



## EPA's Supplemental Proposal to Reduce Pollution from the Oil and Natural Gas Industry to Fight the Climate Crisis and Protect Public Health: Overview

- The U.S. Environmental Protection Agency (EPA) is proposing to update, strengthen and expand its November 2021 proposal to secure major climate and health benefits for all Americans by reducing emissions of methane and other harmful air pollution from both new and existing sources in the oil and natural gas industry. Oil and natural gas operations are the nation's largest industrial source of methane, a highly potent climate pollutant that is responsible for approximately one-third of current warming resulting from human activities. These operations are also a leading source of other harmful air pollutants, including smog-forming volatile organic compounds (VOCs) and air toxics such as benzene.
- By improving standards in the 2021 proposal and adding proposed requirements for sources that proposal did not cover, the supplemental proposal signed November 8, 2022, would achieve more comprehensive emissions reductions from oil and natural gas facilities. In 2030 alone, the supplemental proposal would reduce methane emissions from the sources it covers by 87 percent below 2005 levels. It would increase recovery of natural gas that otherwise would go to waste – saving enough gas from 2023 to 2035 to heat an estimated 3.5 million homes for the winter.
- EPA's supplemental proposal strengthens requirements while promoting innovation and simplifying implementation. It reflects input and information the Agency received from a diverse range of perspectives during the public comment period on the November 2021 proposal. EPA received more than 470,000 written comments on the proposal, held government-to-government consultations with several Tribal Nations and held a three-day public hearing.
- The supplemental proposal also provides greater clarity and specificity for states that must develop plans to reduce methane emissions from existing sources, and for Tribal Nations that choose to develop plans for existing sources in their jurisdictions. It would give stakeholders – including affected communities – a stronger voice as states and Tribal Nations develop their plans. And it includes updated requirements to ensure that existing source plans provide more rigorous and consistent protection for public health and the environment.
- The Clean Air Act standards in the supplemental proposal will work hand-in-hand with new resources and programs in the Inflation Reduction Act, which will incentivize early implementation of innovative methane reduction technologies and support methane mitigation and monitoring activities. These complementary efforts will allow the United States to achieve greater methane emissions reductions more quickly.

- EPA is seeking comments on all aspects of the supplemental proposal. After considering public feedback, the Agency intends to finalize requirements for new and existing oil and gas sources that:
  - Achieve the greatest possible reductions in emissions of methane and smog-forming VOCs,
  - Are cost-effective,
  - Promote technological innovation, and
  - Are anchored in science and the law.
- The Agency plans to issue a final rule in 2023.

**EPA’s Supplemental Proposal Creates a More Comprehensive Approach to Reducing Methane and VOC Pollution. Updated elements of the proposal would:**

- Ensure that all well sites are routinely monitored for leaks, with requirements based on the type and amount of equipment on site;
- Encourage the deployment of innovative and advanced monitoring technologies by establishing performance requirements that can be met by a broader array of technologies;
- Prevent leaks from abandoned and unplugged wells by requiring documentation that well sites are properly closed and plugged before monitoring is allowed to end;
- Leverage qualified expert monitoring to identify “super-emitters” for prompt mitigation;
- Strengthen requirements for flares to ensure they are properly operated to reduce emissions;
- Set a zero-emissions standard for pneumatic pumps at affected facilities in all segments of the industry, with exceptions limited to sites without access to electricity;
- Establish emission standards for dry seal compressors, which are currently unregulated; and
- Require owners/operators of oil wells with associated gas to implement alternatives to flaring the gas, unless they submit a certified demonstration that all alternatives are not feasible for technical or safety reasons.
- The updated requirements EPA is proposing would apply to both the Agency’s New Source Performance Standards (NSPS) for new, modified and reconstructed sources, and as presumptive standards to assist states in developing plans under the proposed Emissions Guidelines for existing sources.

