Before the New Mexico Water and Natural Resources Committee

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Testimony of Jerry W. Partin, General Manager of Roosevelt County Electric Cooperative, Portales, NM

In 2009 when Xcel Energy decided to exit the wholesale power business it left Roosevelt County Electric Cooperative, and three other NM Co-ops, Central Valley, Artesia – Farmers, Clovis – and Lea County, Lovington, without a power supply after 2015. Through negotiations the co-ops were able to extend the purchase power agreement with Xcel through 2026 but it required the co-ops to start migrating away from Xcel beginning in 2012. Over the following 14 years the co-op will move completely off the Xcel system in 5 steps. With this step arrangement under contract the four co-ops then were able to join Western Farmers Electric Cooperative headquartered in Anadarko, OK for its future power supply. Without this step reduction from Xcel it would have been difficult if not impossible to find a power supplier that could take on all of the power requirements of the four NM cooperatives in a cost effective manner. The NM co-ops and the state of NM have found a good partner in WFEC in committing to keeping the power flowing to southeastern New Mexico.

The commitment to serve the future NM co-op loads requires a significant and costly building program for WFEC in addition to the growing demand for the other Oklahoma co-ops it serves. A way that has been identified to lower the building requirement is to reduce the rate of growth in power demands and thus reduce the size of the power plants needed. By reducing the size of power plants it also reduces their environmental impacts and fuel requirements thus keeping money in the consumers pocket while having a cleaner environment.

When most people think of renewable energy they think about solar or wind power and for good reason. These are the two dominate sources of renewable energy resources being promoted and developed today. WFEC has a sizable portfolio of wind resources that account for about 12% of its energy sales. Biomass, hydro and geothermal energy are also renewable but get very little attention compared to the big two, wind and solar.

Biomass and hydro have their place and can be utilized in significant ways but generally that place isn't New Mexico. What New Mexico and every other state do have is usable ground energy that is just about perfect for heating and cooling. What's more intriguing about geothermal or ground source heat pumps is for much of New Mexico once you start using them for heating and cooling the ground becomes more efficient at heating and cooling. Let me explain.

A ground source heat pump extracts five units of heat energy from the ground and supplies space heat and domestic hot water for every equivalent unit of electric energy used. When the heat is extracted the ground becomes cooler. Over the winter period the ground surrounding the ground

loop may drop 10 degrees. When cooling season hits the cooler ground more efficiently accepts the heat being rejected from the house resulting in the A/C system consuming less power demand and energy. In addition, the heat rejected from the house can be used for water heating. During the hottest time of the year most if not all of the domestic hot water can be supplied by the heat pump while it is doing its main task of cooling. This further reduces the demand by not having to supply the hot water fueled by a power plant during peak usage times.

In effect the ground source heat pump is a hybrid solar/geothermal system. If we think of our house as a solar collector, the ground source heat pump takes away the solar energy in the summer, thus cooling the house, then stores that energy in the ground to be used the next winter. In addition hot water is being generated free during the summer and at a very high efficiency in the winter. All this is being done at the time of need, on demand from the consumer, without any lifestyle changes. For every geothermal heat pump installed about 2-3 kiloWatts generating capacity can be reduced and the environmental impact of the associated kWhs can be avoided.

What the electric cooperatives of NM request is the geothermal and solar energy being utilized by these systems be evaluated and be given comparable treatment as wind and solar that are not available on demand, at the time of need, may require lifestyle changes and do not result in significant reduction in power plant capacity requirements. If the thermal energy used and stored in the ground can be counted toward the NM Renewable Portfolio Standard requirements it will make electricity less costly to the consumer, diversifies renewable energy sources and gives a higher standard of living.

I thank the committee for this opportunity to speak to you today. If you have any questions I would be happy to try to answer them.