

## Introduction

The Environmental Defense Fund is a leading international non-profit organisation that creates transformative solutions to the most serious environmental problems. Since 1967, EDF has used science, economics, law and innovative private-sector partnerships to bring a new voice for practical solutions.

EDF strongly recommends to also address the issue of methane emissions as part of the gas quality regulations, an issue which needs to be solved should gas play a role as a bridge fuel. According to the IEA, global oil & gas-related methane emissions in 2017 were estimated to be 80 metric tonnes. This is particularly significant, as methane is a greenhouse gas 84-87 times more potent than CO<sub>2</sub> over the first 20 years after it has been emitted. While there is a lack of accurate data about methane emissions from oil and gas in global gas supply chains except for the U.S., enough is known to conclude these emissions may diminish or negate the climate benefits of gas relative to other fossil fuels. In 2018, EDF published a series of sixteen peer-reviewed studies, which found that methane emissions from the U.S. gas supply chain were 60% higher than reported in the EPA inventory: <https://www.edf.org/climate/methane-studies>.

This is not only limited to natural gas but is also a challenge for “renewable gases” – because renewable natural gas, once put into the pipeline, is biologically identical to traditional natural gas. The climate impact of leaks from renewable gas or from using renewable natural gas in vehicles will be just as damaging to the environment if left unchecked. It is therefore urgent to give the issue the prominence it merits, especially with regards to measurements and management of methane emissions.

In particular, it is critical for ARERA to require activities for detecting and repairing the emission volumes involved – this is a different operation to monitoring for safety reasons. Thresholds for safety are about individual leaks, whereas thresholds for environment are about total emissions (leaks and intentional/known emission sources). In conclusion, a single quantitative threshold may not target both. Eventually, companies should understand/monitor all their emissions (leaks + intentional/known sources); a potential example to follow would be that, of California, which has best practice standards in place to ensure robust reporting requirements and leak detection and repair. Further explanation is offered in Annex 1. This is fundamentally different from HSE, which looks only at leaks by definition.

## Why methane matters

Considering that methane is a powerful short-lived climate pollutant with a GWP 84-87 times that of CO<sub>2</sub> in the first 20 years, continuing consumption of unabated gases risks undermining Italy's and the EU's commitments under the [Paris Agreement](#). Several recent [studies](#) have made it clear that methane concentrations are rapidly rising in the atmosphere. In June 2018, [Science](#) published an EDF-led collaborative study with US academic institutions that found the

U.S. oil and gas industry emits 13 million metric tons of [methane](#), which is nearly 60 % more than current Environmental Protection Agency (EPA) estimates. In January 2019, [a University of Pennsylvania policy digest developed collaboratively with EDF found that existing financial incentives and voluntary initiatives are not enough to reduce methane](#). In May 2019, [the IEA found that the oil and gas sector is not on track to manage methane emissions](#). In the 2017 World Energy Outlook, the IEA estimated that 75% of methane emissions from oil and gas could be cut by 2025 – 50% of emissions at no net cost to industry. Reducing emissions from the oil and gas sector is by far the most affordable course of action that we have available right now to reduce a large fraction of emissions and slow the growth of methane in the atmosphere. Best available economic science and knowledge confirms that voluntary actions alone are not enough. Policy and regulatory action is critical for delivering socioeconomic benefits of climate action.

We hereby offer input to two of your questions.

## **S1. Osservazioni in merito ai criteri di regolazione della sicurezza in materia di sorveglianza e ispezione della rete.**

The Environmental Defense Fund (EDF) recalls the environmental objectives in Article 1 of the Authority's Founding Law 481/1995, in particular the requirement on the service to deliver on social objectives, environmental protection and efficient use of resources in addition to its economic and financial objectives.

With respect to Art. 3 of Resolution 114/2019/R/Gas, referred to in paragraph 5.2 of this document about service safety EDF suggests that the monitoring report on the state of infrastructure, required by the above resolution, should also include a requirement to identify and quantify fugitive methane emissions. As mentioned previously, EDF recommends following the example of California, which has regulations by the California Air Resources Board and the California Public Utilities Commission to ensure that there are robust monitoring and leak repair requirements throughout the system.

As established in Art. 1 of the ARERA founding law with reference to environmental protection, and as reiterated in the **Three-year Strategic Framework of the current Leadership Board** (paragraph OS.21), it is the opinion of EDF that ARERA should also require to reduce emissions. A practice that has worked in the electrical system is the premium-penalty scheme, applicable in case of power interruptions.

With regard to the remarks submitted by TSOs in response to the Consultation Document, DCO 420/2018/R/Gas EDF suggests to introduce a requirement to adopt all monitoring means that will improve the TSOs' capability to detect fugitive emissions, including vehicles, drones, helicopters and all other appropriate means.

With respect to the negligible effectiveness of non-invasive network inspections (R2 Safety), EDF considers that this concern is not based on current technology options and we stand ready to offer you an update of the landscape of available technologies and service providers. EDF believes that ARERA should look into this further, either through cost-benefit studies or through stakeholder consultation to include technology providers, scientists and civil society organisations. EDF stands ready to assist as needed.

As regards what ARERA intends to do based on the guidelines set out in Consultation Document DCO 420/2018/R/GAS, as specified in paragraph 5.5, EDF welcomes the decision to introduce in-depth inspections on infrastructure. Given the seriousness of the issue, EDF stresses the need for shorter time intervals between these inspections, so that progress in curbing leak volumes can be monitored.

