ILC OPERATING SCHEDULES AND AVAILABILITY MODELS

ASSUME that Integrated Luminosity requires 9 months of operating schedule but that we are free of **external** constraints (power or weather) in scheduling the 3 months of downtime.

MODEL 1) A single downtime and < `Opportunistic maintenance during unscheduled downtimes` >

PROBLEMS Opportunistic maintenance repair scenarios are inefficient, difficult to estimate, too dependent on estimates of MMTR and recovery times and lead to unrealistic scenarios.

The single downtime has to less than 3 months to allow for the unscheduled downs but it has still to be scheduled long in advance to allow major maintenance and upgrades.

MODEL 1A) < `A single 3-month shutdown per year with scheduled maintenance and no opportunistic maintenance` >

PROBLEMS Here everything that depends on redundancy, such as energy overhead or redundant power supplies or interlocks, must be adequate to give reasonable performance for 9 months. This could be a cost factor in systems design.

MODEL 2) < `Three 1-month shutdowns per year with scheduled maintenance and no opportunistic maintenance` >

PROBLEMS This addresses the above (overhead) problem in 1A) but is one month enough for any major machine wide upgrades or repairs? I have been told that one can assume one week each for warm up and cool down of a cryogenic section!

MODEL 3) ***MY PREFERRED***

2 X 1 month scheduled down times scheduled at **six month intervals** leaving one month total out of the 10 month running year (or 10% of time) for short schedule down periods for maintenance and repair. There would still be no opportunistic maintenance and the distribution and length of these downs would be based on experience. For example the 10% could be from 2 shifts per week to 3 days per month. I think this type of schedule has benefits for all except the external forces that might demand long down periods.

The push pull of the detectors would have to be worked into any of these schedules!