January 18th, 2023

U.S. Environmental Protection Agency

Submitted via the Federal eRulemaking Portal: Regulations.gov

Re: NGOs' Comments in Response to Request for Information – Methane Emissions Reduction Program, Docket ID No. EPA-HQ-OAR-2022-0875

We submit these responses to the Environmental Protection Agency (EPA) on behalf of Clean Air Task Force, Environmental Defense Fund, Earthjustice, Sierra Club, GreenLatinos, Food & Water Watch, Natural Resources Defense Council, Southern Environmental Law Center, Western Environmental Law Center, Oceana, National Parks Conservation Association, Union of Concerned Scientists, Earthworks, Physicians for Social Responsibility Pennsylvania, Center for Biological Diversity, and League of Conservation Voters in response to the agency's requests for information (RFI) on the Inflation Reduction Act (IRA) in the non-regulatory docket for public input. We provide the following responses to EPA's questions posed in Docket 3 on the IRA's Methane Emission Reduction Program (MERP) [IRA § 60113]. Joint Commenters share an interest in addressing the climate crisis through reductions in greenhouse gas emissions from the oil and gas sector.

The IRA is the most comprehensive congressional action to date addressing the climate crisis. This landmark legislation helps to put the U.S. on a path to achieve the Biden Administration's goal of cutting greenhouse gas emissions in half by 2030 and reaching net zero emissions by 2050. With the MERP, Congress acknowledged the significant role that the oil and gas industry has played in emitting climate destabilizing pollution, as well as the need to significantly reduce methane emissions from this sector to reach the Administration's climate goals. Congress thus established a new provision in the Clean Air Act (CAA)–section 136–which provides EPA with $1.55 billion to reduce methane emissions and establishes a waste emissions charge (WEC) on methane emissions from applicable oil and gas facilities, including those onshore and offshore.[1] Both components of MERP, the appropriations and the WEC, assign implementation discretion and responsibility to EPA.

To ensure the WEC is accurately assessed on emissions from applicable facilities, Congress also directed EPA to update methane emission reporting requirements under subpart W of the Greenhouse Gas Reporting Program (GHGRP).[2] Section 136(h) therefore directs EPA to update subpart W to ensure that reporting is (1) "based on empirical data," (2) "accurately reflect[s] the total methane emissions" from reporting facilities, and (3) allows owners of reporting facilities "to submit empirical emissions data, in a manner to be prescribed by [EPA]."[3]

Along with speedy and strong finalization of EPA's comprehensive new and existing source oil and gas methane pollution rules, it is critical that EPA implement MERP in a community-protective manner to ensure it dramatically reduces oil and gas methane emissions. Below we discuss principles, priorities, and strategies that EPA should adopt to ensure that MERP not only

[1] 42 U.S.C. § 7436.
[2] 40 C.F.R. § 98.230–98.238.
[3] 42 U.S.C. § 7436(h).

delivers maximal emission reduction benefits but does so in a way that is equitable and fully reflects the interests of the communities most affected by methane and other harmful emissions from the oil and gas industry.

Below we respond to EPA's questions in order. Our responses can be broadly divided into two categories (1) spanning questions one through six related to the incentives program, and (2) covering questions seven and eight related to the WEC. Our topline recommendations are summarized here:

- Prioritize funding for communities and tribes that are most impacted by oil and gas pollution and infrastructure. To that end, EPA should create grant and other programs that support community monitoring, protect community health by reducing methane and legacy air pollution, support updates to the GHGRP, deploy advanced monitoring technologies, plug orphaned and improperly closed wells, and reclaim these sites for community use.

- Focus funds for marginal conventional wells on plugging orphaned wells without an identified owner, as these wells present unique challenges and have outsized negative impacts on surrounding communities and the climate. To the extent EPA allocates any funds to address wells that have an identified owner, it should prioritize funding for small owners and incentivize expeditious plugging of marginal conventional wells wherever possible.

- Make information on funding decisions and distribution, as well as emission reductions publicly available as soon as possible and via easily accessible and searchable formats. EPA should also make publicly available information about the metrics it uses to evaluate the success of its MERP projects and actions.

- Provide technical assistance in the form of training, guidance, and practices to facilities reporting under GHGRP subpart W to ensure accurate reporting and maximize the effectiveness of the WEC.

- Ensure timely implementation of the WEC by immediately identifying actions needed to calculate and collect fees from facilities. Although the WEC will utilize data from GHGRP, EPA should also create a separate and severable process for the WEC that does not rely on the GHGRP and should develop guidance by the end of this year on how it will implement WEC and interact with the GHGRP.

- Implement a two-phased approach to a site-level reporting framework for the GHGRP subpart W, consistent with the IRA's mandate to update the GHGRP's reporting requirements. First, EPA should immediately add a top-down validation and site-level reporting framework to subpart W. Second, and over the longer term, EPA should further develop a site-level reporting framework by incorporating additional measurement data and updating emission estimates.

I. Incentives Program

A. Question 1: The Methane Emissions and Waste Reduction Incentive Program provides up to $1.55 billion to EPA to issue grants, rebates, contracts, loans, and other activities for a number of statutorily specified purposes. How can EPA structure the financial and technical assistance to ensure the greatest possible public health and environmental impact?

MERP grants EPA $1.55 billion to reduce methane emissions. It provides EPA $850,000,000 to reduce emissions at oil and gas operations generally, and $700,000,000 to mitigate emissions at marginal conventional wells. For both categories, EPA may use the funds to:

- Mitigate the health effects of methane, other greenhouse gas emissions, and legacy air pollution from oil and gas operations in low-income communities;
- Administer and assess the WEC, including by updating methane emission estimates and gathering empirical data;
- Support innovation to further reduce oil and gas methane pollution;
- Provide grants, contracts or loans for methane emission monitoring;
- Improve the climate resiliency of communities impacted by oil and gas pollution;
- Deploy equipment and processes to cut methane waste;
- Permanently shut in and plug wells;
- Support environmental restoration; and
- Provide technical assistance for methane reporting under the Greenhouse Gas Reporting Program.

EPA has discretion in how it allocates funds amongst these uses.

In response to Question 1, this section discusses (1) guiding principles that we encourage EPA to follow in making decisions to allocate funds, and (2) recommendations for specific programs EPA should prioritize using its MERP budget.

1. Guiding Principles

To effectuate the protective intent of MERP, EPA will need to distribute funds in ways that maximizes the emission reduction and environmental justice benefits to be gained by the law. To that end, we encourage EPA to follow four core principles when making funding decisions.

a. Prioritize impacted communities and tribes

First, EPA must prioritize funding for communities and tribes that are heavily impacted by oil and gas infrastructure and pollution. Nearly 18 million individuals live within one mile of an active oil or gas well, including disproportionately large numbers of communities of color, people living below the poverty line, older individuals and young children in many counties with active drilling across the U.S.[4] At these sites, smog-forming volatile organic compounds and

[4] Jeremy Proville et al., *The demographic characteristics of populations living near oil and gas wells in the USA*, 44 Population and Env't 1 (2022), https://link.springer.com/article/10.1007/s11111-022-00403-2.

toxic air pollutants like benzene are emitted alongside methane. These emissions can cause cancer, irreversible lung damage, and death. An analysis from EPA scientists predicts that air pollution from the oil and gas sector will lead to 1,970 premature deaths in 2025 alone.[5] EPA's analysis likely underestimates the true public health impacts of oil and gas pollution on surrounding communities, as inventories tend to under-report emissions from this industry. Indeed, a recent study has found that emissions just from flaring and venting contributing to ozone and $PM_{2.5}$ exceedances resulted in an estimated 700 deaths and 52,000 asthma exacerbations in 2016, translating to nearly $7.4 billion in health damages.[6] Critically, a disproportionate number of people impacted by this climate and hazardous air pollution and the resulting health effects are from low-income communities and communities of color. This underscores the need for urgent community-centered action.

In the recently released Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action (IRA Guidebook), the White House explained that the IRA "advances President Biden's Justice40 Initiative, which commits to delivering 40 percent of the overall benefits of climate, clean energy, infrastructure, and other investments to disadvantaged communities, including Tribes."[1] EPA should go further and direct the majority of its MERP funding to address the disparate impact of oil and gas pollution on low-income communities, communities of color, and tribes to fulfill the Biden Administration's commitments to act on environmental justice. EPA itself has also issued various guidance documents explicitly requiring incorporation of environmental justice and equity into agency actions. For example, EPA is in the process of implementing an Equity Action Plan for making equity, environmental justice, and civil rights a centerpiece of its regulatory actions, including funding decision-making and distribution.[2] As part of the Action Plan, EPA has prioritized building financial, technical, and human-related capacity for underserved communities to implement community-led projects.

EPA must also engage in regular and close consultation with impacted communities and tribes to determine how to distribute funding in a way that reflects their input and priorities. EPA's Equity Action Plan, for instance, prioritizes developing internal capacity at the agency to engage with communities and tribes in order to incorporate feedback into agency programs and actions. Similarly, MERP funding should flow directly to community groups and tribes rather than being funneled through state agencies, as it has for other statutory programs. By engaging directly with impacted communities and tribes, EPA can remove barriers that have prevented communities and tribes from accessing and utilizing funding in the past.

After disproportionately impacted communities and tribes, EPA should next prioritize funding for states, as well as tribes, to build enforcement and monitoring capacity. Many state and tribal agencies are understaffed and under-resourced, limiting their ability to pursue enforcement actions when they receive information about emission violations. MERP funding can be used to help states and tribes hire additional inspectors and other enforcement staff to conduct monitoring and identify potential regulatory violations, thereby ensuring that emission reductions

[5] Neal Fann et al., Assessing Human Health PM2.5 and Ozone Impacts from U.S. Oil and Natural Gas Sector Emissions in 2025, 52 Env't Sci. & Tech. 8095, 8099 (2018), https://doi.org/10.1021/acs.est.8b02050.
[6] Huy Tran, et al., *A Refined Emissions Estimate from Onshore Oil and Gas Flaring and Venting Activities in the United States and Their Impacts on Air Quality and Health*, A32H-1490 (2019) (presented at the Fall Meeting of the American Geophysical Union, Chicago, IL, Dec. 12-16, 2022) (included as attachment A).

are actually achieved. Additionally, EPA should provide MERP funds to states, tribes, and local governments to clean up orphaned wells and other infrastructure, as well as historic pollution from the oil and gas industry.

