

Summary Minutes of the
U.S. Department of Energy (DOE) and Council on Environmental Quality (CEQ)
Carbon Dioxide Capture, Utilization, and Sequestration Federal Lands Permitting Task Force
Carbon Dioxide Capture, Utilization, and Sequestration Non-Federal Lands Permitting Task Force
Joint Meeting of Appointed Members
U.S. Geological Survey (USGS), Reston, Virginia and Hybrid Online
December 11, 2024

Summary of Meeting

The second meeting of the members of the Carbon Dioxide Capture, Utilization and Sequestration (CCUS) Federal Lands Permitting Task Force and the CCUS Non-Federal Lands Permitting Task Force (Task Forces) was held jointly at the USGS Facility in Reston, Virginia on December 11, 2024, with additional members and observers joining virtually. The meeting began at approximately 9 a.m. ET.

Participants included 26 members of the Federal Lands Task Force and 22 members of the non-Federal Lands Task Force (refer to the appendix for a list of members in attendance). The meeting was attended by leadership and staff in DOE Fossil Energy and Carbon Management (FECM) and CEQ, and members of the public, press, and industry. The meeting began with opening remarks by CEQ Senior Director Ana Unruh Cohen, Federal Lands Task Force Chair Tara Righetti, and meeting facilitator Susan Levin. The meeting included 4 technical sessions which each included a facilitated discussion, and a public comment period. The end of the meeting included closing remarks by Non-Federal Lands Task Force Chair Julio Friedmann, and DOE Assistant Secretary Brad Crabtree.

Opening Remarks

Christina Waldron, Designated Federal Officer (DFO), Department of Energy, called to order the meeting of the Permitting Task Forces, addressed logistical issues, and introduced the opening speakers. In addition, she clarified that the main purpose of the day was to have a Working Meeting, for presentations and discussions on issues related to the USE IT Act duties and the presentations of the subcommittees.

Unruh Cohen of CEQ thanked everyone for attending and USGS for hosting. Unruh Cohen stated that the Biden administration has led the most ambitious environmental justice and climate change agenda in history, grounded in the core belief that every person deserves access to clean air, clean water and a healthy environment.

This included setting the ambitious goal of achieving a carbon pollution-free power sector in the United States by 2035, and a net zero emissions economy by 2050, while delivering on a whole of government commitment to environmental justice. The administration has focused on ensuring that CCUS projects are designed, built and operated safely and responsibly and in a way that reflects the best science, responds to the needs and inputs of local communities, and delivers benefits to those communities.

Unruh Cohen referenced CEQ's role in establishing the Task Forces, as directed by Congress in the USE IT Act. She acknowledged the White House Environmental Justice Advisory Council (WHEJAC), and its October 2024 report to CEQ on carbon management and hydrogen that included over 70 recommendations, some of which related to the CCUS Permitting Task Forces. Unruh Cohen directed the Task Forces to look to CEQ Chair Mallory's leadership on carbon management and her remarks at the opening of the May meeting.

She commented that the two Task Forces draw on a diverse set of experiences and perspectives, and include experts on environmental justice and carbon dioxide pipeline safety, representatives of federal, state, local, and tribal governments, representatives of labor, project developers, and members of non-governmental organizations, including environmental justice groups. Unruh Cohen closed by thanking members for their service.

Professor Tara Righetti of the University of Wyoming expressed gratitude to all those working to ensure the success of the Task Forces. She then commented on the increased scale of carbon management activity, exemplified by Underground Injection Control (UIC) Class VI permit applications, and on how the primary charge of these Task Forces is to consider how the permitting processes can be made more efficient, orderly and responsible. She also mentioned the following topics: land access and the social license to operate have emerged as major and cross-cutting issues, the complications of land acquisition as exemplified by the patchwork of eminent domain laws and how they apply to carbon dioxide pipelines, community opposition, the need to avoid fragmenting basin scale resources and encouraging speculation on federal lands, and the need to engage stakeholders early on in the process. Righetti closed by noting the ambitious timetable for the Task Forces' work and the need to have recommendations five months from now for a report to be ready by the end of 2025.

Levin of BCS/Allegient provided opening remarks about facilitation. She noted CEQ's acknowledgement of the recommendations submitted to the White House that address certain issues related to these Task Forces, and clarified that our scope is the USE IT Act. She stated that the goal for the meeting was to inform Task Force members and the public of the work underway and any emerging key findings and draft recommendations developed to date by subcommittees on all USE IT Act Duties; and solicit feedback from all Task Force members, for deliberation and incorporation, as appropriate, into the final Findings and Recommendations that will be included in the Joint Report of the Task Forces. Levin reviewed key principles for discussion and engagement, including respect, inclusion, and follow-up, and presented some ground rules for the discussions.

Subcommittee on Carbon Dioxide Capture, Utilization, and Sequestration (CCUS) Project and Pipeline Reviews on Federal Lands

Matt Fry, who recently joined the University of Wyoming School of Energy Resources presented on the plan and progress for this subcommittee. Fry walked through the subcommittee's plan and progress to date, and presented four issues and proposed recommendations for discussion and consideration. He explained that the goal has been specifically to identify the challenges to deploying carbon management projects on federal lands, and provide actionable recommendations that allow projects to move forward. He clarified that there are unique issues and inherent differences between onshore federal land, state waters, and the federal Outer Continental Shelf, so the recommendations will be broken out accordingly. In addition, Fry clarified that the subcommittee has also been discussing other issues and

potential solutions, and will continue to develop those into recommendations in the coming months to present to the Task Forces. Fry presented four draft recommendations for onshore federal lands right-of-way (ROW) authorization based on four observed issues:

1. Federal land management agencies should develop clear, consistent guidance describing that an onshore ROW grant for permanent carbon dioxide storage will be non-exclusive until the project proponent has filed an application for a UIC Class VI authorization with either the EPA or the state that has primacy.
2. Onshore right-of-way authorizations should be “non-exclusive” thereby reducing the risk of speculation. Federal land management agencies should not allow project proponents to acquire and subsequently transfer federal pore space. If a project proponent does not intend to utilize the federal pore space they were granted, they should be required to void their authorization, and the Agency will make the pore space publicly available for a new right-of-way authorization.
3. Federal land management agencies should require that all right-of-way grants for permanent onshore carbon dioxide storage allow for permanent access to pore space and associated infrastructure, thereby reducing risk of stored carbon dioxide releases and future operational and maintenance activities. The written terms should be amenable to the US EPA UIC Class VI program requirements, or those of states that have Class VI primacy.
4. Federal land management agencies that may be engaged in a proposed carbon transport/storage project authorization should be mandated to participate as a Cooperating Agency during the National Environmental Policy Act (NEPA) process. Additionally, any entity that is engaged as a Cooperating Agency should be mandated to actively participate in all phases of the NEPA process. If a Cooperating Agency has not actively participated in the NEPA process, they should be precluded from requiring modifications to the analyses that will alter the established schedule for publication of the Record of Decision. Federal agencies should plan for the need to engage in these processes and budget accordingly.

Levin led the facilitated discussion about the issues and recommendations.

Tip Meckel of University of Texas at Austin expressed confusion over the use of ROW for pore space, suggesting ROWs are linear while acreage leasing was for pore space. **Fry** clarified that while that understanding makes sense offshore, for onshore federal lands, the expectation is that the pore space will be owned by the property owner and federal agencies would authorize ROWs to access the pore space.

