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Office of Clean Energy Demonstrations
U.S. Department of Energy
Submitted via regulations.gov

RE: DOE-HQ-2024-0082, Notice of Intent to Prepare an Environmental Impact Statement for The Appalachian Regional Clean Hydrogen Hub (ARCH2)

Thank you for the opportunity to provide input on the scoping of the Environmental Impact Statement for the ARCH2 Hydrogen Hub.

CCJ is a Pennsylvania-incorporated not-for-profit organization with federal Internal Revenue Service § 501(c)(3)-status recognition located in Washington, PA. Our mission is to "improve policy and regulations for the oversight of fossil fuel extraction and use; to educate, empower and organize coalfield citizens; and to protect public and environmental health." CCJ has over three thousand members and supporters and is governed by a volunteer Board of Directors.

CCJ supports residents who live near industrial activity, most often coal mining and natural gas infrastructure, as their lives are impacted. These same residents and communities will also be on the frontlines of the proposed ARCH2 hydrogen hub. CCJ offers the following comments on behalf of those who may be burdened by future infrastructure.

1. **The Department of Energy should have considered all projects proposed under the ARCH2 Hydrogen Hub during this scoping period.**

By neglecting to include the fifteen projects that make up the hub itself in this scoping period, the DOE will fail to get an accurate assessment of how this development will impact communities and the environment. The DOE likely made this decision because the projects themselves are not finalized or even known at this point, signaling that this scoping effort is being performed at the wrong time.

If the DOE wanted to complete a general Environmental Impact Statement for the ARCH2 project, the agency should have completed the process before any funding for the project was awarded, including planning funding. Now that the DOE has already invested in the hydrogen hub, this general Environmental Impact Statement is unlikely to persuade the DOE to stop moving forward with this project. Additionally, the primary goal of the DOE conducting an environmental impact assessment is to understand the ecological impacts and analyze the environmental effects of proposed projects such as ARCH2. Yet, not including all the projects from this proposal effectively leaves a gap in knowledge and understanding of such impacts. Therefore, the DOE cannot make a well-informed decision on whether or not the ARCH2 proposal will substantially impact the surrounding environment and its communities.

At this stage, the DOE should complete an Environmental Impact Statement that includes all fifteen projects expected to be part of the hydrogen hub. It has been nearly two years since project developers submitted their intent for this development; there should be enough details for scoping involving all the projects slated for the hub so that communities and the DOE can clearly expect what is to come. If the project developers can not provide those details, the DOE should reject any additional funding for this project.

2. **ARCH2 will increase the presence of potentially dangerous infrastructure in Southwest Pennsylvania and will not transition us away from greenhouse gases as intended.**

a. *Well Pads and Fracking*

While blue hydrogen, as it's called, is presented as a cleaner alternative, it still relies heavily on natural gas. This dependence will not only perpetuate harmful methane emissions but will also directly increase the demand for fracking, leading to more drilling, more well pads, and more environmental degradation, which would not benefit our communities. As our understanding of climate change grows, it is clear that this reliance on fossil fuels, including natural gas, is incompatible with the urgent need to transition to renewable energy sources, and our tax dollars should not be put toward dirty energy. Thus, CCJ opposes using natural gas as a feedstock for hydrogen production.

Fracking, in particular, poses significant environmental[1] and public health risks[2]. The practice has been linked to water contamination, air pollution, and the release of harmful chemicals into the environment.[3] These risks disproportionately affect vulnerable communities, often in rural and low-income areas like Washington and Greene counties, which have little power to protect themselves from the adverse impacts.

Furthermore, while often touted as a "clean" fossil fuel, natural gas still contributes to greenhouse gas emissions and climate change. Methane, a primary component of natural gas, is a potent greenhouse gas that leaks during extraction, transport, and storage. In the context of a climate crisis, building more infrastructure to support natural gas use only delays the transition to truly sustainable energy sources, such as wind, solar, and geothermal power. Combining the many components that lead to the ultimate production of this fossil fuel, it is far from clean.

The expansion of fracking to meet the demand for ARCH2 will further damage the communities living around well pads of ARCH2 will further damage the communities living around well pads. These communities already bear the brunt of the environmental and health impacts of fracking, including polluted air and water, increased risk of earthquakes,[4] and constant industrial noise. If natural gas is prioritized for hydrogen production, the cycle of harm will only intensify, leaving these communities even more vulnerable while failing to address the real climate solutions we need.

