



Snowmass BCD 40(+) Q & A has been taken as the current & evolving LC guidance.

Power -

The integrated LC Power system model has been developed using Slac analysis software. The model has developed Cryo/CTW and RF/LCW power subsystems in some detail. Less detailed, so far, are the Injectors, Damping Rings, Undulator, IR Halls & Dumps. Several dozens of configurations have been tried testing various Cryo & RF roll-ups.

RF -

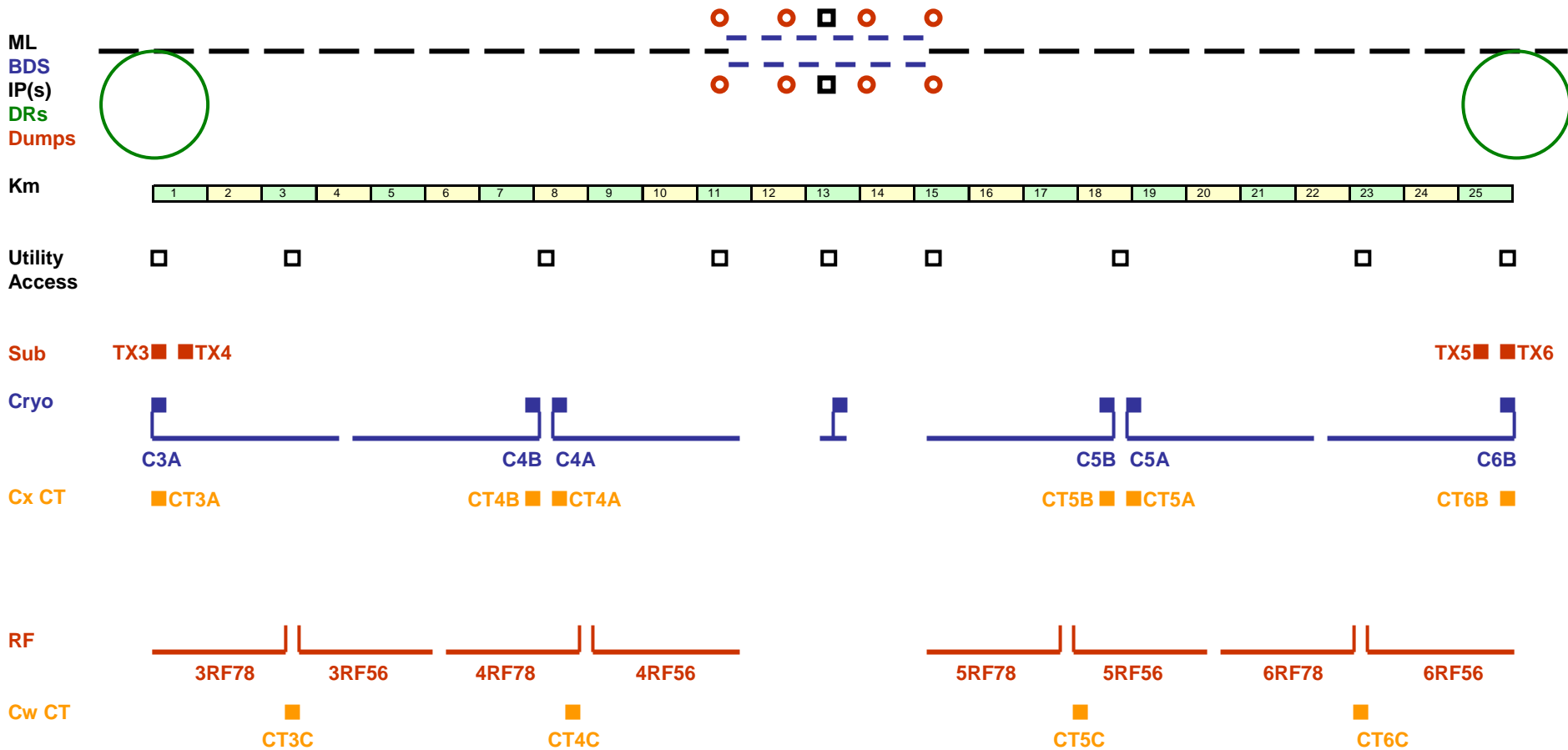
Marx Modulators have been modeled for 656 klystrons. (BCD modulators yet to be done) Modulator model at 99% power factor for 10 MW klystrons (85% pf yet to be done).

Cryo -

Power models for both 6 & 4 refrigerators have been modeled with true N+1 availability. Cryo models have been tested for pump-down, power transformer loss, compressor loss, and normal running using typical centrifugal cryo compressor performance curves.

Layout -

RF & Cryo in the 250 GeV linac have been indexed together to conform 984 eight cavity, 12 meter cryomodules, to 328 klystrons & modulators, over a 11,808 meter total length.