## Benefits of the Supplemental Proposal Are Much Larger than the Costs of Compliance

- In 2030 alone, the supplemental proposal would reduce methane emissions from covered sources by 87 percent, compared to 2005 levels. The November 2021 proposal would have reduced emissions from covered sources to 74 percent below 2005 levels in 2030.
- To ensure that its Regulatory Impact Analysis (RIA) is as informative as possible, EPA has developed an improved modeling approach to conduct a new analysis of the costs and benefits of the proposed standards. The new analysis reflects improved estimates of the number of facilities covered by the supplemental proposal and the amount of methane and VOCs they emit. The supplemental proposal also would sharply reduce emissions of VOCs and hazardous air pollutants that can harm health and air quality in nearby communities.
- Using the new analysis approach, EPA estimates that the supplemental proposal would:
  - Avoid an estimated 36 million tons of methane emissions from 2023 to 2035, the equivalent of 810 million metric tons of carbon dioxide – nearly the same as all greenhouse gases emitted from coal-fired electricity generation in the U.S. in 2020.
  - Avoid 9.7 million tons of smog-forming VOC emissions from 2023 to 2035, along with 390,000 tons of toxic air pollutants like benzene and toluene, among others.
  - Yield \$3.1 to \$3.2 billion in climate benefits per year, with total net benefits (after taking the costs of the rule into account) valued at \$34 to \$36 billion from 2023 through 2035.
  - Increase recovery of natural gas -- valued at \$3.3 to \$4.6 billion from 2023 through 2035 (based on forecasted prices) – that otherwise would go to waste.
- Reductions from EPA’s proposed Super-Emitter Response Program are likely to be substantial. However, because the quantity of reductions is uncertain, they were not estimated for the RIA. Super emitters may be responsible for a large portion of total emissions from the oil and natural gas sector.
- EPA’s assessment of the benefits of the proposed rule includes a supplementary analysis that incorporates the most recent scientific advances into updated estimates of the economic harm associated with each ton of greenhouse gas pollution. The Agency is making available for public comment a technical report explaining the basis for these estimates as part of the supplemental proposal. EPA is also seeking peer review of the technical report.

## The Supplemental Proposal Promotes Innovation in Methane Detection Technology

- EPA received overwhelming support for allowing owners and operators the flexibility to use advanced methane detection technologies to monitor for leaks (also called “fugitive emissions”).
- The Agency is proposing to allow the use of a broader range of advanced technologies in lieu of optical gas imaging (OGI) or EPA Method 21. EPA is proposing an approach that ties

the frequency of required monitoring surveys to the detection ability of the technology used, and requires owners and operators to promptly repair any leaks found.

- The supplemental proposal would also give owners and operators the option to use continuous monitoring technologies that operate around the clock to check for methane leaks.
  - Owners or operators using continuous monitoring technologies would be required to determine the cause of a leak and take corrective action whenever emissions exceed an action level at the boundary of a facility. This approach is similar to the approach used in the fence-line monitoring requirements in EPA’s air toxics rules for petroleum refineries.
  - EPA is proposing two action levels for continuous monitoring, which are designed ensure that both smaller leaks and larger leaks known as “super emitters” are promptly repaired.
- The supplemental proposal encourages the continued development of innovative technologies by including a clear and streamlined pathway for technology developers and others to seek approval for using advanced technologies to monitor for methane. Once the Agency approves a technology and technique, any owner or operator can use it widely without the need for additional approval.

#### Key requirements in the supplemental proposal include:

##### *Requiring Routine Leak Monitoring at Every Well Site and Compressor Station*

- After considering information and comments received from the public, EPA is revising its November 2021 proposal to find and fix leaks at new and existing well sites. The supplemental proposal creates a cost-effective approach to ensure that every well site, regardless of size, is regularly checked for leaks. This new approach will achieve more comprehensive reductions in leaks from well sites and streamline compliance for owners and operators.
- The revised program would tie leak monitoring requirements to the types and amount of equipment at a site, rather than to estimated emissions, which will make it simpler for owners and operators to determine which monitoring requirements they must meet at a site. This approach removes exemptions from routine monitoring for well sites with lower emissions, which EPA had proposed in 2021.
- EPA is proposing monitoring requirements for four categories of well sites:
  - Single wellhead-only sites and small well sites would be required to conduct what are known as “AVO” (audio, visual and olfactory) inspections where inspectors listen, look and smell for leaks. These inspections would be required quarterly.
  - Wellhead-only sites with two or more wellheads would be required to conduct quarterly AVO inspections and monitor every six months using OGI or EPA Method 21.

