



# Looking forward to the BGC Collaboration Meeting

Ray VENESS

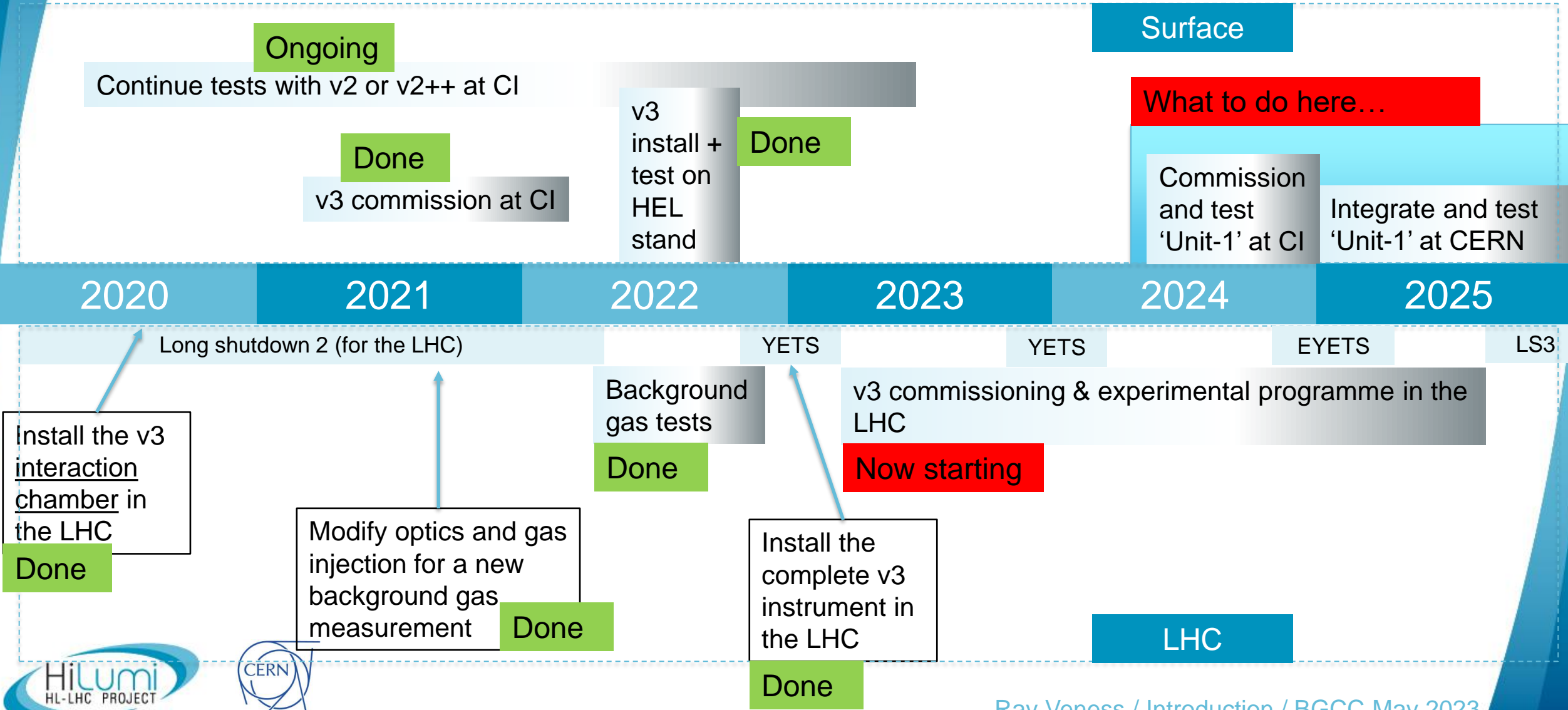


***CERN, 12 & 13 December 2023***

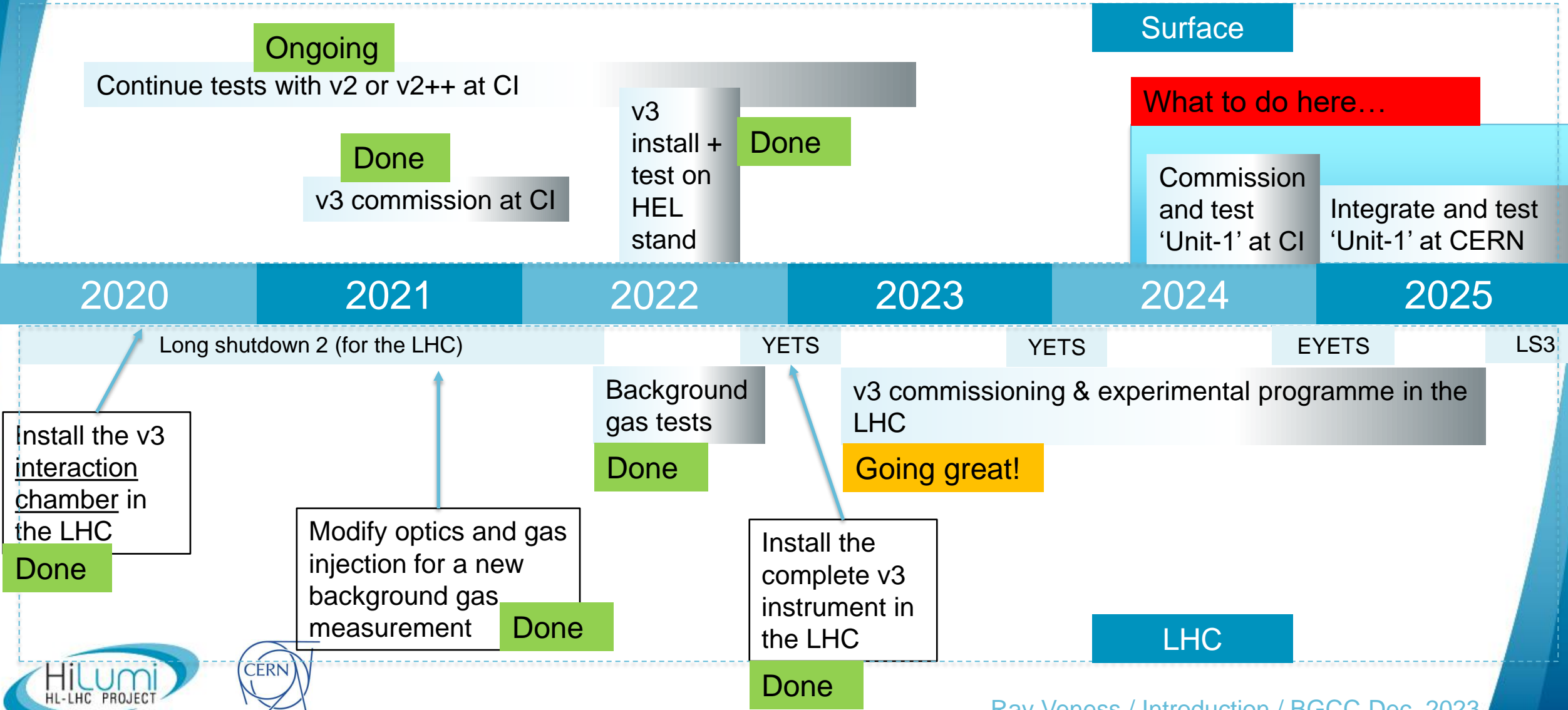
# Contents

- It's been a great 6 months (and year) for our collaboration!!
- Looking back
  - Project roadmap
  - Actions from the last Collaboration meeting in May
- My views on the main things that we need to focus-on going forward

# Project roadmap (May 2023 meeting)



# Project roadmap (December 2023 meeting)



# Actions from the closeout of the May 2023 meeting

- More systematic measurement programme in the EBTS [all] **Not started**
- Strategy for publications from the experimental results [Hao/all] **Progressing**
- Pulsed gas jet: What engineering is needed? How would it impact performance? [CI team] **Not started**
- Consider NEG pumps for a system with N<sub>2</sub> [CERN team?] **Not started**
- EBTS with different gases: Make a table of different parameters (filters, intensifier sensitivity, etc) to show the differences (and room for optimisation). [Ondrej] **Not started**
- Look for a planned MD at injection so that we can piggy-back some BGC measurements, or request a dedicated one [Ondrej] **Done**
- Plan for measurements in the 2023 ion run [Ondrej/all] **Done**
- What do we need to do to get publishable data for x-section at 6.8 TeV (calibration, gas density measurement...) [GSI team/CI team] **Progressing**
- Cost and BoM for the vacuum controls [Lampros] **This meeting?**
- Optimising the use of v3 in the LHC **Progressing**
  - Make an optimized simulation with Oliver's code for a p+ optimized 3<sup>rd</sup> skimmer [Oliver]
  - Consider installing a smaller (p+) optimized skimmer 3 in the next YETS [CI/CERN]
  - Consider making/installing a new skimmer 4 too [CI/CERN]
  - Adjust the optics field-of-view [GSI/?]
- Cost and BoM for mechanical instrument [Krystian] **Done?**
- Cost and BoM for acquisition and optical elements [CI team/Stefano?] **Not started?**
