

# LEIR Availability Statistics 2024

# Information I

These slides are a template to summarize availability of your machine in 2024. Please correct and complement the slides considering the following questions:

- What are the main events & challenges impacting availability this year?
  - Is this shown in the data, and does it match your expectations?
  - Is any crucial aspect not visible in the data that should be pointed out?
- What is the outlook for next year?
  - Are you expecting interventions over YETS that might improve availability?
  - Could certain circumstances lead to an availability degradation?

# Information II

- There will be additional questions on each slide. Feel free to spread out comments over multiple slides as required
- **We only need reviews of 2024.** Previous years are already well covered (e.g. see the Special RAWG on Accelerator Availability 2023, linked)  
<https://indico.cern.ch/event/1340975/>

- All LEIR faults this year can be found at:

[https://aft.cern.ch/search?timePeriod=%257B%2522timePeriodType%2522%253A%2522fixed%2522%252C%2522startTime%2522%253A%252201012024000000%2522%252C%2522endTime%2522%253A%252201012025000000%2522%257D&accelerator=LEIR&hadStates=BLOCKING\\_OP&excludedFaultStates=NON\\_BLOCKING\\_OP%252CUNDERSTOOD%252CSUSPENDED](https://aft.cern.ch/search?timePeriod=%257B%2522timePeriodType%2522%253A%2522fixed%2522%252C%2522startTime%2522%253A%252201012024000000%2522%252C%2522endTime%2522%253A%252201012025000000%2522%257D&accelerator=LEIR&hadStates=BLOCKING_OP&excludedFaultStates=NON_BLOCKING_OP%252CUNDERSTOOD%252CSUSPENDED)

# Availability Schedule

Availability is counted over time periods as follows:

- L4, PSB, PS, SPS: starts once beam is required by a downstream machine
- L3, LEIR starts once beam is delivered to LHC
- LHC starts with beam commissioning
- ISOLDE, AD/ELENA, EAST, NORTH starts with respective physics period

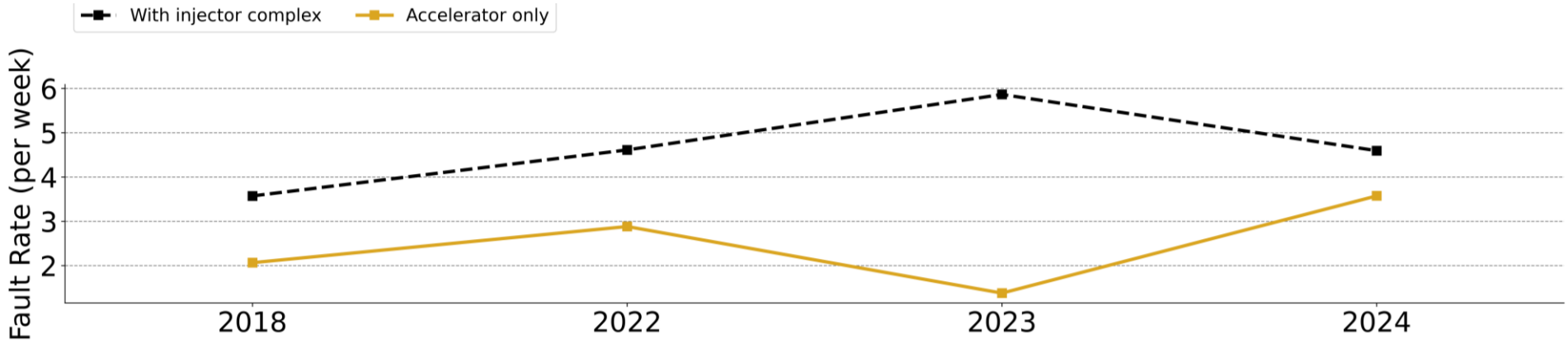
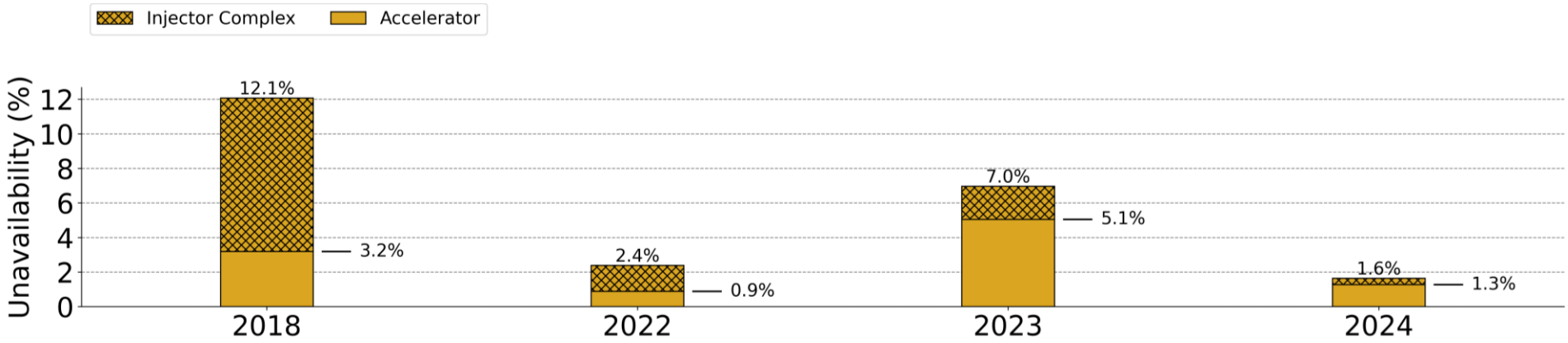
Dedicated MDs and Technical Stops are excluded from availability monitoring.

