

What is Carbon Capture?

- Carbon Capture and Storage or “CCS” is a vital technology that combats climate change by removing CO₂ from the air and permanently storing it thousands of feet underground. Calpine can do this safely while ensuring a reliable supply of electricity for the country.

What is Calpine Doing?

- Calpine, partially supported by grants from the Department of Energy (DOE), is working with science and technology leaders from across the country to advance transformative and innovative CCS systems. By allowing our plants to supply the electric grid with low-carbon power 24 hours a day, seven days a week, these exciting projects promise to bring down the cost of reliable, clean energy while protecting and creating thousands of high-wage jobs.

How Does it Work?



Step 1

Capture technology removes carbon dioxide emissions from industrial processes and the air. Capture equipment can be retrofitted to existing facilities or built into new facilities.



Step 2

Captured CO₂ is transported from the emissions source to appropriate geologic formations.



Step 3

The captured carbon is injected thousands of feet underground, where it is safely and permanently stored under layers of impermeable rock where over time it becomes a solid mineral.

Where are Calpine's CCS Projects:

Calpine is working to advance projects that can quickly and effectively reduce carbon dioxide levels. These include carbon capture projects at our Deer Park, Delta and Baytown Energy Centers as well as the Houston Carbon Hub.



Deer Park Carbon Capture Project - The DOE awarded Calpine a grant to support the carbon capture project at our Deer Park Energy Center, located in Deer Park, Texas. In collaboration with industry leader Shell Cansolv, this project is set to be one of the world's largest carbon capture projects. As a combined heat and power generation facility, carbon capture at this facility will enable it to provide low-carbon industrial heat to co-located facilities and low-carbon power to Texas' grid.



Delta Carbon Capture Project - Located in Pittsburg, California, The Delta Energy Center was selected by the DOE to support innovative CCS technologies. The project is a collaboration with American start-up ION Clean Energy Inc. and is designed to capture 95% or more of the CO₂ emissions from the facility's three turbines.



Baytown Carbon Capture Project - Located in Baytown, Texas, and less than 10 miles from Calpine's Deer Park Energy Center, this facility is near significant CO₂ storage resources along the Texas Gulf Coast. As a combined heat and power generation facility, carbon capture at this facility will enable it to provide low-carbon industrial heat to co-located facilities and low-carbon power to Texas' grid.



Houston Carbon Hub - Calpine is committed to helping Houston achieve its goal of being carbon-neutral by 2050. We have joined other leading companies to support the large-scale deployment of CCS that could lead to capturing and safely storing up to 50 million metric tons of CO₂ per year by 2030 and 100 million metric tons by 2040 -- equal to taking 21,546,923 cars off the road annually.

FOR MORE INFORMATION, PLEASE GO TO www.CalpineCarbonCapture.com.

CALPINE CARBON CAPTURE

Deer Park, Texas



What is Carbon Capture?

- Carbon Capture and Storage or “CCS” is a vital technology that combats climate change by removing CO₂ from the air and permanently storing it thousands of feet underground.
- Calpine is a champion for CCS and supports policies incentivizing the technology. We can deploy CCS to reduce CO₂ while ensuring a reliable supply of electricity and protecting and creating thousands of high-paying jobs.

The Steps



Step 1

Capture technology removes carbon dioxide emissions from industrial processes and the air. Capture equipment can be retrofitted to existing facilities or built into new facilities.



Step 2

Captured CO₂ is transported from the emissions source to appropriate geologic formations.



Step 3

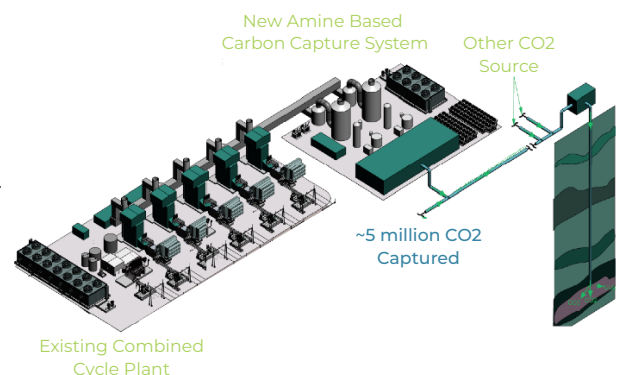
The captured carbon is injected thousands of feet underground, where it is safely and permanently stored under layers of impermeable rock where it mineralizes and becomes rock.