- Sites with major production and processing equipment and centralized production facilities would be required to conduct bimonthly AVO inspections and monitor quarterly using OGI or EPA Method 21.
- Well sites on the Alaska North Slope would have different monitoring schedules to account for weather.
- Compressor stations would be required to conduct monthly AVO monitoring, coupled with quarterly monitoring using OGI or EPA Method 21.
- The proposal includes deadlines to ensure prompt remediation of leaks for each type of site.
- To encourage continued innovation in advanced and low-cost methane detection technologies, the supplemental proposal would allow owners to use a wider selection of [advanced methane detection technologies](#) to check for leaks as an alternative to AVO, OGI and EPA Method 21 inspections.

#### *Preventing Emissions at Abandoned and Unplugged Wells*

- EPA’s November 2021 proposal noted that abandoned and unplugged wells can be a significant source of methane and other air pollutants. To ensure that well sites are not left unplugged and potentially leaking, EPA is now proposing that monitoring must continue at these sites until all wells have been plugged and equipment has been removed.
  - Owners would have to submit a well closure plan that includes the necessary steps to close the wells, including plugging all wells, documentation of financial assurance to complete the well closure and a schedule for completing closure activities.
  - Once a well site is closed, owners/operators would have to conduct a final survey using OGI to ensure that no emissions are found. If emissions are detected, the owners/operators would have to make repairs and resurvey the site.

#### *Creating a Super Emitter Response Program*

- Studies show that emissions from a small number of oil and natural gas sources are responsible for as much as half of the industry’s methane emissions, along with significant amounts of smog-forming VOCs and air toxics that are of concern in many communities. These large leaks and emissions events, known as “super emitters,” often are caused by malfunctions or abnormal operating conditions, including unlit flares and open thief hatches on storage tanks.
- While many of EPA’s proposed requirements would reduce the number of super-emitting events, EPA is also proposing a Super-Emitter Response Program to quickly identify these events for prompt mitigation.

- The Super-Emitter Response Program would leverage expertise and data from regulatory agencies or EPA-approved qualified third parties with access to EPA-approved remote methane detection technology.
- Under the proposed program, regulatory authorities or qualified third parties that have been approved by EPA could notify owners and operators of regulated facilities when a super emitter is detected. EPA is proposing to define a super-emitting event as emissions of 100 kilograms (220.5 pounds) of methane per hour or larger.
- Owners and operators would be required to conduct an analysis within five days of receiving the notification to determine the cause of the event the notification identified.
  - If the event is caused by a malfunction or abnormal operation, owners/operators would have to take corrective action within 10 days.
  - If fully mitigating a super emitter would take longer than 10 days, owners/operators would have to develop a corrective action plan, including a schedule for addressing the event, and submit it to EPA or the state agency.
- To qualify to notify owners and operators of super emitters, third parties would have to:
  - Be approved by EPA as having appropriate expertise and experience;
  - Use remote detection technology that EPA has approved; and
  - Include specific, required factual information in the notification to document the existence of the super-emitting event.
- EPA is also proposing a mechanism for owners and operators to ask the Agency to revoke a notifier's certification, if they can demonstrate that repeated notifications contained verifiable errors.
- To ensure that the Super-Emitter Response Program operates transparently, notices sent to oil and natural gas owners and operators would be available on a public website for easy access. The owners' and operators' response, along with any corrective actions taken, if needed, also would be on available on the website.

#### *Strengthening Requirements for Flares*

- Flares used to meet emission reduction requirements at well sites, centralized production facilities, compressor stations or natural gas processing plants can cause super emitters if they are not properly designed and operated.
- EPA is proposing additional compliance requirements to ensure that flares meet all requirements for good flare performance, including requirements to continuously monitor the flare to ensure that a pilot flame burns at all times. The Agency is also proposing monitoring requirements for enclosed combustors.
- In addition, EPA is proposing to limit the use of flares as part of improvements to proposed requirements to eliminate venting of associated gas from oil wells. The supplemental

proposal would require owners or operators to route associated gas to a sales line, use the gas for fuel or another beneficial purpose, or reinject it into a well for enhanced oil recovery. Flaring would be allowed only if the owner or operator submits a certified demonstration that a sales line is not available and that other beneficial uses are not feasible for technical or safety reasons.