Finally, to the extent EPA provides any funding for private companies or organizations, it should be given the lowest priority and must not be used to subsidize actions industry would otherwise be required to take. Owners and operators already have a duty to comply with regulations adopted under section 111 of the Clean Air Act and other authorities that require them to reduce emissions. Many have also developed voluntary emission reduction targets as part of their business models. As a result, EPA should direct its limited resources to further initiatives that oil and gas operators will not already be financing, like community monitoring programs and state and local enforcement efforts. Moreover, only section 136(a)(1) of MERP explicitly authorizes financial and technical assistance to owners and operators, and it is limited to preparing and submitting reports under Subpart W of the Greenhouse Gas Reporting Program. Should EPA provide assistance to private companies and organizations for any of the other purposes specified in MERP, such as developing and utilizing new or advanced emission detection and reduction technologies or to shut in and plug wells, EPA should focus on providing technical, rather than financial, assistance. If EPA provides financial assistance, the agency should focus on smaller operators and set parameters on financial assistance that incentivize strong operator action and achieve the greatest emissions reductions possible. For instance, EPA could require plugging plans before providing funding to operators or require operators to show funding will be used to achieve reductions that will exceed those gained under section 111 standards and then document that those reductions were actually achieved. EPA should also require operators to prove that they are in compliance with all state, local, and federal clean air and water laws and regulations before they can obtain funding.

b. Maximize methane and co-pollutant emission reductions

Second, and in line with the purpose of IRA's climate provisions and MERP, EPA should prioritize funding for projects and programs that will result in the greatest reductions in methane and other emissions from the oil and gas industry. The oil and gas sector is the largest industrial emitter of methane in the U.S., and methane emissions are responsible for around 30% of the warming we are experiencing today.[7] The oil and gas industry is also a major emitter of other greenhouse gasses, as well as smog-forming and toxic air pollutants. Achieving reductions from this industry is absolutely essential to addressing the climate crisis and to protecting the health of communities that live in the midst of polluting infrastructure. EPA should direct funds to projects and programs that will lead to emission reductions above and beyond what would otherwise occur from existing standards, like the agency's soon-to-be finalized New Source Performance

[7] Int'l Energy Agency, *Methane and climate change*, Global Methane Tracker 2022, https://www.iea.org/reports/global-methane-tracker-2022/methane-and-climate-change (last visited Jan. 18, 2023); Richard Allen, et al., Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: Summary for Policymakers* 7 (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf.

Standards and Emission Guidelines for Existing Sources.[8] EPA could then ensure that MERP funds do not merely subsize actions and reductions that would occur anyway.

c. Provide funding via appropriate mechanisms

Third, EPA should be deliberate in the mechanisms it uses to distribute funding to different groups. EPA should engage directly with impacted communities and tribes to identify the best way in which the agency can distribute funding. For instance, grants may provide the most effective funding mechanism for community groups and tribes with limited access to financial and human-related resources. Rebates and loans are not effective mechanisms for many community groups, as rebates require the expenditure of upfront capital that can be reimbursed later and loans require repayment. EPA should also provide funding for state and local government enforcement and clean-up efforts in the form of non-matching grants. Requiring states or agencies to provide matching funds could significantly restrict the ability of some states and agencies to benefit from MERP funds.

On the other hand, EPA should provide funding to private companies and industry in the form of loans.[9] Oil and gas companies generate significant revenue and can potentially generate additional profit by acquiring new and advanced technologies to capture and sell gas that would otherwise be vented or flared.[10] As a result, MERP funding could create a windfall profit scenario for companies at the expense of the government and community groups that might have been able to obtain additional funding. Accordingly, to the extent EPA provides any funding for private companies, the agency should consider how it might use loans to best leverage the limited resources provided by MERP.

d. Be transparent about funding processes, decisions, and distribution

Fourth, and finally, EPA must ensure that its funding processes and decisions are transparent. EPA should make sure that the application process to obtain MERP funding is well publicized, clear, and simple so that communities with limited resources are made aware that those funds are available and can easily navigate the process without the need for outside help from lawyers or grant writers. EPA should conduct extensive outreach to ensure that community groups know about available MERP funds and programs and should provide step-by-step guidance and training on the application process(es). Determining how to apply for and obtain available federal funding can be complicated, even for the most sophisticated applicants. Federal funding processes can be convoluted, requiring groups to either obtain the help of attorneys or grant writers to apply or forgo seeking funding all together if they cannot afford or get assistance. In its Equity Action Plan, EPA acknowledges that community groups historically have not had access to federal funding because of the cumbersome procedural barriers involved in the processes for

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[8] Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 87 Fed. Reg. 74702 (proposed Dec. 6, 2022).

[9] For certain small operators facing significant financial challenges related to well closure, it may be appropriate to provide alternative forms of funding.

[10] *See, e.g.*, Rystad Energy, *Final Report: Cost of Flaring Abatement* 11 (Jan. 31, 2022), https://blogs.edf.org/energyexchange/files/2022/02/Attachment-W-Rystad-Energy-Report_-Cost-of-Flaring-Abatement.pdf (finding that gas gathering, on average, has a net profit of $3.10/kcf or $162 per metric ton of methane flaring avoided).

acquiring them, and so has committed to making federal funds easily accessible. The Equity Action Plan and the IRA Guidebook both also note the need for clear guidance and training to ensure that communities can reap the full benefits of MERP.

Similarly, EPA must also disclose how MERP funds are distributed. EPA should make this information, along with detailed information about the mechanism EPA used to distribute the funds, what the funds are to be used for, and to whom the funds are distributed, publicly available through a website database and informational outreach. The publicly available information should also be provided in an easily searchable format, such as a filterable database. EPA (along with other federal agencies that distribute IRA funding) could do this on CleanEnergy.gov, as the IRA Guidebook notes that the Administration already plans to make IRA funding announcements and program details available on this website. By making funding decisions and distribution of information publicly available, EPA can help ensure that MERP funds are used for their intended purpose to reduce oil and gas methane emissions and maximize the benefits of this IRA program.

2. Program Opportunities and Priorities

With authority and financing under new Clean Air Act section 136, EPA has an opportunity to create programs that will significantly reduce methane emissions from the oil and gas sector while protecting the climate and communities living near oil and gas development. To achieve the greatest additive environmental and health impacts from MERP, we encourage EPA to consider using the funds to support five key initiatives.

a. Community Monitoring

Clean Air Act section 136(a)(2) allows EPA to direct MERP funds toward "grants, rebates, contracts, loans, and other activities of the Environmental Protection Agency authorized under subsections (a) through (c) of section 103[11] for methane emissions monitoring."[12] Section 136(a)(3)(E), in turn, allows EPA to use funds to mitigate the health effects of methane and other greenhouse gasses, as well as legacy air pollution,[13] from oil and natural gas systems in low-income and disadvantaged communities. Using these authorities, and in keeping with the

[11] Section 103 (a)-(c) requires EPA to establish a national research and development program for air pollution control in coordination with air pollution control agencies, and other public or private agencies, institutions, and organizations. The section gives EPA authority, amongst others, to provide grants and other technical and financial assistance for researching and investigating the causes and effects of the prevention and control of air pollution. Clean Air Act § 103 (a)-(c), 42 U.S.C. §7403 (a)-(c). This authority, in conjunction with those outlined in CAA section 136, allow EPA to grant funds to a range of projects that investigate the causes and effects of methane and legacy air pollution in low-income and disadvantaged communities.

[12] 42 U.S.C. § 7436.

[13] In this context, we consider legacy air pollution to mean non-methane pollution from the oil and gas sector, like VOCs, HAPs, and other emissions coming from oil and gas operations. An exercise in statutory construction supports this interpretation. Section 136(a)(3) of the Clean Air Act provides funding "to reduce methane and other greenhouse gas emissions from petroleum and natural gas systems [and] mitigate legacy air pollution from petroleum and natural gas systems." Because the statute distinguishes between methane and legacy air pollution at oil and gas sites, legacy air pollution from oil and gas sites must mean non-methane emissions at oil and gas facilities. *See Wachovia Bank v. Schmidt*, 388 F.3d 414 (4th Cir. 2004) ("It is a principle of statutory interpretation that different words used in the same statue should be assigned different meanings whenever possible.)

principles outlined above, EPA should create grant programs that enable low-income and disadvantaged communities to monitor for methane emissions and other air pollution coming from oil and gas operations and in a manner that ensures data produced by these efforts is actionable.

Community participation in monitoring efforts is important for many reasons, including in creating actionable data that can be used to reduce emissions and inform protective measures in communities most affected by oil and gas pollution, helping empower communities, and increasing community trust in and access to data. Presenting data through local channels is likely to increase participation in programs and also facilitates easier access for communities. Localizing monitoring efforts may also help increase trust in the results and process.

EPA has long empowered citizens and communities to conduct air quality monitoring. The American Rescue Plan's (ARP) community air monitoring grant program has provided over $50 million for community monitoring of pollutants that are of the greatest concern in populations with health disparities, monitoring to provide real-time reporting of air quality concentrations, and monitoring to support short-term air quality information.[14] EPA's Community-Scale Air Toxics Ambient Monitoring grants support a variety of community monitoring projects, including characterizing the impacts of air toxics in a community and assessing emissions from specific sources.[15] Further, the Air Sensor Toolbox seeks to "put new ways to measure air quality into the hands of the public" by dispersing highly portable air quality sensors that fall outside of traditional regulatory monitoring.[16] This program provides grants for the purposes of, amongst others, research, supplementing existing monitoring, and source identification.[17] One project, Village Green, provides real-time data to be used in projects by citizen scientists, students, researchers, and community organizations.[18] Inter-agency efforts like the Community & Citizen Science Air Projects[19] have also empowered community air monitoring.

Using previous air pollution grant programs as blueprints, EPA should use MERP funding to support at least two monitoring programs.

First, EPA should create a grant program to equip communities with the assistance needed to participate in and benefit from EPA's proposed section 111 super-emitter response program (SERP), which allows certified third parties who have detected emissions events of 100 kg/hr or more to submit that data to EPA and operators. Through this initiative, EPA's funds could provide communities the resources needed to participate in SERP. Using these funds, community

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[14] *EPA Announces an Additional $50 Million Under the American Rescue Olan to Enhance Air Pollution Monitoring*, EPA (Jul. 7, 2021), https://www.epa.gov/newsreleases/epa-announces-additional-50-million-under-american-rescue-plan-enhance-air-pollution.