LEIR time periods are on the next page. [Should these times be wrong, please correct them and let us know](#)

# LEIR Time Periods

- ('04-06-2018 09:00:00', '18-06-2018 09:00:00'),
  - ('20-06-2018 09:00:00', '17-09-2018 09:00:00'),
  - ('19-09-2018 09:00:00', '10-12-2018 06:00:00'),
  - ('03-11-2022 09:00:00', '28-11-2022 06:00:00'),
  - ('18-09-2023 09:00:00', '12-10-2023 06:30:00'),
  - ('12-10-2023 15:30:00', '01-11-2023 08:00:00'),
  - ('04-11-2024 09:00:00', '02-12-2024 06:00:00')
- Only times that LHC, **North Area and East Area** gets ions

# 2024 in Context



Does 2024 match your expectations? **Yes it looks correct**

What could be responsible for the observed trends? **No clear trend to me, similar as last years**

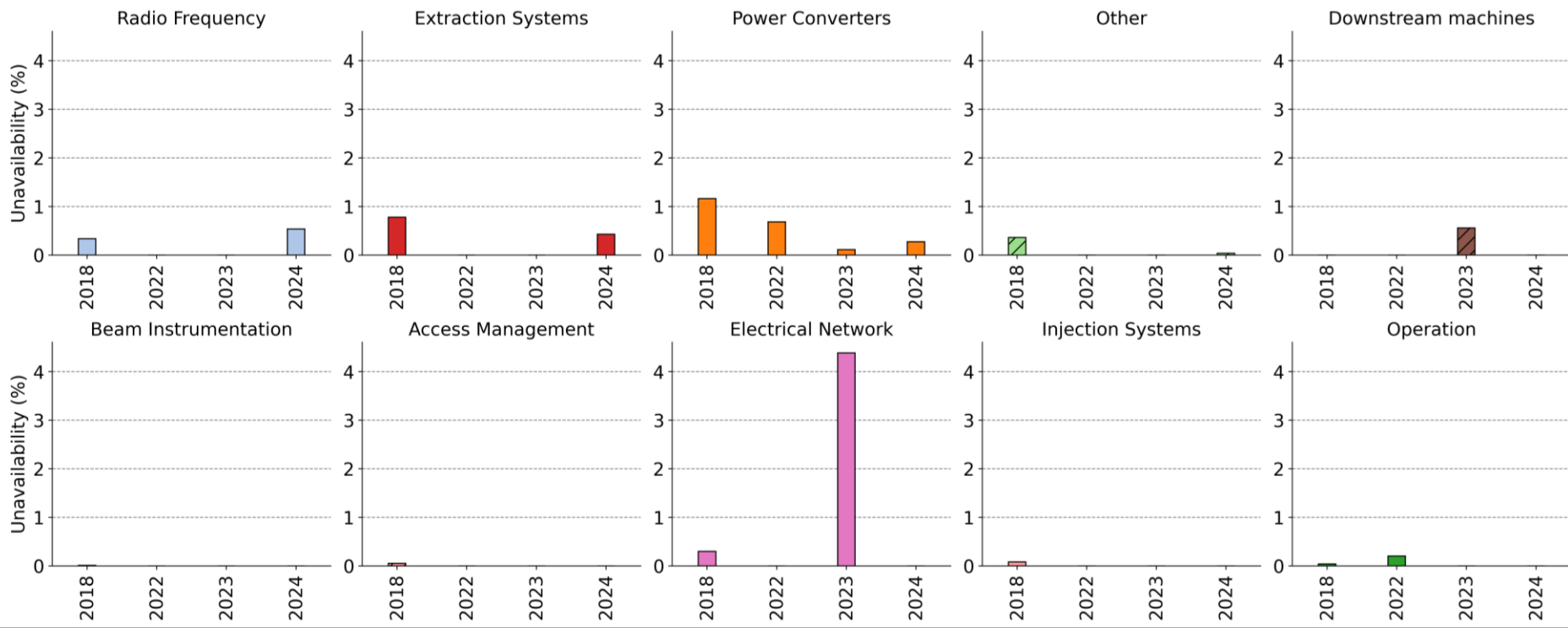
# System Downtime

Please elaborate on the main events and down time.

**This year we had more issues in the RF cavities (PLC, PC, amplifiers) the RF experts are aware, fixed the issues and will follow up during the YETS. Same comment for the extraction kickers.**

Can any trends be easily explained?

**I don't think there is a clear trend, apart from the 2 systems mentioned where the problems were followed up**



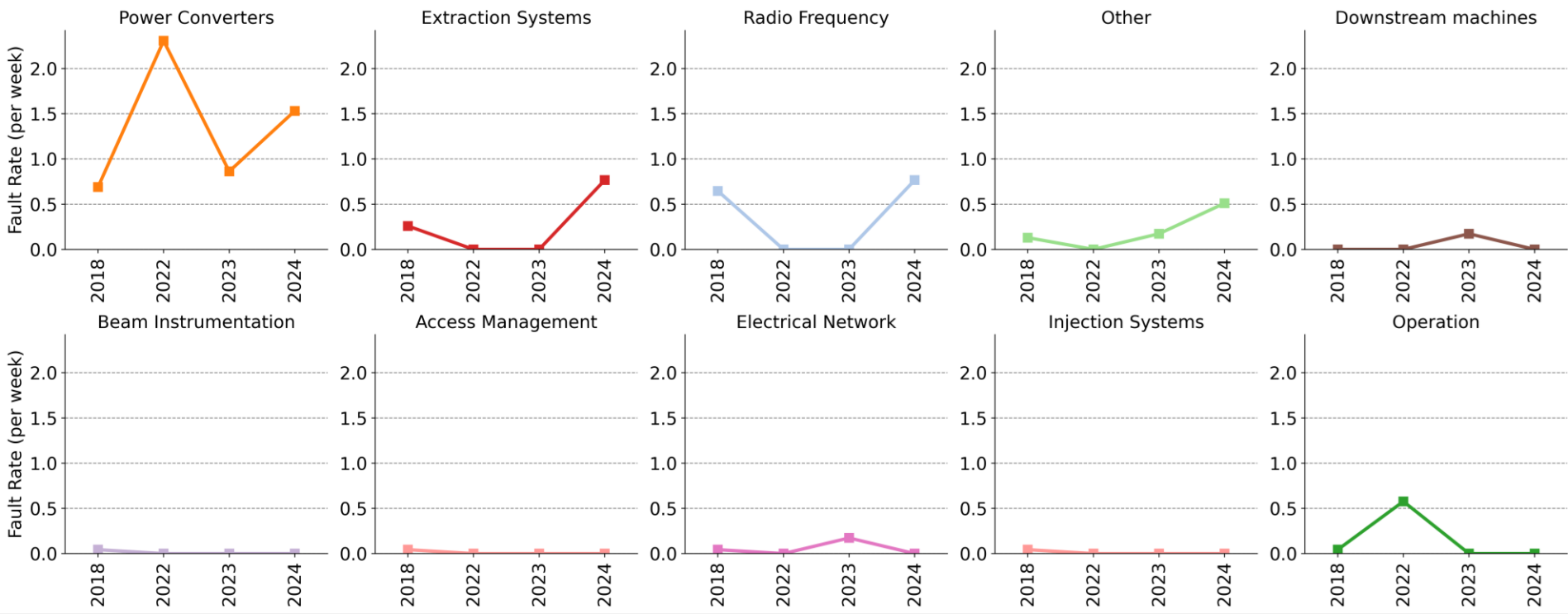
# System Failure Rate

Are any mitigations foreseen?