Ashleigh Ross of Carbon America asked if there's no competitive advantage until a permit is submitted, how and why will people be incentivized to collect the proper data for a Class VI permit? **Fry** responded by noting the investment would be minimal as there is little spent prior to submission of the Class VI permit, unless the project developers choose to collect seismic data and drill test wells, as many permits are being proposed without the actual regional and local data. **Ross** suggested this could incentivize premature, under-resourced Class VI permits in order to claim a competitive advantage without the sufficient data. She also suggested that Recommendation 2 could block a transfer of a viable project. **Fry** responded by asking if there is a better trigger than a Class VI permit application for starting the process and noted viable projects could still be transferred through the public process. **Mark de Figueiredo**, Department of Energy, agreed with the concern that carbon storage right-of-way non-exclusivity prior to

filing a Class VI permit application could create incentives for poor applications, suggesting that instead the trigger for exclusivity be filing a *complete* application. **Fry** was open to incorporating the suggestion.

Jan Sherman, Carbonvert, suggested the trigger for exclusive ROW access be based on development milestones or investment in regional data related to seismic studies or stratigraphic well investment instead of a Class VI application. **Lily Barkau**, Wyoming Department of Environmental Quality noted that some projects may not need stratigraphic test wells if the data is already available, so tying the ROW to that milestone may not make sense. **Barkau** also reiterated the underlying concern that someone may speculatively hold ROWs and expressed the concern that a project may assume holding a ROW entitles it to a Class VI permit without as stringent of a review. **Sherman** agreed with **Barkau's** concerns around ensuring leased federal lands are used intentionally and that projects with ROWs progress, but suggested that, while Wyoming has well defined geology, much of the rest of the country does not, so projects must make significant investments in order to file a Class VI permit application. **Ross** supported this point and mentioned that lease frameworks do often come with development milestones.

Jenny Joyce, ExxonMobil Low Carbon Solutions, suggested additional requirements for federal ROWs include a requirement that the company has (or is likely to obtain) a source of carbon dioxide to be stored and that the company meets financial thresholds tied to execution of the project.

Fry reiterated that the challenge is to not impede development, understanding that there's investment on the front end, while avoiding speculative activities.

Nichole Saunders, Environmental Defense Fund, asked what the triggers are in the oil and gas sector to hold leases that demonstrate the holding is for production. **Righetti** responded by detailing how oil and gas leases have a development period during which the lease holder must achieve production by the end of the primary term or else their lease expires. **Righetti** made the distinction that there's natural competition within oil and gas fields due to multiple developers holding small parcels, while with carbon sequestration you have individual project developers with ROWs for potentially tens or hundreds of thousands of acres.

Bob Van Voorhees, Carbon Sequestration Council, revisited the question posed by **Meckel** and asked for clarification from an expert on federal land leasing. He also suggested the need to avoid having different companies racing to get their permit applications filed and ensure the demonstration of a good faith progress to compile the application. If at some point the project proponent ceases to demonstrate progress, then they would have to forfeit the ROW for the pore space. **Fry** agreed and again asked how to marry the acquisition of pore space and a trigger to move forward with the Class VI process that makes sense and provides certainty to investors, companies, and regulators. **Barkau** provided an overview of how in Wyoming, there is a state lands lease agreement process that addresses some of these concerns.

Fry then moved the discussion to Recommendation 2 and shared that all the subcommittee members agreed to this recommendation.

Virginia Palacios, Commission Shift, noted that oil and gas well transfers in Texas are often not accompanied by sufficient financial assurances. She recommended that the federal government examine potential well permit holders to guarantee they are solvent prior to any transfers and require additional financial assurances. **Van Voorhees** asked that the recommendation specify whether

transfers refer to the sale of pore space, the transfer of fully operational projects, or the transfer of the entities that own pore space, since operational projects already have financial assurance requirements that any new owner would need to meet. He suggested that adding specificity to the recommendation would ensure pore space isn't bought and sold solely as a real estate speculation. **Fry** agreed.

Ross asked about permit transfers. **Fry** responded that the recommendation was specific to pore space transfers. **Ross** suggested speculation may shift from the pore space to the permit and that entities would try to recoup their investment by selling a Class VI permit. **Fry** stated he was unaware of any process for selling a Class VI permit.

Fry then moved the discussion to Recommendation 3.

Palacios asked if companies would pay different amounts for various ROWs, if the rates were lower than private land ROW rates, and if the federal government could increase rates over time with inflation. **Fry** noted that there's lots of discussion related to costs and the price structure, but that those conversations were separate from this recommendation. **Palacios** asked how often the parties would renegotiate the ROW rates. **Fry** responded that ROWs are typically done with a rental fee set by the relevant federal agency, and that the fee would be perpetual for the lifetime of a project (including post closure). **Palacios** and **Fry** briefly discussed how many years the lifetime of a project is.

Matt Holmes, California Environmental Justice Coalition, expressed a concern that project operators would abandon the site before proving mineralization and suggested requiring project developers to demonstrate mineralization before they get to "leave town". **Fry** responded that the intent of the recommendation is to avoid leaving the federal government with carbon stored impermanently.

Van Voorhees outlined the distinction between how multiple oil and gas lease holders focus on production from the same field while carbon storage operators are permanently tied to a single lease. He also emphasized that federal ownership is a compelling guarantee of long-term carbon dioxide permanence, so while there has to be permanent storage, that doesn't necessitate permanent granting of pore space to operators and that instead the federal agency should be in charge of longer-term storage permanence. **Fry** agreed that it's the relevant federal entity's responsibility to ensure permanence.

Rebecca Good, technical contributor, BLM Headquarters, provided input on Recommendation 1 by clarifying that BLM's ROWs do require use and that if ROW holders speculatively hold onto ROWs, BLM can terminate the ROWs. She noted that similar issues are being addressed in a forthcoming national policy.

Friedmann asked if there are some documentable examples of speculation. **Fry** responded that documenting cases is a great idea and would be included in the report.

Righetti echoed **Van Voorhees** by recognizing that ROWs will terminate and the carbon dioxide will have to remain. She suggested that the recommendation address what happens to the title to the carbon dioxide that's left underground and assign responsibility for ensuring future land use authorizations are consistent with permanent storage. **Saunders** agreed, then flagged for clarification that while operation of the well lasts around 12 to 30 years, the operator of the well is still responsible up until the point of closure – this is not a transfer of obligations to the federal land agency to do everything required up to the point of closure. **Fry** agreed.

Palacios revisited **Holmes's** recommendation to require companies to demonstrate mineralization before they're permitted to relinquish their ROW, suggesting that this is impossible as mineralization takes thousands, if not tens of thousands of years. She continued that it's more likely that communities will see leaks and corrosion issues over the 50-to-100-year timeline, necessitating consideration of future liabilities post site closure. **Fry** agreed, recognizing this may relate to the ROW.

Facilitator Levin moved the discussion to recommendation 4.

Ross asked if the recommendation was to mandate participation throughout the entire NEPA process or to give agencies the opportunity to do so but allow for opting out. **Fry** clarified that the recommendation would be that the federal agencies would be mandated to participate throughout. Another task force member seconded the need for clarification.

