

2010 Earth Science Week KUNM radio broadcast

Minerals for a Green Society

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Welcome to Earth Matters, field notes on the geology of New Mexico's enchanting landscapes. Celebrating Earth Science Week, I am Virginia T. McLemore.

Our society is currently going "green" by using technologies like solar panels, wind turbines, and batteries for electricity and electric cars. But have you ever wondered what raw materials and minerals these technologies require? We know about copper, steel, and cement—but what else is needed?

Dust off your periodic table that was hanging on the wall of your high school chemistry class, because these green technologies are made from elements that are unfamiliar to most people.

The main component of solar panels is silicon combined with thin films made of cadmium, tellurium, copper, indium, gallium, selenium, arsenic, and other elements.

Electric cars run off specialized batteries. Hybrid cars use both conventional gasoline engines and rechargeable batteries that contain lead, lithium, nickel, cadmium, and cobalt.

We are seeing more wind turbines dotting the landscape. They are mostly made of steel and concrete, but also require copper and gold for the circuits and wires and magnets in the motors.

Elements including cerium, samarium, neodymium, ytterbium, and 13 others are known collectively as rare-earth elements, which are required to make magnets for the motors in electric cars and wind turbines, not to mention cell phones, televisions, and computers.

Most of these unusual elements come from mines outside of New Mexico. However, some are found in central and southern New Mexico, and could be mined here. The future of these green technologies is exciting and making them come true relies on mining these rare elements.

For more information on these and other geological topics, visit our Web site at geoinfo.nmt.edu. Celebrating Earth Week, I am Virginia T. McLemore of the New Mexico Bureau of Geology at New Mexico Tech in Socorro.