[15] *Community-Scale Air Toxics Ambient Monitoring (CSATAM)*, EPA (Sept. 28, 202), https://www.epa.gov/amtic/community-scale-air-toxics-ambient-monitoring-csatam.

[16] *Air Sensor Toolbox for Citizen Scientists, Researchers, and Developers*, EPA, https://19january2017snapshot.epa.gov/air-sensor-toolbox_.html (last visited Jan. 18, 2023).

[17] *Air Sensor Toolbox*, EPA, https://19january2017snapshot.epa.gov/air-sensor-toolbox/how-use-air-sensors-air-sensor-guidebook_.html#pane-1 (last visited Jan. 18, 2023).

[18] *Community Air Monitoring Where You Live in EPA Region 6*, EPA, https://19january2017snapshot.epa.gov/air-sensor-toolbox/community-air-monitoring-where-you-live-epa-region-6_.html (last visited Jan. 18, 2023).

[19] EPA, *Participatory Science Air Projects*, https://www.epa.gov/participatory-science/participatory-science-air-projects (Nov. 29, 2022).

groups could partner with a certified SERP monitoring party (either on their own or with EPA's assistance) to conduct a community-focused monitoring project. In that case, EPA's funds would cover the cost of hiring the monitoring company and other costs associated with the project and partnership. EPA funds could also be used to aid community groups in attaining the required expertise and equipment to become certified third-party monitors under SERP.

If adequately structured, communities could benefit directly in many ways from this program. As proposed, SERP would require operators to take corrective action in response to emissions events meeting specified criteria that have been detected by a certified third party. By providing communities with resources to engage in SERP either directly or by contracting with certified parties through a grant program, EPA will ensure that the communities most impacted by oil and gas development benefit from SERP's pollution reductions. Such a grant program could also help communities: (1) stay apprised of super-emitter events occurring nearby, allowing them to take appropriate action to protect themselves from associated air pollution; (2) understand long-term super-emitter trends in the area to better inform local policy; (3) stay updated on advancements in methane technologies and regulations; and (4) center community perspectives in implementation of the program. Example projects include the certified partner creating a system informing communities of when super-emitter events are occuring (depending on the information available), or providing a series of data collection presentations briefing the community about the certified party's findings and potential follow-up action by EPA. In EPA's proposed oil and gas section 111 standards, EPA should consider structuring SERP in a way that makes these benefits possible. For example, EPA should allow for communities to be notified of emissions events identified through SERP at the earliest point possible, ideally before corrective action is taken by an operator.

Second, to enable even broader community monitoring, and to encourage more direct participation from communities, EPA should create a grant program for community projects detecting methane and legacy air pollution near oil and gas sites using technologies that may not qualify for the section 111 super-emitter response program, prioritizing applicants in close proximity to significant oil and gas development and areas experiencing the cumulative impacts of multiple other sources of air pollution. Through this program, EPA would award grants to community groups, state and community partnerships, or nonprofit and community partnerships that have proposed a project to conduct methane and/or legacy air pollution monitoring, provide support in implementation of the project, and publish grant project data and updates on EPA's website.

It is vital that EPA help to ensure community-supported monitoring efforts produce actionable data. Through this grant program, EPA has an opportunity to facilitate those efforts and create guidelines about how community monitoring data can be used in a meaningful manner. As part of these guidelines, EPA can establish the follow-up actions it will take when there are spikes in emissions detected on community monitoring systems or strong evidence of an emissions violation and can specify what other beneficial uses for the data it may develop.

This program should allow common technologies currently used by communities to qualify, such as handheld monitoring devices that detect emissions events but do not provide quantitative measurements of those events. The program should have a low barrier to entry and not need to be

carried out by experienced air monitoring groups with extensive technical capacity. EPA should ensure that funds are deployed equitably to communities that most need assistance, not just to those that already have the knowledge, expertise, and capacity to manage monitoring projects. EPA should also ensure that the kinds of monitoring technologies supported through this program include those that can address community concerns related to both short-term and long-term impacts of a variety of air pollutants. Data regarding short-term exposures that could cause acute health responses are regularly either not collected or not presented by air quality monitoring networks.[20] Further, EPA should provide sufficient funding, and if necessary, direct technical expertise and support, to ensure that program participants are able to swiftly share relevant data publicly and in an accessible, actionable manner.

EPA should ensure transparency throughout implementation of the program. Monitoring data generated through grant projects should be presented on EPA's website in an accessible way and should highlight key takeaways from the data, like how emissions detected by the project have changed over time.

Through the program, EPA should pursue the following goals:

- Provide clear guidelines about the application process. As noted in the guiding principles section, the process for applying for air monitoring grants should be made as easy as possible.
- Help applicants establish a specific purpose for the data they collect, which may include informing local policy, educating local residents about the specific health risks they face, creating dialogue with EPA, assisting in the research and development of emerging technologies, creating educational materials, or assessing where more precise EPA equipment might be helpful. EPA should also help groups develop projects in a way that will be useful to them, EPA, and the broader public in light of the particular goals they have selected.
- Provide technical assistance in using technologies, and in some cases, directly provide those technologies.
- Create regular coordination channels to develop relationships with communities, encourage dialogue about the program, answer questions as projects develop, and help the community use the data for its intended purpose.
- Publish results from the grant projects on EPA's MERP website in an easy-to-use format.
- Deploy more precise equipment when community monitoring data shows emissions spikes, several instances of potentially impermissible emissions events, or other evidence of potential violations.

Some example projects include:

- EPA creating a high-tech monitoring loaner program for communities living near oil and gas development to monitor methane and associated air pollution.
- EPA working with communities to use lower-cost monitoring (e.g., VOC monitors) as a screening tool to prioritize deployment of more precise monitors.

[20] *See* Environmental Health Project, *Why do spikes or peaks in emissions matter?* (Mar. 20, 2020), https://www.environmentalhealthproject.org/post/why-do-spikes-or-peaks-in-emissions-matter.

- EPA and a community group jointly investigating sudden spikes in emissions on local air monitors and deploying more precise equipment to understand trends.
- A community group and EPA studying the impact of weather on air pollution in the area, with actionable recommendations to ameliorate health effects.

EPA should also consider how data collected under this grant program may qualify community groups to participate in the SERP grant program discussed above. For example, repeated detections from sites thought to be out of compliance, or detections reaching high thresholds, may warrant discussion about whether to include a community group in the SERP grant program. EPA should provide a channel for community groups participating in this program to discuss with EPA detections they find particularly concerning and the possibility of participation in SERP.

b. Protecting Community Health and Environments

As Congress recognized in passing MERP, low-income and disadvantaged communities have borne the brunt of the negative health and environmental consequences associated with oil and gas development for decades. MERP thus creates a pathway for EPA to provide the communities most harmed by oil and gas development relief from the industry's harmful impacts. Section 136(a)(3)(D) provides funding to mitigate the health effects of methane and other greenhouse emissions, as well as legacy air pollution from oil and gas systems in low-income and disadvantaged communities.

EPA has an obligation under the Clean Air Act to protect these communities by developing and enforcing comprehensive protections that control methane, VOCs, and other harmful emissions. However, EPA should also prioritize using federal funding to deliver immediate health benefits. There are a few ways the agency can use MERP funds to that end:

Create a system to alert communities about planned and emergency emissions events

EPA's proposed methane regulations for the oil and gas sector contain programs and reporting requirements for various standards that give EPA insight into planned and emergency emissions events. For example, EPA's proposed flaring standards require operators to submit annual reports informing EPA of whether it can capture gas or whether it will need to flare.[21] Operators will need to show whether they need to flare routinely, or for temporary reasons, and will need to document the periods when disruptions or interruptions occur.[22] If strengthened, these reporting requirements could also require operators to notify EPA of exactly when temporary flaring for certain maintenance activities and emergency flaring occurs. Additionally, EPA's super-emitter response program will inform EPA and the public of large, unexpected emissions events. Further, EPA's pneumatic pump and liquids unloading standards include feasibility exemptions

[21] Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 87 Fed. Reg. at 74781.
[22] *Id*.

that EPA would need to approve and that would result in significant emissions.[23] This type of information, especially information concerning planned emissions events, would be invaluable to people in communities seeking to protect their health. EPA should, therefore, publish the reporting information it receives and the exemptions it approves under these standards on an easily accessible website to alert communities when the agency either pre-approves a deviation or exemption from a section 111 standard or becomes aware of an emergency emissions event.[24]

Invest in pollution mitigation

EPA should invest in pollution mitigation, including new technology pilot projects like methane and VOC filtration, and should prioritize investment in disproportionately burdened communities. EPA could also provide funds for increasing insulation and HVAC systems in homes, businesses, and public spaces in communities most impacted by the oil and gas sector.

Consider the broader impacts of legacy air pollution

When addressing the problem of legacy air pollution from oil and gas infrastructure, EPA should account for the compounding effects of pollution on communities continually impacted by industrial processes over decades. Oil and gas operations can be located in communities that have long suffered from other forms of air pollution, resulting in long-term, cumulative, and systemic impacts[25] that extend beyond the immediate air pollution coming from current oil and gas operations. EPA should consider using funds to address these effects, like prioritizing communities suffering from decades-long pollution for MERP funding across programs, enhancing enforcement efforts in these areas, and working to reverse the unique losses a community has suffered as a result of continuous pollution.

c. GHGRP Updates

MERP directs EPA to revise the GHGRP provisions that apply to the oil and gas sector to ensure that reporting is based on empirical emissions data and leads to accurate total estimates. MERP also provides funding for EPA to undertake the required revisions, including by gathering

[23] EPA's proposed pneumatic pump standards include exemptions based on technical infeasibility. Sites without electricity can use a natural gas driven controller if it routes to a process and demonstrates infeasibility of the standard. 87 Fed. Reg at 74770. Further, upon a showing that routing to a process is infeasible, sites without electricity must route to a control device that achieves 95% reductions. *Id*. And, under EPA's liquids unloading proposed standards, operators are exempt from the zero-emission requirement if it is not feasible for safety or technical reasons. 87 Fed. Reg. at 74782.

[24] EPA may decide that SERP should separately include an automatic notification system that alerts residents about reported super-emitter events in their vicinity. Whether or not SERP has its own notification system, we think that EPA should use information from SERP and reports it receives under the section 111 standards to notify communities of planned and emergency emissions events occurring nearby.

