



## Tips to Reduce Risk of **Worker Injuries** in Renewable Energy

As the renewable energy sector continues to grow, new career opportunities evolve with a wide range of good paying but potentially hazardous jobs.

The E2 Clean Jobs America Report says that nearly 3.4 million Americans worked in clean energy occupations at the start of 2020, and by 2026, the Solar Energy Industries Association predicts the solar industry alone will have filled more than 581,600 jobs.

Workers in green jobs industries often face many of the same common hazards—fires, falls and electrocution—found in many other industries. But according to the Occupational Safety and Health Administration (OSHA), the rapid growth in so many different and emerging areas of renewable energy could be exposing workers to new hazards that might not have been previously identified.

In this article, we will look at specific sectors of the industry that are more prone to common risk factors, and prevention efforts your clients can take to better mitigate risks.

### CONTACT

To learn more about how Amwins can help you place coverage for your clients, reach out to your local Amwins broker.

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## Solar

Although solar is considered one of the cleanest, and better paying occupations in the renewable energy sector, solar firms are challenged to fill positions because it's dangerous and difficult work. When it comes to the installation and maintenance of rooftop solar panels, it presents significant risk exposures for slips, trips and falls; electrical hazards; ladder risks; and lifting injuries.

### Slips, Trips and Falls

When installing rooftop solar panels, workers are typically maneuvering in small spaces and at dangerous heights. Hazards that contribute to slips, trips and falls include pitched roofs, working too close to the roof's edge, lack of fall protection, and proximity of overhead power lines. These hazards put workers at risk for shattered and broken bones; internal injuries; back, neck and head trauma; and even death.

#### Key Prevention Efforts:

- Identify and address all potential slip, trip and fall hazards, including removal of debris and other obstructions, before beginning a project or repair job.
- Install safeguards when working over six feet or higher, including guards around workplace edges, safety nets and personal fall arrest systems. Fall arrest systems are critical safeguards designed to safely stop a worker mid-fall before he or she hits a surface. All employers must ensure that each personal fall protection system meets specific [OSHA requirements](#).

### Electrical Hazards

Many aspects of solar panel installation, maintenance and repair involve exposures to electricity from either the utility company or the sun. According to OSHA, this makes workers vulnerable to electrocution, arc flash hazards, thermal burns and even falls from an unexpected shock. Additional electrical hazards include tools and equipment that can encounter power lines.

#### Key Prevention Efforts:

- Complete a prework assessment to identify potential hazards.
- Supply workers with proper personal protective equipment.
- Lock out/tag out at the main switchboard all electricity being supplied to the property.
- Cover the solar array with an opaque sheet to deflect or block the sun's light.
- Test circuits to ensure they are de-energized before beginning work.





## Ladder Risks

Falls from ladders account for 20% of all fatal and lost workday injuries, according to OSHA, and the agency notes that most fall injuries could have been prevented by simply complying with OSHA standards.

One of the single most important prevention efforts is to ensure workers have access to ladder safety tools, training and information.

According to the Centers for Disease Control and Prevention (CDC), however, smaller companies don't typically have access to safety information and generally lack the resources to develop or follow an effective ladder safety program.

Good resources for your clients to tap into regarding ladder risks and safety include the [National Institute for Occupational Safety and Health](#) (NIOSH) and [OSHA](#).

## Lifting Injuries

According to the Bureau of Labor Statistics, 25% of all compensation indemnity claims involve back injuries, costing the industry billions of dollars on top of the pain and suffering borne by employees. Typical lifting issues for solar workers include carrying and moving heavy tools and equipment, loading and unloading equipment and tools from a truck, and lifting tools and equipment onto a roof.

### Key Prevention Efforts:

- Develop a strategy to reduce the risks associated with lifting hazards that specifically addresses:
  - Proper lifting and carrying of solar panels, tools and equipment.
  - Procedures for loading and unloading vehicles, including the use of forklifts.
  - Procedures for safely lifting and moving equipment onto roofs, including the use of a crane to hoist equipment.



## Wind Farm Operations — Onshore

“Wind turbine technician” is one of the fastest-growing jobs in clean energy and the single fastest-growing occupation in the U.S., according to the Bureau of Labor Statistics. By 2024, employment in the sector is expected to grow by 108%.

Workers in wind energy face many of the same safety risk concerns as solar, but with a few additional hazards that can occur during the major phases of development— installation, commissioning, operations and maintenance, and decommissioning.