Matt Rota, Healthy Gulf, emphasized that, while involving the federal agencies early is important, involving the public early is also important. He noted how the public is only involved in the scoping stage and then not again until the draft EIS is released. He suggested additional public input opportunities during the NEPA process and to consider the WHEJAC recommendations regarding NEPA. **Palacios** supported consideration of the WHEJAC NEPA recommendations. **Fry** mentioned that CEQ addressed the WHEJAC in opening comments. **Rota** responded that the public does have expertise, similar to cooperating agencies, and thus fits within the recommendation.

Tristan Brown, Pipeline Hazardous Materials Safety Administration (PHMSA), provided feedback on how the large volume of requests from other agencies (and the public) to be cooperating agencies on pipelines is difficult to meet due to time, employee expertise, and agency resource constraints. He noted that acting as a participating agency instead of a cooperating agency can be more reasonable, and that regardless of status in any NEPA process, PHMSA can always offer unofficial technical assistance. **Fry** noted that it may be wise to request additional funding support as part of the recommendation. **Friedmann** advocated for more geological surveying and for more data to be made available to the public, suggesting the Federal Lands subcommittee consider recommending a way to make it cheaper, faster and easier for people to access the data needed to understand good sites on federal lands. **Fry** agreed.

Palacios voiced a concern that the group was dismissive of the WHEJAC, suggesting that, although a letter to CEQ may be out of scope, it should still be circulated to the Task Forces. She continued by noting that community members are often sidelined in policy decisions in favor of company interests and requested the lived experiences of community members be incorporated into the Task Forces' recommendations.

Fry wrapped up the discussion by requesting members send him edits, improved recommendations, or requests for different recommendations that were not discussed, and thanking the group for their time.

Subcommittee on Identification of CCUS Priority Pipelines

John Thompson of Clean Air Task Force was introduced to present on the subcommittee's work to date on Duty V of the USE IT Act. The first task the group tackled was identifying what constitutes a priority pipeline based on two needs: near-term needs to launch the industry and longer term needs to support scaling carbon management activities through the midcentury. He then outlined how the subcommittee is developing a matrix that addresses the selection criteria for sources, storage/sinks, and

pathways/pipelines/corridors and shared those criteria with the group. Questions posed to the group about the matrix criteria included how might sources change over time, where is the geology well-suited for carbon storage, should the focus of the subcommittee be on selecting pipeline paths or broader geographic corridors, and how the matrix could be improved.

Thompson then displayed various maps that are informing the subcommittee's recommendations. These included a map of all industrial sources and power plants that emit greater than 100,000 metric tons of carbon dioxide per year, noting the connections between sources based on source type (e.g., coal plants along waterways), a map of the country's coal plants, noting that while they are large sources, many are slated to retire, a map of gas plants, noting the possibility for those sources to increase in the future due to greater electrification of transportation, data centers, and other forms of growth, a map of those gas plants and industrial facilities (except for cement due to technical issues), and a map of sinks. He commented on how there were geophysical barriers impacting the connections between those sources and sinks, such as the Appalachian Mountains, and how connecting sources to sinks posed various challenges. This led to a final slide soliciting feedback from the group.

Levin led the facilitated discussion about the issues and recommendations.

Ross expressed support for explicitly recognizing the difference between near-term and long-term pipeline needs, expressing support for near-term considerations. **Thompson** thanked **Jeremy Moddrell**, United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry, for focusing attention on that need.

Sherman asked how the subcommittee plans to tackle the inherent uncertainties tied to sources and where they will be located due to unpredictable retirements, changes in project plans, and new developments. She mentioned the uncertain future of existing coal plants as an example. **Thompson** noted that the subcommittee will examine several scenarios based on various possible future outcomes, to maximize optionality in the recommendations.

Van Voorhees asked if the subcommittee is thinking about near-term pipelines that could be expanded in the future to provide greater long-term benefits by incorporating more sources and sinks than originally proposed. **Thompson** agreed that the need to explore near-term needs evolving into long-term needs was a relevant topic and would be explored as the subcommittee further delved into Duty II on policies.

Poh Boon Ung, Global CCS Institute, asked if the subcommittee had explored commercial structures, suggesting the longer-term trunklines may require government intervention to address the tragedy of the commons issue. **Thompson** responded that they had not but would consider. **Joyce** suggested the subcommittee focus on summarizing existing resources, such as the Princeton Net Zero Report and work from the Great Plains Institute, instead of selecting pipelines. The subcommittee could then provide guidelines to stakeholders (i.e., entities that could form regional public-private partnerships) using the matrix criteria. **Thompson** supported the suggestion, with a focus on the regional partnerships.

Rota raised the need to consider induced development, noting that the majority of carbon capture installations may be on new facilities, resulting in more pollutants wherever the priority pipelines are sited (e.g., overburdened environmental justice areas). **Thompson** asked clarifying questions, recognizing the recommendation to both add these concerns to the sources matrix and to the pathways

matrix. **Holmes** agreed with the need to be concerned about induced development, noting that new sources were being developed in historically overburdened communities due to the 45Q tax credit, presenting civil rights issues. He continued that source necessity should be considered, prioritizing CCS for glass, steel, and cement over power generation derived from coal and natural gas.

Fry asked if consideration of the transition from near-term to long-term scaling will incorporate regulatory requirements. **Thompson** agreed that it was important to consider how overbuilding for future growth impacts design choices (e.g., pipeline diameter and/or compression).

Palacios suggested that pipeline corridors should avoid populated areas and, due to the Satartia incident, roadsides. She then shared an anecdote communicating the danger of siting pipelines on rural, private lands and suggested a need to consider leak detection requirements. **Thompson** confirmed that safety considerations are being addressed in the subcommittee's work.

Thompson then solicited feedback from the group on the criteria in the matrix. **Kris Carter**, Pennsylvania Geological Survey, expressed support for the matrix of criteria. **Saunders** asked if the matrix criteria would lead to a ranking or point scheme of some sort. **Thompson** responded that the subcommittee was still determining what the final product should look like – corridors, a matrix of criteria, pipelines, or guidance.

Laura Brannen, Nature Conservancy, asked for specificity on what each criterion meant (e.g., does “distance” mean prioritizing greater distances or shorter distances). **Thompson** noted that more details than displayed today were needed and would be developed. **Brannen** commented on how different criteria would interplay, for example, environmental sensitivities directly linked to a proposed pipeline pathway could change if the pipeline would drive further investment along the corridor. She then recommended the subcommittee take a regional approach and establish a rubric for regional planners to then use to develop pipeline proposals. **Thompson** expressed appreciation for the recommendations, acknowledging the approach may help alleviate concerns that any decision was made arbitrarily.

Al Collins, retired representative of project developers and operators, asked if consideration has been given to encouraging laying out carbon dioxide pipeline corridors in the same manner as Wyoming (i.e., through a forward planning model that encourages early, comprehensive community engagement). **Thompson** noted that the idea of central planning was one the subcommittee has discussed with respect to other jurisdictions like those in Europe.

A member asked how the criteria of commercial viability and political feasibility were being weighed. **Thompson** noted that the subcommittee was considering how projects not commercially viable today could be viable due to policy changes and that projects that may not be politically viable could become so with better education, standards, and/or policies.

