



Distributed Energy

New power generating capabilities bring utility exposures onto insured premises

It's telling that, for years, "utility services" were referred to as "off-premises services" in commercial property forms.

That's because water, electricity, and communications services were almost universally provided by specialized utility companies to households and businesses. Except for some farms and large manufacturers, almost no one had the capa-

bility to provide these services for themselves.

That's changing, however, when it comes to electrical power, and it will change a lot faster if the federal government has its way.

The U.S. Dept. of Energy (DOE) is leading a nationwide effort to decentralize how electrical power is generated and distributed in the United States.

"Distributed energy," or "distributed generation," are terms used to describe the growing trend to place power generating facilities on commercial or even residential properties to ease demands on overstrained power grids and contain the effects of local blackouts.

"Combined heat and power" (CHP, see below) is just one form of distributed energy, but the DOE says that more than 500 CHP sites were installed between 2000 and 2005. Their combined generating capacity amounts to 20.6 gigawatts (GWs), according to the DOE's Energy Information Administration, a figure roughly equivalent to the capacity of two major metropolitan electrical utility companies.

As part of President George W. Bush's energy program, DOE has set a goal of having 92 GWs of CHP generating capacity in place by 2010, an amount equivalent to more than 10% of total U.S. generating capacity in 2004.

Driven by disasters

Public sector interest in distributed energy was aroused by Hurricane Andrew in 1992, when thousands of Florida residents suffered without power, even if their homes were otherwise habitable and their businesses relatively undamaged.

Following the series of hurricanes that have struck Gulf states over the past two years, Florida Gov. Jeb Bush this year came out in support of legislative proposals to require all gasoline facilities in the state to have emergency power generators on site to ensure that residents and emergency crews can have fuel following hurricanes.

Some argue that the proposals should go even further and mandate that all food stores and ATMs have emergency power sources.

Distributed energy entails much more than emergency power, however, according to Ritchie Priddy, senior associate with the North Star Energy Group, Des Plaines, Ill.

The California electricity crisis of 2001 and the Northeastern blackout of 2003 dramatized the exposure of households and businesses to power interruptions even under normal conditions, Priddy says, and inspired many organizations to explore the benefits of distributed energy.

“There’s a whole new cottage industry springing up with this,” he says. “Many users are using distributed energy for regular operating power, and we think that’s the trend.”

As an example of the growing use of distributed energy, the DOE reports that a supermarket in Mt. Kisco, N.Y. recently installed four 60-kilowatt turbines to generate electricity to provide air conditioning and cool display cases. The warm air created is used to regenerate a desiccant wheel for reducing unwanted moisture in the store.

Priddy adds that “commercial firms can now practically and cost-effectively produce power to sell to regional power grids” through energy “aggregator” firms.

In addition to offering financial incentives for firms to reduce their demand for electricity, the New York Independent

Photovoltaic cells convert sunlight into electricity, and are called “the most modular of all the renewable energy distributed resources” by the NSEA. Photovoltaic cells are still hampered by the intermittent availability of sunlight, but they provide vital relief on hot, sunny days when demand for air-conditioning is greatest.

Wind energy conversion systems--windmills--are being erected in areas open enough to accommodate them, although they encounter significant resistance on aesthetic grounds.

Meanwhile, the principal focus of the federal DOE’s distributed energy campaign is “combined heat and power” (CHP). Also known as “co-generation,” CHP is the process of capturing heat generated by industrial operations to drive steam turbines and generate electricity.

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System Operator contracts to purchase power at peak times from non-utility companies that have their own generating facilities.

Enabled by technology

Technological advances in developing smaller-scale power generating equipment are allowing public officials to promote what is, in essence, a re-engineering of the nation’s power grid.

According to a report from the Northeast Sustainable Energy Association (NSEA), energy equipment manufacturers have developed “a whole new generation of modular gas turbine and fuel cell power plants small enough to power retail stores, restaurants, apartment houses, and even individual homes.”

Gas-fired turbines need natural gas to operate, but research is underway to enable them to be powered by methane or biogases that are generated by industrial operations. “Even relatively small units can match the efficiency of the largest coal-fired steam plant,” reads the report.

Fuel cells actually require no conventional fuel at all, just an external supply of hydrogen that they convert into electricity. As long as they have that, fuel cells operate like batteries that never run down or need recharging.

