

The Gas Team and the LHC gas systems: introduction

Outlook

- Gas Systems Team organization
- Experiment/detectors contact persons, egroups
- M&O Budget update
- Other ATLAS projects/activities
- Conclusions

Gas Systems Team organization

First level contacts for non urgent matters:

Gas system sites responsible:

- ALICE: Louis-Philippe De Menezes
- ATLAS: Mattia Busato
- CMS: Andrea D'Auria
- LHCb: Patrick Carriè

They are your first contact for any gas system issue

If you write an email, please put in cc gassystems.support@cern.ch :

- we will treat your email in case of absence of the site responsible
- your email will create a jira ticket that will allow (you and us) to follow the issue reported

Second level contacts for non urgent matters:

M&O contact persons: Beatrice Mandelli, Gianluca Rigoletti

Project leader: Roberto Guida

1st contact for any urgent issue: gas piquet 162516

Gas Systems Team organization

Roberto
Project leader



Students: Doct, Tech, Trainee

Maria Cristina
Analytical chemistry



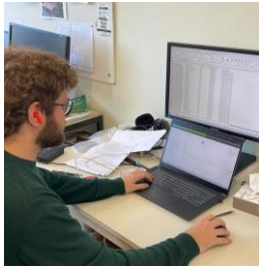
Amin, Damiano
Gas recuperations



Stefania
R&D



Bonaventura
Maintenance analysis,
EAM/Infor and Pumps



Kacper
ATLAS and Pumps



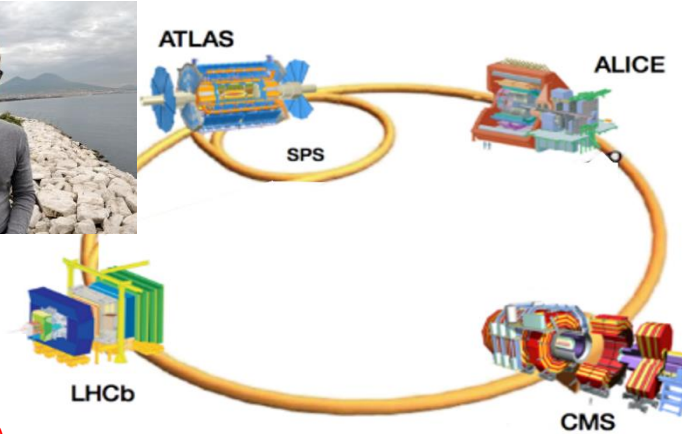
Gianluca
Software, LHC-M&O,
ATLAS and R&D



Patrick
LHCb and electrical
Spare parts (electrical)



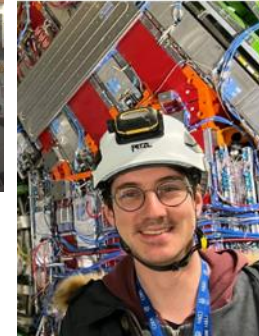
Pieter
LHCb, R&D



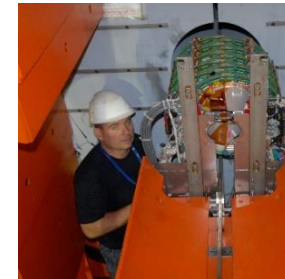
Louis-Philippe
ALICE, CLOUD



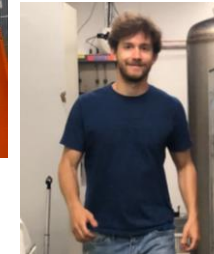
Mattia V.
ALICE, R&D



Andrea
CMS



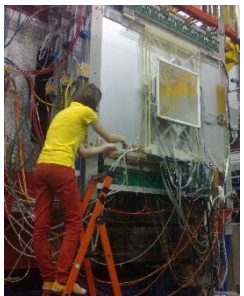
Mattia B.
CMS, CLOUD
and R&D



Gianluca
Software, LHC-M&O,
ATLAS and R&D



Beatrice
R&D and LHC-M&O



Frederic
Gas & Cooling workshop
Spare parts (mechanical)