[25] See EPA, *Cumulative Impacts Research: Recommendations for EPA's Office of Research and Development* 6, 12-13 (2022), https://www.epa.gov/system/files/documents/2022-09/Cumulative%20Impacts%20Research%20Final%20Report_FINAL-EPA%20600-R-22-014a.pdf (discussing historic and systemic air pollution and health impacts in disadvantaged communities due to development and stating that "[t]here is substantial empirical evidence that elucidates how pollution, climate, and other environmental stressors, socioeconomic disadvantage, lack of environmental assets, and health vulnerability tend to be clustered spatially in patterns which are described as recurrent, persistent, and systematic in nature.").

empirical data, preparing inventories, and tracking emissions.[26] EPA should ensure sufficient funds authorized under section 136(a)(4) are reserved to make required updates to the GHGRP. As outlined in Question 8, EPA must revise subpart W to ensure it reflects empirical data and accurate emissions from facilities. Doing so will require EPA to collect measurement data, hire and retain the appropriate staff, and conduct data analysis, among other things. EPA must ensure enough money is allocated for these activities, which are central to effectuating the waste charge program and fulfilling the intent of MERP.

d. Deploying Advanced Monitoring Technologies

EPA should also use its authority under section 136(a)(2) (methane emissions monitoring) and section 136(a)(3)(B) (deploying industrial equipment and processes that reduce methane waste) to enhance its own monitoring efforts, including those for compliance assurance and enforcement. Specifically, EPA should use funds to conduct regular overflights in major production basins, take appropriate follow up and enforcement action based on the results, and ensure there is adequate personnel for these efforts. EPA should also find ways to use data from the community monitoring grant programs discussed above to inform these efforts. For example, where EPA receives evidence from a third party of a violation of applicable standards, it could deploy its own, more precise monitoring equipment to the area. EPA's proposed section 111 regulations for this sector will not be maximally effective and achieve the reductions anticipated unless EPA improves and fortifies its enforcement efforts, which it can do with funds allocated through MERP.[27]

e. Plugging abandoned, orphaned, and improperly closed wells and restoring abandoned and orphaned oil and gas sites for community use

Abandoned, orphaned, and improperly closed wells across the U.S. leak toxic air pollutants, contaminate groundwater, and emit methane, posing significant risks to humans and the environment.

EPA should use its authority under section 136(a)(3)(D) to provide states, tribes, local governments and communities funds to permanently shut in and plug wells on non-Federal land. EPA should use this authority first and foremost to assist in plugging orphaned wells (i.e., those without a solvent owner of record), as opposed to abandoned wells that have a solvent owner, and should focus plugging efforts on wells that threaten underground sources of drinking water and/or emit methane and VOCs in large quantities. EPA could also prioritize domestic-use well plugging on properties with owners that would not be able to otherwise afford plugging themselves, as these wells are very likely to become orphaned. EPA should ensure that plugging orphaned wells does not create perverse incentives for operators to abandon unplugged wells.

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[26] *See* Clean Air Act § 136(a)(4), 42 U.S.C. § 7436(a)(4).

[27] Cynthia Giles, Harvard Env't & Energy Law Program, *Next Generation Compliance: Environmental Regulation for the Modern Era Part 4: Preventing Widespread Violations that Threaten Climate Goals* 43 (2021), http://eelp.law.harvard.edu/wp-content/uploads/Cynthia-Giles-Part-4-FINAL.pdf ("[R]egulating methane and flaring from oil and gas production presents the classic situation in which compliance is likely to be bad.").

EPA should also use its authority under section 136(a)(3)(D) and 136(a)(3)(F) to provide states, tribes, local governments, and communities with funds to remediate and plug sites for the benefit of the community. EPA should work with communities and local governments to understand the best use for these remedial funds, as remediation will be site-dependent. Among other things, restoration projects may include water remediation, especially where impoundments were located, or replacing the site with a park or community building.

B. Question 2: How can EPA ensure that the financial and technical assistance provided under the Methane Emissions and Waste Reduction Incentive Program complements rather than duplicates other federal and state programs, including funding through other IRA programs?

1. Community Monitoring

If EPA creates community monitoring grant programs, there are several ways it can ensure that they work hand-in-hand with other IRA provisions and existing initiatives.

First, section 60105 of the IRA, separate from MERP, allocates funds for uses that are relevant to MERP and could be deployed in coordination with that program. Section 60105 provides, in relevant part, $20 million for grants and other activities authorized under subsections (a) through (c) of section 103 and section 105 of the Clean Air Act for monitoring methane emissions.

Section 60105 also includes funding to deploy fenceline air monitoring and community monitoring, but those provisions do not earmark funds specifically for methane. Recognizing that those funds apply to pollution generally and that MERP has been allocated $1.5 billion, we acknowledge EPA may want to first consider other uses of those generalized funds before determining whether to devote any additional IRA funds to methane monitoring programs for the oil and gas industry.

The $20 million for methane emissions monitoring should go toward advancing EPA's own monitoring efforts as outlined in response to Question 1, including the agency's efforts to mitigate methane outside of the oil and gas sector. While communities will benefit directly when they participate in the monitoring of both methane and legacy air pollution, from a health standpoint, they are more immediately affected by legacy air pollution. As a result, funds exclusively earmarked for methane under section 60105 will be less helpful for communities than dollars that are not so restricted and should go toward advanced methane monitoring by EPA (including for compliance assurance and enforcement). Funds that *do* allow for the monitoring of a broader range of pollutants, on the other hand, should go primarily toward local government and community programs, whether through MERP or other programs.

Outside of the IRA, EPA has created air pollution monitoring programs as authorized by the American Rescue Plan and IIJA. The programs created under MERP are distinct enough in that they regulate methane and associated air pollution, not necessarily pollutants covered by the previous programs, so EPA will want to design separate grant application processes. However, EPA should use already existing *structures* under current grant programs to create the methane

and legacy air pollution monitoring initiatives, even while the MERP-driven programs will be different in substance from the existing programs. For instance, this could mean using the same grant application page and the same personnel in order to streamline resources, building upon already-existing expertise, and simplifying the grant application process.

2. EPA Monitoring and Enforcement

As discussed above, EPA should use some of MERP's funds to enhance its own monitoring efforts, including compliance assurance and enforcement. To complement already-existing efforts, EPA should acquire and/or deploy more advanced monitoring technologies (like flyovers).

3. Plugging Orphan Wells

MERP allows EPA to use funds to "permanently shut[] in and plug[] wells on non-Federal land" and provides EPA flexibility in developing and implementing the program. The IIJA requires the U.S. Department of the Interior (DOI) to establish a program to plug wells on federal land and sets clear parameters. We recommend the following to ensure the DOI and EPA programs complement each other and to streamline efforts:

- EPA should use aspects of the IIJA plugging framework as a model for its plugging program, prioritizing wells based on public health and safety and identifying and addressing any disproportionate burdens affecting communities of color, low-income communities, and Tribal and indigenous communities, while also prioritizing projects that plug wells and thus reduce emissions;
- In disbursing funds for well-plugging, EPA should coordinate with DOI to ensure the IRA funds are used to plug orphaned wells that are not covered under grants issued by DOI under section 40601 of the IIJA.[28]
- EPA should coordinate with states and tribes where target wells are located, and with DOI as appropriate, to ensure a collaborative and efficient approach to government-sponsored well closure and to ensure lessons learned from the IIJA well closure program are incorporated.

C. Question 3: The Methane Emissions and Waste Reduction Incentive Program can provide technical assistance to owners and operators of facilities. What kinds of technical assistance would be most valuable? How might technical assistance evolve over time?

Section 136(a)(1) authorizes EPA to use appropriated funds to provide "technical assistance to owners and operators of applicable facilities to prepare and submit greenhouse gas reports under subpart W[.]" We urge EPA to provide technical assistance to subpart W reporters in the form of trainings, guidance, and best practices with the goal of ensuring reporting is done in an accurate and rigorous way. As described below in our responses to questions 7 and 8, accurate reporting

[28] The Bipartisan Infrastructure Law creates different grants for states to address orphaned wells, including but not limited to identifying and plugging, remediating, and reclaiming such wells. *See* Infrastructure Investment and Jobs Act, Pub. L. 117-58, § 40601(c)(2), 42 U.S.C. § 15907(c)(2).

under subpart W is critical for ensuring the effectiveness of the WEC and fulfilling the intent and goals of MERP. Recently, major discrepancies in subpart W have been uncovered,[29] and, absent technical assistance, such problems may become even more prevalent in light of the updated reporting requirements that EPA is directed to adopt. As incentives to under-report increase at the same time as changes in the reporting structure are developed, it will be increasingly important for EPA to provide clear instructions and guidance for accurate reporting. Doing so will also help EPA take appropriate action when misreporting occurs and minimizes the potential for credible confusion on the part of operators.

As EPA updates subpart W in accordance with MERP's statutory directive, it will be important to provide technical assistance in the form of trainings and guidance that clearly explain new and existing reporting requirements. In particular, any measurement-based reporting framework will require significant guidance and oversight to ensure reporters are conducting measurements and operating technologies according to EPA's requirements. While some operators have extensive experience with these technologies, others may not, and technology trainings will therefore be important going forward to ensure the accuracy and rigor of measurements.

D. Question 4: The Methane Emissions and Waste Reduction Incentive Program has funding that is allocated for marginal conventional wells. For the purposes of financial and technical assistance specified in the IRA, are there unique considerations related to marginal conventional wells that EPA should consider? How can EPA ensure that relevant stakeholders are engaged, including owners and operators of marginal conventional wells and those affected by marginal wells and their emissions?

First and foremost, EPA should distribute funds in ways that maximize the emission reductions and environmental justice benefits to be gained by the law and follow the four principles described in Question 1 above. One unique aspect of conventional wells is that many, though not all, are older wells and thus at risk of abandonment or being orphaned. EPA should prioritize utilizing these funds allocated for marginal conventional wells to plug those that are orphaned. Orphaned wells present particular challenges and outsized harmful emissions due to their lack of ownership.[30] To the extent EPA chooses to allocate funds for marginal conventional wells with documented owners and operators, we encourage EPA to do so in a manner consistent with the following considerations to ensure the funds are utilized to the greatest possible benefit.

