

Planning—and Paying—for Nuclear Waste

By Scott Gates

Nuclear power accounts for 15% of electric cooperative power supply. It is always available, solidly reliable, and emits no carbon dioxide, a greenhouse gas blamed for contributing to climate change. But there's no such thing as a free lunch. With all of the perks of nuclear power comes a major headache: what to do with high-level radioactive waste.

Nuclear waste, in one form or another, gets generated at almost every step of the process of turning uranium ore into a safe, reliable fuel for electricity. When something is "radioactive," it constantly emits unseen waves at a molecular level, the result of atoms actually decaying and shedding particles. In many cases this decay occurs naturally—a chunk of uranium ore, an unassuming chalky yellow rock, is naturally radioactive.

Radiation isn't always a bad thing, but too much of it can damage living cells. And in the case of waste from nuclear power plants, its untapped potential energy poses a national security risk as it can be used as an ingredient in weapons manufacturing. This makes nuclear waste particularly tricky to dispose of safely and securely.

In 1982, a fund was established by Congress to develop a national repository for storing the nation's nuclear waste, such as spent uranium fuel bundles, from commercial nuclear power plants, defense installations, and national laboratories. Consumers who receive electricity from nuclear power plants pay a one-tenth of 1 cent fee on every kWh used. The fund's balance now stands at about \$30 billion, with \$9.5 billion having been spent on research and development of a permanent storage facility. Of that, more than \$700 million has come directly from electric cooperative consumers.

After decades of planning, a site for the repository was approved by President Bush in 2002. Yucca Mountain, Nev., about 90 miles northwest of Las Vegas, was selected out of nine potential sites and has been authorized to hold 77,000 metric tons of waste. The site is capable of holding between 286,000 and 628,000 metric tons if need be. The storage site has yet to open, and the U.S. Department of Energy has estimated it won't until at least 2021. In the meantime, waste must be stored "temporarily" on-site in above ground cooling pools or dry casks at nuclear reactors, which can be costly for plant owners. Nuclear waste remains a costly problem, and the solution can't come soon enough.

Sources: Electric Power Research Institute, U.S. Department of Energy, Dairyland Power Cooperative, National Rural Electric Cooperative Association