ENERGY TRANSITION AND SUSTAINABILITY DIVISION TALK

Geoscientists: Explorers and Architects of the New Energy Economy

Presenter: Edith Newton Wilson, PhD, FGS, President and CEO, Rock Whisperer LLC

Date: Wednesday, November 17, 2021 | 6:30 pm – 7:30pm Mountain time

1 CPD (Continuing Professional Development) credit will be awarded for this event

ABSTRACT

The energy transition is synonymous with a fundamental breakthrough in energy storage. Since the discovery of fire, humans have relied on storage of energy through photosynthesis, geologic processes to concentrate energy more efficiently, and the subsequent breaking of hydrogen-carbon bonds in wood, coal, oil, or natural gas to release energy. This process not only produces carbon dioxide and other greenhouse gases as a biproduct, but it also destroys the energy storage device forever, requiring that new quantities of hydrocarbons be extracted and combusted for every joule or watt hour of energy consumed. Renewable energy storage devices - batteries - require a similar amount of carbon for extraction and manufacturing but emit no carbon dioxide on use. Moreover, the extracted components used to make batteries (or solar panels or wind turbines) are not destroyed to produce energy, but can be reused, repurposed, or fully recycled. Not only is the new energy economy here, but the circular economy is just around the corner. The talents of geoscientist will translate effectively to all aspects of the rapidly developing sustainable energy supply chain. First and foremost, we bring our geologic expertise, along with our exploration and mining experience, to the problem of filling the rising demand for metals and other conductive materials used to power the Internet of Things, electric vehicles, distributed energy resources, and utility systems. The extractive industries that produce materials for energy storage will rely on sustainable development, environmental management, and proper social license now more than ever. Mineralogy, crystallography, material science, and nanotechnology will be increasingly essential skills as we onshore industrial processing as well as electrode design and manufacturing. Optimization of battery chemistries and recycling metals from waste will also call on metallurgical and refining expertise. Related energy resources, such as geothermal, as well as subsurface energy storage in green hydrogen and carbon sequestration will call on subsurface and surface geological skills. As we move from a society that extracts and uses up our energy resources to one that optimizes energy as a service, the most valuable talents we bring to the table may well be our creativity and thirst for discovery, as well as our willingness to embrace change.

BIOGRAPHY

Edith is the owner of Rock Whisperer LLC, where she works to engage emerging professionals in energy solutions for a changing world and consults on renewable energy and climate mitigation projects. Edith is a Fellow of the Society of Economic Geologists and the Geological Society of London, a member of the American Geophysical Union, and an Honorary Member of the Geosciences Advisory Board at the University of Arkansas. Edith and her husband, Glenn, are Founding Members of the Bob Dylan Center in Tulsa, where they make their home, and where Edith also volunteers as a member of the Oklahoma Medical Reserve Corps. In 2018-2019, Edith chaired the ad hoc Committee on Climate Change for the AAPG. She received her BA in Geology from Dartmouth College in 1982, and her MA and PHD in Carbonate Sedimentology from Johns Hopkins University in 1988. Her career in the energy industry began in Houston where she was an international explorer, negotiator, and manager with Amoco and bp. In Oklahoma, Edith worked with Phillips Petroleum on global new ventures, ConocoPhillips on leadership development, Samson Resources on domestic shale gas projects, and in 2008 co-founded TallGrass Energy. Edith has traveled throughout the Americas, Europe, and Africa - where she climbed Mount Kilimanjaro in 2004 - and is conversant in French, Italian and Portuguese.