Instead of investing in more fossil fuel infrastructure, we should prioritize clean energy solutions that create jobs, protect our environment, and secure a sustainable future for future generations. The focus must be on energy

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[1] U.S. EPA. Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-16/236F, 2016.

[2]Oil and Natural Gas Production Health (ONGP) Concerns**.**
https://www.pa.gov/agencies/health/programs/environmental-health/oilgas.html
Pennsylvania Department of Health, Bureau of Epidemiology Hydraulic Fracturing Epidemiology Research Studies: Childhood Cancer Case-Control Study Report_Cancer_outcomes_2023_August

[3] The Impacts of Fracking On the Environment: A total Environmental Study Paradigm, Science of The Total Environment. Qingmin Meng, Volume 580, 2017, Pages 953-957, ISSN 0048-9697, https://doi.org/10.1016/j.scitotenv.2016.12.045.

[4] See generally, "Modeling of fault reactivation and induced seismicity during hydraulic fracturing of shale gas reservoirs" Rutqvist et al. Journal of Petroleum Science and Engineering. July 2013.

efficiency, the development of renewable technologies, and policies that support a just and equitable transition to a green economy.

b. Compressor stations, pipelines, and other natural gas infrastructure

The increased development of gas wells to feed hydrogen production would also result in the need and increase in accompanying natural gas infrastructure in our community, particularly the construction of new compressor stations and pipelines. The expansion of such infrastructure poses a range of risks to public health, safety, and the environment.

Compressor stations and pipelines are vulnerable to accidents and failures, including explosions, leaks, and contamination. We have witnessed catastrophic incidents across the country, such as pipeline explosions that have claimed lives, destroyed homes, and caused irreversible damage to local ecosystems. Natural gas is highly flammable, so the risk to nearby communities cannot be understated. Placing these facilities in populated areas increases the risk of harm to residents, workers, and first responders. The construction and operation of natural gas pipelines and compressor stations significantly disrupt local ecosystems. The land disturbances caused by clearing areas for pipeline construction and the potential for leaks or spills threaten local wildlife, water quality, and air quality. Furthermore, methane—a potent greenhouse gas—leaks from pipelines and compressor stations, contributing to climate change and undermining efforts to transition to cleaner energy sources.

There is mounting evidence that communities near compressor stations and pipelines face increased health risks, including respiratory issues, headaches, dizziness, and even increased cancer risks due to exposure to harmful pollutants like benzene.[5] Children, older adults, and those with pre-existing conditions are particularly vulnerable to these risks.[6]

Investing in expanded natural gas infrastructure locks us into a future dependent on fossil fuels, delaying the transition to renewable energy sources. It's essential that we prioritize sustainable energy solutions, such as solar, wind, and geothermal, to ensure a healthier and more equitable future for all. Further investment in natural gas infrastructure undermines this necessary shift and exacerbates the long-term climate crisis.

c. The addition of Carbon Capture Utilization and Storage

Carbon capture and storage (CCS) is a technology designed to reduce greenhouse gas emissions by capturing CO_2 from significant point sources like power plants and industrial processes and storing it underground. While the process sounds good on paper, several harmful impacts and concerns must be addressed.

Leakage of CO_2 from underground storage sites can pose serious risks. If stored CO_2 leaks into the atmosphere or underground water supplies, it could negate the benefits of CCS, contributing to global warming or contamination of water resources. The increased risk because of past development only furthers doubts about the safety of these types of projects. The geological sites chosen for CO_2 storage can have unintended effects on the surrounding environment. If the storage site is not carefully selected or monitored, it could contaminate groundwater or cause seismic activity due to pressure changes in the earth's crust (induced seismicity). Capturing and compressing CO_2 requires significant amounts of energy, which could lead to increased energy consumption

[5] See generally, Community Health Impacts from Natural Gas Pipelines Compressor Stations, Davis et al., National Library of Medicine, Oct. 31, 2023, found at: https://pmc.ncbi.nlm.nih.gov/articles/PMC10616731/, Rebecca Dzombak, Monitoring of Natural Gas Compressor Stations Underestimates Health Risks to Nearby Communities, AGU, Nov. 2, 2023, found at: https://news.agu.org/press-release/monitoring-of-natural-gas-compressor-stations-underestimates-health-risks-to-nearby-communities/.

