



MINISTERO DELL' AMBIENTE E DELLA SICUREZZA ENERGETICA
Energy Department

Regulation (EU) 2024/1787 on the reduction of methane emissions in the energy sector

State of play in Italy

Speaker: Francesca di Macco

Rome, December 9th, 2025



Deadlines for Member States /Competent Authorities	State of play - Italy
By 5 February 2025: shall designate of one or more competent authorities responsible for monitoring and enforcing the application of this Regulation	Draft Law
By 5 August 2025: shall establish and make publicly available an inventory of all inactive wells, temporarily plugged wells and permanently plugged and abandoned wells on their territory or under their jurisdiction	Done - made available to the public by the 1st of August
By 5 August 2025: shall submit to the Commission the information provided by importers (Annex IX)	Done - transmitted 1st of August
By 5 August 2025: shall notify the Commission the penalty regime adopted	Draft Law
By 5 November 2025: shall make the reports containing the quantification of source-level methane emissions received from operators available to the public and the Commission	Done: transmitted and made available to the public the 5st November



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Direzione generale fonti energetiche e titoli abilitativi (FTA)

Italian experience with the public registry of inactive, temporarily plugged, permanently closed and abandoned wells & with the publication of methane emissions data reported by oil & gas operators

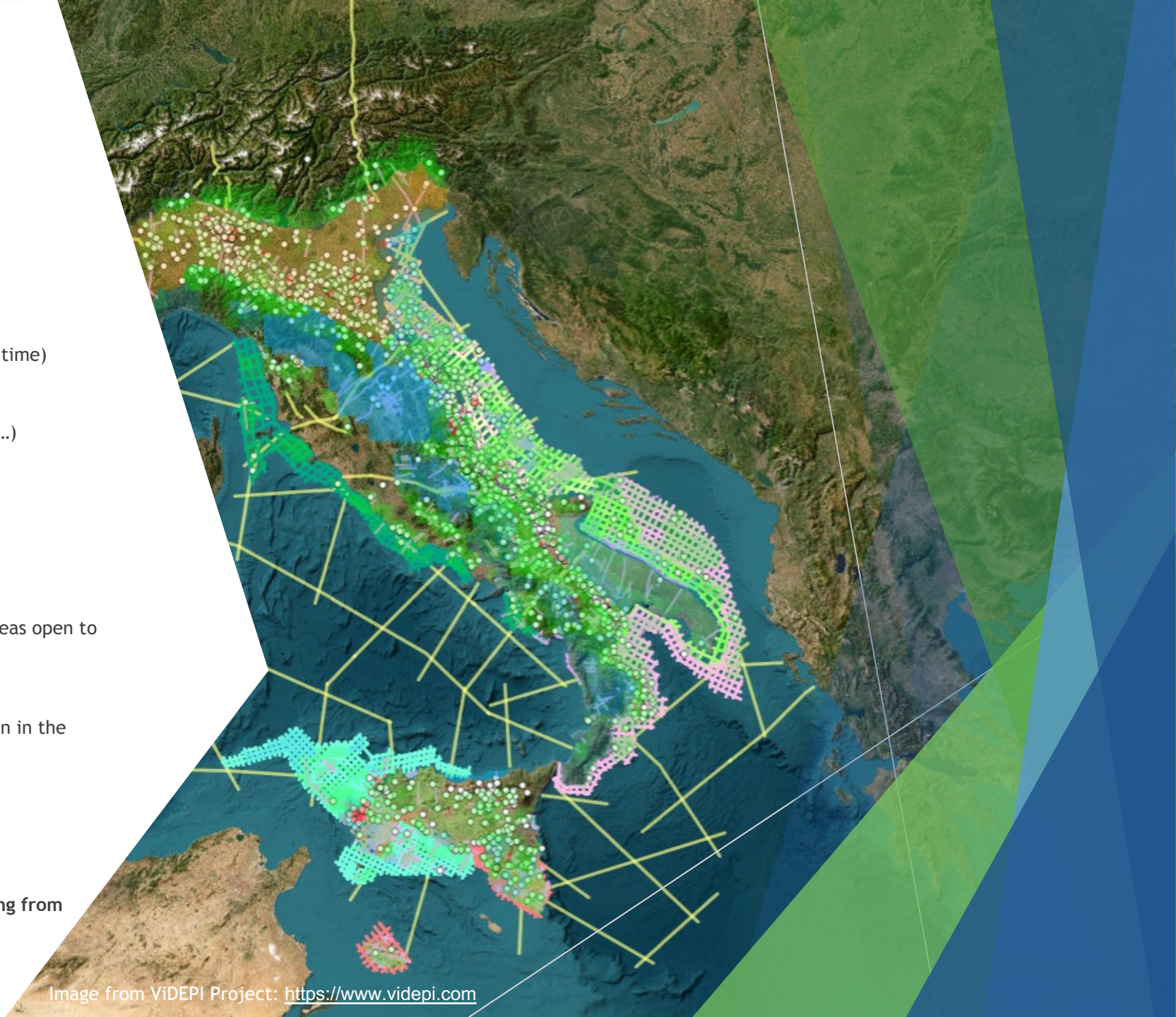
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Background