1. Prioritizing funding for small owners/operators.

The Program's focus on curbing methane emissions from marginal conventional wells is well placed. However, it is critical that EPA not conflate marginal conventional wells with small operators. Only 4% of marginal well sites are operated by companies with fewer than 10 operating sites, and over half of all marginal wells are owned by very large companies (owning

[29] *See, e.g.*, Zachary Minder, *Methane 'Loophole' Shows Risk of Gaming New US Climate Bill*, Bloomberg (Aug. 10, 2022), https://www.bloomberg.com/news/articles/2022-08-10/methane-loophole-shows-risk-of-gaming-new-us-climate-bill (discussing reporters misinterpreting "in service" when reporting under subpart W to under-report pneumatic controller emissions).

[30] *Plugging Orphan Wells Across the United States*, Env't Defense Fund, https://www.edf.org/orphanwellmap (last visited Jan. 18, 2023).

over 100 operating sites).[31] Given that most marginal conventional wells are owned by companies that generate hundreds of millions in revenue each year[32] and are equipped with the necessary resources to mitigate emissions, EPA should be particularly mindful of the mechanisms used to distribute funds and follow the deliberative process described in Sec. 1.c to the response to Question 1 above to prevent windfall profits.

Additionally, EPA should prioritize funding opportunities that focus on leak prevention assessments and accurate empirical emissions measurement. Conducting leak prevention assessments can allow operators to optimize their leak detection and repair (LDAR) programs beyond what is required through current EPA regulations by identifying and remedying system weaknesses that might not otherwise be detected. Providing funding for empirical emission measurement will not only ensure that operators' reported emissions are accurate, the data and feedback from such efforts will aid EPA in revising the GHGRP to require empirical data as mandated by the IRA.

2. Incentivize plugging of marginal conventional wells.

Marginal conventional wells produce very little marketable oil and gas (6% of national production) while contributing heavily to methane emissions through leakage (50% of total production site methane emissions).[33] Most of these wells are declining and will ultimately need to be plugged, and their emissions significantly harm air quality and contribute to climate change. Even with equipment upgrades to mitigate emissions, marginal conventional wells will still contribute very little usable energy production, and many of the equipment upgrades that are necessary to reduce emissions may not be economically justifiable to the operator. Because of these wells' limited economic viability and their marginal production, many will likely need to be plugged in the coming years.

Plugging wells can be a relatively costly endeavor, and owners of marginal conventional wells will often put off plugging wells for decades, with many becoming insolvent prior to plugging.[34] If operators are presented with an option that makes extending the life of a well profitable enough to justify deferring the cost of plugging, they will likely take it. Thus, EPA must not permit this funding to subsidize equipment improvements for marginal conventional wells operated by companies with a large profit margin, which will incentivize companies to extend the operating period of their marginal conventional wells where they might have otherwise opted

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[31] *By the Numbers: Marginal Oil and Gas Wells*, Env't Defense Fund, https://blogs.edf.org/energyexchange/files/2021/11/MarginalWellFactsheet2021v2.pdf (last visited Jan. 18, 2023).
[32] Env't Defense Fund, et al., Comment Letter on Proposed Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review 103 (Jan. 31, 2022), https://blogs.edf.org/energyexchange/files/2022/02/Joint-Environmental-Comments-on-Proposed-OOOOb-and-OOOOc.pdf?_gl=1*gpymba*_ga*MjE0NjU4OTg1MC4xNjEzNDkxMDMz*_ga_2B3856Y9QW*MTY3MzQ4NjU1Ny4zMzQuMC4xNjczNDg2NTYwLjU3LjAuMA..*_ga_Q5CTTQBJD8*MTY3MzQ4NjU1OC4zMzguMC4xNjczNDg2NTYwLjU4LjAuMA.
[33] Mark Omara, et al., *Methane emissions from US low production oil and natural gas well sites*, 13 Nature Commc'n 2085 (2022), https://www.nature.com/articles/s41467-022-29709-3.
[34] Zachary R. Mider and Rachel Adams-Heard, *An Empire of Dying Wells*, Bloomberg (Oct. 12, 2021), https://www.bloomberg.com/features/diversified-energy-natural-gas-wells-methane-leaks-2021/.

to plug them expeditiously. Instead, EPA should prioritize using the allocated funds for "permanently shutting in and plugging wells."[35]

E. Question 5: What should EPA consider in the design of the program to encourage grantees to support high quality jobs and adhere to best practices for labor standards, consistent with guidance such as Executive Order 14063 on the Use of Project Labor Agreements and the Department of Labor's Good Jobs Principles?

This issue is discussed thoroughly by partner organizations in separate comments.

F. Question 6: What metrics should this program use for measuring success and ensuring accountability?

EPA should use multiple metrics to ensure its funding decisions track the purposes of the IRA and MERP to both reduce methane emissions and protect public health, particularly for communities that are most heavily impacted by oil and gas infrastructure and pollution. The agency should measure the success of its MERP programs by comparing its funding decisions against the guiding principles and priorities discussed in response to Question 1 above. Accordingly, the largest share of funding should go to community groups and tribes in the form of grants for emissions monitoring and public health programs, then deploying monitoring technologies, then funds to update the GHGRP, and so forth, with the smallest share of funds used for operator assistance in the form of loans. EPA should track and publicize the percentages allocated to each category.

Also in line with the principles and priorities discussed above, EPA should measure the success of the MERP funding program against compliance with its and the Biden Administration's environmental justice goals. As the White House explained in the IRA Guidebook, IRA and MERP advance the Administration's Justice40 Initiative, so EPA should aim to distribute at least 40% of its MERP funds in a way that directs overall benefits of climate, clean energy, infrastructure, and other investments to low-income communities and communities of color. Similarly, consistent with its Equity Action Plan, EPA should ensure that its funding decisions satisfy the agency's long-term program goals set forth in its Fiscal Year 2022-2026 Strategic Plan to increase the percentage of grants awarded to community-based organizations in order to build capacity and effectively advocate for governments to respond to community concerns.[36]

EPA should also measure the success of its MERP funding program by quantifying the methane and other emission reductions likely to be gained or attributable to certain spending decisions. For instance, EPA should track and measure the likely emission reductions to be achieved through funding used for additional monitoring efforts, from deploying zero-emitting technologies, and from well-plugging programs. The IRA Guidebook states that the Department of Energy estimates that the IRA, along with other climate-related laws like the Infrastructure Law, will achieve a 40% reduction in economywide greenhouse gas emissions from 2005 levels

[35] Clean Air Act § 136(a)(3)(D), 42 U.S.C. §7436(a)(3)(D).
[36] U.S. EPA, *FY 2022-2026 EPA Strategic Plan* (Mar. 2022), https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf.

by 2030. EPA can then compare these and other emission reduction projections against the agency's and the Biden Administration's climate goals, like the Administration's goal to reduce greenhouse gas emissions by 50% by 2030 and to achieve net zero emissions by 2050.

Finally, like the information on EPA's funding decisions and distribution discussed in response to Question 1, EPA should also make publicly available the metrics it uses to measure success and its assessment of whether it is hitting those metrics. By doing so, EPA can ensure that impacted communities and members of the public are able to hold both the agency and funding awardees accountable.

II. Waste Emissions Charge

A. Question 7: The IRA establishes a waste emissions charge for methane from applicable facilities that report more than 25,000 metric tons of CO_2 equivalent per year to the Greenhouse Gas Reporting Program (GHGRP) petroleum and natural gas systems source category (GHGRP Subpart W) and that exceed statutorily specified waste emissions thresholds. The IRA specifies certain exemptions and flexibilities related to the charge. What issues should EPA consider related to waste emissions charge implementation?

We urge EPA to implement the waste emissions charge (WEC) in a protective way that maximizes emission reductions, consistent with congressional intent. To do this, EPA must act with urgency, develop proper enforcement and oversight mechanisms, and ensure the statutory exemptions are properly implemented. Below we discuss each of these considerations, and also describe the results of an analysis we conducted looking at the WEC's potential monetary impacts.

1. Timing

Congress explicitly states that EPA must impose the WEC "beginning with respect to emissions reported for calendar year 2024." To comply with the statutorily mandated timeline, EPA needs to consider what must be in place prior to the 2024 calendar year to ensure effective and efficient reporting because the WEC relies on data generated through the GHGRP. We are encouraged to see in the most recent Unified Agenda that the Agency is planning on issuing a proposal for the MERP-required subpart W revision.[37] However, EPA will also have to quickly adopt measures to ensure that the WEC calculation and collection is properly and effectively implemented.

Congress was clear that "the Administrator shall impose" the charge, which requires EPA to calculate whether any given applicable facility has exceeded the waste emissions threshold for the applicable segment. When this has occurred, EPA must assess the charge based on the emissions exceeding the intensity threshold and collect such charge from the owner or operator

[37] Office of Information and Regulatory Affairs, Fall 2022 Unified Agenda of Regulatory and Deregulatory Actions, RIN**:** 2060-AV83, Methane Emissions and Waste Reduction Incentive Program and Revisions to the Mandatory Greenhouse Gas Reporting Rule for Petroleum and Natural Gas Systems, https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202210&RIN=2060-AV83 (last visited Jan. 18, 2023).

of the applicable facility. Based on Congress's explicit grant of authority to EPA, the agency should solicit specific feedback on the WEC calculation and collection mechanisms from all relevant stakeholders. As described below in the response to Question 8, EPA must also revise the subpart W reporting requirements to make the reporting methodologies less vulnerable to under-reporting, including by finalizing certain improvements to subpart W that EPA proposed in June 2022.

However, the implementing and enforcing the WEC is a separate mandate that EPA must move forward with quickly to ensure it is adequately prepared to assess the WEC in 2024. EPA should propose implementing measures early in 2023, making clear that the WEC mandate exists separately from the process EPA undertakes to comply with section 136(h). As part of that process, EPA should solicit input from all stakeholders. EPA should then take final action to implement WEC by the end of 2023 that includes explanation of how the WEC will interact with subpart W.

2. Enforcement and Compliance

The effectiveness of the WEC depends on both an accurate and transparent emissions reporting system and on the enforcement provisions that support that system. For the WEC to be fully effective, it is imperative that EPA take immediate steps to ensure that subpart W methodologies are consistently and appropriately used for all applicable facilities, including those onshore and offshore. EPA should also consider what types of under-reporting can occur and how to prevent under-reporting. We offer suggestions on how to consider these issues below.