**No, just follow up and fix the issues during commissioning. Nothing to worry for the moment**

How do you expect this to evolve in 2025?

**I expect to be similar to this year. We can still improve the reaction time from OP (reset magnets etc) but since we are already in good state, there won't be a big change**





# Unavailability by Duration

Do these trends match your expectations?

Yes

Any positive trends worth remarking?

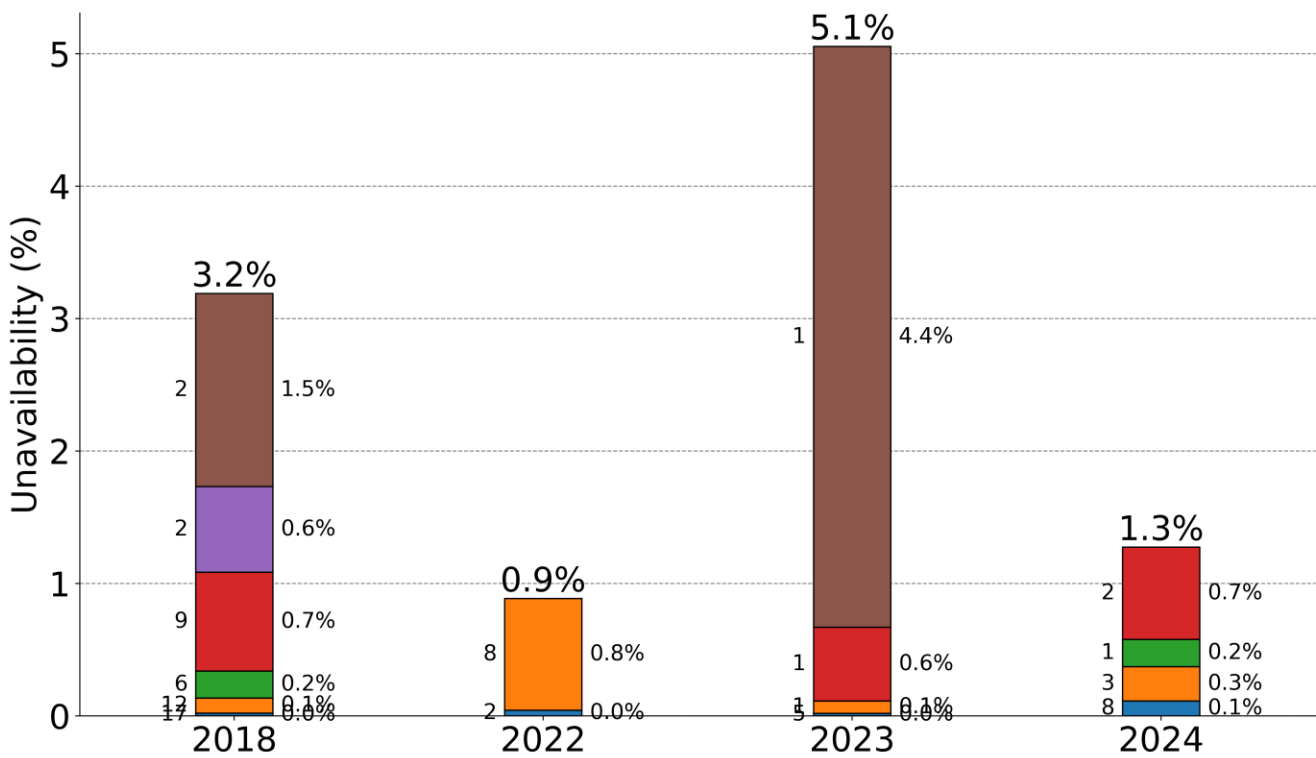
No

Are any trends worrying?

No

(w/o injector complex)

LEIR



# Summary & Conclusion

- Main message and conclusion for 2024?
- Would you like us to provide AFT statistics for a specific problem in more detail?
- What is the outlook for next year? Are there any availability problems expected unless they are addressed over the YETS?
- Desiderata for fault tracking and AFT tool?