#### *Requiring Pneumatic Pumps to Have Zero Emissions*

- Based on comments and information received during the public comment period on the November 2021 proposal, EPA is strengthening the proposed standards for pneumatic pumps.
  - The Agency is proposing a zero-emissions standard for all “pneumatic pump affected facilities” in all segments of the oil and natural gas industry. This means that pumps should not be driven by natural gas.
  - EPA would define affected facilities as the collection of all natural gas-driven pumps at a site in all segments of the oil and natural gas industry.
- At sites that do not have access to electricity, owners/operators would be allowed to use natural gas-driven pneumatic pumps if they demonstrate that it is not technically feasible to use pneumatic pumps that are not driven by natural gas. In these cases, owners/operators would have to use the emissions from the gas-driven pumps by routing them to a process on site. If routing emissions to a process is not feasible, owner/operators would have to control the emissions, with the specific emissions control requirement depending on the number of pumps on site.

#### *Updating Proposed Requirements for Compressors, Including Establishing Emission Standards for Dry Seal Compressors for the First Time*

- In the November 2021 proposal, EPA sought comment on whether the Agency should consider developing standards for dry seal compressors. Based on information the Agency received, EPA is proposing standards for new and existing dry seal compressors, which previously have not been regulated.
- Owners or operators of dry seal compressors would be required to maintain the volumetric flow rate at or below 3 standard cubic feet per minute to limit emissions.
- EPA is also proposing updates to proposed requirements for new and existing wet seal centrifugal compressors.

#### **Other Elements of the Supplemental Proposal**

- EPA is proposing additional updates, including:
  - **Adding presumptive standards for liquids unloading.** The supplemental proposal no longer considers all liquids unloading operations to be modifications. EPA is proposing a presumptive standard of zero methane emissions for liquids unloading at existing

wells. That aligns the standard with the standard proposed in November for liquids unloading at new and modified wells, which would require liquids unloading to be conducted with zero methane and VOC emissions. If performing liquids unloading with zero methane or VOC emissions is not feasible for safety or technical reasons, owners and operators would be required to employ best management practices to minimize venting of emissions to the maximum extent possible.

- **Updating the definition of “affected facility” for pneumatic controllers**, and removing exemption for natural gas-driven controllers with emissions that are routed to a process and for self-contained controllers. The proposal clarifies that these controllers, which should not emit methane and VOCs if they are properly maintained, can be used to meet a zero-emissions standard.
- **Updating the scope and applicability of the proposed protocol for using OGI**. This protocol is referred to as “Appendix K.”

### The Supplemental Proposal Provides Greater Clarity and Specificity for States and Tribal Nations as They Develop Plans for Existing Sources

- In addition to proposing updates to proposed presumptive standards to assist states in developing their plans for existing sources under section 111(d) of the Clean Air Act, EPA’s supplemental proposal provides more clarity and specificity for states that must develop plans to reduce emissions from existing oil and natural gas sources, and for federally recognized Tribal Nations that choose to develop plans for sources in their jurisdictions. These include:
  - Criteria for determining whether existing state programs can be considered equivalent to the presumptive standards, and
  - Requirements for the types of information and evidence states must provide to justify applying a less-stringent standard to a particular facility or type of facility, based on factors such as the source’s age or the physical impossibility or technical infeasibility of installing emissions control equipment. Those requirements include considering communities most affected by, and vulnerable to, the impact of the emissions from those facilities.
- The supplemental proposal also adds detail to a proposed requirement that states conduct meaningful public engagement during development of their existing source plans. EPA would evaluate states’ demonstrations of meaningful engagement in determining whether their plans are complete.
  - EPA is proposing to require timely and equitable engagement that is designed to overcome barriers to participation by pertinent stakeholders, including, but not limited to, communities most affected by and/or vulnerable to the impacts of a state plan or plan revision and small businesses. States also would be required to reach out to affected Tribal Nations.

- EPA is proposing to require states to submit their plans to EPA for review within 18 months after the final Emissions Guidelines are published in the Federal Register.
- States would be required to impose a compliance deadline on existing sources that is no later than 36 months after the state plan is due to EPA.

#### For More Information

- [Read the supplemental proposal and additional fact sheets.](#)