



Minutes – Friday, December 15, 2023
Video Conference
9 am to 11 am

Attending: Amy Panek, Brian Eden, Carly Norton, Chris Skawski, Dan Lamb, Diane Stefani, Dick Kurtz, Gerri Wiley, Guillermo Metz, Holly Hutchinson, Ingrid Zabel, Jack Wright, Jaden Beck, Janelle Bourgeois, Joe Wilson, Leigh Miller, Leon Porter, Margaret Johnson, Margaret McCasland, Marie McRae, Mike Straight, Paul Moore, Ray Burger, Sheila Out, Aaron Fernando, Terry Carroll, Karim Beers, Dave Bradley, Carol Chock, Aimee Dailey, Irene Weiser, Wayne Bezner Kerr, Peter Bardaglio

Fracking 2.0: Using CO₂ to Extract Methane – Irene Weiser

Irene is the coordinator of Fossil Free Tompkins and a former member of the Caroline Town Board. She discussed the latest effort to bring fracking to the Southern Tier – using CO₂ to bypass the NYS ban on hydraulic fracking.

- The Southern Tier Solutions (STS) proposal part of nationwide feeding frenzy for federal tax credits and incentives designed to prop up fossil fuel industry
 - Dangerous, destructive, unsustainable experiment, consisting of grab-bag of costly false solutions
 - Diverts investment and human resources from real solutions
- Southern Tier sent letter to 6500 landowners about cooperatively capturing and sequestering carbon dioxide
- More information can be found at www.southerntiersolutions.com
- Their proposal:
 - Begin series of pilot wells across Southern Tier Marcellus Shale
 - Build New Zero Emission Gas Power Plants (Allam Cycle)
 - Use generated power to support Direct Air Capture of CO₂
 - Hydrogen from methane
- Proposal Diagram
 - High pressure CO₂ Pipeline
 - Drill and inject CO₂ into shale
 - Recover methane from shale
 - Feed the methane into the power plant
 - Allam cycle gas power plant - Supply to the NYS power grid, Direct air capture CO₂
 - Captured CO₂
- Why being proposed here?
 - Large expanse of rural lands over methane rich Marcellus and Utica Shale formations
 - Few existing well bores, less risk of leakage of CO₂
 - No prior fracking, more methane reserves remain, no H₂O from fracking interfering

- CLCPA mandate for 100% carbon-free power generation by 2040
- According to EPA, we have 7,284,743 tons of CO2 emissions annually w/in 50 miles radius of Binghamton
- Also large network of existing gas pipelines in PA leading into NY
- Why being proposed now?
 - 2008 GW Bush – 45Q tax credit incentivized investment in carbon capture and sequestration
 - 2018 Trump – increased tax credit over time plus no federal spending
 - 2021 Biden – Inflation Reduction Act increased tax credits
- STS envisioned establishing a dozen or more hubs across the Southern Tier, which will have 300 MW power plants
- Equipped with facilities for carbon capture, energy generation, and gas separation, supported by extensive land leases and an underground network
- STS predicts it will replace water-based fracking option
- IRS Tax code section 45Q accountability
 - Confidential – part of company tax filing
 - Company self-reports emissions and disposal path to EPA
 - No coordination between EPA and IRS to ensure numbers match
 - EPA doesn't verify emissions, nor monitor disposal/storage
 - No mechanism to monitor CO2 leakage after storage
- Idea is to capture industrial CO2 emissions from fossil fuel power plants and heavy industry
- Hundreds of millions of \$\$ funded to do this – not many operational because uneconomic
- Not fully effective – only 40-60% of CO2 emissions captured, and NOx & SOx remain
- Located in highly impacted environmental justice communities
- TOTALLY false solution: hard evidence oil and gas companies aware of this, just like they knew CO2 causes global warming – but allows them to keep operating and pretend they are fixing the problem(greenwashing)
- John Kerry, COP28 “The bottom line is this COP needs to be committed to phasing out all unabated fossil fuels.”
- Supercritical CO2 exhibits properties and behaviors between that of liquid and gas
- Energy required to pressurize and heat CO2 must be maintained during transport & storage
- We already have over 5,000 miles of CO2 pipelines – mostly in oil field
- Regulated by several agencies: Pipeline Hazardous Materials and Safety Authority, Army Corps of Engineers, HUD, and states
- MASSIVE CO2 pipeline expansion planned -- STS has proposed bringing CO2 from Gulf to NY by rail, then truck to injection site
- FRA report (2020); North American fleet size approximately 1,300 cars – current fleet is captive
 - New business = new cars
 - Average cost of new car \$200K - \$225K
- DOE has announced \$27 million for carbon dioxide transport networks to manage carbon emissions
- Long tradition of “enhanced oil recovery” using CO2 – since before 45Q
- Inject supercritical CO2 into well – acts as solvent, releases more oil or gas