[6] Southwest Pennsylvania Environmental Health Project, Summary on Compressor Stations and Health Impacts, Feb. 24, 2015, found at: https://www.environmentalhealthproject.org/_files/.

and associated emissions, especially if the energy comes from non-renewable sources. This reduces the overall efficiency of CCS as a climate mitigation solution. CCS technology is expensive in terms of infrastructure development and operational costs. Its widespread requirement to make the project net zero in emissions has been proven to not be cost-competitive with other forms of renewable energy or emissions reductions, leading to a potential financial burden on communities and an unsuccessful project.

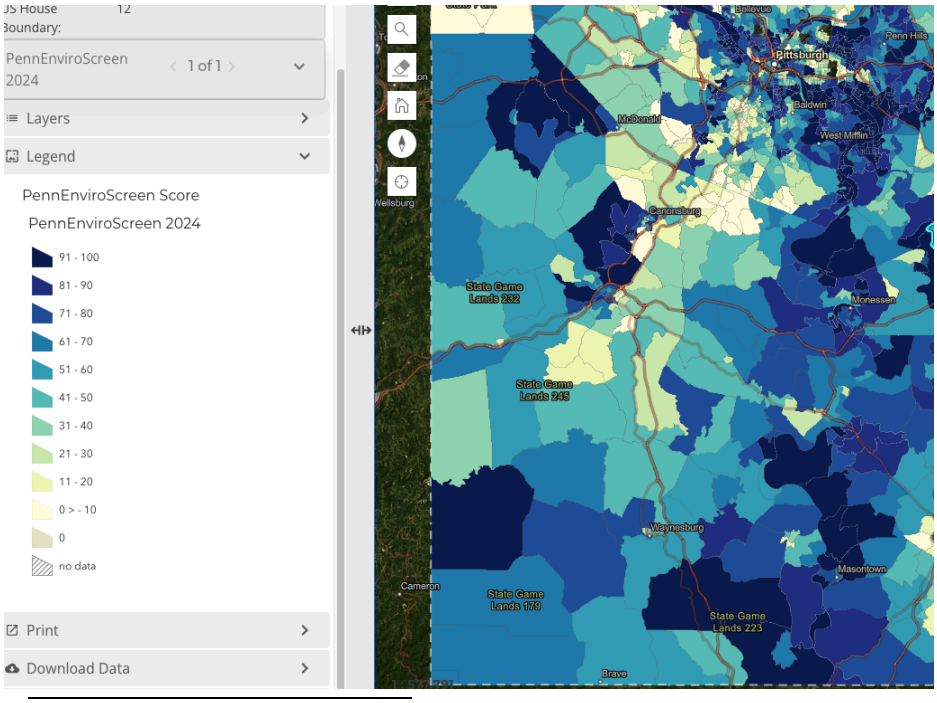
d. Coal

Not only will ARCH2 lead to more fracking and related natural gas infrastructure, but it will not transition us away from dirty energy sources such as coal as the project was intended to do. Since the 45V tax credits allow hydrogen producers to use coal mine methane to make their products, even at a lower rate, coal will continue to be an important product for Southwestern Pennsylvania. These tax credits will continue to give life to a dying industry and keep our communities entrenched with the property and health damage that comes with the extractive industry for decades to come.

e. Legacy Infrastructure

The issues of risk regarding hydrogen development in the southwest region of Pennsylvania are only compounded by the legacy infrastructure found throughout the project area. Pennsylvania has hundreds of thousands of abandoned and orphaned oil and gas wells, which are associated with dangerous accidents and health impacts.[7] These factors make the risk greater and add instances of contamination, active well communications, and vectors of unpredictability. Further development in these areas only increases the risk for both communities and the viability of this project. The overlap of underregulated and antiquated development will put hydrogen and CCS development at risk, further impacting communities that already suffer the burden of living near current development.

