off installation method is infrequently used as it requires a clear right-of-way with no obstacles and the ADSS is going to be the lowest on the structure. These conditions are most often met on new line construction.
- The cable reel is loaded on a reel trailer or line truck equipped with a reel carrier and braking device. The braking device should be engaged to apply minimal braking tension to prevent overrun during the installation.
- At the first structure the cable is deadended then the reel of cable is transported along the right-of-way and the cable is payed out.
- As the moving reel passes a support structure it is stopped and the cable is placed into the sheave or trunnion if pulling through them.
- Then the reel proceeds to the next support structure. This process continues until a deadend is reached or the cable is completely deployed.

6. Sagging & Tensioning Sections



- The cable should be sagged and tensioned in deadend to deadend sections avoiding doing this around line angles greater than 30 degrees.
- The sag should be based on the worse case, longest, span of deadend section.
- Never over tension the cable. AFL's Application Engineers can provide sag and tension charts for all AFL ADSS cable. These charts take into account each cables maximum rated cable load (MRCL) to ensure it is never exceeded under any weather conditions.
- Do not use a screwdriver or other hard sharp tool to install rods for hardware as the chance of damaging the outer jacket is increased. Instead use AFL FIT tool.

7. Record Keeping

- It is good practice to complete a detailed As-Built drawing and update as necessary after maintenance or repairs.
- Detailed recordkeeping and documentation often is beneficial for future reference.
- AFL's Application Engineers can be a resource for providing information regarding previously purchased cable.