As discussed below in response to Question 8, our organizations strongly support EPA's intention to expeditiously fulfill its mandate to revise the subpart W to ensure that reported emissions are "accurate," based on "empirical data," and "accurately reflect[s] the total methane emissions" from reporting facilities. We urge EPA to design a process that will ensure that measures required to ensure effective implementation of WEC, including adjustments to the current GHGRP rules to improve compliance assurance and enforceability (described below), are in place before January 1, 2024, even if all of the revisions required by section 136(h) are not finalized at that time.

As a general matter, EPA should involve its Office of Enforcement and Compliance Assurance (OECA) in the development of the WEC implementation actions. EPA should evaluate current GHGRP reporting to identify potential areas of under-reporting under the program. For example, EPA should examine past instances of misreporting and instances in which it has been required to follow up and clarify with subpart W reporters. Examples of how operators have under-reported under the current GHGRP framework include:

- Operators have under-reported hours of operation for equipment. One example: A number of operators reported that intermittent pneumatic controllers only "operated" for a small portion of the year (~100 hours) while the other equipment at the facility was reported to be operating for close to the full year.[38].

[38] *See* 87 Fed. Reg. 36964; *see, e.g.*, Minder, *supra* note 29 (discussing reporters misinterpreting "in service" when reporting under subpart W to under-report pneumatic controller emissions).

- Some operators have reported very low methane emissions from associated gas flaring, including cases where the low emissions are clearly not plausible.[39]

EPA's design of WEC should address patterns of under-reporting. We note that the changes to Subpart W that EPA proposed on June 21, 2022, would, to some degree, facilitate compliance assurance by minimizing some opportunities for under-reporting. For example, in response to the issue of under-reporting hours of operation, the proposal would clarify it is inappropriate to report an estimate of the number of hours that an intermittent controller is *actuating* as an estimate of hours of *operation*.[40] Further, EPA proposed to require operators to routinely report many new parameters making it clearer if an operator uses an inappropriate assumption that results in low emissions estimates. It is important that EPA expeditiously finalize these proposed changes to GHGRP (although we note that, as described in various groups' comments on that proposal, changes such as those in the proposal will certainly not satisfy EPA's duty to revise GHGRP under CAA Section 136(h), and we also note that a few of the proposed changes would be counter-productive). However, given the importance of accurate reporting with the WEC in place, EPA must go further to prevent operators from manipulating inputs to under-report emissions and illegitimately reduce their WEC liability. We offer the following as issues EPA should consider:

- EPA should carefully examine the Subpart W reporting methodology (as proposed in the June 21, 2022 proposal) and identify key parameters, such as hours of operation and flare combustion efficiency, that can be subject to potential under-reporting. For example, EPA should require justifying documentation to be submitted, as part of the GHGRP submission process, for any report using a flare combustion efficiency greater than 95%.[41]

- EPA must also update its processes and options for handling GHGRP reports when EPA judges that operators have submitted incorrect data. EPA should establish processes to ensure that any suspected inconsistencies or errors in operator reports are efficiently addressed so that EPA is able to move quickly to assess accurate WEC totals for operators, absent corrective action by the operator.

- EPA should provide for independent audits of operator-submitted data to ensure that measurement, methodologies, and analyses were all done properly. An independent audit will provide critical transparency and would build trust in the reported numbers. Auditors

[39] See Clean Air Task Force, *Associated Gas Flaring Reports in GHGRP with Implausibly Low Methane Emissions* (included as Attachment B).
[40] 87 Fed. Reg. 36964 (describing proposed 40 C.F.R. § 98.236(b)(2)).
[41] As described in Clean Air Task Force's comments on the June 21, 2022 GHGRP update proposal, 95% is the standard EPA proposes as the Best Available Control Technology for associated gas flares in NSPS OOOOa / EG OOOOc. 95% is also the actual combustion efficiency observed for a large number of operating flares across multiple basins. Clean Air Task Force, Comment Letter on Proposed Revisions and Confidentiality Determinations for Data Elements under the Greenhouse Gas Reporting Rule (Oct. 6, 2022), https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0424-0248 [hereinafter *CATF GHGRP Comments*]; Genevieve Plant et al., *Inefficient and unlit natural gas flares both emit large quantities of methane*, 377 Science 6614 (2022), https://www.science.org/doi/10.1126/science.abq0385.

must be completely unaffiliated with operators and should have relevant technical understanding of how oil and gas operations and emissions monitoring work.

- Concurrent with the WEC implementing process, OECA should also consider what actions it can take now to prepare. For example, OECA should develop notebooks for each segment listed under subpart W that describe the appropriate monitoring and reporting practices and update them throughout the WEC implementation process as EPA gathers information from relevant stakeholders. EPA should also consider whether the WEC and reporting under the GHGRP, including Subpart W, qualifies as a National Enforcement and Compliance Initiative (NECI) for FY 2024-2027.[42]

- EPA must consider what types of misreporting have occurred, including instances of outright fraud,[43] and how to remedy those past failures here. EPA has a long history with misreported air emissions. In implementing the WEC, EPA should consider and learn from past experiences with the National Enforcement Investigations Center (NEIC). The NEIC provides lessons learned from its extensive experience enforcing LDAR requirements. EPA should also require an appropriately senior company representative that must sign to verify the accuracy of the reported information, including the methods performed and emissions reported. We recommend requiring a signature from the CEO or equivalent of the company along with another signature from an independent auditor. Including the entities described above will provide additional and unique insight into methods that may or may not have worked and the reasons behind it.

- EPA should consider the specific areas of expertise non-Federal offices and other agencies within the Federal government have and how to best utilize them. A credible and comprehensive enforcement presence would go a long way toward meaningful implementation of the program. As early as possible, and if it has not done so already, EPA should involve the National Association of Clean Air Agencies, state regulatory agencies, and states' attorneys general to understand any potential obstacles to effective implementation (including enforcement) from their perspective. EPA, through OECA and to the greatest extent possible, should also work with the Department of Justice's Environmental Enforcement Section and air agencies and attorney general offices in key states to review current reporting requirements. OECA should also begin immediately taking all necessary steps to contract for external technical support to audit and review subpart W reports, with a specific focus on trends in the reported methane emissions. Finally, EPA should also immediately begin consulting with the Internal Revenue Service, the Bureau of Safety and Environmental Enforcement, and the Bureau of Land

[42] *See* Public Comment on EPA's National Enforcement and Compliance Initiatives for Fiscal years 2024-2027, 88 Fed. Reg. 2093 (Jan 12, 2023) (soliciting comment on NECI). In a recent policy memo, EPA laid out the criteria that guides its process in selecting which initiatives to designate as a NECI, including "whether federal authority, resources, and/or expertise are important to hold polluters accountable and promote a level playing field" and whether a NECI aligns with EPA's Strategic Plan, including its goals to tackle the climate crisis and to take decisive action to advance environmental justice. *See* Lawrence Starfield, EPA, *Updated Policy for EPA's Enforcement and Compliance Initiatives,* Memorandum (Dec. 20, 2022), https://www.epa.gov/system/files/documents/2022-12/necimemo.pdf.

[43] See Josua Ozymy & Melissa Jarrell Ozymy, *Exploring Charging And Sentencing Patterns In U.S. Clean Air Act Criminal Prosecutions*, 61 Nat. Resources J. 229 (2021), https://digitalrepository.unm.edu/nrj/vol61/iss2/6.

Management to determine whether there are lessons learned from these agencies' past enforcement actions.

3. Analysis of Potential Impact of WEC

We recently conducted an analysis of the WEC's potential monetary impact using 2021 reported subpart W data and the corresponding charge amount by year ($900 in 2024, $1,200 in 2025, and $1,500 in 2026 and beyond). We used reported facility emissions and throughput data by segment to calculate the emissions above the corresponding intensity thresholds that are subject to the WEC, and then applied the charge amount for each year analyzed.[44] In other words, we used the 2021 subpart W emissions data to examine potential impacts of the charge in future years and under different exemption scenarios. However, using retrospective data also has certain limitations. First and foremost, we recognize that, in the future, operators may (and hopefully will) choose to reduce emissions below applicable thresholds instead of paying the charge. Moreover, because subpart W must be updated for accuracy, as described below, absent companies' mitigation actions, we would expect to see greater emissions potentially subject to the charge in the future once those updates are implemented. Our analysis also accounts for the impacts of the regulatory compliance exemption and the netting provision.

The results show that the greatest impacts of the WEC occur in the near-term, prior to when we anticipate the regulatory compliance exemption could become available.[45] Without this exemption, we find that the WEC could be assessed on over 800,000 tons of methane per year, accounting for netting. The analysis also shows that certain companies–those with the highest reported methane intensity using current reporting methods–have the largest share of emissions that would be subject to the charge and accordingly, would have the greatest incentives to reduce their emissions or, if they choose not to, would face the largest charges.[46] If the exemption for regulatory compliance is available, the companies most impacted by the WEC shift to those operating in segments other than upstream production.[47]

Our analysis underscores the importance of EPA quickly implementing and assessing the WEC in the near-term when there is the greatest degree of certainty about the role it can play in reducing emissions. The significant emissions certain companies have that exceed charge thresholds absent mitigation actions also demonstrates the need for EPA to implement and enforce the WEC in a clear and rigorous way that ensures it is accurately and fairly being assessed. And finally, the analysis underscores the importance of revising subpart W to ensure accuracy–the current persistent under-reporting that occurs means that the WEC would not be as effective as intended under MERP.

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[44] The methodology is described fully in Attachment C.
[45] The results are presented fully in Attachment D.
[46] Monetary impacts for the top ten companies could range from $15 to $117 million annually.
[47] Offshore production, for example, is not covered by this potential exemption. Super-emitter events have been observed at offshore facilities, and updates to methane reporting for offshore facilities that increase accuracy may increase the effectiveness of the WEC. Gorchov Negron, et al., *Airborne Assessment of Methane Emissions from Offshore Platforms in the U.S. Gulf of Mexico*, 54 Env't Science & Tech. 5112 (2020), https://doi.org/10.1021/acs.est.0c00179; Ayasse et al 2022, https://doi.org/10.1088/1748-9326/ac8566.

4. Exemptions

In its WEC guidance, EPA should ensure that the exemptions discussed in section 136(f)(5) and (6) are clearly delineated and narrowly tailored.