- ▶ Our office updates a database in Access format
- ▶ Information held by our database is:
 1. Code (univocal)
 2. Name (well's name)
 3. Log (usually from hardcopy archive, digitalized at a later time)
 4. Year of drilling
 5. Scope (exploration, exploitation, reinjection, monitoring...)
 6. Depth of the drilling hole
 7. Result (oil, methane, sterile...)
 8. Coordinates (longitude and latitude)
 9. Location (onshore or offshore)
 10. Region (Italy is divided into region onshore and marine areas open to exploitation offshore)
 11. Province
 12. Type (research's permission, authorisation for exploitation in the mining title, other...)
 13. License title (name of mining title)
 14. Title holder

As you can see, some data required by the regulation was missing from our database.




Working Phases

First of all, we began to ask to competent offices data of all the permanently plugged and abandoned wells from 1994.

Simultaneously we asked title holders to provide to us updated data of all their inactive , temporarily plugged and permanently plugged and abandoned wells from 1994.

Checking phase

After receiving all the data from title holders and the other competent offices, our team checked all well's name, aligning all the names to our pre-existing database.



We deleted all duplicates and information that didn't match with the requests by the Regulation.



We checked the coordinates by plotting all these wells in a GIS opensource software (Q-Gis) and we corrected all the wells that weren't located in Italy or in the Italian's sea.

Challenges and difficulties

- ▶ First difficulty was matching wells' names from different database (our pre-existent one, title holders' ones and Competent offices' ones)
- ▶ Difficulty of understanding who the permanently plugged and abandoned wells referred to and therefore who was responsible for complying with the methane emissions measurements. The solution we adopted was:
 - Permanently plugged and abandoned well located in still existing active title's area -> Compliance of the title's holder
 - Permanently plugged and abandoned well located in released and restored area -> Compliance of the Member State (also because it's difficult to track down title's holder not existing anymore)
- ▶ Difficulty to find the permanently plugged and abandoned wells after the remediation and restoration actions when a mining title stops to exist, also because the coordinates aren't always precise and correct, especially talking of old wells
- ▶ Talking about off-shore permanently plugged and abandoned wells, we must take into account that passing time marine sediments cover wellheads, so that it's really difficult to find the exact location of wells, especially where there's not a visible off-shore platform. For this reason, we will make magnetometric analysis to see where the wells are located.
- ▶ A particularity of off-shore mining sites in Italy is that until the operator removes the platform structure and thus makes the remediation and restoration operations of the area, he remains the custodian of those structures. So the custodian has the duty to carry on the methane emissions' measurements.