Our Deer Park Carbon Capture Project:

The DOE awarded Calpine a grant to support the carbon capture project at our Deer Park Energy Center. In collaboration with industry leader Shell Cansolv, this project is set to be one of the world's largest carbon capture projects and will be designed to capture 95% or more of total CO₂ emissions from flue gas generated from the turbines at Calpine's Deer Park Energy Center. As a combined heat and power generation facility, carbon capture at this facility will enable it to provide low-carbon industrial heat to co-located facilities and low-carbon power to the Texas grid.

More Details:

- About 1200 megawatts of carbon-free power.
 - Enough to power more than 480,000 homes.
- Up to 5 million metric tons per year in CO₂ offsets.
 - Equivalent to removing 1,077,346 cars from the road annually.
- FEED (Front End Engineering Design) study, permitting and preliminary development underway.
- Potential employment benefits from the creation of clean energy power plant jobs and progress toward addressing legacy environmental justice issues in the region.
- Close to over 150 gigatons (330 trillion pounds) of CO₂ carbon storage capacity in the Gulf Coast of Texas that can store carbon dioxide safely and securely, permanently preventing it from entering the atmosphere and contributing to climate change.
- With over 300 million metric tons per year CO₂ emissions in the greater Houston area, Calpine is currently working with other industrial emitters in the region on modular, scalable carbon capture solutions as well as integrated pipeline and transportation plans that will yield synergies and accelerate the establishment of a Greater Houston Carbon Capture Utilization and Storage (CCUS) hub.



What is Carbon Capture?

- Carbon Capture and Storage or “CCS” is a vital technology that combats climate change by removing CO₂ from the air and permanently storing it thousands of feet underground.
- Calpine is a champion for CCS and supports policies incentivizing the technology. We can deploy CCS to reduce CO₂ while ensuring a reliable supply of electricity and protecting and creating thousands of high paying jobs.

The Steps



Step 1 Technology

Capture technology removes carbon dioxide emissions from industrial processes and the air. Capture equipment can be retrofitted to existing facilities or built into new facilities.



Step 2 Transportation

Captured CO₂ is transported from the emissions source to appropriate geologic formations.



Step 3 Transformation

The captured carbon is injected thousands of feet underground, where it is safely and permanently stored under layers of impermeable rock where it mineralizes and becomes rock.

Our Baytown Carbon Capture Project:

Located in Baytown, Texas, the Baytown Energy Center is being actively assessed for a carbon capture project designed to capture 95% or more of CO₂ emissions from turbines and auxiliary boilers at this facility. Located less than 10 miles from Calpine's Deer Park Energy Center, this facility is near significant CO₂ storage resources along the Texas Gulf Coast. As a combined heat and power generation facility, carbon capture at this facility will enable it to provide low-carbon industrial heat to co-located facilities and low-carbon power to the Texas grid.

More Details:

- About 740 megawatts of low-carbon power and steam.
 - Enough to power more than 296,000 homes.
- Up to 2.5 million metric tons per year in CO₂ offsets.
 - Equivalent to removing 538,673 cars from the road annually.
- FEED (Front End Engineering Design) study, permitting and preliminary development underway.
- Close to 150 gigatons (330 trillion pounds) of CO₂ carbon storage capacity in the Gulf Coast of Texas that can store the carbon dioxide safely and securely, permanently preventing it from entering the atmosphere ancontributing to climate change.
 - Enough storage for the annual emissions of 40,150 coal-fired power plants.
- Supplies the adjacent Covestro complex with electricity and steam, as well as added power for the Texas grid.
- Potential employment benefits include 1.5 million construction hours (about 250 full-time employeesfor 3 years) in addition to 25-30 full-time, high-paying clean energy power plant jobs.

