To: Dr. Marcos A. Orellana, Special Rapporteur on Toxics and Human Rights

Re: Submission for Special Rapporteur’s thematic report on detoxification/decarbonization to the Human Rights Council

Via email: [hrc-sr-toxicshr@un.org](mailto:hrc-sr-toxicshr@un.org) March 6, 2023

It is of utmost importance that the United Nations Human Rights Council oversees how decarbonization affects global citizens and the most vulnerable of humankind.

My reason for writing this letter is my overwhelming concern for Montgomery County, where I live, in the State of Illinois. The safety and economic viability of the area are threatened with many environmental dangers.

Carbon Capture, Utilization, and Storage (CCUS) is the latest threat to my community and to many other states in the United States and in other countries.

CCUS has been touted as an economic boost and solution to climate change mitigation. Although test projects and small-scale studies failed to meet the goals proposed, it is still pushed as a necessary solution to answer the climate crisis. The amount of energy, water usage, and expense used in removing the very low percentage of CO2 emissions does not protect Illinois from the dangers of CO2 pipelines.

Navigator Heartland Greenway LLC (NHG) submitted an application (Docket 23-0161) February 24, 2023, to Illinois Commerce Commission (ICC). This application filed pursuant to the Carbon Dioxide Transportation and Sequestration Act (220 ILCS 75/1 et seq.) for a Certificate of Authority to Construct and Operate a Carbon Dioxide Pipeline When Necessary to Take Interests in Property as Provided by the Law of Eminent Domain. The proposed 1,350-mile pipeline will transport supercritical liquid carbon dioxide along a pathway from South Dakota, Nebraska, Minnesota, Iowa, and terminate in Illinois. Thirteen Illinois counties will be involved in the hazardous waste pipeline. NHG’s Exhibit 4.2 on the ICC web site shows the proposed route in Illinois: a Lateral pipeline from Galva, IL to the Lateral’s interconnection with the Trunkline in northeast Adams County (the Galva Lateral) and a Lateral pipeline starting at an interconnection with the Trunkline south of Glenarm, IL and just east of Interstate 55 in Sangamon County terminating in Montgomery County (Montgomery County Lateral). The proposed NHG project in Illinois would involve approximately 292-miles.

The intense interest in CCUS has been brought on by generous federal funding in the Inflation Reduction Act (IRA) passed in 2022 in the U.S. that increases compensation for storage of carbon dioxide removed from emissions and from the atmosphere. The expanded 45Q tax credits for permanent geologic storage of CO2 are $85 per metric ton. Montgomery County is proposed to be one of the sequestration areas along with Christian County.

The Illinois State Geological Survey has stated that the Illinois basin’s pore space with extensive Mt. Simon Sandstone has the storage capacity of 1 to 150 billion tons of carbon dioxide. Potentially collecting the carbon dioxide from several ethanol plants and storing in the Illinois basin would be very lucrative for the pipeline companies, but very unsafe for residents living along the pathway of the CO2 pipeline.

The intent of the Carbon Dioxide Transportation and Sequestration Act was to “clean” coal emissions by capturing the CO2 and thereby guarantee continued use of Illinois coal. The simplistic view that if CO2 is removed for coal-fired emissions, the coal would be considered clean and its use would be supporting zero carbon goals. The many other pollutants emitted from coal are not collected and in fact the CCUS equipment added more CO2 to the process. The CO2 transportation act was passed to support the development of FutureGen, but that federal-state-private project never happened due to lack of funding.

The ongoing support for CCUS to ensure continued mining and combustion of coal is especially hurtful for area residents. Coal has not been a friend to Illinois or to Montgomery County with Deer Run Mine located in Hillsboro, IL. This longwall mine has 2 high hazard coal slurry impoundments and its coal processing plant is next door to Hillsboro Hospital. The coal dust permeates the community and there is extensive damage to farmland and water resources from subsidence. Citizens Against Longwall Mining has fought Deer Run Mine from the beginning, but Illinois regulatory agencies maintains their promotion and support of fossil fuels. The struggle with Deer Run Mine that residents in Montgomery County endured is documented in Citizens Against Longwall Mining’s website, <http://citizensagainstlongwallmining.org>.

The disconnect between the needs of Illinois communities and what is happening in public policy in the state can be summarized in a report published, January 23, 2023, by the Prairie Research Institute (PRI). The PRI Report did not attempt to justify the risk and effectiveness of carbon capture, utilization, and storage proposals. <https://prairie.illinois.edu/research/carbon-management>

PRI was assigned to publish a report on the results of the Carbon Capture, Utilization, and Storage (CCUS) study group under Public Act 102-0341. As presented in the Executive Summary of the report, the report is “to assist the state of Illinois by providing objective, science-based research to help policymakers better understand the role that CCUS may play in meeting the state’s emissions targets.

