

# Deer Park Community Advisory Council

## Meeting Notes

### Monday, April 24, 2023

The 309<sup>th</sup> meeting of the Deer Park Community Advisory Council (DPCAC) was held on Monday, April 24, 2023, at the Republic Grill. Facilitator Anne Gowan reviewed the agenda, which was accepted as proposed. The March 2023 meeting notes were approved without changes.

#### ATTENDANCE

DPCAC Community Members		DPCAC Plant Members		Guests/Resources	
	Brian Babin, US Rep 36	X	<b>Clean Harbors</b> , Bruce Riffel	X	Mohammed Bdair, Shell Deer Park
X	Ruth Bovd	X	<b>Dow Chemical Deer Park</b> , Montv Heins	X	John Collins
	Steve Corry, DPISD	X	<b>Evonik Oil Additives</b> , Jim Bentinck-Smith	X	Karen Guidry
X	Kristina DeWitty, SJC	X	<b>GEO Specialty Chemicals</b> , Steve Outlaw	X	Paul Guidry
	Christine DiCosimo, TX Hse. Dist. 128	X	<b>Intercontinental Terminals</b> , David Wascome, rep. by Michael Bargar	X	David Kayser, Lubrizol
	Ken Donnell	X	<b>Lubrizol</b> , Hector Acosta	X	Brett Kerr, Calpine
	Jamie Galloway, DP OEM	X	<b>NOVVI</b> , Alan Kominek, rep. by Bob Wolff	X	Brian Lawson, Dow Chemical DP
X	Sherry Garrison	X	<b>OxyVinyls PVC/KOH</b> , Eric Delgado	X	Catherine Martinez, Calpine
X	Tommy Ginn	X	<b>OxyVinyls VCM</b> , Josh Munn	X	Yayma Martinez, TCEQ
	Cara Herbeck	X	<b>Pemex Deer Park</b> , Guy Hackwell	X	John McPhaul, OxyVinyls PVC/KOH
	Steven Horton		<b>Pemex Deer Park</b> , Jennifer Walsh	X	Sebastian Moran, student
X	Gretchen Knowles, Harris Co. Pct. 2	X	<b>Shell Deer Park</b> , Nathan Levin	X	Wanda Morris
	Mayes Middleton, TX Sen. Dist. 11	X	<b>Shell Deer Park</b> , Jessica Blackmore	X	Stuart Mueller, Harris Co Pollution Control
	Paula Moorhaj, DP Chamber	X	<b>Texas Molecular</b> , Jimmy Bracher, rep. by Frank Marine	X	Duke Ogega, Evonik
	Tyler Padgett, SJC		<b>Valvoline</b> , Robert Shelton	X	Darrell Pinckard
X	Bill Patterson, DP City Council		<b>Vopak Moda</b> , Jeff Sanford, rep. by Duane Campbell	X	Jon Powell
	Ariel Pena		<b>Vopak Terminal Deer Park</b> , Kathy Stewart, rep. by Gary Jackson	X	Krish Raju, Calpine
X	Randon Pierson	X	<b>Westlake Epoxy</b> , Marlene Mercado	X	David Sanchez
	Vickey Roberts			X	Maria Sanchez
X	Andy Smith, San Jacinto Battleground			X	Charles Vu, UHCL
	Angela Smith, City of Deer Park			X	Blake White, Harris Co Homeland Security
	Charles Thomas		<b>Support Staff</b>		
	Cheyenne Valdez	X	Anne Gowan, Facilitator		
	David Wade	X	Marilyn Bass, Secretary		
	Ernest Weedon				

## **Carbon Capture and Storage 101: Meeting 2**

Shell Deer Park Chemical and Calpine, a cogeneration facility on its site, are both considering carbon capture and storage (CCS) projects that could reduce greenhouse gas emissions significantly. Both were asked to describe why they are considering projects, how CCS would work, benefits and risks. A Question-and-Answer session was available at the conclusion of each presentation.

Calpine VP of External Affairs Brett Kerr presented “Calpine Carbon Capture” for the DPCAC to discuss the Calpine Carbon Capture Initiatives in Deer Park and Baytown. Calpine has locations all around the ship channel and is the largest generator of electricity from natural gas and geothermal resources in the United States. Although Calpine consumes large amounts of natural gas during their process, they know that carbon capture and storage (CCS) is vital to decreasing carbon dioxide (CO<sub>2</sub>) and combating climate change while ensuring a reliable supply of electricity. CCS is safe and proven but was cost-prohibitive prior to the passing of the Inflation Reduction Act (IRA) **of 2022**. The passage of IRA increased the credits for CCS from \$60 to \$85 per metric ton of CO<sub>2</sub> captured and sequestered. This credit, combined with increased demand from customers wanting to show that they are “net-zero,” is providing enough economic incentive to invest in carbon capture technology. Calpine is focused on Step 1 of Carbon Capture, or the technology to remove CO<sub>2</sub> emissions from industrial processes and the air. Capture equipment can be retrofitted in existing facilities or built into new facilities.