Gas Systems Team organization

Roberto
Project leader



Mattia B.
ATLAS, CLOUD
and R&D



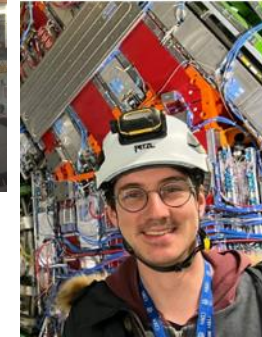
Gianluca
Software, LHC-M&O,
ATLAS and R&D



Louis-Philippe
ALICE, CLOUD



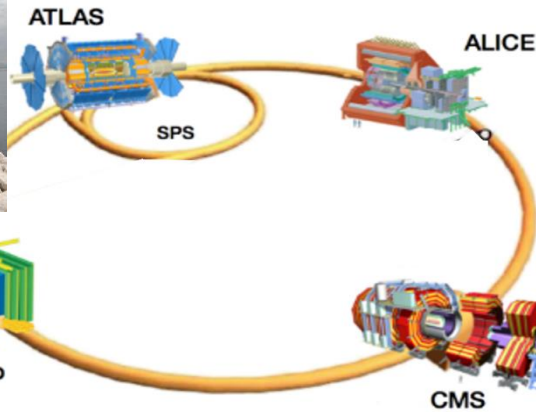
Mattia V.
ALICE, R&D



Gianluca
Software, LHC-M&O,
ATLAS and R&D



Fellow, Doct, Tech, Trainee



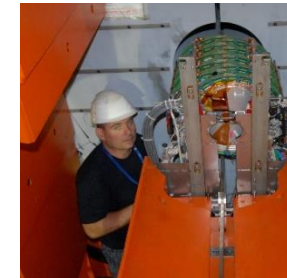
Patrick
LHCb and electrical
Spare parts (electrical)



Pieter
LHCb, R&D



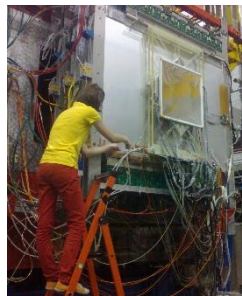
Andrea
CMS and
workshop



Maria Cristina
gas analysis
and CMS



Beatrice
R&D and LHC-M&O



Maria Cristina
gas analysis,
and CMS



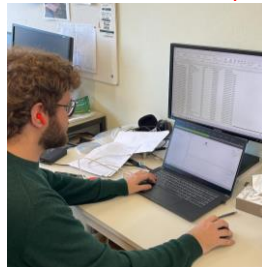
Amin, Damiano
Gas recuperations



Stefania
R&D



Bonaventura
Maintenance analysis,
EAM/Infor and Pumps



Detector contact persons

M&O Workpackage Run3 (EDMS 2779718)

8 Annex 1: List of detector gas system experts

List of detector gas system experts for 2022.

8.2 ATLAS Gas Systems

Detector	Detector gas system expert
MDT	FLEISCHMANN, Philipp;
MM	To be defined by ATLAS
RPC	AIELLI, Giulio; PASTORI, Enrico;
TGC	ABREU AGUILAR, Henso Javier; MIKENBERG, George;
TRT	KONOVALOV, Serguei; ZHUKOV, Konstantin;
ID flushing	To be defined by ATLAS
TRT CO ₂ cooling	KONOVALOV, Serguei; ZHUKOV, Konstantin;
nC ₃ H ₁₂ recuperation	ABREU AGUILAR, Henso Javier; MIKENBERG, George;
Xe recuperation	KONOVALOV, Serguei; ZHUKOV, Konstantin;

Knowledge base for Gas Systems Home - Knowledge base for Gas Systems - Global Site