For example, Section 136(f)(5) provides that a charge on emissions should not be imposed if "such emissions are caused by unreasonable delay, as determined by the Administrator, in environmental permitting of gathering or transmission infrastructure necessary for offtake of increased volume as a result of methane emissions mitigation implementation." First, by its terms, the exemption is *only* available if permitting is a necessary component to mitigate methane emissions and not a separate requirement for other aspects of the operations. For example, if a pipeline is the only possible way to take away associated gas but the permitting process – not completion – has been delayed the Administrator *could* make a determination that such delay was unreasonable.[48] As part of the Administrator's determination, EPA should clearly require the operator to demonstrate why a permit is necessary for methane emissions mitigation implementation, and why other options are unavailable to mitigate such emissions. Operators should not be able to avail themselves of the exemption unless a permit is the only option for methane emissions mitigation. Second, for emissions to be eligible for this exemption, any delay must be "unreasonable," as determined by the Administrator. EPA should clearly set forth a test for determining unreasonable delay in this context. The evaluation of reasonableness should take into account the purpose of the permitting process, including providing public process and ensuring protection of impacted communities, and whether such delay was unexpected.

EPA has requested comment on section 136(f)(6) in its supplemental methane proposal, and our groups plan to submit recommendations on evaluating equivalency with EPA's November 2021 proposal in comments in that docket.

5. Netting

EPA should clearly establish transparent and robust mechanisms for calculating emissions under new section 136(f)(4), which allows for "netting of emissions by reducing the total obligation to account for facility emissions levels that are below the applicable thresholds within and across all applicable segments."[49]

B. Question 8: The IRA requires EPA to revise the requirements of GHGRP Subpart W to ensure that reporting is based on empirical data and accurately reflects total methane emissions. What revisions should EPA consider related to GHGRP Subpart W?

To revise subpart W pursuant to the statutory directive in the IRA, EPA should move toward adopting a site-level reporting and verification framework, which is also informed by other assessments such as basin-wide emissions measurements. To develop a site-level reporting

[48] See e.g., Rystad Energy, Env't Defense Fund, *Cost of Flaring Abatement* (2022), https://blogs.edf.org/energyexchange/files/2022/02/Attachment-W-Rystad-Energy-Report_-Cost-of-Flaring-Abatement.pdf (describing numerous cost-effective methods for abating flaring that do not require the installation of gathering lines).
[49] 42 U.S.C. § 7436(f)(4).

framework EPA should incorporate direct measurement of site-level emissions and a process for continually updating estimates to match observed basin-wide total emissions. Should EPA conclude that widespread site-level measurement cannot be undertaken immediately (i.e., in the calendar year following finalization of the GHGRP update rule), EPA should implement a two-phased approach, with the first phase going into effect immediately. In that case, EPA should utilize other measurements, such as basin-wide measurements or other large-scale assessments, in the near-term.[50] Below, we first explain the kinds of updates that are required by the statutory directive, and then explain in more detail our recommendations.

1. Statutory Directive to Revise Subpart W

Among the Clean Air Act provisions created by MERP is section 136(h), which requires EPA to update subpart W of the Greenhouse Gas Reporting Program (GHGRP) to ensure that reporting is (1) "based on empirical data," (2) "accurately reflect[s] the total methane emissions" from reporting facilities, and (3) allows owners of reporting facilities "to submit empirical emissions data, in a manner to be prescribed by [EPA]."[51] EPA must satisfy each of these three components to meet Congress's directive and fulfill the intent and requirements of the IRA.

The phrases "empirical data" and "accurately reflect the total" are central and must be given effect by EPA when revising subpart W.[52] The inclusion of this language, along with the well-documented shortcomings of existing subpart W protocols, make clear that Congress did not believe that the current equipment- and component-level emission factor reporting methodology was adequate.[53] Methane emission estimates based on emission factors that numerous field studies have shown are not representative of current conditions do not meet the empirical data requirements of the new statutory provision. Further, to "accurately reflect the total methane emissions" from reporting facilities will require reported emissions to closely align with actual observed emissions. This is not currently the case: numerous studies show that EPA's estimates derived through subpart W, and equipment- and component-level emission factor approaches in general, lead to significant underestimates and are therefore not accurate.[54] Emission estimates derived from such approaches provide valuable information to support regulations mitigating emissions, and activities such as projecting future emissions. They are, however, inadequate for accurately estimating total emissions from the applicable facilities since a very large portion of total emissions are from abnormal and intermittent conditions that are not captured through equipment- and component-level reporting.

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[50] *See, e.g.*, Comments submitted by Environmental Defense Fund, RE: Request for Information – Methane Emissions Reduction Program, Question 8, Docket No. EPA-HQ-OAR-2022-0875.

[51] 42 U.S.C. § 7436(h).

[52] The statute does not define "empirical data," so the term takes its ordinary meaning, informed by the statutory context. *Kouichi Taniguchi v. Kan Pac. Saipan, Ltd.*, 566 U.S. 560, 566 (2012). Definition of Empirical, Merriam-Webster Dictionary, https://www.merriam-webster.com/dictionary/empirical (last visited Jan. 18, 2023) ("originating in or based on observation or experience" and "capable of being verified or disproved by observation or experiment"); Definition of Empirical Data, Your Dictionary, https://www.yourdictionary.com/empirical-data (last visited Jan. 18, 2023) ("[E]mpirical data" or "empirical evidence" means data that "relies on practical experience rather than theories" and is "derived from reliable measurement or observation."); Definition of Empirical Data, Collins Dictionary, https://www.collinsdictionary.com/us/dictionary/english/empirical-data (last visited Jan. 18, 2023).

[53] Ramón Alvarez, et al., *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, 361 Science 186 (2018), https://science.sciencemag.org/content/361/6398/186; Jeffrey Rutherford, et al., *Closing the Methane Gap in US Oil and Natural Gas Production Emissions Inventories*, 12 Nature Commc'ns 4715 (2021), https://www.nature.com/articles/s41467-021-25017-4#citeas.

[54] *See generally*, Alvarez, et al, *supra* note 53; Int'l Energy Agency, *Methane Tracker Database*, *supra* note 7.

Congress understood that the under-reporting that occurs through the existing GHGRP approach would make the WEC less effective, which is why it directed EPA to update subpart W in that same section. The current framework EPA uses to account for emissions under subpart W is inadequate in at least one key aspect: it fails to adequately account for emissions from abnormal and intermittent events and thus results in under-reporting of total emissions from sites.[55] By enacting MERP, Congress recognized this inadequacy, which it sought to correct through inclusion of a two-year timeline under section 136(h) to ensure that emissions reporting rapidly moves to a more accurate approach.[56] At the same time, Congress passed the Waste Emissions Charge and based it on the emissions reported under subpart W beginning with calendar year 2024 emissions.[57] For the WEC to be most effectively and accurately implemented, reported emissions should align closely with total observed emissions as soon as possible.[58]

While updates to subpart W, like our proposed changes outlined below are necessary to satisfy the congressional directive, updating equipment- and component-level reporting requirements is also important, and we therefore support EPA in finalizing the proposed updates to those provisions, as discussed above in response to Question 7.[59] However, despite the real need to quickly finalize aspects of the June 21, 2022 proposal, finalization of those proposed narrow updates would not satisfy Congress' directive to ensure the use of accurate and empirical emissions data in reporting. Accordingly, we respectfully urge EPA to build on its existing proposal by issuing an additional proposal to revise subpart W more comprehensively, integrating direct measurement data and the top-down validation methods.[60] Consistent with the two-year timeline and the commencement of the WEC in 2024, EPA should move quickly to finalize the necessary programs updates to implement the WEC and subpart W revisions in accordance with the dates for proposed and final action contained in the Unified Regulatory Agenda.[61] Below, we offer recommendations for steps EPA should take in the near-term and in the longer-term to ensure reporting is accurate and empirically-based.

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[55] *See*, *e.g.*, Amanda Garris, *Industrial Methane Emissions Are Underreported, Study Finds*, Cornell Chron. (June 6, 2019), https://news.cornell.edu/stories/2019/06/industrial-methane-emissions-are-underreported-study-finds; Kristina Marusic, *Oil and Gas Methane Emissions in US Are at Least 15% Higher Than We Thought*, Env't Health News (Apr. 23, 2020), https://www.ehn.org/fracking-methane-leaks-2645817287.html; International Energy Agency, *Methane Emissions From the Energy Sector Are 70% Higher Than Official Figures* (Feb. 23, 2022), https:// www.iea.org/news/methane-emissions-from-the-energy-sector-are-70-high-er-than-official-figures; Steven Mufson, *Oil and Gas Companies Under- reported Methane Leaks, New Study Shows*, Wash. Post (June 8, 2022), https://www.washingtonpost.com/climate-environment/2022/06/08/oilgas-methane-house-science-permian/.

[56] 42 U.S.C. § 7436(h).

[57] 42 U.S.C. § 7436(c)-(g).

[58] *See, e.g.*, Comment Submitted by Kairos Aerospace, at Figure 1 (Sept. 15, 2022), Docket No. EPA-HQ-OAR-2019-0424, https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0424-0176 (showing large discrepancies in anonymized operator methane intensities calculated using GHGRP data versus aerially observed emissions).

[59] *See also*, *CATF GHGRP Comments*, *supra* note 41; Env't Defense Fund, Comment Letter on Proposed Revisions and Confidentiality Determinations under the Greenhouse Gas Reporting Rule (Oct. 9, 2022), https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0424-0241.

[60] In other areas where the recently-passed Inflation Reduction Act has affected an ongoing rulemaking, EPA has proceeded in similar fashion. *See, e.g.*, David Shepardson, *U.S. EPA to consider tougher emissions rules for heavy trucks*, Reuters (Sept. 21, 2022), https://www.reuters.com/business/sustainable-business/exclusive-us-epa-consider-tougher-emissions-rules-heavy-trucks-2022-09-21/ (EPA indicated it would issue a supplemental proposal to consider the impacts of the IRA on its proposed standards for heavy-duty vehicles and noted that "Congress definitely sent a very strong message backed by significant resources.").

[61] *See* Office of Information and Regulatory Affairs, *supra* note 37.

