

## Risk Contingency

### 1) ECal:

i) Shower modules parts have quotations from China and Russia. Possible risk with current trade tension between US and China.

Risk contingency: 300K (10%)

### 2) LGC:

i) Readout: if background is higher than simulation expected (from pre-R&D test), one mitigation is to use MAROC readout instead of simple sum readout, which will allow pixie information to suppress background.

The cost will increase from 110K (sum readout) to 330K (MAROC readout).

Risk contingency: 220K

### 3) HGC:

i) Readout: same reason as for LGC; 200 K (sum readout) --> 500K (MAROC readout)

Risk contingency: 300K

ii) Gas/Gas System: different gasses (C4F10, C4F8O and C4F8) and gas handling system were studied. Latest test from Hall C using C4F8 shows this gas should satisfy SoLID requirements. Gas handling system using Hall B recovery system has been evaluated recently as a reasonable solution. In view of the late decision making with no thorough careful re-check, it could still be a potential risk. Using the recent change in cost as the additional risk contingency.

Cost risk contingency: 150K

### 4) GEM:

i) GEM foil: potential risk due to over-demanding in production from CERN to produce GEM foils in a timely manner.

As a mitigation is to consider other vendors, which may have higher cost.

Risk contingency: 100K

ii) Readout: initial study shows that readout based on APV25 (demonstrated) and VMM3 (simulation) should work. Pre-R&D is planned to test VMM3 readout. In case VMM3 does not perform as well as expected in realistic situation, another option is to use SAMPA for back angle/large GEM chambers, which has an increase in cost.

Risk contingency: 400K

5) DAQ: Cost assumes reuse of Physics Division Flash-ADC modules. Will be additional cost if not as many modules are available.

Risk contingency: 300K

6) Magnet: Main uncertainty is the 2nd phase testing, which is no longer included in the preR&D plan.

Risk contingency: 100K

7) Infrastructure: Risk that not all dependencies will be available

Risk contingency: 100K