ATLAS Phone list AtlasPendingAccess - Twiki ATLAS - EYETS 2024-2025 Twiki Piquet IMPACTs: USA15 - 239831, UX15 - 239829 (Call OPM 165422 to schedule intervention in USA15/UX15)			
USA15 Inspection IMPACTs: Mechanical - 240980, Electrical - 240981			
TGC	✓ON	RUN - Only CO2 n-Pentane refill procedure Switch to CO2 procedure	Primary On-Call 161905 George Mikenberg 160507 atlas-muon-npentane@cern.ch
RPC	✓ON	RUN - {C2H2F4/CO2/iC4H10/SF6} [59/35/5/1] => [C2H2F4/CO2/iC4H10/SF6] [49/45/5/1] In case of stop, restart as soon as possible!	Primary On-Call 160664 Giulio Aielli 162143 Enrico Pastori 167466 Davide Boscherini 162101
MMG	✓ON	RUN - [Ar] [100]	Primary On-Call 16xxxx Paolo Iengo 168679 Mario Antonelli 161289
MDT	✓ON	RUN - [Ar/CO2] [93/7] - RACK 68 is in stop: issues with flow reading on channel 19-20 In case of stop of more than 1h or problems: see eLog entry here: Chambers refill procedure	Primary On-Call 161547 Philipp Fleischmann 169676
TRT	✗OFF	RUN-with-Xe LOCAL UX15 FLUSHING TRT and TRO separation - software modification explication	Primary On-Call 167309 Konstantin Zhukov 160446
ID Flushing	✓ON	RUN - ID Volume [Dry Air] Rest [N2] - Only in case N2 will finish, we need move to Ar Probably a switch to CO2 during February 1-2, 2025	Primary On-Call Martin Kocian 165910 Dave Robinson 162363 Koichi Nagai 162314
TFC	✓ON	RUN - [Dry Air]	Primary On-Call 167309 Konstantin Zhukov 160446

Detector contact persons

Egroup for communications between gas team and experiments.

Free subscription and unsubscription (to facilitate the detector contact persons in keeping the list updated)

For ATLAS:
[gas-users-ATLAS](#)
 Members are:

AIELLI, Giulio (EP-UAT)	Person	AIELLI	Giulio.Aielli@cern.ch	RPC Detector expert
ALEKSA, Martin (EP-ADO-AM)	Person	ALEKSA	Martin.Aleksa@cern.ch	Self added member
ALEXOPOULOS, Theodoros (EP-UAT)	Person	TALEXOPO	Theodoros.Alexopoulos@cern.ch	Self added member
AMELUNG, Christoph (EP-ADO-AM)	Person	AMELUNG	Christoph.Amelung@cern.ch	
BOSCHERINI, Davide (EP-UAT)	Person	BOS	Davide.Boscherini@cern.ch	RPC Detector expert
FLEISCHMANN, Philipp (EP-UAT)	Person	PFLEISCH	Philipp.Fleischmann@cern.ch	MDT Detector expert and general muon
GUIDA, Roberto (EP-DT-FS)	Person	GUIDAR	Roberto.Guida@cern.ch	Gas Team
IENGO, Paolo (EP-ADO-AM)	Person	IENGO	Paolo.Iengo@cern.ch	Self added member
KONOVALOV, Serguei (EP-ADO)	Person	KONOVAL	Serguei.Konovalov@cern.ch	TRT Detector expert
KOURKOUMELI-CHARALAMPIDI, Athina (EP-UAT)	Person	AKOURKOU	athina.kourkoumeli-charalampidi@cern.ch	Self added member
LUTZ, Margaret (EP-ADE-TK)	Person	MALUTZ	m.lutz@cern.ch	Self added member
MANDELLI, Beatrice (EP-DT-FS)	Person	BMANDELL	beatrice.mandelli@cern.ch	Gas Team
MANIATIS, Ioannis Michail (EP-UAT)	Person	IMANIATI	giannis.maniatis@cern.ch	Self added member
MIKENBERG, George (EP-UAT)	Person	GEORGE	Giora.Mikenberg@cern.ch	TGC Detector expert
MOLERI, Luca (EP-UAT)	Person	LMOLERI	luca.moleri@weizmann.ac.il	Self added member
NAGAI, Koichi (EP-UAT)	Person	NAGAI	Koichi.Nagai@cern.ch	
PARASKEVOPOULOS, Christos	Person	CPARASKE	christos.paraskevopoulos@cern.ch	Self added member
PASTORI, Enrico (EP-UAT)	Person	EPASTORI	Enrico.Pastori@cern.ch	RPC Detector expert
PEREZ CODINA, Estel (EP-ADE-TK)	Person	ESTEL	Estel.Perez.Codina@cern.ch	
POLINI, Alessandro (EP-UAT)	Person	APOLINI	Alessandro.Polini@cern.ch	Self added member
POLYCHRONAKOS, Venetios (EP-UAT)	Person	POLYCHRO	polychro@bnl.gov	
PONTECORVO, Ludovico (EP-ADO-AM)	Person	PONTECOR	ludovico.pontecorvo@cern.ch	ATLAS Coordination
RIGOLETTI, Gianluca (EP-DT-FS)	Person	GRIGOLET	gianluca.rigoletti@cern.ch	Self added member
ROMANIOUK, Anatoli (EP-UAT)	Person	ROMAN	Anatoli.Romaniouk@cern.ch	TRT Detector expert
RUMMLER, Andre (EP-ADO-SO)	Person	ARUMMLER	andre.rummler@cern.ch	OPM
SANTONICO, Rinaldo	Person	SANTONIC	santonico@roma2.infn.it	
SEKHNIADZE, Givi (EP-UAT)	Person	GSEKHNIA	givi.sekhniadze@cern.ch	
SHOA, Meir (EP-UAT)	Person	SHOAM	meir.shoa@weizmann.ac.il	
SOLANS SANCHEZ, Carlos (EP-ADE-TK)	Person	SOLANS	carlos.solans@cern.ch	ATLAS DSS Expert
TAREM, Shlomit (EP-UAT)	Person	SHLOMIT	shlomit.tarem@cern.ch	
ZAAZOUA, Mohamed (EP-UAT)	Person	MZAAZOUA	mohamed.zaazoua@cern.ch	Self added member
ZHUKOV, Konstantin (EP-UAT)	Person	KZHUKOV	Konstantin.Zhukov@cern.ch	TRT Detector expert