- Vertical well plus “turn the corner” using conventional drilling and sealing methods – then drill horizontally – shorter distance, inject supercritical highly pressurized CO₂
- New method only being used in China for now
- STS claims about methane recovery:
 - Electric trucks, drilling equipment: how will they do this out in middle of rural areas w/o power supply near?
 - Injecting CO₂ occurs at lower pressure than hydrofracking -- they keep it in a supercritical state once they inject it
 - CO₂ dissolves calcite in natural shale fracture networks
 - Only 12-18% CH₄ recovered via hydrofracking – CO₂ provides higher yield
 - Marcellus Shale has capacity to sequester 165 billion tons CO₂ = 20+ years output of entire US: is their real plan aimed at sequestering CO₂?
 - Landowners will earn more \$ from CO₂ sequestration than from CH₄ production: seems credible thanks to 45Q
- All wells leak eventually, and 7% will leak immediately – creates lots of pathways for gas migration
- Fissures in abandoned wells offer pathways for leakage – liquid carbon dioxide waste could potentially acidify and permanently contaminate underground aquifers, poisoning drinking water
- Increased risks for earthquakes could compromise seal integrity of these repositories
- Companies claiming 45Q tax credits don't need to ensure CO₂ stays in ground
- We're pretending to fix climate crisis but none of this involves proven technology
- Department of Energy putting a lot of \$\$ into Allam Cycle power plants – considered game changer
- Only one operating plant right now, 50 MW – 300 MW also being planned in Texas
- Why might NY be interested? Problem of long duration intermittency
 - CLCPA requires 100% emissions free generation by 2040
 - Possible 7-14 consecutive days when not enough sun or wind to meet energy needs
 - Unclear how to meet 10% of energy needs
 - Allam Cycle power plants might be something that meets needs of NYS
- Other potential solutions being explored, but all in early stages and none of them scalable yet
- Direct Air Capture: epitome of energy inefficiency
 - Runs fans (noisy)
 - Capture CO₂ in filter
 - Heat filter to remove CO₂
 - Heat, compress CO₂ to put in pipeline for transport
- Takes more energy to run than CO₂ removed
- What are the risks?
 - Pipeline rupture → asphyxiation
 - CO₂ leakage around wellbore
 - Risk of underground carbonic acid formation resulting in heavy metals (arsenic, lead) leaching into groundwater
 - Risk of earthquakes from CO₂ injection
 - OPPORTUNITY RISK: investing in these massively energy intensive, false solutions instead of real ones

- Wrong to do nothing to reduce our reliance on fossil fuels – Allam Cycle power plant does not reduce reliance on fossil fuels, it perpetuates it
- Requires more land dedicated to drilling production, processing pipelines to procure and transport methane, more and more CO2 that must be piped and sequestered
- Hundreds of billions being spent on these false solutions
- Do NY laws help us? Maybe
 - Current fracking ban only bans high volume hydraulic fracturing defined as stimulation of a well using more than 300,000 gallons of water as fluid base
 - At this point, law doesn't help us even though we have fracking ban
 - CLCPA might be helpful – law says sources in electric generation sector shall not be eligible to participate in carbon offsets

Q&A

- Peter expressed concern about fossil fuel industry eyeing NYS to shape environmental policy, using clean fossil fuel angle to distract from key green laws
- Irene: STS proposal example of the nationwide feeding frenzy for federal tax credits and incentives that are designed to prop up fossil fuel industry
- Diverts investment and human resources from real solutions and energy transition
- Joe Wilson: Aso pulls away energy and resources from making sure we elect people who are going to drive us in right direction or support drive
- Peter: We know extent to which fossil fuel industry dominates economic sector and extent to which that makes it much harder to promote and sustain democracy
- Really something we have to take very seriously and somehow find energy, time, and resources to defeat
- Irene: No real gas to be had out of the Utica Shale, but it's an enormous formation – do pores still exist and could they be use to inject CO2 into it?
- Margaret Johnson (chat): Is DEC gearing up to permit this?
- Irene: No, only statement from DEC is they will do what they're required to do: conduct review if permit brought to them, and permit has not been brought to them
- If called upon, they'll carry out kind of review that's required of any proposals submitted to them
- Brian: Many captivated by Mark Jacobson's papers years ago, suggesting we could achieve 100% reliance on wind, air, and solar if big energy investors shifted from gas and oil to renewables
- So, everybody's been waiting for that to happen but most of them holding back from doing so
- Even though wind and solar are getting traction, not attracting as much investment as oil and gas
- They're not going to stop until we've reduced subsidies and make them pay for damages they've caused
- Irene: They get tremendous amount tax credits and other subsidies – I think that's part of deal: we'll give you all these tax credits because we're going have to fine you in future and this way you'll get your money back
- Peter: Climate Superfund and effort to end at least some of state fossil fuel subsidies two sides of same coin, holding oil and gas companies accountable
- Governor pulling back on climate and energy transition reforms because she believes her reelection depends on support and funding from fossil fuel industry
- Irene: Now move afoot to allow CO2 storage in our federal forests