### **S3. Osservazioni in merito agli obblighi informativi e alle ulteriori disposizioni in materia di sicurezza**

EDF welcomes the introduction of reporting obligations by transmission system operators (TSOs), and recommends that ARERA should also include requirements to report localised gas leaks following a planned network inspection, as well as reports from third parties, without prejudice to the activity of quantifying leak volumes in the event of emergencies or accidents. Importantly, requirements to reduce fugitive emissions should feature prominently.

Reducing fugitive emissions by a set percentage should be mandatory and enforced as soon as possible, clearly distinguishing between accident risks regular gas leaks from networks and facilities. Regular control activities should be introduced as standard practice, especially because most leaks happen at particular facilities (i.e. gas compression plants, regasification plants, pressure-reduction plants...).

On the other hand, leaks leading to gas accidents are significant, and tend to develop in closed environments that allow for accumulation of gas. Accident prevention controllers may overlook small spills because they are not aware of their environmental impact and are not trained to do so.

EDF therefore suggests two types of requirements:

- 1) A requirement to prevent accidents, which may result in fines and compensation (see the definition proposed by ARERA on page 13).
- 2) One for controlling and reducing "usual" emissions from industrial practices, which the companies acknowledge, but which they consider negligible. It is therefore important to know the exact volume of the leaks, and introduce premium-penalty schemes for their reduction over time.

In order to know if "regular" leaks have origins and volumes that can be reduced with control measures and technological improvements, it is necessary to know their extent - and ARERA should have all the tools to be able to know - and then evaluate the possibility to reduce them over a given period of time (typically 1 year). If the assessment is positive, annual reduction targets can be set.

It is advisable for ARERA to take inspiration from the 2016 California SB 839, which requires CARB, the California Air Resources Board, to develop a model of fugitive and vented emissions of methane, from natural gas infrastructure.

The model shall do all of the following: quantify emissions from specific natural gas infrastructure. In this model "natural gas infrastructure" means natural gas facility used for the production, gathering and boosting, processing, transmission, storage or distribution, all necessary for the delivery of natural gas to end-use consumers in California, and they include infrastructure located in and outside California.

It would be useful for ARERA to also consider SB 1371, a bill passed in California in 2014, which requires the California Public Utilities Commission to open a proceeding in order to

evaluate best practices for utilities in order to better identify, measure, avoid, and repair leaks. This aims to support a goal of reducing methane emissions, and implements the following:

- annual reporting for tracking methane emissions;
- 26 mandatory best practices for minimising methane emissions (including policies and procedures, recordkeeping, training, leak detection, leak repair, and leak prevention);
- a biennial compliance plan incorporated into annual utility gas safety plans, and the passage of a cost recovery process to facilitate Commission review and approval of incremental expenditures to implement best practices and pilot programs and research & development.

Given that ARERA's measures are mandatory for natural gas distribution (and transport) companies, it would be advisable for ARERA to charge these companies with the task of monitoring and detecting leaks through use of LDAR (Leak Detection And Repair) technologies once a year, and communicate the results.

At the end of this period, ARERA will be able to examine the situation and define a path for reducing leaks, according, for example, by implementing yearly measures based on a premium-penalty scheme, which we understand was successfully adopted for monitoring power networks and interruptions in the electricity service.

In conclusion, EDF considers that the climate-changing impact of methane leaks is as serious and manageable as safety risks and believes ought to be treated as such.

## **Annex 1: Methane Legislation in California**

- In 2017, CARB required monitoring of air pollution of storage facilities to prevent disasters like Aliso Canyon
- California's Division of Oil, Gas, and Geothermal Resources recently finalised new rules for managing natural gas
  - o Require a detailed assessment of the equipment and practices at each gas storage facility, which tailor construction operations, maintenance, and testing requirements to each facilities' unique risks
  - o Risk management planning process aims not just to mitigate, but also prevent risk and includes frequent, state-reviewed updates to the plans based on changing conditions
  - o Beefs up data submission requirements to help both operators and state regulators make better decisions about site operations
  - o Better emergency response planning – includes established lines of command, public notification, training, drills, and regular plan updates
  - o Enhance surveillance to detect potential problems
- CPUC has adopted a series of new standards requiring natural gas utilities to implement 26 separate best practices to find, fix, and prevent natural gas pipeline leaks and venting
  - o Companion to March 2017 rule adopted that requires reduction of leaks from oil and gas extraction
  - o Under these rules, utilities must:
    - Retain all data relevant to gas leaks, and publicly display leak maps by zip code
    - Enhance mobile leak detection technologies
    - Use stationary methane detectors
    - Conduct system surveys every three years and above ground leak surveys annually
    - Repair leaks as soon as reasonably possible (and not allow leaks to persist longer than three years)
    - Mitigate emissions from blowdowns
    - This is pursuant to SB 1371, which requires the CPUC to develop and implement a comprehensive natural gas pipeline leak reduction strategy that ensures the quick and efficient repair of leaks
- CARB has rules in place to curb the amount of methane the oil and gas industry can leak and vent during production and storage; oil and gas companies will have to monitor infrastructure and repair leaks
  - o Expects new rule to reduce methane leaks by 45 percent over the next nine years
  - o In CA alone, more than \$50 million worth of NG each year is wasted through venting and leaks – 75,000 tons of methane are released
- SB 350/SB 100
  - o SB 350 requires, among other things, utilities to construct integrated resource plans that focus more on utility scale and distributed energy resources, rather than continuing to procure additional natural gas.
- AB 2195 would require CARB to quantify and publish annually the amount of GHG emissions resulting from the loss or release of uncombusted natural gas to the

atmosphere and emissions from natural gas flares during all processes associated with the production, processing, and transporting of natural gas imported into the state from out of state sources