Friedmann asked the subcommittee to explicitly note in the report that pipeline design was not within scope and that no recommendations would be made on specific pipeline locations (e.g., coordinates). He noted that several reports have already outlined where pipeline corridors should be located, and that a value add from the subcommittee would be a method to optimize pipeline pathway selection and incorporate community input, environmental sensitivities, and economic development considerations. **Thompson** agreed that the goal was not to replicate material already developed over the past 20 years and instead to highlight where improvements could lead to efficient, safe, and orderly outcomes.

Brown noted that the recommendations could be helpful for state decisionmakers. He also mentioned PHMSA's ongoing efforts to update carbon dioxide pipeline standards to be safer, potentially addressing some of the concerns raised.

Bill Caram, Pipeline Safety Trust, responded to **Friedmann** by suggesting that existing maps do not incorporate all the criteria identified by the subcommittee in the matrix, particularly with respect to environmental justice considerations and geohazards.

Palacios noted that some communities are advocating for early retirements of natural gas power plants, and that battery storage advancements could lead to retirements of fossil fuel-based power plants. She suggested any future predictions of sources should build in a ten-year buffer. **Friedmann** responded by noting that gas and coal power plant extensions beyond their scheduled retirement dates were happening in the present and should also be considered. He continued by observing the proliferation of new-build natural gas power plants. **Ross** continued the discussion on power sector sources by noting the potential for impacts from 111(d) and emissions performance limits for natural gas plants, suggesting some operators may modify a facility's capacity factor in lieu of installing CCS equipment.

Thompson then moved on to sinks. **Sherman** noted that, similar to the uncertainty around sources due to the increase in power demand necessitated by Artificial Intelligence (AI), there is inherent uncertainty with respect to storage, so the subcommittee should prioritize multiple scenarios.

Joyce posited that a regional approach would solve some of the consistency issues with comparing storage. She also noted the value of the work USGS has done in mapping storage locations, although it does not necessarily incorporate surface constraints, and cited a 2018 Taletsky paper on the topic. **De Figueiredo** noted the work being done across federal agencies to consider basin scale effects, including within DOE with the CarbonBASE program. He encouraged the subcommittee to consider basin scale effects and offered technical assistance and consultation to the subcommittee on this topic.

Sarah Saltzer, Stanford University, mentioned two recently published papers from Stanford's Catherine Callas that include storage site selection criteria like those identified in the matrix. **Ross** made a distinction between basins and viable pore space and emphasized the need to avoid overstating the amount of viable storage to stakeholders. **Thompson** agreed, noting that the maps he presented could be misinterpreted as the subcommittee saying 20% of the US is suitable for carbon storage.

Jim Kendall, Bureau of Ocean Energy Management, shared an anecdote from working in the Gulf and emphasized the importance of continuous adaptive management when mapping resources. **Thompson** and **Friedmann** agreed.

Palacios noted that there had been many leaks and well blowouts in Texas tied to Class II wells, recommending that future carbon storage should not take place at sites that have seen historic oil and gas development. She then noted the lack of accurate data on existing wells. She finished by relaying that some mineral and royalty owners are concerned that carbon storage leases will condemn their minerals if they are within the area of review (AOR) of a sink. **Thompson** agreed with the need for better data, especially in places like the Permian Basin, and noted the disparity between regions with a history of drilling versus those without. He continued by suggesting different regions may have different data collection needs.

Holmes recommended that carbon storage not take place in regions with an administrative history of orphaned wells and poor tracking of that issue.

Friedmann suggested the criteria matrix should include a process by which the criteria could be updated by future decision-makers as additional information is available.

Thompson then turned the discussion to the question of whether the final report should include corridors, pipelines, and/or criteria. **Fry** strongly discouraged identifying specific pipeline routes due to the technical and temporal constraints, suggesting the subcommittee recommend funding allocated to pipeline corridor mapping to facilitate early engagement. **Carter** agreed, asking the subcommittee to avoid mapping pipeline corridors or routes, and to instead focus on criteria, which are fact-based (e.g., location of current sources). She also noted that criteria would be helpful in supporting outreach and education.

Thompson closed the discussion by highlighting the recommendation to take a regional approach and thanking the Task Force members.

Subcommittee on CCUS Project and Pipeline Reviews on Non-Federal Lands

Dr. Sarah **Saltzer**, Stanford University and subcommittee Co-Chair, was introduced to present the subcommittee on CCUS Project and Pipeline Reviews on Non-Federal Land's plan and work to-date.

Saltzer thanked the subcommittee, noted its large size and scope, and explained the schedule for the subcommittee meetings—every two weeks totaling seven meetings to date. She explained that the subcommittee has six topic areas, which all nest within the USE IT Act's duties and often require taking an inventory or coming up with best practices. She reviewed the subcommittee process to date of discussing topics in a round-table format, working offline between meetings, and revisiting each topic a second time as a subcommittee to ensure the subcommittee can clarify issues and embellish on a topic as needed. She noted that the subcommittee has tackled the first three topic areas, at least twice so far. Going forward, the subcommittee will work on the remaining topics in the coming weeks, and the subcommittee anticipates holding a lengthy meeting in late March to develop, finalize, and agree upon the draft recommendations for the Task Force report. The subcommittee will also revisit the topic of regulatory gaps; Saltzer expects that gaps will be emerging as the groups work. By mid-April, a complete rough draft of the Non-Federal Lands chapter will be ready for subcommittee approval.

After providing a high-level overview of the subcommittee's progress to-date, Saltzer reviewed the subcommittee's proposed Non-Federal Lands chapter structure, which nests the six topic areas together into four subchapters, and the planned process for completing the Non-Federal Lands chapter. She explained the chapter structure as follows: Subchapter one is focused on topic 1: pipeline regulation and oversight and topic 4: permitting issues unique to multijurisdictional projects. Subchapter two addresses topic 2: best practices for engagement with stakeholders in CCUS projects and carbon dioxide pipelines. Subchapter three is focused on topic 3: good practices and potential improvements for federal and state agencies issuing Class VI permits, topic 4: permitting issues unique to multijurisdictional projects, and topic 5: tools and practices to reduce duplicative reviews. Subchapter four is focused on topic 6: gaps in the regulatory framework and suggested policy solutions.

The subcommittee also developed an outline that would apply to each subchapter, which includes a short background section, an issues and challenges section, an inventory section, a recommendation section, and a glossary or reference section. Saltzer requested the Task Forces' input on the plan for addressing each topic and the proposed outline.

Subchapter three, topic 5 – Best practices to avoid duplicative reviews

Friedmann asked about tools and practices to reduce duplicative reviews; specifically whether the subcommittee was planning to incorporate pathways to streamline the review process. **Saltzer** noted that the subcommittee has not yet discussed the topic as a group yet. **Righetti** asked whether it might also fit under another section given the citing and public benefit-type findings that occur at the state level (a cross-cutting issue). **Saltzer** acknowledged that this was a good point, and noted that when the subcommittee develops content on the topic, any pertinent material can be moved to the proper section.

Chapter Outline

Righetti noted that the Federal Lands subcommittee has not fully outlined the chapter and will likely break out recommendations based on land designation (onshore and outer continental shelf), though some recommendations may apply to all public lands.