2. Recommended Revisions

In this section, we first explain the urgent need for and importance of comprehensive updates to subpart W to ensure reporting is based on measurement data with top-down verification and reconciliation. We encourage EPA to begin making updates immediately to ensure that updated reporting requirements are completed in time to be utilized for implementation of the WEC and within the two-year timeline Congress has mandated.

a. Top-Down Validation and Site-Level Reporting

To ensure that reporting protocols "accurately reflect the total methane emissions and waste emissions from the applicable facilities," we recommend that EPA adopt a top-down validation and site-level reporting framework when updating subpart W to implement section 136(h). EPA should therefore build from and add to its existing approach in a manner that utilizes two additional types of empirical data:

- Site-Wide Methods: scientifically robust measurements of total emissions from significant numbers of individual sites (typically wellpads or compressor stations), such as those obtained using EPA OTM 33A. Because of the high variability of emissions from individual sites, and the importance of emissions from sources such as malfunctions, it is important that estimates of emissions based on these approaches utilize large numbers of measurements performed on a randomized and strategically rigorous basis. Emissions from individual sites can also be quantified using remote sensing, typically from aircraft though satellite-based quantification is also available. Several commercial firms are providing quantification with this approach right now, though certain emissions thresholds must be exceeded for these services to reliably detect emissions.
- Basin-Wide Methods: emissions estimates based on atmospheric observations at the basin (or sub-basin) level. These include studies based on inversion modeling analyses of methane concentration measurements such as those obtained by satellites or from networks of in-situ monitors (e.g., tower monitoring networks). These approaches necessarily measure emissions from all sites in the study area.

Numerous scientific studies across the oil and gas supply chain have shown that emissions are seldom normally distributed, with a small fraction of sites having a disproportionately large contribution to total emissions.[62] Verifying emissions through the above approaches is therefore necessary to ensure reporting is accurately capturing total emissions from all applicable facilities, as required by the statute. This also means that statistical treatment will need to include sufficient measurement data to accurately account for the characteristics of the "heavy-tailed" emission distribution, meaning that the highest-emitting events are accounted for in default emission estimates. Previous studies have demonstrated how individual site-level measurements can be extrapolated to regional emissions with statistical methods and then reconciled with basin-level top-down data to provide insights into key sources of emissions not previously fully captured in

[62] Adam Brandt, et al., *Methane Leaks from Natural Gas Systems Follow Extreme Distributions*, 50 Env't Science & Tech. 12512 (2016), https://pubs.acs.org/doi/10.1021/acs.est.6b04303; Negron, et al., *supra* note 47; Anthoy Marchese, et al., *Methane Emissions from United States Natural Gas Gathering and Processing*, 49 Env't Science & Tech. 10718 (2015), https://pubs.acs.org/doi/10.1021/acs.est.5b02275; Joseph von Fischer, et al., *Rapid, Vehicle-Based Identification of Location and Magnitude of Urban Natural Gas Pipeline Leaks* 51 Env't Science & Tech 4091 (2017), https://pubs.acs.org/doi/full/10.1021/acs.est.6b06095; Daniel Zavala-Araiza et al., *Super-emitters in Natural Gas Infrastructure Are Caused by Abnormal Process Conditions*, 8 Nat. Commc'ns 14012 (2017), https://www.nature.com/articles/ncomms14012 [hereinafter Zavala-Araiza, et al., *Super-Emiters*].

estimates.[63] While these methods will not provide information on the precise real-time emissions of a particular site, they do accurately characterize the total emissions of a population of sites and so should be the basis for determining total emissions from the applicable facilities under subpart W.

EPA's recently proposed updates to subpart W—which preceded the passage of MERP—would revise certain emission factors based on recent studies and create a new category of reported emissions called large release events (those greater than 10 mtCH_4). Characterizing and quantifying emissions from large release events is necessary but not sufficient for accurately estimating total emissions. It is critical for EPA to assess whether the emission estimates are accurately and fully capturing both ends of the aggregate emissions distribution. Until the somewhat smaller but cumulatively very significant emissions that would not be reported as large release events are accounted for, the subpart W estimates will not be accurate.

Top-down, basin-wide measurement-based approaches can constrain total oil and gas emissions at the regional scale and are readily available for widespread deployment.[64] These approaches have already generated significant rigorous data, and when performed routinely, can ensure reporting is accurately capturing all sources of emissions and reflecting emissions changes over time. There are also well-established methods of source apportionment—considering methane emissions from non-oil and gas sources—and deploying these will be important to meeting the criteria for accuracy at varying degrees depending on the oil and gas production basin.[65]

Previous scientific studies have also described how site-level data can be statistically aggregated and reconciled with basin-level top-down estimates.[66] Studies have shown how this multi-scale reconciled data can then be used to assess completeness and improvements to source-level inventories.[67] Discrepancies between bottom-up and top-down estimates provide information about larger uncertainties in terms of magnitude and location of emissions and help identify key

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[63] Alvarez et al., *supra* note 53; Omara et al., *supra* note 33; Anna Robertson et al., *New Mexico Permian Basin Measured Well Pad Methane Emissions Are a Factor of 5—9 Times Higher than U.S. EPA Estimates*, 54 Env't Science & Tech. 13926 (2020), https://pubs.acs.org/doi/abs/10.1021/acs.est.0c02927; Zavala-Araiza, et al., *supra* note 62.

[64] Zachary Barkley, et al., *Quantifying methane emissions from natural gas production in north-eastern Pennsylvania*, 17 Atmospheric Chemistry & Physics 13941 (2017), https://doi.org/10.5194/acp-17-13941-2017; David Lyon, et al., *Concurrent Variation in Oil and Gas Methane Emissions and Oil Price During the COVID-19 Pandemic* 21 Atmospheric Chemistry & Physics 6605 (2021), https://acp.copernicus.org/articles/21/6605/2021/; John Lin, et al., *Declining Methane Emissions and Steady, High Leakage Rates Observed over Multiple Years in a Western US oil/gas Production Basin* 11 Scientific Reps. 22291 (2022), https://www.nature.com/articles/s41598-021-01721-5; Anna Karion, et al., *Aircraft-Based Estimate of Total Methane Emissions from the Barnett Shale Region*, 49 Env't Science & Tech. 8124 (2015), https://pubs.acs.org/doi/full/10.1021/acs.est.5b00217; Jeff Peischl, et al., *Quantifying Atmospheric Methane Emissions from the Haynesville, Fayetteville, and Northeastern Marcellus Shale Gas Production Regions* 120 JGR: Atmospheres 2119 (2015), https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2014JD022697; Lu Shen, et al., *Satellite Quantification of Oil and Natural Gas Methane Emissions in the US and Canada Including Contributions from Individual Basins* 22 Atmospheric Chemistry & Physics 11203 (2022), https://acp.copernicus.org/articles/22/11203/2022/; Stefan Schwietzke, et al., *Improved Mechanistic Understanding of Natural Gas Methane Emissions from Spatially Resolved Aircraft Measurements* 51 Env't Science & Tech. 7286 (2017), https://pubs.acs.org/doi/10.1021/acs.est.7b01810.

[65] EPA will also need to account for non-reporting oil and gas facilities' contribution to total emissions.

[66] Alvarez et al., *supra* note 53; Daniel Zavala-Araiza, et al., *Toward a Function Definition of Methane Super-Emitters: Application to Natural Gas Production Sites*, 49 Env't Science & Tech. 8167 (2015), https://pubs.acs.org/doi/pdf/10.1021/acs.est.5b00133.

[67] Rutherford et al., *supra* note 53; Zavala-Araiza et al., *Super-Emitters*, *supra* note 62.

sources that require further characterization and attention.[68] This reconciliation is also integral to ensuring subpart W data is updated continually for accuracy, and not systematically skewed as is currently the case. Reconciliation can ensure subpart W data is empirically based to ensure that changes in emissions are rapidly reflected in the reporting, unlike the current methods where shifts in emissions are largely not included.

Below we outline an approach that EPA can take to update subpart W and meet the congressional directive of section 136(h). Along with the congressional mandates that the reported emissions be based on "empirical data" and "accurately reflect the total," Congress also stated that EPA must "allow owners and operators of applicable facilities to submit empirical emissions data" as part of the duty to revise subpart W. Given that mandate – and the fact that emissions will imminently be covered by the WEC – EPA should immediately begin developing a site-level measurement approach to accommodate operators who wish to use such an approach.

b. Implementing a Site-Level Reporting Framework

We recommend that EPA begin developing a site-level reporting framework incorporating site-level and top-down measurement data and continually updating emission estimates.

To undertake this, we outline a three-step process. First, under the revised GHGRP, EPA should utilize site-level data to ensure reported emissions estimates are accurate and reflect actual emissions (i.e., accounting for super-emitters). Second, EPA should work with other relevant federal agencies to develop and improve independent, routine, top-down estimates of total emissions by major production basin or sub-basin. And third, EPA should utilize the basin-wide measurements to verify emissions from each basin or sub-basin. When EPA finds discrepancies between the aggregated site-level emissions (accounting for emissions from sources not reporting to GHGRP), it should initiate a process of re-examining the submitted reports. This process might lead to both adjustment of protocols for the collection and utilization of site-level measurements by operators in preparing GHGRP reports, and adjustment of emissions reports already submitted to EPA (and, therefore, an operator's WEC assessment).

Conclusion

We appreciate the opportunity to provide input to the EPA on the MERP and look forward to working with the Agency to ensure that this important program is effectively implemented.

Respectfully submitted,

Darin Schroeder
David McCabe
Mary Sasso
Clean Air Task Force

Caitlin Miller
Earthjustice

Edwin LaMair
Grace Smith
Rosalie Winn
Peter Zalzal
Environmental Defense Fund

Andres Restrepo
Sierra Club

[68] Alvarez et al., *supra* note 53; Bruno Neininger, et al., *Coal Seam Gas Industry Methane Emissions in the Surat Basin, Australia: Comparing Airborne Measurements with Inventories*, Philosophical Transactions of the Royal Society A, Nov. 21, 2021, https://royalsocietypublishing.org/doi/10.1098/rsta.2020.0458; Shen, et al., *supra* note 64.

Irene Burga
GreenLatinos

Adam Carlesco
Food & Water Watch

David Doniger
Natural Resources Defense Council

Claire Horan
Southern Environmental Law Center

Melissa Hornbein
Western Environmental Law Center

Diane Hoskins
Oceana

Stephanie KodishNational Parks
Conservation Association

Julie McNamara
Union of Concerned Scientists

Lauren Pagel
Earthworks

Robert Routh
Clean Air Council

Marie DeMarco
Physicians for Social Responsibility
Pennsylvania

Margaret Coulter
Center for Biological Diversity

Madeleine Foote
League of Conservation Voters