PRI’s report does not answer the necessary questions and it seems to obfuscate and distort critical information.

Biological sequestration works cheaper, better, and right now removing almost a billion tons of CO2 per year. Mechanical methods identified by the report are far less effective and potentially harmful in comparison. The PRI report mentioned that stakeholders considered trees and tree planting as a viable carbon capture method, but no information was shared. The following article is an excellent resource reference. Carbon dioxide removal-What’s worth doing? A biophysical and public need perspective by June Sekera, February 14, 2023, <https://journals.plos.org/climate/article?id=10.1371/journal.pclm.0000124>

Public Act 102-0341 was amended by adding Section 120 and in 120(a)(11)(b), PRI was to form an advisory committee composed of Directors or their representatives from IEPA, IDNR, DCEO, IEMA, Agriculture, Attorney General, 2 Senate members, and 2 House of Representatives members. There was no medical expert or public health representative on the advisory committee. This is a serious oversite since Number 11 of the Public Act covered “any risks to health, safety, the environment, and property uses or values.”

The report failed to enumerate the safety issues critical to CO2 capture and storage. The report mentioned that safety was a stakeholder concern, but PRI obviously did not consider safety an issue that the governor and legislators must address. The safety concerns of transporting CO2 by pipeline were ignored by PRI and this omission is very misleading in evaluating the life cycle of CCUS. Concentrated CO2 is an asphyxiant that upon exposure can make any living organism very ill or cause death.

Heartland Greenway cannot have locations for CCS injection in Montgomery County without having the high-pressure, super critical liquid carbon dioxide pipeline to transport the CO2 for injection. CO2 pipelines are hazardous. A leak or rupture can release a cloud of CO2 that displaces oxygen and can sicken or even kill people and animals in its path. CO2 is denser than air and can travel up to a mile, depending on weather conditions. If levels of CO2 are high enough, gas and diesel engines will not function, and a person would have just minutes to escape. An area of high CO2 exposure requires protective respiratory gear with plenty of oxygen tanks and electrical vehicles for rescue teams. Who will pay for the necessary equipment and training of the emergency management personnel?

A CO2 pipeline rupture due to ground shifting near Satartia, MS, in 2020, resulted in several hundred being evacuated and 49 taken for emergency room care. The pipeline satisfied existing code standards, but ground shifting induced axial stresses on the metal that ruptured. A 40-foot hole was blown in the area where the pipe had unzipped, releasing a plume of CO2 that traveled more than a mile from the place of rupture. More information about the impact to this community can be found at <https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f>

In fact, there was reassurance in the PRI report that 5000 miles of carbon dioxide pipeline exist safely in the U. S. presently. In truth, the CO2 was used for enhanced oil recovery (EOR), not for CO2 storage. CCUS is excessively expensive whereas the use of CO2 for EOR made it financially feasible. The interest in CCUS has blossomed since the funding for CCUS has blossomed. However, CCUS is, clearly, not the answer in meeting climate change goals and it should not be public funded.

The PRI report did not mention numerous known dangers and disadvantages of CCUS. The

preliminary small-scale projects of carbon capture did not meet or succeed at trapping the

specified CO2 goals while having high costs. The low yield of carbon capture was not

discussed in the report nor the high demand for more energy in a CCUS study. The large water

usage needed for CCUS was only mentioned as a unique study at the Prairie State Generating

Energy Campus’s (PSGC).

The Front-End Engineering and Design Study (FEED) at PSGC was discussed in the PRI report. The largest post-combustion carbon capture system in a utility lignite mining complex is in Marissa, Illinois. The progress of this FEED study was not listed, but the 14 million gallons of water used per day came from the Kaskaskia River. Lignite coal is a low energy source, so many pollutants along with CO2 are emitted in combustion. These pollutants and other harmful greenhouse gases are not captured in this FEED project or any other CCUS projects.

The pore space, several thousand feet underground, is where the CO2 will be injected and stored presumably forever in Montgomery County. The PRI report implies that the injected CO2 remains in a targeted area. The pore space is presented as an area that would be monitored for changes in temperature, pressure, and acoustics to document migration and filling capacity.

An interesting article, “Irregular Is What’s Regular for CO2 Storage Plumes,” by Stephen Rassenfoss presents insights into placement of CO2. This article was published in the Journal of Petroleum Technology, January 10, 2023.