Friedmann noted that the outline for each subchapter looks great and that the management of the subcommittee members and workflow is exemplary. He also noted that he would expect some topics may not fit into the outline and the team will need to make amendments. As long as the subcommittee is aware of this, then the path forward is laudatory. **Matt Holmes** agreed with Friedmann's earlier comment that some of the topics have inherent messiness. Mr. Holmes used the example of plume drifts that exceed the area of review for a project. **Saltzer** thanked Holmes for bringing the issues up and agreed that they would be discussed quite a bit when the subcommittee gets to topics 4, 5, and 6. Another member articulated that there could be duplicity across the report since the topic of pipelines comes up in the pipelines chapter, the non-federal lands chapter, and the federal lands chapter. To avoid this, the Task Force Chairs and chapter leads will need to coordinate. **Saltzer** agreed with the comment.

Limit the Amount of Background in the Report

Nicole Saunders suggested that the subcommittee spend less time on detailed background and instead concisely and concretely identify the issues, perhaps through a case study or a narrative. **Saltzer** agreed with this comment. **Jenny Joyce** reiterated Saunders' comment that the subcommittee does not need to recreate the wheel; the subcommittee can cite good technical work that has been done already as resources.

Subchapter three, topic 3 – Good practices and potential improvements for federal and state agencies issuing Class VI permits

Friedmann inquired whether the subcommittee would address how to improve the subsurface characterization associated with non-federal lands—using AI or liberating public or private data sets, for example—if that topic would be in-scope, and noted there could be many ways to accomplish subsurface characterization in the context of Class VI permitting. Class VI permitting has very substantial

evaluation requirements based on geological data submitted and Friedmann inquired whether there was a way to make it better - cheaper, easier access, lower risk, higher fidelity. **Waldron** clarified that if recommendations were about using AI tools or allowing AI tools to improve the Class VI permitting processes, tools that federal and state agencies could use for their reviews for the permitting process, that it could be in scope of the USE IT Act. Member **de Figueiredo** added that this could fall within the Duty to identify gaps in the current federal and state regulatory framework, and to identify gaps in existing data for the deployment of CCUS. It was noted that it could also be a cross-cutting issue, across subcommittees. So, whether that topic specifically falls within the Non-Federal Lands subcommittee or elsewhere might be an open question, but it is germane to the work.

A member commented on transparency issues for the Class VI permitting process, and confidential business information (CBI). Specifically, for some permit applications, data are not publicly available so there is no ability for the public to review the models that determine the AOR, determine whether the assumptions were appropriate, and verify the model. However, developers for companies invest time and money in the process for site characterization and if that data ends up being public, another company could use it for its own profit if the first company is not able to get the permit. This is a point of tension that the Task Forces need to collectively figure out how to address. While it is advantageous for the public to have a level of transparency, that seems to be counter to the developer's private interest in acquiring the Class VI permit.

Workforce Engagement

Jeremy Moddrell noted that the Priority Pipelines subcommittee is the only group that mentioned workforce engagement but this topic could be important for other subcommittees to discuss. There is a need for skilled craftsmen and -women to build projects and there is a possible shortage of skilled construction workers in the U.S. It will be important to engage the workforce early to have people qualified to build. **Saltzer** noted that the group could take the issue up under topics 3, 4, and 5.

Subchapter one, topic 1 – Inventorying models for state level carbon dioxide pipeline regulation and oversight

Saltzer asked: should the inventory focus on (a) issues that pertain to state jurisdiction and intrastate pipelines, (b) issues related to interstate pipelines like safety, common carrier, market regulation, or (c) both? **Fry** noted that Great Plains Institute (GPI) did a thorough inventory that is available on the GPI website. **Righetti** suggested that the subchapter inventory not include every state, but instead highlight some of the issues with a case study or examples, and agreed the cross-cutting issues are important, indicating a preference for “c”, both. **Friedmann** voiced preference for “c”, both topics, but a slim version of “c”. Some state issues are very important as are the cross-cutting issues, but the subchapter group should not present an endless list; the group should focus on key issues.

Subsection two, topic 2 – Best practices for engagement with stakeholders in CCS projects and carbon dioxide pipelines.

The subchapter group has compiled a list/inventory of resources based on discussion during subcommittee meetings as well as some emerging themes, and has asked for feedback on whether there are any resources missing from the list. **Saunders** noted how impressive the compilation of

resources is for the time that the subcommittee has had so far and thanked the subcommittee for its work. **Caram** inquired whether or how the subcommittee would transform the inventory into a final product with recommended best practices. **Saltzer** clarified that issues and challenges will be presented as well as recommendations and best practices.

Laura Brannen observed that the subcommittee's work on this topic has been focused on projects and pipelines that are already proposed or that will be proposed. She suggested that there should be room for engagement or broader stakeholder engagement that occurs even earlier in the planning process in regions where development is active or expected, without a specific project or pipeline in mind.

Brannen also commented on how the subcommittee and Task Forces should make recommendations on pipelines and faster scale-up of carbon dioxide sequestration – asking how to define issues and challenges and from whose perspective. Specifically, from whose perspective are the subcommittee members framing the issue? She also noted how this could be different depending on the topic, for instance the stakeholder engagement topic. **Saltzer** asked the question whether the subcommittee is identifying issues from the right lens. **Palacios** suggested an idea to consider would be presenting issues by perspective: for the public, for industry, for regulators, etc. **De Figueiredo** clarified that Congress gives the Task Forces direction in the USE IT Act. Specifically, the USE IT Act asks the Task Forces to make recommendations to avoid duplicative reviews to the extent permitted by law, engage stakeholders early in the process, and make the permitting process efficient, orderly and responsible. Thus, the Task Forces could address the issue of what it means to be efficient, to be orderly, and responsible and use Congress's language as a rubric.

Jack Andreasen suggested highlighting examples of positive stakeholder engagement. He mentioned the Tallgrass retrofit of a natural gas pipeline for carbon dioxide.

Matt Rota brought up the WHEJAC report as it pertains to community engagement, and noted there are recommendations in the report that the subcommittee could reference.

Education as part of Engagement

Jim Kendall noted that there is often a distinction between education and engagement because one cannot parachute into a community to engage with them if they do not speak the language in terms of the technology. That brings up the question of whether industry and government are doing enough preliminary education before asking for people's thoughts and opinions.

Additional USE IT Act Duties

Waldron opened the last technical session of the day to provide brief updates on the remaining three USE IT Act Duties. Waldron covered Duty IV on carbon dioxide transformation activities, and Duty VII on financing mechanisms, and then introduced Jan Sherman of Carbonvert and Ashleigh Ross of Carbon America to discuss progress on Duty VIII.

Waldron reviewed how the working groups for each of these additional USE IT Act Duties were formed, which was by email invitation to all Task Force members during the summer and fall. In addition, the DFO team followed up with others with known expertise and past expressions of interest, and assembled teams based on responses. All three working groups kicked off in November as "chapter groups." For each chapter group, DOE assembled an initial list of relevant, recent federal resources, for

reference to share at the kick-off. The groups reviewed scope and each developed a basic work plan, which included drafting an outline and scheduling meetings.

For Duty IV, the USE IT Act directs the Task Forces to: inventory current or emerging activities that transform captured carbon dioxide into a product of commercial value, or as an input to products of commercial value. The group met virtually and followed up with a discussion draft outline and a plan to continue to develop it.

For Duty VII, the statute requires the Task Forces to: identify Federal and State financing mechanisms available to project developers. This Duty VII chapter group also kicked off in November and developed a plan for next steps.

