Methane Regulation – LDAR at TSO level

Dr. Bastian Lang

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Time frame for TSO as of now (anticipated)

	start	2024				2025				2026				2027			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Regulation comes into force	**June 2024**		x														
Venting and flaring reports to the authorities	June 2024		x	→	→	→	→	→	→	→	→	→	→	→	→	→	→
LDAR program to the authorities	February 2025					x											
LDAR incl. pipeline + documentation + repair plan + repair report	till June 2025			(x)	(x)	(x)	*(x)*	→	→	→	→	→	→	→	→	→	→

x requirements

source: own presentation

site	LDAR-frequency	Repair threshold	Detection threshold
Compressor station Regulating and metering station	Type 1: 4 months Type 2: 8 months	7.000 ppm or 17 g/h 500 ppm or 1 g/h	Open
Valve station	Type 1: 9 months Type 2: 18 months	7.000 ppm or 17 g/h 500 ppm or 1 g/h	Open
Protected steal pipeline	Type 1: 24 months Type 2: 36 months	7.000 ppm or 17 g/h 1.000 ppm or 5 g/h	Open

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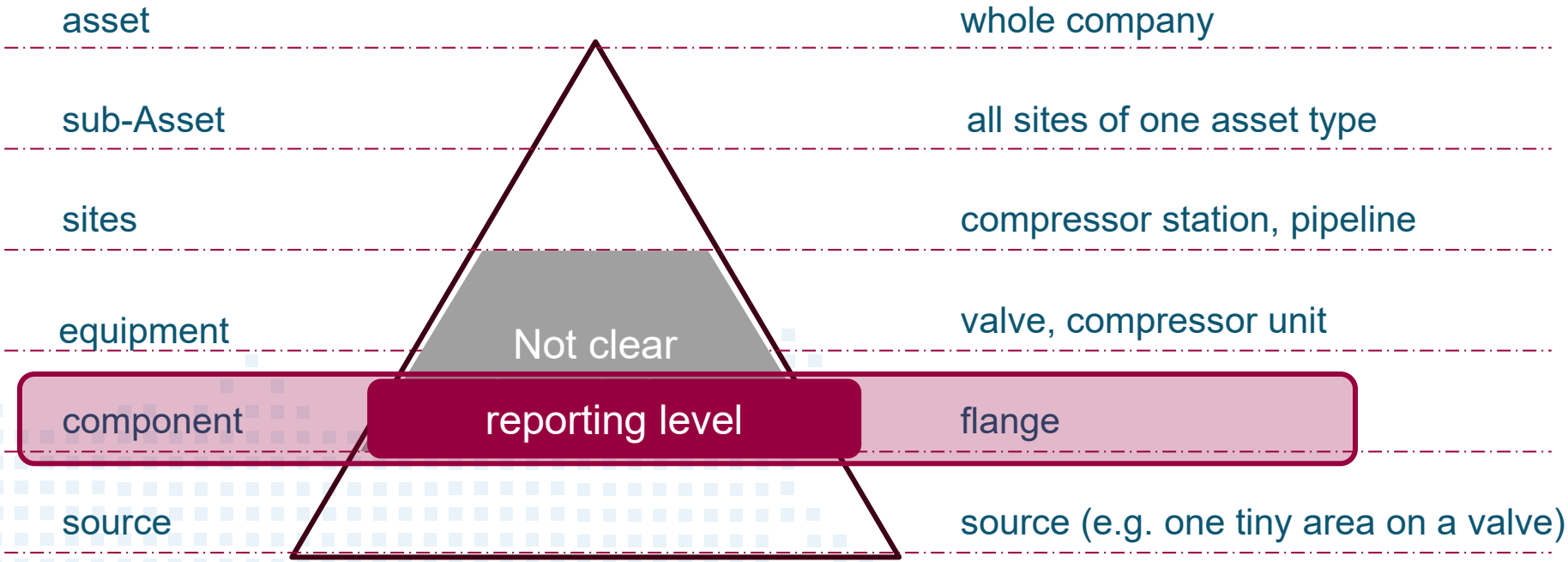
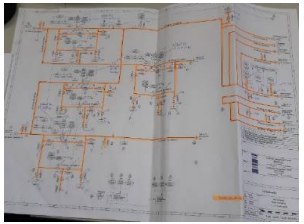
Definitions within the regulation



