Sometimes it is helpful to step back from current policy discussions to take a longer term view of issues. Interestingly, a little over 35 years ago, on April 18, 1977, President Jimmy Carter delivered a televised speech to the U.S. public declaring the “moral equivalent of war” on the energy crisis facing our country. President Carter framed the crisis in terms of a U.S. dependence on oil and gas for 75% of the nation’s energy, dwindling U.S. petroleum production and reserves, and the economic threat of supply disruptions or embargos from petroleum suppliers in the Middle East. Carter’s answers to the energy challenge he saw were to advocate energy conservation to reduce our nation’s consumption and need for outside energy, establishing a strategic petroleum reserve as a supply cushion, creation of a new Department of Energy (DOE) to consolidate national efforts to tackle the energy crisis, application of stricter safety standards for nuclear energy, increasing coal production and consumption to more than a billion tons a year to lessen the U.S. use and reliance on petroleum, and starting research and development of new unconventional sources of energy. How has the U.S. done on meeting the energy goals set out 35 years ago?

1. Energy conservation has been a goal of various administrations since President Carter left office; therefore, numerous American homes have been insulated as a result of federal and state tax credit incentives, more energy efficient building standards have been established for new homes and buildings, and the energy efficiency of appliances and lighting has greatly improved, all of which have reduced U.S. per capita energy consumption.

2. The U.S. Petroleum Reserve has been established and as of June 22, 2012, held 695.9 million barrels of oil, somewhat below the 1 billion barrels envisioned by Carter.

3. The DOE was created, and although there were some thoughts to disband it in the past 35 years, it still promotes research on unconventional fuels and manages U.S. energy policy.

4. The U.S. has implemented stricter nuclear energy safety standards in light of the 1979 accident at the Three Mile Island plant in Pennsylvania. At present, a fleet of 104 commercial nuclear reactors generates approximately 20% of the U.S.’s total electric energy for consumption. Of those reactors, ground was broken on all of them in 1974 or earlier, so for many years, no new nuclear plants have been built here, although there is some renewed interest.

5. From coal production of 697 million tons in 1977, annual U.S. coal production rose to about 1 billion tons in 1990 and remained at that level through 2010, fulfilling Carter’s wish to rely more on our most abundant domestic energy source. However, according to the U.S. Energy Information Administration (EIA), the average share of electricity generated from coal in the U.S. has dropped from 52.8% in 1997 to just over 45% in 2010, and has been even lower this year. Natural-gas-generated electricity has shown a corresponding increase in that same period. The percentage of U.S. electricity generated by coal is projected to drop further to 35% by 2055 as utility companies shut down and retire a significant number of older coal-fired power plants in response to the Environmental Protection Agency’s plans to regulate greenhouse gas emissions.

6. Although it is unlikely President Carter considered oil and gas from shale reservoirs when he proposed development of new unconventional energy sources, refinement of new exploration and development technologies in the past 35 years have made petroleum from shale reservoirs a “game changing” market development in producing new energy supplies. While 35 years ago Carter thought we were running out of domestic petroleum, the U.S. EIA’s “Annual Energy Outlook 2012” now includes projections envisioning that the U.S. might be independent from imports of oil and gas by 2035 because of the new ability to tap oil and gas economically from shale reservoirs. Shale reservoirs have become economic to find and produce due to technology improvements for petroleum exploration, from improved seismic imaging and down-hole logging methods, to petroleum production from more efficient horizontal drilling and reservoir fracturing methods (see Chidsey, this issue). Many of these technology developments are the results of research partnerships between industry and government sponsored by DOE in the past 35 years. Looking at the developments of the past 35 years indicates that research for new sources of energy should continue to take place on many fronts in future years. It is difficult to foresee now which technologies will be future changers, much as President Carter was unable to see the future of oil and gas produced from shale reservoirs, and, as with shale reservoir technologies, the amount of time needed to bring new technologies to the market on a large economic scale can take tens of years.

(continued from page 2)

Inc., and Potash Ridge has recently completed drilling in the area to confirm the previously defined resource.

Utah’s Potash Outlook
Potash-related activity is clearly at a high point in Utah’s history. Considering Utah’s current potash production and the diverse nature of Utah’s potential potash resources, Utah is well-situated to play an important role in U.S. production of this important fertilizer. However, as with many industrial minerals, price and demand for potash will need to remain high for new projects to reach production. Production costs for proposed operations will also need to be competitive, as potash may need to be shipped over long distances.