For Duty VIII, the statute requires the Task Forces to: develop recommendations for relevant Federal agencies on how to develop and research technologies that— (aa) can capture carbon dioxide; and (bb) would be able to be deployed within the region covered by the task force.

Ross then summarized the work of the Duty VIII chapter group and their draft themes, and solicited Task Force members' input on their ideas, starting by thanking the Task Force members for the opportunity to speak and represent the team working on carbon capture research and development (R&D). She noted that the team also includes Sherman, who attended remotely, and Richard Esposito, Southern Company, who could not attend. Ross asked for any other members interested in serving as a contributing author to reach out to the DFO.

Ross reiterated the USE IT Act language that guides the chapter group and noted that so far, the chapter group has convened a small group of contributing authors, reviewed existing resources (e.g., the Government Accountability Office's review of CCUS R&D programs), compared federal R&D funding opportunity experiences and analyzed the similarities and differences, and identified major themes that will guide recommendations, including the following:

1. Accelerating the progression of technology, responsibly.
2. Ensuring diversity of technology and the technology ecosystem.
3. Promoting community engagement and environmental equity and justice through R&D efforts.

Ross noted the next steps for the chapter group were to solicit input from Task Force members, meet with DOE to ascertain DOE R&D priorities, confirm themes, and draft recommendations for review and input. Specifically, Ross requested input on topics including the experiences of those who have applied for R&D funding, how members felt about the qualification criteria for funding, strategies to accelerate the funding progression from pilot projects to scale-up projects, what testing centers are needed for larger scale deployments, and what is working well within the current funding opportunity system and where there is room for improvement. Regarding R&D priorities, Ross requested input from communities and stakeholders, technology developers, and project developers. **Sherman** added by noting the importance of considering competing priorities. Sherman then commented on the need to consider community access to energy and water as important elements to ensuring R&D sustainability.

Friedmann asked if the team was considering the needs of point source capture technology R&D as distinct from direct air capture (DAC) R&D. **Ross** responded that the group had not yet dug into specific use cases, but was pulling from the recent DOE Carbon Management Strategy, such as by including cement as a key focus. **De Figueiredo** asked who the audience for these recommendations would be and

if the exercise would include DAC. **Ross** shared that the group had not yet discussed DAC and that the audience would be relevant federal agencies, such as DOE, and other relevant decisionmakers such as members of Congress.

Palacios shared a recommendation from the WHEJAC focused on allocating R&D funding to advance the understanding of environmental and health impacts of bioenergy with carbon capture and storage (BECCS), prioritizing the evaluation of potential risks to communities with environmental justice concerns, and including the consideration of life cycle emissions and the long-term safety and effectiveness of carbon storage. **Ross** noted that this recommendation aligned with the group's conversations to date. **Saunders** agreed with the need to include public health risks, such as those related to nitrosamines and nitramines, and recommended agencies with a role in protecting public health be included (e.g., EPA). **Ross** agreed, then suggested OSHA also be included.

Caram noted that pipeline research lacked a central database, leading to knowledge gaps and duplicative funding, and recommended that the team consider how DOE could play a role in tracking and compiling in a central database the research on capture technologies.

Ross mentioned that the team had observed DOE R&D funding negotiation timelines become shorter and more predictable.

Palacios provided another recommendation from the WHEJAC Report, requesting more disclosure from DOE on the current projects and their environmental risks and environmental justice impacts. **Ross** expressed appreciation for raising the topic of transparency and noted how the United States has a culture around confidential business information distinct from some other countries. **Rota** agreed with concerns around a lack of transparency, focusing on projects receiving 45Q tax credits engendering public skepticism. **Ross** asked for clarification, noting that DOE posts information online for every project award announcement. **Rota** clarified he was specifically referring to 45Q projects, but also that the same concerns applied to how R&D projects can be decoupled (e.g., separate awards for capture versus transport versus storage), sowing confusion among community members.

Friedmann noted that R&D funding for capture has been ongoing for multiple decades at this point, but that a recurring issue is DOE's focus on obligations instead of supporting the success of projects receiving the funds. He suggested the team recommend DOE invest in the success of these projects by not only providing financial support but by, for example, supporting public engagement efforts and building transparent data sets. **De Figueiredo** expressed DOE's commitment to transparency, citing the CONNECT Toolkit as an example. He then asked if the team should think beyond pilots and consider demonstration projects across the various needed use cases.

Kendall noted that public engagement needs to start by answering the question of why this research is important, not just what the research is accomplishing.

Sherman commented that the chapter group was considering delivering a road map to articulate where there are gaps in R&D priorities and solicited feedback on that point from the group. **Friedmann** strongly recommended the Innovation for a Cool Earth Forum website road maps as a starting point for the team's work, noting how they are designed for decisionmakers. He then commented on the need for more social science research and for better science communication, sharing anecdotes of how researchers tend to lack some of the needed communication tools when explaining their work to community members. **Ross** expressed support for the suggestion. **Caram** highlighted his organization's

work advocating for PHMSA to allocate more R&D funding to social science work and risk communication, particularly with historically disadvantaged and marginalized communities.

Saunders recommended the chapter group draw attention to the need for R&D with multiple compositional makeups of flue gases. She continued, noting how learnings from one industry on, for example, amines and associated emissions may not apply to other industries, necessitating pilots across different capture sources even when the capture technology is uniform. **Ross** agreed, acknowledging how this comment implied there are still R&D gaps beyond education.

Friedmann suggested the chapter group consider AI applications in their work.

Ross closed by requesting further input and thanking the Task Force members.

Public comment period

Louis Baer, Senior Director and Counsel for Governmental Affairs at the Portland Cement Association, representing U.S. cement manufacturers, thanked the Task Forces for the opportunity to provide comments and noted his appreciation for their work. He noted that the U.S. has made a commitment to carbon neutrality by 2050, and carbon capture is a significant part of that commitment. Roughly 60% of U.S. emissions related to cement production come from just the process of combusting limestone, which cannot be mitigated unless it is captured and sequestered or utilized into a new product. He also noted the cement manufacturing industry is in the beginning stages of implementation of CCUS, and, on the research and development side, has received awards from the DOE Office of Clean Energy Demonstrations (OCED) for two plants and will be initiating the NEPA process for those permits. Looking at the upcoming large pilot program and demonstration, a \$1.3 billion funding opportunity should also be released soon. Given all of this, Mr. Baer noted his appreciation for the discussion of the Task Forces on carbon dioxide pipelines and storage issues. Other industrial manufacturers cannot use carbon capture unless there is associated infrastructure in place, so Mr. Baer reiterated the need for infrastructure and permitting improvements to resolve permitting barriers. He emphasized that permitting improvements are needed through EPA and the states under the NSR and Clean Air Act permitting programs, because 1970s laws and regulations are being applied to 21st century problems and the barriers will hamper progress as other industries scale up these CCUS technologies in the next five to ten years. Mr. Baer closed by stating that he would love to know if there is an opportunity for the cement industry to provide input to the Task Forces, and he thanked everyone for their time and hearing his comment.

