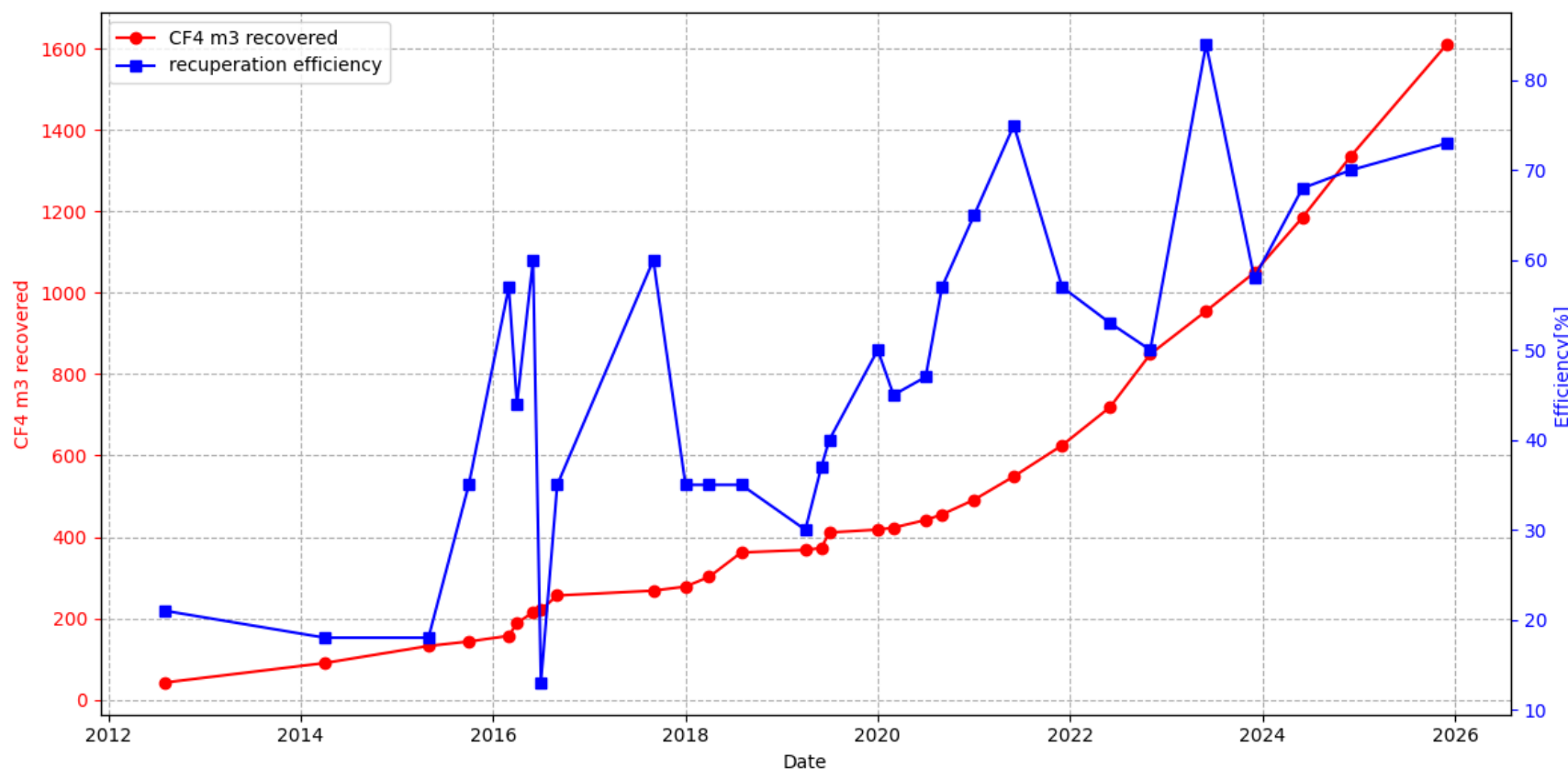


CMS gas system annual meeting – Recovery systems

M. C. Arena and A. D'Auria, on behalf of the Gas Team

CSC CF₄ recovery plant Recuperation summary



- **Efficiency** mean value: **73%** in the period January-December **2025**
- In 2025, out of 441.1 m³ of CF₄ injected into the mixer, **237 m³** were **recovered CF₄** (54%)
- >7000 tCO₂eq saved in the last year thanks to the recovery system