Key hazards and related prevention efforts include:

**Crane injuries.** Cranes are machines that require regular maintenance. When they aren’t working properly, injuries and fatalities can occur.

Companies can better protect workers from crane injuries with the following prevention efforts:

- Ensure that cranes are only operated by trained personnel.
- Regularly inspect all cranes before and after each use.
- Ensure that all cranes are on stable surfaces.
- Maintain at least a 10-foot safe working clearance from overhead powerlines.
- Barricade accessible areas inside a crane’s swing radius.

**Working in confined spaces.** Because the inside of a wind turbine is small and contains a low level of oxygen, some workers may find this confined space with its limited air flow to be physically and mentally uncomfortable, causing claustrophobia and even panic attacks. Businesses should address this issue beforehand by creating an exit route for workers and identifying those who aren’t comfortable working in confined spaces and assigning them elsewhere.

**Toxic gases/vapors.** Another hazard of working inside a wind turbine’s confined space is the exposure to harmful gases, dust particles and vapors.

Businesses can easily prevent the inhalation of these airborne toxins by equipping workers with respirators readily available on-site.

**Injuries from moving parts.** Wind turbines have many large moving parts that can cause serious injuries.

It’s critical to guard all rotating aspects of a wind turbine with a barrier—for example, the use of a lock out/tag out procedure—that provides protection for workers.



## Wind Farm Operations — Offshore

Tasks involving the handling of components in a wind turbine are similar for both land-based and offshore facilities. When working inside a turbine in a marine environment, however, weather and ocean conditions such as wind speed, wave height and visibility pose even more dangerous risks to the technicians inside.

Offshore hazards can include:

- Collisions between vessels operating in the same area.
- Evacuation challenges during an explosion, fire or severe weather event.
- Logistical risks when getting out to the job site, including the hazards of being transferred to and from a boat, helicopter or other marine vessel.

Prevention efforts should include briefing and updating workers regarding changing weather conditions that could impact their work and they should be equipped with life vests in case of an emergency.





## Hydropower

Hydropower stations, with their lack of natural light, limited access and lower-level floors that are typically below the exterior water level and often underground, can pose significant hazards to workers. According to the [International Hydropower Association](#) (IHA), some of the more common hydropower hazards include fire, explosion of pressure vessels, electrocution, flood, entanglement, slips and falls, chemicals (e.g., sulfur hexafluoride, hydrogen sulfide), hazardous products like asbestos, and asphyxiation from carbon dioxide.

The IHA recommends employers take the following key actions to create a safer hydropower station.

- Minimize risks through planning and prevention. Design a station around workplace safety standards that considers the health and well-being of workers, ensure that systems are working properly, equipment is properly maintained, and employees receive health and safety information, training and appropriate supervision.
- Have a written emergency and crisis risk control program that includes a hazard register, site induction procedures, attendance boards, permit-to-work systems, local safety teams, and a detailed crisis and emergency plan.

## Biomass

The increase in the number of farming operations growing biomass for renewable energy uses has created a surge in injuries and illnesses stemming from hazards related to production, storage and processing. According to the [United States Department of Agriculture Extension Service on Farm Energy](#), the main hazards likely to exist when producing and transporting biomass crops are as follows:

**Fires**—Caused by field stands of dry crops, fine dust from harvested crops and storage of crops at improper moisture levels in large piles or bales.

**Respiratory issues**—Due to fine dust from handling harvested crops, molds and fungi in stored biomass, possible fecal matter from rodents in piles of stored biomass.

**Machinery hazards**—Including objects being thrown by harvesting machines, sharp blades, high speeds, wet and snowy conditions resulting in slippery ladders and steps.

According to [Biomass Magazine](#), hazard preparation should include:

- A plant evacuation plan.
- The ability to monitor particulate levels.
- Handrails on catwalks or other high-level areas.
- PPE such as respirators, headgear, safety glasses and clothing designed to protect against heat and steam.



## Takeaway

As the world moves toward a future powered by renewable energy and continues to add more jobs in these arenas, companies will need both reliable insurance coverage and risk management solutions to address their growing exposures.

While no method of prevention is foolproof, working with brokers who have deep understanding of this complex and changing industry can help you find the best-fit solutions for clients.

When you partner with Amwins, you get experts who understand the unique needs of green energy operations and who have the market reach for placing a wide range of risks. In addition to standard coverages, we offer protection for equipment and property, environmental risks and workers' compensation. Let us help you provide unique insurance solutions to your clients in this ever-changing industry.

### About the Author

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