Emily Pope, Carbon Management Senior Fellow at the Center for Climate and Energy Solutions (C2ES) thanked the Task Forces for the opportunity to speak. She introduced herself and C2ES, which is a nonpartisan, nonprofit, think tank whose mission is to help accelerate the global transition to net zero greenhouse gas emissions, while also supporting a just and resilient economy. Ms. Pope noted that she would like to address the Task Forces but also, primarily, the public on three topics. She noted that the role of CCUS as a climate solution, that CCUS projects can provide local as well as global benefits, and finally that Task Forces like these are important to help ensure safe, responsible and efficient deployment of the growing CCUS sector.

Ms. Pope noted that the priority for reaching a net-zero emissions economy and keeping global warming well below 2°C is reducing emissions as much as possible through increasing efficiency, increasing

electrification, and deploying fossil-free renewable energy. However, Ms. Pope noted that there are situations where these solutions are a non-starter, either for practical reasons or economic ones. For example, Ms. Pope explained that many industries produce carbon dioxide as a byproduct of the goods they create. As Mr. Baer pointed out, this includes the production of fertilizer, things we need to help grow our food; the production of iron and cement that we need for building roads and houses; and the chemicals we use to make medicine and other products. In all cases, these emissions cannot be removed without CCUS. This has been well-established by myriad national and international organizations, including the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), and the National Academy of Sciences, Engineering and Medicine (NASEM).

Ms. Pope also emphasized that the potential benefits of CCUS projects are not limited to meeting national or global emissions reductions goals. Recent studies suggest that some of these forms of carbon capture can also reduce atmospheric co-pollutants from power plants or industrial facilities. Things like particulate matter, sulfur dioxide, and carbon dioxide removal technologies like direct air capture (DAC) can provide a path for communities that have historically been dependent on oil, gas, or coal production to make sure that they can also participate in the clean energy economy and not be left behind.

Finally, Ms. Pope acknowledged the growing emphasis on community engagement and community benefit plans, not least in the discussions among these Task Forces, can help ensure that most of those who are most directly impacted by the development of new projects will have agency in how those projects get developed and how their benefits are defined and distributed.

Ms. Pope noted that while rapid and efficient deployment of CCUS alongside all other emissions reduction efforts is critical for meeting U.S. climate goals, it must be done safely and responsibly. The joint Task Forces' meeting today is an excellent example of the kinds of venues that the U.S. needs to ensure that perspectives and ideas are heard from across the spectrum of stakeholders. From federal and state agencies, to developers, to local planners, to environmental justice organizations, and community advocates, all groups need to work together to help shape the frameworks that regulate this growing industrial sector. Ms. Pope closed by thanking the Task Forces for their work.

Kelsey Grant, CCUS Policy Advisor for ClearPath thanked the Task Forces for the opportunity to comment and introduced herself and ClearPath, which is a conservative energy policy organization with a mission to accelerate American innovation to reduce global energy emissions. To accomplish its mission, ClearPath develops policy solutions on clean energy and clean manufacturing innovation and collaborates with public and private sector stakeholders on a variety of clean technologies, including carbon management. Ms. Grant noted that ClearPath is not funded by industry and does not have an industry membership structure and is instead funded solely by philanthropy. ClearPath believes carbon management technologies are critical to meeting global decarbonization goals. According to the IEA, 7.6 billion metric tons of carbon will need to be captured annually in order to achieve net-zero emissions by 2050.

Ms. Grant noted that the Task Forces play an important role identifying and evaluating permitting and other challenges to get steel on the ground for CCUS projects and related infrastructure. ClearPath recommends the following areas be considered by the Task Forces: first, resolving permitting bottlenecks for carbon storage infrastructure. Many net-zero modelling analyses project that more than

one billion tons of carbon storage will be required annually by 2050 to achieve U.S. net-zero goals. Ms. Grant noted that permitting bottlenecks occur within EPA's Class VI program; currently more than 150 permits are under review by the EPA and it can take years before a project developer is given a decision on their permit. She noted that ClearPath thinks DOE is well-positioned to support EPA's regional offices to streamline the Class VI application process. For example, DOE can provide technical assistance to EPA regional offices and individual applicants, share sub-surface data and develop advanced carbon tools.

Second, Ms. Grant noted that advancing pipeline research and development is a priority; 30,000-96,000 miles of carbon dioxide pipelines will be needed by 2050, which is about five to 18 times larger than the existing network in the U.S. This will be critical for modernizing and enabling the safe build-out of pipeline infrastructure at the scale needed. Again, ClearPath thinks DOE can play a critical role in supporting dedicated research, development, and deployment in key areas such as dispersion plumes, geohazard monitoring, advanced leak detection, and advanced material development.

Finally, Ms. Grant notes that ClearPath encourages the Task Forces to evaluate the role of the federal government in supporting coordinated and effective siting and permitting of carbon pipelines. She closed with appreciation for the Task Forces' critical work and for the ability to provide comments.

Closing Remarks

Waldron began the closing remarks session. Waldron introduced the closing speakers, Dr. Julio Friedmann, Chief Scientist and Chief Carbon Wrangler of Carbon Direct. Mr. Brad Crabtree, Assistant Secretary for the Department of Energy, Office of Fossil Energy and Carbon Management, and Ms. Margo Corum, director for CCUS at the White House Council on Environmental Quality.

Friedmann thanked the Task Force members, DFO Waldron, and the DOE team, contractor LTI, and moderator Levin for pulling the meeting together. Friedmann highlighted that this is a critical time for CCUS and he is grateful to have the Task Forces' knowledge, insights, and expertise. He asked for more recommendations, more quickly; to the extent they can be made expeditiously, pointedly, and within scope, they are badly needed. Friedmann noted that his concern about the Task Forces' work is not that it will not be well received, but that it will be irrelevant because it arrives too late. He noted that projects are getting built quickly, wells are being drilled, financing is getting pulled together, not just in the U.S. but around the world. He expressed his desire to make specific recommendations that land well and arrive in a timely manner, all the while working together and to incorporate different perspectives, prioritize the creation and codification of specific recommendations to Congress and to industry so stakeholders can act on them. Since the Task Forces will be reconvened in five months, the sooner the recommendations are pulled together, the better the group can respond to them and strengthen them and get them into the public domain.

Friedmann noted that there is a lot going on in the world; the extraordinary growth in U.S. power demand alone is astonishing. The EIA has upgraded their estimate to add 128 gigawatts of electricity to the U.S. grid between now and 2030, which is only six years from now. The U.S. is seeing an extension of the life of coal-fired power plants. Coal plants that were going to be mothballed and closed are staying open and there has also been rapid growth in uncontrolled natural gas construction. This is not great for the climate or communities near these plants. The U.S. and the Task Forces need to be thinking about the carbon management component of these things. For example, Japan and Korea have created whole-

cloth carbon markets, which include carbon dioxide removal, carbon dioxide shipping, and carbon capture on industrial sources as anchors of their industrial economy. Friedmann asked the Task Force members to be aware of the global push for carbon management and carbon sequestration. He closed by emphasizing the need to rise to the moment in terms of the ambition that this report and these Task Forces represent, as well as the necessity to be inclusive, generous with each other, and swift as the Task Forces pull it together.

Assistant Secretary Crabtree provided closing remarks for FECM. He reflected on the policy framework for funding, financing, and incentives created by the Bipartisan Infrastructure Law and the Inflation Reduction Act. He remarked that it is the most comprehensive, ambitious framework for climate action of any country in the world, but it does not provide a road map for implementation. He emphasized that if we're to meet our climate and energy goals and also broader goals to revitalize domestic manufacturing and industrial production, and bring opportunity and economic value back to this country, we have to build things, at a larger scale, faster, and differently than we've done in the past.