- Regolamenti (UE)**
- Regolamento (UE) 2024/1735
Trasparenza dei dati sulla capacità di stoccaggio di CO₂
- Regolamento (UE) 2024/1787 Riduzione delle emissioni di metano nel settore dell'energia**
- Regolamento (UE) 2024/1787 Disposizioni previste dall'articolo 12**
- Regolamento (UE) 2024/1787
Disposizioni previste dall'articolo 18

Regolamento (UE) 2024/1787 Disposizioni previste dall'articolo 12

Regolamento (UE) 2024/1787 del Parlamento Europeo e del Consiglio del 13.06.2024 sulla riduzione delle emissioni di metano nel settore dell'energia e che modifica il Regolamento (UE) 2019/942 L'articolo 12, comma 1, del Regolamento UE 2024/1787 stabilisce che: "Entro il 5 agosto 2025 i gestori presentano alle autorità competenti una relazione contenente la quantificazione delle emissioni di metano a livello di fonte, per tutte le fonti, stimate utilizzando almeno fattori di emissione generici. Tale relazione può contenere una quantificazione delle emissioni di metano a livello di fonte, per alcune o per tutte le fonti, conformemente alle prescrizioni di cui al paragrafo 2". Tali relazioni devono riguardare l'ultimo anno civile disponibile e, ai sensi del comma 4, articolo 12, del Regolamento (UE) 2024/1787, devono contenere almeno le seguenti informazioni:

- tipo e ubicazione delle fonti di emissione;
- dati dettagliati per ciascun tipo di fonte di emissione, comunicati in tonnellate di metano e in tonnellate di CO₂ equivalente, utilizzando i potenziali di riscaldamento globale definiti nella sesta relazione di valutazione del Gruppo intergovernativo di esperti sul cambiamento climatico (IPCC);
- informazioni dettagliate sulle metodologie di quantificazione;

Publication phase

We publicated the inventory on time, but some methane emissions' data is still missing

Adding methane emission quantification to the inventory

- ▶ Still working in progress
- ▶ We are rethinking the database of these wells, because it has to be uploaded with methane emission's quantification with data deriving from titles' holders and our technical offices (ISPRA on-shore and INGV off-shore).
- ▶ Difficulties to match different types of database.

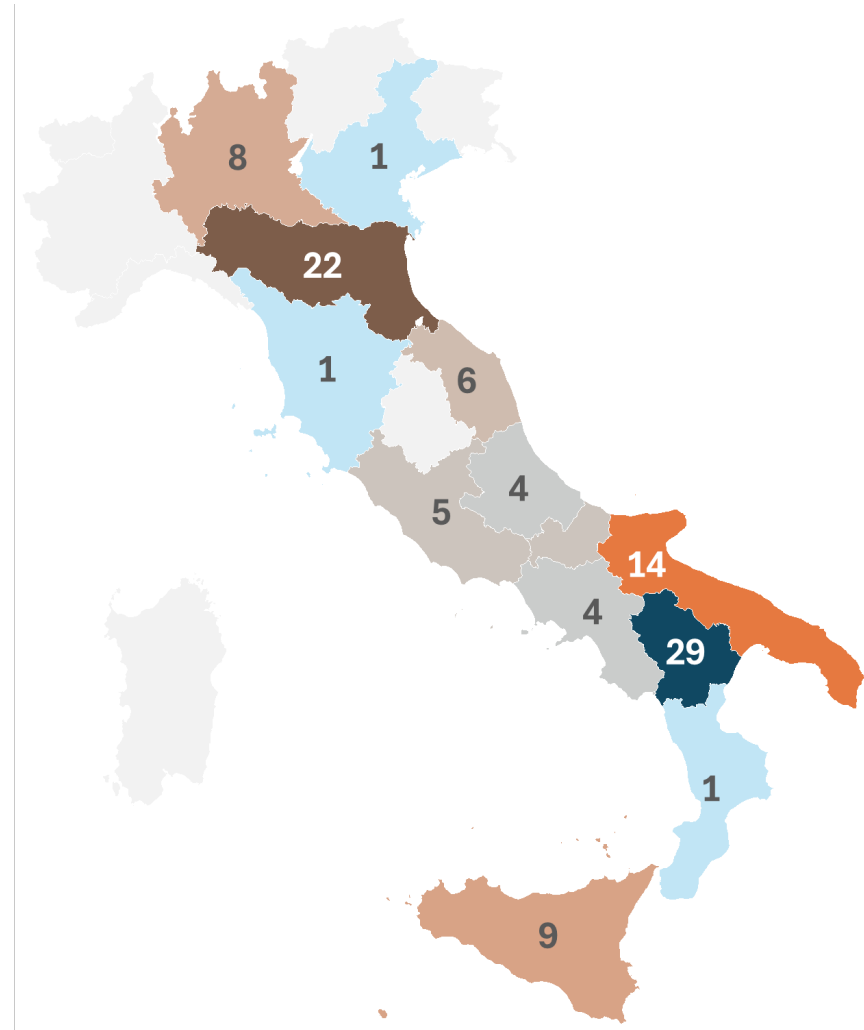
Agreement with ISPRA (Superior Institute for Environmental Protection and Research)