The U.S. Department of Energy (DOE) awarded Calpine a grant to support the carbon capture project at their Deer Park Energy Center. Calpine’s Deer Park Carbon Capture Project is in collaboration with Shell and will be one of the world’s largest carbon capture projects. It will be designed to capture 95% or more of CO<sub>2</sub> emissions from flue gas generated from the turbines at Calpine’s Deer Park Energy Center. This will enable the power generation facility to provide low-carbon industrial heat to co-located facilities and low-carbon power to the Texas grid. Annually, this project is estimated to capture and sequester up to 5 million metric tons per year in CO<sub>2</sub> offsets. This is equivalent to removing more than 1 million cars from the road annually, or 1 in 4 cars from Harris County.

Calpine is assessing the Baytown Energy Center for a Baytown Carbon Capture Project. This project would be designed to capture more than 95% or more of CO<sub>2</sub> emissions from turbines and auxiliary boilers at this facility. This project could capture and sequester up to 2.5 million metric tons per year in CO<sub>2</sub> offsets.

These projects will benefit our community with cleaner air and additional jobs. The plants will make the environment better without driving electricity and fossil fuels out of business. Calpine expects \$1 billion in capital expenses to be designated for these projects in the next 3-5 years.

More information can be found at <https://calpinecarboncapture.com/> and <https://houstonccs.com/>.

### **Questions and Comments:**

1. *Is there a concern about leakage?* Geology experts believe that they can measure the amount of CO<sub>2</sub> inserted into a well and prevent this from happening.

2. *Is there any sort of industry that would use CO<sub>2</sub> as feedstock?* Historically, it has been used for enhanced oil recovery (EOR), but the federal incentive is higher for sequestration (storage) than EOR uses.
3. *If carbon is buried in the ground so it cannot escape, how do we know that someone won't create a vent when digging a hole.* The containment area will be thousands of feet underground and completely contained with a caprock. Companies would not be able to get a permit to dig this deep.
4. *Does the CO<sub>2</sub> change composition when stored?* Over time, it will solidify and become rock-like. This will not produce earthquakes.
5. *How deep are sequestration wells?* The wells will be several thousand feet deep, but exact depth will depend on where it is.
6. *How are sites determined?* Geologic studies will determine the best sites for storage. The best sites are often where oil and gas have already been mined.
7. *Does this require new pipelines, or can you reuse existing pipelines?* Yes, this would require new pipelines because you would be connecting facilities to underground storage wells where no lines currently exist in many areas. If you had available, unused pipelines, you could repurpose them, but they would have to be in the right location.
8. *If you repurpose a pipeline, what happens to the original purpose?* It would have to be available where it is.

Mohammad Bdair, CCS Business Opportunity Manager of Shell Chemicals presented Deer Park CCS to the DPCAC and discussed Shell's involvement in CCS both in Deer Park and worldwide. Shell is currently involved in 8 projects in different phases of development and operation. The Quest project in Canada has safely captured and stored more than 6 million tons of CO<sub>2</sub> since starting operation in 2015.

Shell is assessing the viability of CCS for its Deer Park Chemicals facility. In 2021, the U. S. DOE awarded a \$4 million grant to study the feasibility of carbon capture and storage at Shell Deer Park Chemicals. Shell invested an additional \$5.2 million. The goal is to determine the right technology for the asset. The existing furnaces make it difficult to assess the right technology. The project would allow Shell to significantly reduce direct emissions by about 95% using Shell proprietary technology. Shell is actively pursuing collaboration with Calpine on CCS to significantly reduce indirect, owned emissions. With this project, up to 6 million tons of CO<sub>2</sub> can be captured and safely stored annually by Shell and Calpine combined.

Storage is about 1 to 3 miles underground in a contained space where CO<sub>2</sub> has an impossible path to escape. The government must be extremely convinced that it will not leak in order to give approval for the storage. CO<sub>2</sub> can also be injected into underground oceans or saline aquifers.

Shell and Calpine are both part of the Houston CCS Alliance, which is currently comprised of 12 companies that create almost 70% of emissions in Houston. The Houston CCS Alliance is discussing projects together, creating more demand and collaborating to create best-in-class technology. They know that economies of scale are necessary to decrease the cost of implementing this technology. The alliance members aim to capture approximately 100 million metric tons of CO<sub>2</sub> annually by year 2050 and ultimately help the City of Houston reach its carbon-neutrality goals.

If captured and utilized, there is a maximum limit of utilizing 20% of the CO<sub>2</sub> collected. However, that aspect will take longer, as the commerciality of CO<sub>2</sub> is still being explored.

## Updates

**Written Facility Updates** - Members received regular periodic plant updates in advance of the meeting but the facilitator asked the plants who reported this month to share one or two highlights from their update that they wanted members to know about.