He observed that timing is of critical importance to almost everything including policy recommendations, and because of the gridlock in this country over permitting, the present timing for the work of the Task Forces is exquisite because currently no one is getting what they want. He noted that companies and industries are failing to move forward with projects, and sometimes throwing in the towel on perfectly viable, needed projects because they can't get a Class VI permit. He commented that climate advocates are faced with the really bitter irony of having, after a generation of effort, the Inflation Reduction Act and the Bipartisan Infrastructure Law, and prior to that, the 2020 Energy Act – this extraordinary trio of energy and climate legislation, which doesn't get close to its full deployment potential, because we can't build anything. He added that it's not just carbon management, it's wind farms, solar installations, high voltage transmission; it's everything. He explained that the problem may be more acute right now with carbon management, but it's fundamentally not different than what's afflicting these other technologies and the infrastructure that those technologies need. He continued, noting that even communities are not getting what they want. Communities that are either where these projects are being built or near where they're being built have expectations in terms of economic development, jobs, environmental and other benefits, and they are stepping up to the table in ways that has not happened in our society before, and wanting to be part of that conversation and to articulate what the benefits will be of these projects before they sign on and become partners in the projects. Crabtree agreed that was entirely reasonable. He emphasized that we need industry, climate advocates, communities, and others to come together and come up with recommendations that help everybody get what they want.

Crabtree shared about his prior day providing keynote remarks in Midland TX at the 30th anniversary of the carbon dioxide conference for the Texas Permian Basin oil and gas community. Crabtree noted the work of the Task Forces and its importance right now, and how given the timing of how things have evolved, the Task Forces will be issuing recommendations, not to this administration, but to the next administration, which is an opportunity to have an impact with the incoming administration as well as with Democrats in Congress who know that their priorities are not being met in one way or another because of permitting gridlock.

Crabtree closed with a reassurance that as the Task Forces finish this work, they can have confidence that someone's going to listen and care. It's always hard to work through complex issues and then to try

to get agreement when you have such a diversity of folks at the table. But it's the diversity of folks at the table that will make the recommendations from this group most meaningful. Crabtree commented that even when it feels hard in the coming weeks and months, remember that you invest your time one way or another; you either invest on the front end in getting agreement across a wide range of interests, or you come out with a narrow proposal and everybody attacks it because people weren't at the table. He said that the Task Force members are doing it the right way by putting the time and effort in the front end. Crabtree noted that he won't be around, at least in his current job at DOE when the recommendations are finished, but he will be watching and cheering from the sidelines. He expressed thanks and good luck to the members of the Task Forces.

Margo Corum provided closing remarks for CEQ. Corum thanked the Task Force members for all of their work, sacrifice of time, and expertise to provide advice and recommendations to guide the CCUS permitting work of the federal government. She thanked the Chairs Righetti and Friedmann and Vice Chairs Kapilla and Saunders for continuous leadership. She expressed gratitude for Task Forces' members willingness to serve, and the progress that you drive in support of the effective, orderly and responsible development of carbon management projects across the nation, and in promoting and maintaining strong environmental health and safety protections. Corum projected that working together, we can ensure that CCUS projects are done responsibly in a way that reflects the best science and response to the needs and the inputs of local communities.

Waldron closed the meeting at approximately 4pm ET.

Respectfully Submitted:

Christina Waldron
Designated Federal Officer

I hereby certify that these meeting minutes of the December 11, 2024 CCUS Permitting Task Forces are true and correct to the best of my knowledge.

X



Professor Tara Righetti
Chair, CCUS Federal Lands Permitting Task Force

X



Dr. Julio Friedmann
Chair, CCUS Non-Federal Lands Permitting Tas...

Appendix—Meeting Participants

CCUS Federal Lands Permitting Task Force, Members Participating, December 2024

Tara K. Righetti	University of Wyoming
Jack Andreasen	Breakthrough Energy
Lily R. Barkau	Wyoming Department of Environmental Quality
Eric Bingham	Sweetwater County Government, Green River, Wyoming
Tristan Brown	Pipeline and Hazardous Materials Safety Administration (PHMSA)
Bill Caram	Pipeline Safety Trust
Al Collins	Representative of CCUS Project Developers and Operators
Mark de Figueiredo	U.S. DOE, Fossil Energy and Carbon Management
Matthew J. Fry	University of Wyoming
Sallie E. Greenberg	Sallie Greenberg Consulting
Raven A. Goswick	Aka Energy Group LLC
Shannon Heyck-Williams	National Wildlife Federation
Matt Holmes	California Environmental Justice Coalition
Kenneth S. Jackson	Carbon-Zero US, LLC
Jenny Joyce	ExxonMobil Low Carbon Solutions
Jim Kendall	U.S. Department of Interior, Bureau of Ocean Energy Management (BOEM)
Jason Lanclos	Louisiana Department of Energy and Natural Resources
Timothy "Tip" A. Meckel	The University of Texas at Austin
Jeremy Moddrell	United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry
Julie M. Murphy	Colorado Department of Natural Resources
Stacey L. Noem	U.S. Department of Interior, Bureau of Safety and Environmental Enforcement (BSEE)
Jim Powell	Southern States Energy Board
Matt Rota	Healthy Gulf
Nichole Saunders	Environmental Defense Fund
Jan B. Sherman	Officer Carbonvert Inc.
Mark Joseph Spalding	The Ocean Foundation

Greenberg recused herself from a meeting discussion to avoid a potential conflict of interest.

Non-Federal Lands Task Force

Julio Friedmann	Carbon Direct
Rusty Bell	Gillette College Foundation
Laura Brannen	The Nature Conservancy
Tristan Brown	Pipeline and Hazardous Materials Safety Administration (PHMSA)
Kristin M. Carter	Pennsylvania Geological Survey
Kevin C. Connors	Energy and Environmental Research Center, University of North Dakota
Mark de Figueiredo	U.S. DOE, Fossil Energy and Carbon Management

Rich Garman	North Dakota Department of Commerce
Kyle Henderson	United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry
Rudra V. Kapila	Third Way
Virginia E. Palacios	Commission Shift
Ashleigh Ross	Carbon America
Sarah J. Ryker	U.S. Department of Interior, U.S. Geological Survey (USGS)
Sarah D. Saltzer	Stanford University
Alexander Spike	Air Alliance Houston
John W. Thompson	Clean Air Task Force
Tyson Todd	State of Utah School and Institutional Trust Lands Administration
Keith Tracy	Elysian Carbon Management
Michael Andrews Turner	Colorado Energy Office
Poh Boon Ung	Global CCS Institute
Robert F. VanVoorhees	Carbon Sequestration Council
Matthew Warren	International Brotherhood of Electrical Workers

Duguid recused himself from the meeting discussion to avoid a potential conflict of interest.

Non-Member Agency Speakers Present

Ana Unruh Cohen
Margo Corum
Brad Crabtree
Jada Garofalo
Rebecca Good
Susan Levin
Christina Waldron

Individuals of the public who provided an oral statement

Louis Baer
Kelsey Grant
Emily Pope