- ▶ ISPRA made a study on plugged and abandoned wells on-shore to determine which wells were better to measure (off-shore there are just few wells, so most likely, we will sample all of them). But First, we have to distinguish 3 categories of wells:
 - ▶ Exploratorion;
 - ▶ Exploitation;
 - ▶ Unproductive (not priority concern to measurement, because they didn't make discovery).
- ▶ In total our dataset has got 184 plugged and abandoned wells and 72 of them were unproductive.
- ▶ It is also necessary to consider the type of production associated with the wells, that is whether gas or oil (oil wells are less likely to leak methane, precisely because gas fields have got a higher concentration of methane).
- ▶ The year of closure could help to know the well's propensity to leak. Infact, during time, methods of wells' plugging changed and also the materials used to plug hidrocarbons' wells.
- ▶ Geology factors must be taken into account, as they can be descriptive of the inclination of the well to leak.



Sampling phase

- ▶ The sampling phase depends on economic and logistical/practical factors, so we will give priority to gas wells that are close to each other, thus considering a lower cost in terms of travel and regional agencies involved in the measurements.
- ▶ Based on statistical formulas, which also take into account the uncertainty of the data, the level of confidence and the acceptable margin of error (95% and 5% of the surveyed population, respectively), it was believed that for Italy the measurements to be carried out are approximately 60% of the wells (i.e. 110 out of 184).
- ▶ The measurements will be carried out at the wellhead and in the surrounding area with a radius of 25 m from the wellhead.



Tools that will be used to sample

- ▶ **Static Flux chamber** with continuous measurement of CH₄ and CO₂ (continuous NDIR/FID/IR portable laser measuring instrument). Up to 10-12 ground flow measurements can be taken. Each build-up measurement in the Flux chamber takes approximately 2 minutes to read.
- ▶ **Sniffer** (portable sensor) on the well inlet and joints to identify leaks. Positive results may require one or more measurements with the flux chamber modified/adapted to the well inlet (see above).
- ▶ Detection with a **drone + TDLAS** (or other **laser absorption sensor**) to map the presence and extent of the plume. It is possible to obtain integrated emission estimates from the column through modeling.
- ▶ **Drone thermography (IR)** to identify thermal anomalies related to gas flows. The potential results of this investigation have a qualitative value but are unlikely to provide a numerical estimate of the potential CH₄ emission.
- ▶ + **meteorological and environmental data** (air/soil temperature, humidity, barometric pressure, wind speed) needed to interpret TDLAS and dispersion and for corrections.

Thank you for your
attention