„Leak Detection“ and quantification for above ground components



Step 1: check P&ID

Type 1

Step 2a: OGI-camera

Type 2

Step 2b: FID measurement

Source: https://www.sewerin.com/us/our-products/gas/gas-leak-detection-outdoors/variotec-460-tracergas, LDARtools FID Analyzer | PHX42 Flame Ionization Detector

step 4: documentation in a database

Quantification

step 3a: Bagging and High-Flow-Sampling

step 3b: Quantification with DIN EN15446

„Leak Detection“ and quantification for underground components

Here it becomes tricky:

- We are sure to have an integer pipeline system which is continuously protected and monitored
- We are doing preventive maintenance, *e.g. a pig detects a defect, further inspection will be done and if it is out of specifications, it will be repaired*

The repair threshold within the regulation is: **1.000 ppm or 5 g/h**

GASCADE is talking *(ongoing)* to a lot of vendors and start-ups, to find an **appropriate technology** with **sufficient technology capacities**

Nevertheless, the best available technology for TSO grids (air born systems) are **not** always able to detect these kind of leaks as of now

Therefore, TSO’s will use available and reliable technology from the market.

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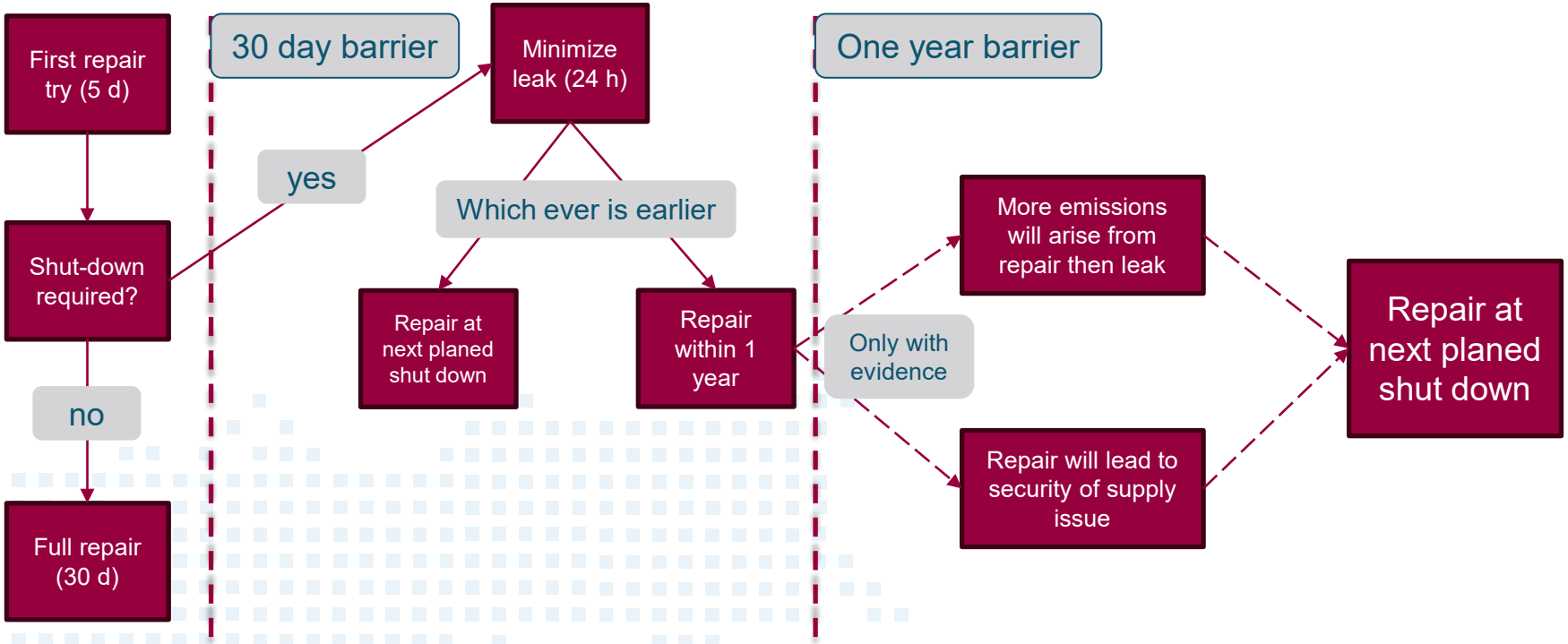
„Repair“ of components



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Conclusion as TSO

- The methane regulation is very welcome to minimize methane emissions
- The expected regulation will put the whole industry under pressure, to fulfill its demands
  - The translations needs to be very accurate due to its technical terms
  - Measuring technologies are not ready to fully comply with the regulation yet and the technology requirements still need to be further defined by the EC
  - Also repair technology needs to be improved to further abate emissions
- The additional technical standards (CEN) are essential
- This will become a journey…
- … and GASCADE is ready