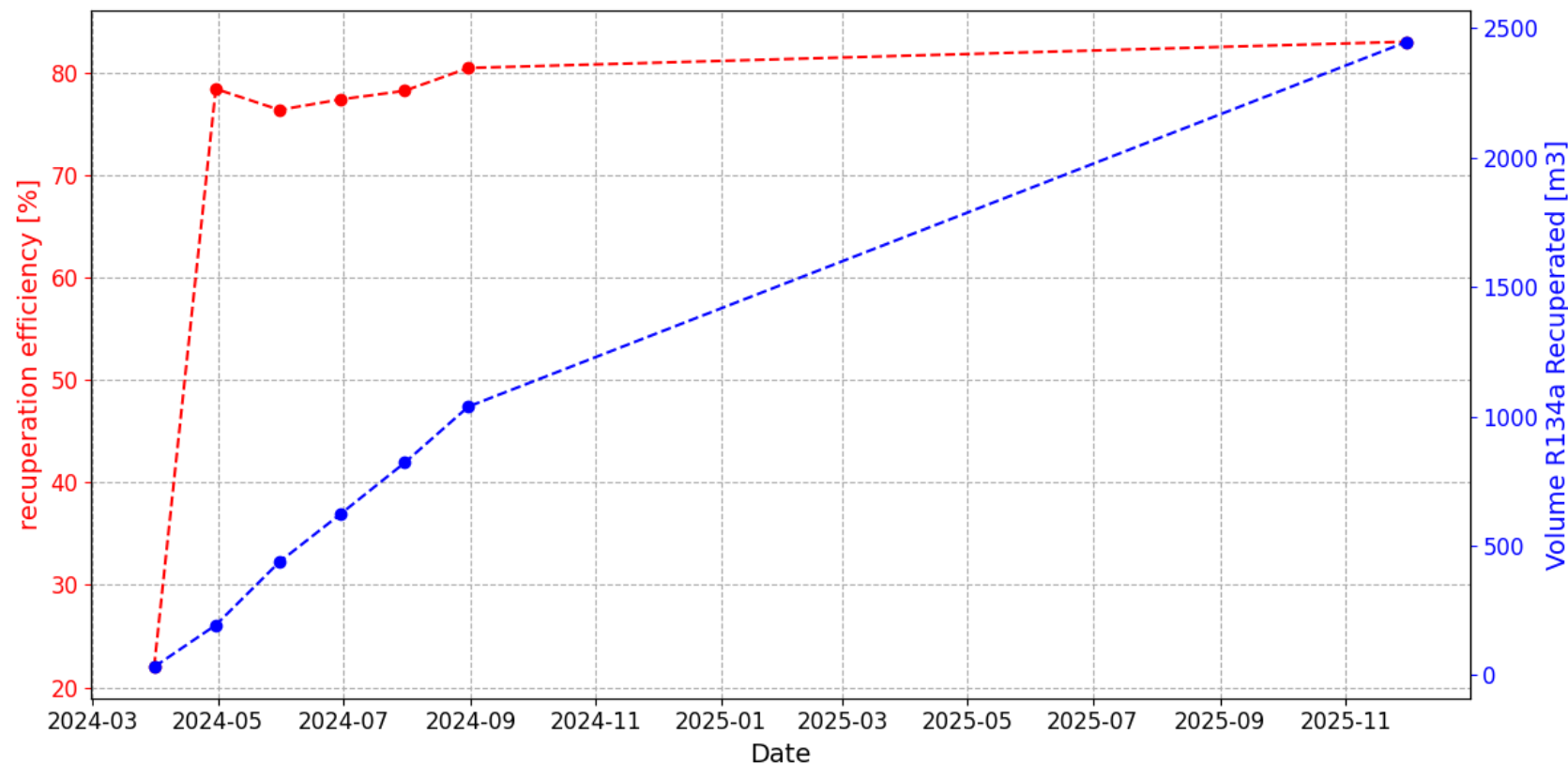
Next steps

- **New student working with us involved in the R&D activities for studies of new membranes for different separation processes, including N₂ and CF₄**
- **Research of new compressor still ongoing → for the moment one spare compressor always available, in the future we will probably take the one from ATLAS TRT gas system**
- **Project to implement online analysis after the CF₄ adsorber module, to monitor the O₂ in continuous and improve the intervention in case of problems at the level of the pumps**
- **Discussion ongoing for the new PLC → LS3**

RPC R134a recovery plant

Recuperation summary

- Recovery **efficiency >80%** in **2025** with around **5000 ppm iC₄H₁₀** in the recuperated R134a (**99.5% of gas purity**)
- Out of 3960 m³ of R134a injected in 2025, 1410 m³ (36%) were R134a recovered (9400 tCO₂eq saved in '25)
- Main limitation → leaks at the detector level



Next steps

- **Improvement of the cooling system → installation of a bypass in the chiller cooling circuit to decrease the input-output ΔT for greater system efficiency**
- **Discussion ongoing about the possibility to pass from a in series to in parallel cooling circuit → it means dismantling part of the system**
- **Addition of a 3rd module ? → it makes sense only in the case CMS will repair leaks, we should know it in advance to design the system, do the construction, installation and commissioning of the rack in time for RUN4**