- Clean Harbors – Bruce Riffel reported zero lost time incidents in 2022 and YTD in 2023. The site has worked almost 1 million man-hours since last lost time incident. The current landfill used for ASH and filter-cake will be filled soon. A new \$2.5 million Rail spur has been constructed. They are shipping ash and filter-cake out via rail to Clean Harbors landfill in Oklahoma.
- Pemex – Guy Hackwell reported 2 unauthorized emissions events since their last report on October 12, 2022. An event occurred on 12/12/23 due to freeze related issues instigated by Winter Storm Elliott. An event occurred 1/24/23 caused by power outages related to EF3 tornado that hit Deer Park. There have been no lost work cases. There have been 3 recordable cases since 10/22/22. As reported at the March 27th meeting, a fire occurred on a small distillation unit March 14th due to equipment failure. Additionally noted, Pemex has evaluated CCS and it does not make sense financially for them to implement. CCS would increase the cost of jet fuel and gas to prices that the market does not support.
- Shell Chemical Deer Park – Nate Levin reported no lost time injuries and 1 recordable injury. A contractor cut their finger and received stitches while doing unpermitted work. They had flaring around weather events and are still working on splitting permits with Pemex. The latest operator class started in March and was made up of 7 interns that were part of a 12-week program. The site held the annual Shell Deer Park symposium with Deer Park Independent School District in March. Nearly 80 students participated on the first day when volunteers visited the school. The next day, nearly 20 seniors were given a tour of the Deer Park facility. Levin also noted that CCS does make sense on the chemicals side. Shell can differentiate products that have a lower carbon footprint. They have customers asking for this and they are willing to pay a premium.

**Ozone Exceedance Days** – Yayma Martinez reported there were no April exceedances of the Houston Region 8-hour ozone standard, the Houston Region 1-hour standard, the Deer Park 8-hour, or Deer Park 1-hour standards. Normally, April is the beginning of ozone exceedance days. The most exceedances are normally reported in the months of June, July, and November in the Houston area.

**Proposed Change to Plant Host Duties** – Gowan suggested a change to host plant duties that was accepted by attendees. Going forward, the host plant will share a 1 slide, 2-minute that tells the story of what their plant does or where their products end up and how it impacts our lives. The goal is for community members to be able to tell a friend how the host plant product impacts their lives, or how their lives would be impacted if their product or service ceased to exist. This will be in addition to the normal expectation of running the computer and providing the correct plant/product description for the website.

## Plans for Future Meetings

DPCAC meets at Republic Grill at the City of Deer Park Battleground Golf course from 6:00 - 7:30 p.m.

**May 22, 2023- SH 225 and SH 146 Construction and Maintenance**

- TxDOT will discuss projects underway and planned for SH 225 and SH 146, including connectors to the BW8 Bridge

*No meeting in June or July*

**Dates for 2023 - all Mondays**

Jan. 23	May 22	Sept. 25
Feb. 27	No June meeting	Oct. 23
Mar. 27	No July meeting	Nov. 27
Apr. 24	Aug. 28	No December meeting

**Deer Park Community Advisory Council (DPCAC)**

Input on Carbon Capture and Storage

4-24-23

**1. Anything you were happy to hear?**

- Reduction of carbon dioxide will be beneficial
- Liked solution of CO<sub>2</sub> emission
- Good to not negative impact oil and gas
- Houston is doing something
- Clean H<sub>2</sub> potential
- Yes, CCS is real
- Good segue from last month's general to specific projects
- Doing something to help sustain fossil fuel industry
- Using captured CO<sub>2</sub> for enhanced oil recovery
- Coming close to having a solution
- Number of jobs and community benefit
- Complicated topic – explained at a level we could understand.
- Interesting to hear about % of Carbon to be captured vs. Amount being generated.
- Storage and environmental benefits
- A lot of options for storage

**2. Any concerns about what you heard?**

- Cost or ability to recoup expenses, what are risks?
- Is subsidy ever going to go away making this viable without the government \$.
- What about other countries?
- How do you make the average person feel secure?
- People will worry about putting stuff into the ground
- Going to take some time to implement, will it be quick enough?

- Needs to be supported.
- Hard to know what to believe in this space.
- Borehole during storage
- What is the process behind CO<sub>2</sub> solidification?
- Who gets storage royalties? Ownership? Surface rights owner?
- Liability?

### 3. **Any lingering questions?**

- Is China doing anything?
- How much capacity is there for CO<sub>2</sub>?
- How long does it take to solidify in the ground?
- Why can only 20% be repurposed?
- Is TX prime given empty oil fields and can pipelines be reused?
- Does CO<sub>2</sub> turn to limestone?
- What are the operating costs for these facilities? We talked a lot about capital costs, but not ongoing costs.
- Long Term impacts?
- Health risks with leakage?
- Is there environmental support for CCS?

### 4. **Input on other topics?**