

Geologic Carbon Sequestration in the Southwest

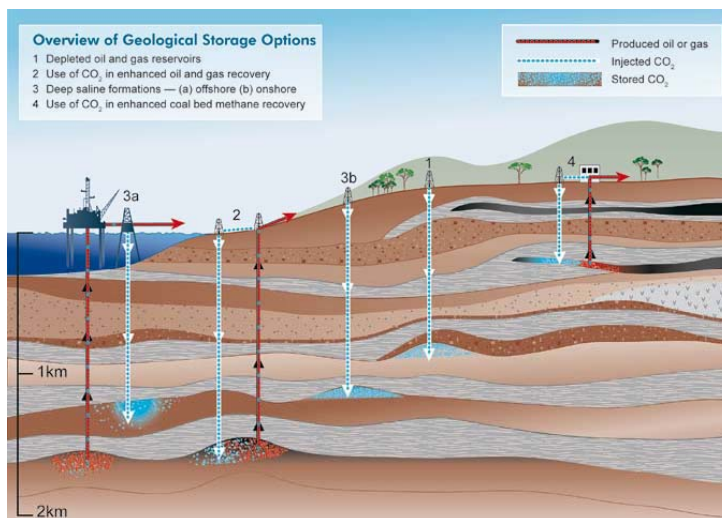
US Energy & Economic Security

Fossil fuels are projected to remain the bastion of US energy production into the 21st century. As the US supply of oil decreases over time, the nation will turn to other abundant domestic resources, such as coal, to minimize dependency on foreign oil and to ensure a reliable energy supply. Consistent, affordable energy supplies are linked to economic growth and prosperity. Energy is not a negotiable commodity—it is needed to run businesses, to power homes, and to transport goods. As new and enhanced domestic fossil fuel resources are developed, industry is challenged with the mitigation of on-site carbon emissions. CO₂, a by-product of fossil fuel combustion, is thought to contribute towards human-induced global warming. As the threat of climate change becomes more apparent, local, state, and federal governments are researching ways to regulate CO₂ emissions at the source. The energy sector is a major contributor to greenhouse gases. In the Southwest, 95% of CO₂ emissions result from fossil fuel combustion and approximately one-half of those emissions are from power plants. Indeed, inexpensive and effective means to reduce CO₂ are necessary to ensure continued growth and development of new and enhanced fossil fuel derived energy resources

Southwest Regional Partnership for Carbon Sequestration

The US Department of Energy (DOE) is currently researching geologic carbon sequestration as a way to reduce the amount of CO₂ emitted from the energy sector. Geologic carbon sequestration is thought to be a way to reduce factory-emitted carbon by capturing CO₂ on site before it is released into the atmosphere and permanently storing it in underground repositories such as: unmineable coal seams, abandoned natural gas reservoirs, deep saline reservoirs, and depleted and marginal oil fields. These geologic structures have stored crude oil, natural gas, brine and CO₂ for millions of years. Throughout the Southwest, many power plants and other large emitters of CO₂ are located near geologic formations that are amenable to CO₂ storage.

This close proximity provides a unique opportunity to test this new technology that has the potential to reduce anthropogenic carbon emissions in the Southwest by at least 10%.



In order to warrant that this new technology is both safe and reliable, the DOE formed regional public-private partnerships with stakeholders across the US and in parts of Canada. The Southwest Regional Partnership on Carbon Sequestration (SWP) spans Utah, Wyoming, Arizona, Colorado, New Mexico, Oklahoma, Nebraska, and Texas; current SWP collaborators represent oil, gas, and coal industries, state and federal governmental agencies, the Navajo Nation, non-governmental organizations, electric utilities, and universities. SWP partners work together to determine best technologies, regulations, and infrastructure needed for effective carbon sequestration practices throughout and unique to the Southwest region.

Market-based Opportunities

SWP is currently testing geologic carbon sequestration at a site near Aneth, Utah; they plan to conduct future tests in New Mexico and Texas as well. If the technology proves safe, reliable, and cost-effective, it will not only reduce the cost of regulatory-based CO₂ mitigation options, but it is expected to experience substantial market penetration within next decade. This new technology offers the ability to develop an industry based on clean burning oil, gas, and coal, including proposed Future Gen (clean coal and hydrogen electricity plants) projects. With increasing support from industry and environmental constituents, CO₂ sequestration is now a catalyst for new, innovative ideas and investment capital. Funded, in part, by the federal government, the advancement of this technology is expected to grow rapidly and eventually penetrate public and private energy sectors. Making way for new environmentally-friendly fuel resources, CO₂ sequestration technologies provide a reliable, low-cost flow of energy for decades to come