[https://jpt.spe.org/irregular-is-whats-regular-for-co2-storage-plumes?fbclid=IwAR1WpAx93uxuiaXP7SuAshNocIJlD2VFbR2XKZBTIx3v60JgSGTujxZ5LVY&mibextid=Zxz2cZ](https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fjpt.spe.org%2firregular-is-whats-regular-for-co2-storage-plumes%3ffbclid%3dIwAR1WpAx93uxuiaXP7SuAshNocIJlD2VFbR2XKZBTIx3v60JgSGTujxZ5LVY%26amp%3bmibextid%3dZxz2cZ&c=E,1,KA3divjUtZErYZTsrDTQsPXoXfuXLd_hrt7b0oHAVfGjKffDfhtEmHj7sPgTDPU3Xvrqyvv44_foroCeechP-60uFaHFw2KeXkqkMxTUNFT2rg9nudk-&typo=1&ancr_add=1)

It is pointed out in this article that those designing CO2 storage sites have a critical challenge in predicting where the injected gas will go. Even with CO2 plume-modeling, seismic data, and well log data, the engineers cannot overcome inconsistent geology. According to Amanda Livers-Douglas, assistant director for integrated subsurface projects at the Energy & Environmental Research Center (EERC) at the University of North Dakota, “It’s really hard with 3D seismic to detect all the baffles or barriers that can influence gas migration.” Geologic variations also affect gas-injection rate and total storage volume of CO2.

There is little control on where the injected CO2 will travel as predicted in the PRI report. At one of the virtual PRI public meetings, Dr. Sallie Greenberg, answered a question about migration of CO2 into pore space whose landowner did not agree to the sequestration. Her response was that it would be a litigation issue. That is a problem for protecting property rights. The state should have more commitment to protect residents’ land than the profits of a CCUS company.

The post-injection site is to be monitored for 50 years according to federal permitting mandates required for Class VI carbon storage wells. This post-injection site care (PISC), which by default is a 50-year period after injection ends. Illinois must determine who will be responsible for the entire long-term financial responsibility for carbon storage. Hopefully, Illinois will not make the same mistakes that have been made with coal operators and bankruptcies.

The PRI report stated CCUS “could play an important role in achieving the state’s decarbonization goals and equitable clean energy workforce development as outlined in the Climate and Equitable Jobs Act.” It was mentioned that without CCUS, renewable energy may well be even more delayed. This is faulty reasoning. The fossil fuel industry has smothered efforts to fight climate change for decades. Denial, delay, and deception by the fossil proponents have slowed and, in some cases, stopped progress in changing the dominance of fossil fuels. But with CCUS, oil, gas, and coal can continue to produce CO2 and other pollutants and be handsomely rewarded with taxpayer funds. Facts, reality, and logic demand that the best management of carbon is to stop producing more and with the money saved from no CCUS, plant beautiful trees and more trees. It seems regrettable to expend so much effort toward CCUS. Instead, perhaps the following Illinois policy issues should have been evaluated:

1. Illinois has two incentives for capture and storage of CO2 from coal facilities: the Coal Technology Development Assistance Fund (ends December 31, 2025) and the Clean Coal Portfolio Standard. Should Illinois get 25% of its electricity from clean coal (CCUS applied) by 2025? CCUS does not make coal clean or less polluting.
2. Methane emissions from coal mining and the carbon dioxide and multiple pollutants produced by combustion of coal from Illinois coal mines are not included in our accounting of total greenhouse gases. These contribute in a negative way to achieving our climate goals.
3. The 2021 Illinois landmark climate law conflicts with how coal is subsidized and promoted in the state. Renewable energies and an electric vehicle system should be the focus of government agencies and universities, not how to prolong use of coal with CCUS.
4. The governmental agencies in Illinois support fossil fuel programs. Some examples of Illinois policy promoting fossil use: IEPA approved a huge gas-fired utility in Pawnee; approved a transfer of millions of gallons of mine wastewater that is known to have high chloride and sulfate from the Pond Creek Mine to the Big Muddy. IDNR approves longwall coal mining permits, renewals, and expansions. DCEO directs business and municipal projects to favor fossil fuels over renewables. The non-governmental organizations in Illinois that work for a viable environment, clean energy, and economic development recognize the need to separate from fossil fuels and build toward a sustainable future. Why is there such a contrast between the actions of governmental agencies and non-governmental organizations?

Thank you for the opportunity to share my concerns and those of my Illinois neighbors regarding CCUS.