To facilitate communication add:

- *detector*

- *On-call numbers*

names to add/remove?

Gas systems elog

Egroup for elog notification

Free subscription and unsubscription (to facilitate the detector contact persons in keeping the list updated)

For ATLAS:

[gas-users-ATLAS-ELOG](#)

Members are:

Name	Type	Login	Email	Comments
AOKI, Masato (EP-UAT)	Person	MASATO	masato.aoki@cern.ch	Self added member
BOSCHERINI, Davide (EP-UAT)	Person	BOS	Davide.Boscherini@cern.ch	Self added member
FLEISCHMANN, Philipp (EP-UAT)	Person	PFLEISCH	Philipp.Fleischmann@cern.ch	Self added member
IENGO, Paolo (EP-ADO-AM)	Person	IENGO	Paolo.Iengo@cern.ch	Self added member
KARENTZOS, Efsthios (EP-UAT)	Person	EKARENTZ	efsthios.karentzos@cern.ch	Self added member
KOURKOUMELI-CHARALAMPIDI, Athina (EP-UAT)	Person	AKOURKOU	athina.kourkoumeli-charalampidi@cern.ch	Self added member
LUTZ, Margaret (EP-ADE-TK)	Person	MALUTZ	m.lutz@cern.ch	Self added member
MANDELLI, Beatrice (EP-DT-FS)	Person	BMANDELL	beatrice.mandelli@cern.ch	Self added member
MANIATIS, Ioannis Michail (EP-UAT)	Person	IMANIATI	giannis.maniatis@cern.ch	Self added member
MIZUHIKI, Ryugo (EP-UAT)	Person	RMIZUHIK	ryugo.mizuhiki@cern.ch	Self added member
MOLERI, Luca (EP-UAT)	Person	LMOLERI	luca.moleri@weizmann.ac.il	Self added member
NAGAI, Koichi (EP-UAT)	Person	NAGAI	Koichi.Nagai@cern.ch	Self added member
NTEKAS, Kostas (EP-UAT)	Person	NTEKAS	Kostas.Ntekas@cern.ch	Self added member
PARASKEVOPOULOS, Christos	Person	CPARASKE	christos.paraskevopoulos@cern.ch	Self added member
PASTORI, Enrico (EP-UAT)	Person	EPASTORI	Enrico.Pastori@cern.ch	Self added member
POLINI, Alessandro (EP-UAT)	Person	APOLINI	Alessandro.Polini@cern.ch	Self added member
TRIGGER, Isabel (EP-UAT)	Person	ITRIGGER	Isabel.Trigger@cern.ch	Self added member
TSIGARIDAS, Stergios (EP-UAT)	Person	STSIGARI	stergios.tsigaridas@cern.ch	Self added member
YAMASHITA, Erika (EP-UAT)	Person	EYAMASHI	erika.yamashita@cern.ch	Self added member
ZAAZOUA, Mohamed (EP-UAT)	Person	MZAAZOUA	mohamed.zaazoua@cern.ch	Self added member
ZHUKOV, Konstantin (EP-UAT)	Person	KZHUKOV	Konstantin.Zhukov@cern.ch	Self added member
atlas-muon-run-coordinators	e-group			Added by grigolet on request of ATLAS
atlas-muon-tcn	e-group			Added by grigolet on request of ATLAS