- Discuss/request simulations and mitigation for beam-induced camera noise from the STI team. [?] **This meeting?**

# Focus on outcomes of this meeting

(My view...)

- We need to agree the targets for our two v4 instruments
  - Assuming that one is still desired for the EBTS, we need to finalise the specification
    - I think we have shown that making a gas jet wider than 40mm would require a major re-design that is not in the scope of this in-kind deliverable
    - If we accept this, it would allow us to ensure that we can agree a design that can be built and delivered within the time scope of HL-UK2
  - There is an increasing interest from CERN in having an operational BGC on both beams of the LHC
    - We should understand what is needed to prepare a complete, costed plan to upgrade v3 to 'operational' and to design and install the other v4 device as an operational instrument on the other beam
    - We need to find a place for a LHC v4 and make a design and integration that fits this place.

# Focus on outcomes of this meeting

- Resources
  - We only have 15 months on the HL-UK2 collaboration
    - We need to clearly define the v4 deliverables for Cockcroft
    - Agree to some firm deadlines for decisions on the LHC v4
  - We need to find people to continue the experimental programme in the LHC (data-taking and analysis) that has been done by Ondrej
    - Can we share this between CERN and CI?
- New resources for the LHC-BGC
  - We have a momentum and interest in this project that will allow us to look for resources (both at CERN and in the UK) to continue this towards an operational instrument
    - To do this, we will need a budget estimate for all of the different parts of the project



# Summary

- It's been an excellent period for this project and the collaboration behind it
- Due to all of our dedication, science, engineering and technical skills over many years, we have built an instrument that is making new and valuable measurements on LHC beams
- We are in a great position to take this forward to produce fully operational instruments for HL-LHC