Researchers are exploring economically viable ways to extract pure hydrogen from water, which would boost the value of fuel cells.

“Smaller sized equipment dramatically expand[s] the number of sites where CHP can be installed,” writes Neal Elliot, an analyst with the American Council for an Energy Efficient Economy. “These technologies are poised to satisfy a significant portion of the U.S.’s growing electricity needs,” he writes.

More exposure

The growing use of distributed energy means that property insurers will be confronted with an exposure for onsite power generation--and “utility” interruption--that was rare or incidental in the past.

“These exposures are here to stay and increasing every day,” says Samuel Boomer, a vice president with Mutual Boiler Re, an equipment breakdown insurer based in Malvern, Pa. “The need is driven by the increased reliability afforded in an emergency or from cost savings developed through co-generation.”

“For the most part, the concentration of these exposures varies with geography,” Boomer adds. Distributed energy is found “where the frequency of electrical outages is more common, or where an outage can have severe consequences, such as in northern latitudes.”

“While still not a common exposure, [distributed energy] is becoming more prevalent for accounts that require



uninterrupted power supplies and those with excess process heat or fuel that can be used to generate electricity,” says Dennis Milewski, a spokesman for The Hartford Steam Boiler Inspection & Insurance Co. (HSB).

“Many larger hospitals generate power for consistent supply and to help control costs,” Milewski adds. “Also, municipal and private waste water treatment facilities generate methane which is often viewed as a ‘free’ fuel source to power generators.”



For decades, standard commercial property forms have addressed exposures related to a loss of power as follows:

- Standard building and personal property forms have included an exclusion for loss caused by an interruption of power to the insured location, if the cause of the interruption occurred away from the insured premises.

An exception to the exclusion provided coverage for direct damage caused by an insured peril that resulted from an off-premises power interruption. In other words, if an off-premises power failure caused a fire at the insured location, the fire damage would be covered.

- Similarly, standard business income coverage forms have excluded income losses arising from power interruptions, except that the income exclusions have been more restrictive than the building and personal property exclusions. Standard income exclusions have typically applied to any utility interruption that happens outside a building, even if it is on the insured premises.
- Coverage for direct physical damage arising from an off-premises power interruption is typically provided by endorsement. Standard endorsements provide the coverage under a separate sublimit to property specified in the endorsement. The damage must be caused by a covered peril arising from an off-premises utility interruption. Coverage under the endorsement typically extends to property damaged by spoilage.
- Coverage for income losses arising from an off-premises power interruption is also typically provided by endorsement. Parallel with the standard income exclusion, the income coverage endorsement provides coverage for income losses arising from a power interruption caused by an insured peril outside of an insured building.

Better risks

In terms of the wording of standard policies, the growth of distributed energy presents insurers with a greater exposure, as there are few if any restrictions of coverage for losses arising from power interruptions that occur on the insured premises.

In addition, the presence of power generating equipment at locations that typically did not have them in the past introduces

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an exposure for fuel that many risks did not have in the past, says Robert Guevara, AAIS vice president for inland marine.

Still, Guevara and Dina Widlacki, AAIS senior product development specialist for commercial property, agree that a risk that utilizes distributed energy is viewed as a better risk from an underwriting standpoint.

“A firm that has its own power generating capacity is generally considered to be a better risk,” says Widlacki. “When you have your own power, even for emergency purposes, it demonstrates that you have taken precautions to maintain operations and limit losses.

“It also reassures an underwriter that an insured location is likely to remain lighted and occupied in the aftermath of a storm, and thus less likely to be vandalized or suffer other types of slow degradation.”

However, equipment breakdown reinsurers caution that the addition of power generation to a commercial risk calls for a special degree of care and expertise.

“The risks are complicated by the fact that the companies installing the electrical generating capacity may not have the personnel that understand the equipment design, installation, operation or maintenance requirements,” says Milewski at HSB.

“Non-revenue generating departments, such as maintenance and training, are often targets for staff and expense reductions,” he adds. “As a result, the quality of the maintenance may be reduced, impacting the reliability of the equipment and the potential for failure.”

“These [energy] technologies have resulted in increasingly high-performance machines which, for the most part, have proven to be exceptionally reliable,” says Broomer at Mutual Boiler Re. “Naturally, as the size and importance of these capabilities within a facility increase, so do the inherent property damage and time element exposures.” ■