M&O budget

M&O budget ([EDMS 2779718](#)):

Material and personnel costs covered by the M&O agreement

MFCs maintenance

Consumables (lab, tools, connectors, pipes, ...)

Gas analysis (calibration gases for lab, materials, O2 cells, maintenance, ...)

Pump maintenance 2000 h and 30000 h

Purifier maintenance (absorbers: mol.sieve, catalysts, ...)

Safety valve maintenance

Pneumatic controls

PLC and Power Supply

Pressure sensors (last production of old generation sensors radiation tolerant)

-

Maintenance organization (procedures, reports, ...)

Analysis modules and operation

R&D for upgrade/consolidation

→ about 800 orders processed

For ATLAS:

Up to 2024

→ 205.5 kCHF

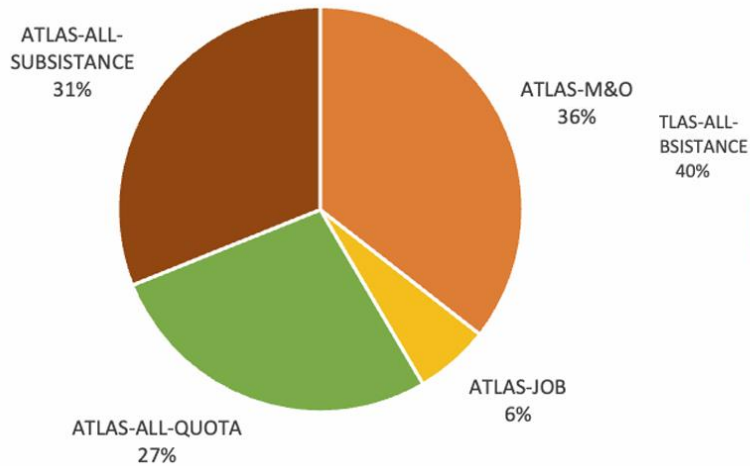
From 2025

→ 249.5 kCHF ([Update to M&O Workpackage \(EDMS 3088231\)](#))