- Wayne Bezner Kerr: Largest EV battery in production in Hummer, is a 20,500 lb battery – only last 90 minutes at idle on our Earth Source heat drilling rig on campus – at peak power, lasts just 9 minutes
- We connected to our 13.2 kilovolt on campus grid and ran drill rig that way – but battery electrification of drilling operations not feasible at scale
- Irene: Is electrification of 18-wheeler transport trucks feasible at this point?
- Wayne: Not common in North America but it is feasible
- If you go to airports or shipping ports, a lot of heavy trucks running containers around are electrified
- But as of today electric fleet doesn't exist in North America to electrify oil field operations
- Question in chat: Will disadvantaged communities in Southern Tier be targeted?
- Irene: When you do CO2 capture, you're not capturing all of CO2, and you're also not capturing some of other particulate matter and smog and pollution-causing problems
- So, to extent carbon capture is being used in disadvantaged communities, they will be impacted because things aren't really getting cleaned up
- Guillermo Metz: Does anyone have any information on what they're offering to farmers or landowners in terms of lease agreements or even purchases?
- Irene: They're offering \$10 per lease for signing, not thousands of dollars offered per acre in days of fracking leases
- They're offering just \$10 per lease with promise that landowners will make a lot of money when they start storing CO2 and recovering methane
- Guillermo: Is it based on amount they're able to sequester?
- Irene: Yes, on amount they're able to sequester and on amount they recover in methane, but I haven't seen an actual lease
- To drill and recover resources, if 60% of landowners agree to activity on or under their property; the remaining 40% can be compulsorily integrated and reimbursed for what gets removed, even if they oppose the fracking
- Legally, it's interesting there's no law allowing injection and storage under someone's property without consent, especially for waste material
- Irene asked Carly Norton from NYSEG/RG&E if there's been any contact with the company regarding support for building three 300MW plants, and if transmission capacity exists to manage it
- Carly: I haven't had any contact with them directly and I can't speak for renewables side of industry
- Broadly speaking, our planned investments for just existing projects to meet CLCPA goals will be huge – transmission capacity definitely an issue we're working on
- Irene: I would hate to see these CO2 projects interfere with our ability to build out renewable solutions we need

Getting Involved – Discussion

- Peter: If you're feeling dispirited or angry about information we just heard, here are couple of positive actions to consider
- New York's moving to end 100-foot rule—a win against natural gas subsidies
- A virtual teach-in about this and other elements of NY HEAT Act takes place at noon today – even if you can't join today, signing up will get you the recording
- Also there's an ongoing call relay today to show our support for NY HEAT Act by reaching out to governor – let's not miss out on these chances to make a difference

- We've got to step up involvement – need strong support for key legislation coming up in new session beginning in January
- We need to push back against fossil fuel industry's efforts to defeat or at least water down these measures
- If we don't stand up and support efforts to meet CLCPA goals, nobody else is going to
- Thanks again to Irene for sharing such critical information today and to Karen Edelsten for maps
- Irene: I can't pull up the maps on my home computer, but when I visited a friend's house, they loaded instantly, so I grabbed a few quick screengrabs
- Karen's working on adding more layers to the maps, and we're hoping to compile a nice portfolio for everyone to see
- Peter: It's also great to know that AM Kelles and Sen. Webb are working on developing a ban on this practice because we absolutely have to expand definition of fracking ban to include CO₂
- Irene: We also have to somehow prohibit the injection of CO₂ – we just can't become dumping ground for CO₂ in nation
- Peter expressed gratitude to Irene for her motivational role and likened her to Paul Revere of CO₂ fracking and storage in Southern Tier