



Insurance considerations for residential rooftop solar

HSB, a Munich Re company, is a technology-driven company built on a foundation of specialty insurance, engineering and technology, all working together to drive innovation in a modern world.

While there's plenty of information about residential rooftop solar systems, this article discusses important factors for homeowners and their agents to consider.

1. What are the responsibilities of owning a solar power system?

Inspection, cleaning, and maintenance: Just like the home HVAC system, standby generator, or plumbing, the solar system on the roof will benefit from regular inspections, cleaning, and maintenance. Inspections are particularly valuable because the solar system may get physically damaged by things like baseballs, hailstones, falling branches, etc. Dust and pollen will build up on the modules, reducing their efficiency; consider having the modules cleaned if the area doesn't receive much rain or snow throughout the year. Finally, the system will need the occasional fix. These are items that can be worked into the contract with the installer, purchased separately, or done by knowledgeable homeowners themselves.

Equipment failure: Solar systems are sold with the expectation of at least 25 years of system life. However, over the years, modules can fail to produce energy, inverters break down, etc. Equipment warranties and spare parts can help reduce out-of-pocket costs from equipment replacements. For residential solar PV systems, solar module product warranties range from 10 to 12 years, while inverter and optimizer product warranties range from 10 to 25 years. HSB recommends that the homeowner understand their warranties up-front, especially for inverters, which are the most expensive component and are likely to fail before the 25-year mark. In many cases, warranty extensions are also available directly from the manufacturers.

Liability: Solar modules, and especially any snow or ice that builds up on the modules, have the chance of coming off the roof and causing damage. Avalanches of snow or ice can hit cars, block egress from the house, and hurt people. Additionally, loose wires can rub against the roof and get damaged, increasing the risk of fire. Adequate design, including snow guards, good quality fasteners and installation, and regular inspections, cleaning, and maintenance, can mitigate this risk.

Depending on whether the solar system is owned by the homeowner or not, some of these responsibilities and risks may lie with other parties. Be sure to check contracts and discuss with your insurance agent.

2. What special equipment or installation should be requested?

Critter guards: The major concern with any rooftop solar system is the risk of fire. Fires can occur due to improperly assembled connections and/or damaged wires causing short circuits and arcing. While electrical connections are usually not an issue for residential systems if done properly at the outset, some electrical wiring does remain exposed to the elements for the lifetime of the solar system. One frequently overlooked risk exposure of the electrical wiring is from small critters. Animals like mice and squirrels are known to chew on electrical wiring and can partially remove wiring insulation, leaving the electrical conductors exposed. In the end, this could lead to wiring damage and possibly fires.

Birds and small animals may also find the space between the roof and the solar array a good place for a nest. A buildup of material can block airflow behind the modules, which can cause them to degrade.

Installing “critter guards” can help prevent these issues by deterring small animals from getting to the uncovered wiring or the space underneath the solar panels in the first place. Critter guards are pieces of mesh wiring or hardware cloth placed around the edge of the solar array to stop animals from getting underneath it. Make sure it’s installed properly; if not secured adequately, it may leave gaps, making it useless.

Rapid shutdown devices: Although now required in most jurisdictions, the homeowner should confirm that rapid shutdown devices are being installed with their system. These devices de-energize much of the system, making it safer to work around it. Firefighters are more likely to work on a roof with a solar PV system if they know that it is equipped with rapid shutdown devices.

The 2020 National Electric Code (NEC) requires rapid shutdown at the module-level, whereas older editions specified shutdown within a few feet of the array. Module-level rapid shutdown does enhance the safety of the system and the safety of firefighters working around it. Keep in mind that devices that may already be part of your systems, such as micro-inverters or power optimizers, can also be used to achieve module-level rapid shutdown.

Snow guards: Snow guards are little rails placed on the lowest edge of the solar array that stop snow from sliding off in an avalanche. When considering where to install solar, evaluate what’s underneath the roofline. If there are walkways, doors, parking, mailboxes, other roofs, precious shrubbery, etc., consider that an avalanche of snow from the array may block the door or cause serious damage to anything it falls on, including any people who happen to be there. This risk can be reduced by installing snow guards where needed.





3. Is this going to make the roof leak?

While every hole in the roof (called a “roof penetration”) increases the risk of leaking, when installed correctly, a solar system will be as watertight as the original roof. If the asphalt roof is already over a decade old or is in bad condition, consider upgrading the roof at the same time. Otherwise, make sure the installer guarantees their work against roof leaks and uses good sealing and flashing practices. Certain types of roofing (raised seam metal roofs, for example) can have the solar system installed without penetrating the roof surface by using special clamps on the roof seam.

4. Will a solar system on the roof increase home insurance costs?

The best answer to this is, “Speak to your insurance agent!” Different insurers may perceive the risks associated with a solar system differently. There is no single answer to this question.

Of course, adding solar to the roof does increase the risk of fire, roof leaks, cost of repairs, and potential for accidents. These risks and costs can be mitigated by adequate design and maintenance, along with workmanship and performance guarantees from the installer and manufacturers. It’s a good practice to work with the installer and insurance agent to ensure the solar system is covered.

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