M&O budget 2022, 2023 and 2024

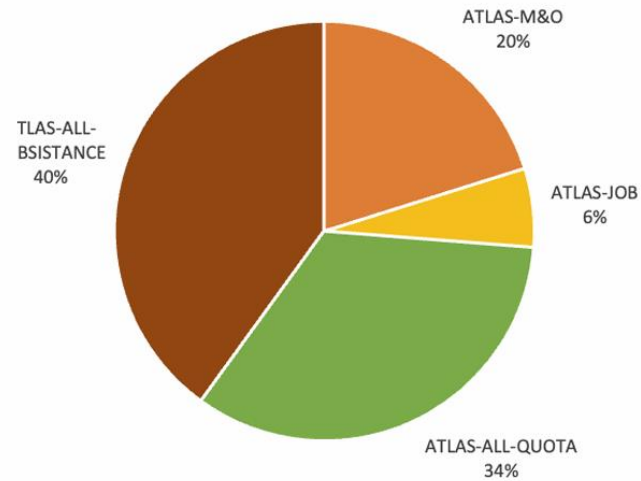
2022

83% budget used



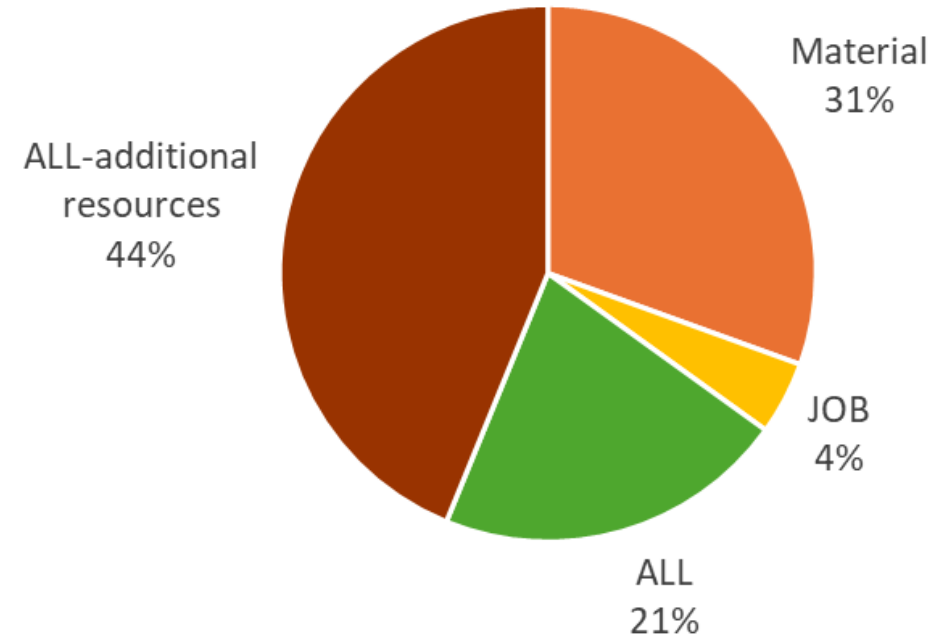
2023

125% budget used



2024

140% budget used



- 1 staff (controls) paid on EP budget (from 2025 back to EP budget thanks to a new LD)
- +1 fellow (controls) paid on M&O (same as above, **from 2025 back to EP budget thanks to a new LD**)
- +1/3 fellow (**3D drawings**) paid on M&O
- +1 fellow for **gas systems operation and flowcells**
- +1/2 fellow for **gas systems operation and gas recuperation**
- +1 tech. student/Doctoral for **EAM/Infor, risk assessment and reliability analysis**
- 1.5 staff technical (**opening of a new LD technical under discussion**)

M&O budget 2024 and beyond

2024:

140% budget used:

