

Starting Right with SCS Engineer's Feasibility Study Expertise

SCS Engineers provides Class VI underground injection control (UIC) pre-permitting, permitting, design, construction and operations & maintenance services for geologic carbon dioxide sequestration projects. Our commercially focused interdisciplinary team of scientists and engineers can get your project off to a good start. If you are asking yourself if you should do a sequestration project, we can assist you in navigating the first steps with a feasibility study.

What is the Importance of a Feasibility Study?

Geologic sequestration projects are a multi-decade commitment with significant technical, regulatory and financial complexities to consider at the front end. Conducting a feasibility study before pursuing the Class VI UIC application process provides vital information that will assist you in making fundamental decisions early on regarding your project design.

Deep well injection for geologic sequestration of CO₂ is not possible everywhere. The complexity of these projects can vary widely depending on your facility's location. It is important to develop an understanding of the financial impacts of a sequestration project, as well as the regulatory framework and the geologic suitability for Class VI UIC in a given project location before pursuing the application process.

The feasibility study ultimately helps guide decisions on overall conceptual project designs. For instance, if the feasibility study uncovers complexities for the option of developing a Class VI well on-site at the generating facility, this is a good time to explore what alternative project designs may be available for developing the safest and most efficient project for your facility.

What does SCS Engineers examine during the Feasibility Study?

We consider several principal factors when conducting Class VI feasibility studies and their impact on the conceptual project design, including technical (geologic), regulatory and financial factors.

First, we evaluate the regulatory authority for Class VI UIC for a project location and the maturity of the UIC regulatory framework. This includes having preliminary conversations with the regulatory agencies. We also consider existing state, county and other local regulations that may deter or prohibit Class VI UIC. We also consider the concept of pore space ownership and whether agreements with adjacent land owners or those who may own subsurface mineral rights are needed.

If there are no red flags uncovered during the regulatory evaluation, SCS evaluates whether there is suitable geology present on-site for sequestration. Our geologic evaluation considers what geologic data are available to aid in the development of a project, whether the appropriate geology exists or is likely to exist on-site, and provides recommendations for addressing data gaps should the project proceed to the permitting phase.

This is also a good time to consider what project funding options are available to support your sequestration project. These include federal incentives such as 45Q tax or Low Carbon Fuel Standard credits. Projects may also be funded in the form of a grant through the U.S. Department of Energy's CarbonSAFE program. There are caveats to the federal funding related to the timing of project expenditures versus the timing of receiving federal funding. The overall costs of developing and implementing a sequestration project will depend on the complexity of your project and therefore the outcome of your feasibility study.

What if on-site sequestration is not feasible or incurs a high degree of risk?

Fortunately, off-site sequestration options are often available. This would involve transportation from the facility via pipeline, railroad, truck or barge to some off-site injection location. This location may be other company-owned property or a regional carbon storage hub, which could be privately owned or developed as a centralized location for multiple company facilities. This could also be on public land, such as through the Bureau of Land Management, or on leased private land where you enter an agreement with the public land owner or property/pore space owner. While there are many options available for off-site sequestration, the options available to you will be strongly dependent on the location of your generating facility. Off-site sequestration may increase the complexity of the project and the feasibility study; however, you can weigh each of the available options for the advantages and disadvantages and how your project may ultimately be impacted.

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