3. Southwest Pennsylvania has many poor and overburdened communities that will be disproportionately impacted by ARCH2.



The region of Pennsylvania that the ARCH2 Hydrogen Hub will impact has large swaths of land that have been designated as overburdened by the Pennsylvania Department of Environmental Protection.[8] The people who live in these areas are exposed to the dangers of living next to the infrastructure discussed above, as well as other dangerous polluting infrastructures outside of the hydrogen hub industry.

Even though our communities are stuck with the pollution burden, we rarely see the benefits. Many in this area have low educational attainment even though the industry taxes pay many school budgets.

[7] EDF, Unearthing Pennsyulvania's Legacy of Orphan and Abaondoned Wells, Aug. 22, 2024, found at: https://www.edf.org/unearthing-pennsylvanias-legacy-orphan-and-abandoned-wells#:~:text=They%20can%20leak%20oil%2C%20gas,source%20of%20harmful%20methane%20pollution.

[8] *PennEnviroScreen*, Pa. Dep't. Of Env't. Prot. https://gis.dep.pa.gov/PennEnviroScreen/.

Many people are unemployed and impoverished even though jobs are touted and celebrated every time a new project is proposed. There are high rates of heart disease, cancer, and disability but low rates of health insurance because the jobs that we do have are often unsafe and not properly compensated.

Families are sick but continuously exposed to more pollution because projects continue to be sited here, making it hard to get better. These families often can't afford to move, but even if they could, they do not want to because they often live in homes passed down through generations. Our communities deserve better economic opportunities that will not make us sicker and keep us in a cycle of disadvantage.

a. Cumulative Impacts and Air Monitors

Since several communities in Southwest Pennsylvania are disadvantaged and burdened by polluting industries, the DOE must conduct a comprehensive cumulative impacts assessment beyond this NEPA scoping period. This cumulative impacts assessment should evaluate the burdens placed on the community by current industry and all of the projects and associated infrastructure that will be part of the ARCH2 Hydrogen Hub. The cumulative impacts assessment should also include non-environmental factors such as economic and health impacts.

To accurately assess cumulative impacts, our communities need more air monitors installed. For example, Pennsylvania's Washington and Greene Counties, counties heavily affected by legacy and current pollution with large swaths of land designated as disproportionately impacted, only have four Environmental Protection Agency (EPA) air monitoring stations between them. Meanwhile, Allegheny County alone, which also has many designated disproportionately impacted communities[9], has nine EPA monitoring stations. Increasing the number of monitoring stations will allow agencies and communities to have a more robust data set and put them on better footing to make more informed decisions.

If official air monitors cannot be placed in our communities, data from community monitoring tools such as PurpleAir Monitors should be allowed to provide official data that must not be excluded from the decision process. These monitors are much more widespread and help poor and working-class communities disproportionately impacted by pollution inform daily life decisions. However, they are not accepted for official use.

4. The Pennsylvania Department of Environmental Protection lacks the resources to manage a new program.

Currently, the Pennsylvania Department of Environmental Protection (DEP) is underfunded and understaffed.[10] In our experience, their capacity is limited, and inspection, enforcement, and compliance efforts have been insufficient. DEP relies on operator reporting for most programs, leading to delayed response time to leaks or violations. The DEP continues to rely on third parties to help bridge the shortfall of staffing and funding, reducing their capacity to monitor these systems.[11] This can lead to dangerous circumstances for residents who live near facilities permitted by the DEP. Adding the hydrogen hub in Pennsylvania would require them to create at least one new program - Carbon Capture and Storage. Even if this program is run under an existing office, its capacity would not be great enough to keep Pennsylvanians safe, and that is assuming that DEP employees have expertise in this emerging area.

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[9] *Id*.
[10] Rep. Greg Vitali op-ed, Governor Shapiro Must Lead on Funding Pa. Environmental Protection, Go Erie, Feb. 9, 2023, found at: https://www.goerie.com/story/opinion/columns/2023/02/09/shapiro-should-seize-the-chance-to-fully-fund-the-dep-protect-pa/69871402007/.
[11] Nina Victoria, Third-party Permitting is Coming to Pennslyvania, CCJ blog, Sept. 10, 2024, Found at: https://centerforcoalfieldjustice.org/2024/09/third-party-permitting-is-coming-to-pennsylvania-what-does-that-mean-for-energy-projects-and-impacted-communities/.

Thank you for your consideration. If you have any questions, please contact us anytime.

Respectfully,

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