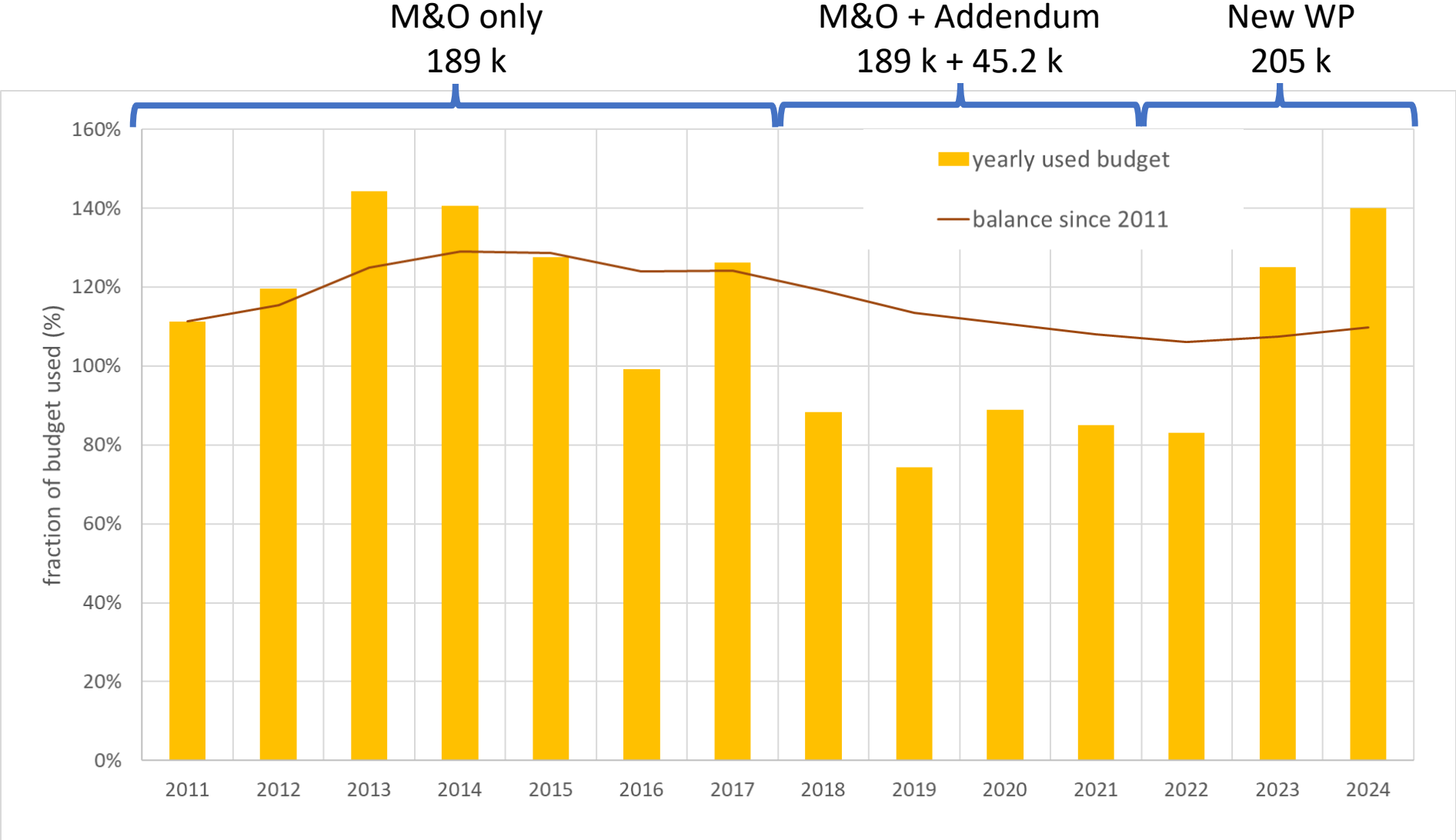
Mainly personnel

Concerning material, mainly:

- Stock of cooling fluid (going out of production) for TGC ~30 k
- TFC pump reparation and maintenance ~25 k

Budget history since 2011

- ATLAS gas system budget status since 2011:



Conclusions

LHC M&O

- LHC M&O activities are well defined and supported by the M&O agreement.
- budget situation will normalize from 2025 thanks to “update” to M&O workpackage and 1 LD (controls) replacing a fellow
- ~5 fellow, doctoral, technical for new competencies needed:
 - . 3D drawings
 - . EAM/Infor, maintenance and spare parts organization
 - . Flowcells
 - . Operation of gas systems and gas recuperation

Other ALICE projects/activities

- Others? New needs?

Beyond M&O budget

- CEPS budget for R&D on new system to optimize GHG usage (examples: improvement of gas systems to cope with new detector needs and R134a, CF4, SF6, C4F10 recuperation plants)
- HostLab for construction of R134a recuperation plants for ATLAS and CMS

LS3

- We need to collect detector needs asap: to anticipate any potential resource issue