6 Main Linac Cryo Refrigerators @ 0.5 TeV cm,
Initial Gradient 31.5Mv/m, Qualified Gradient 35 Mv/m



2 of 6 Refrigerators

REFRIGERATION SPACING

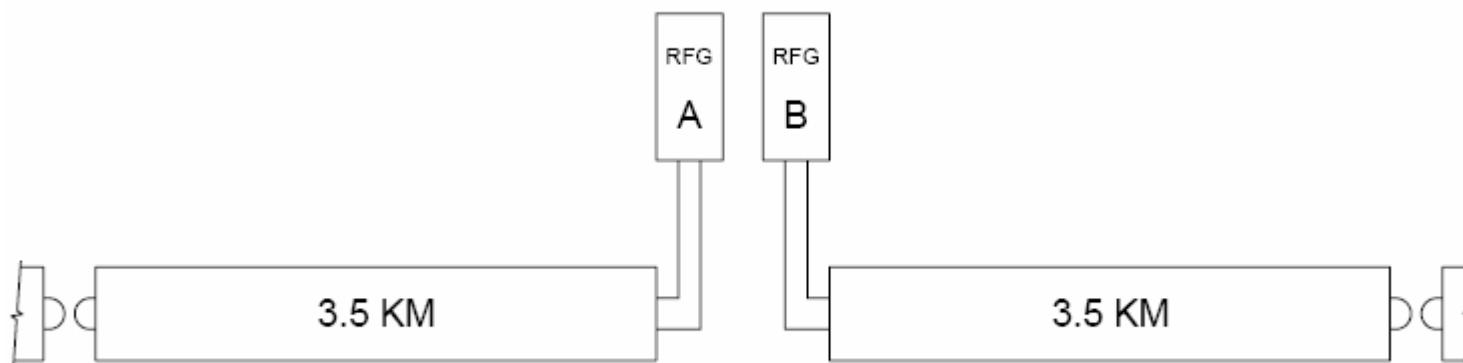
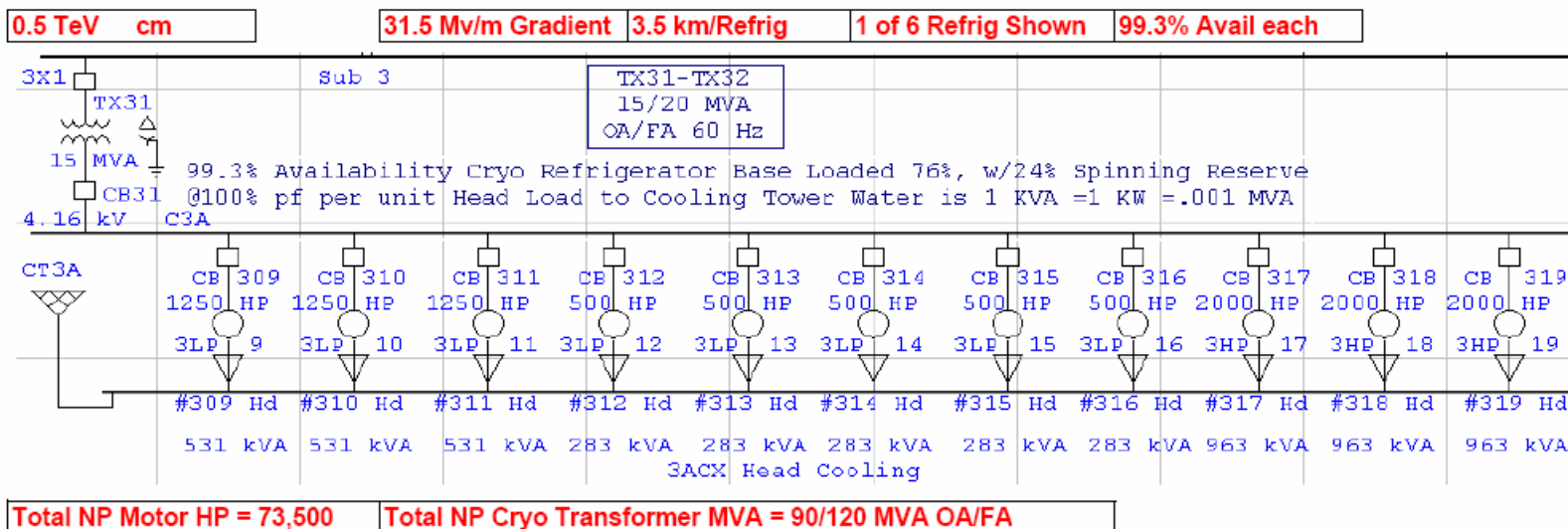
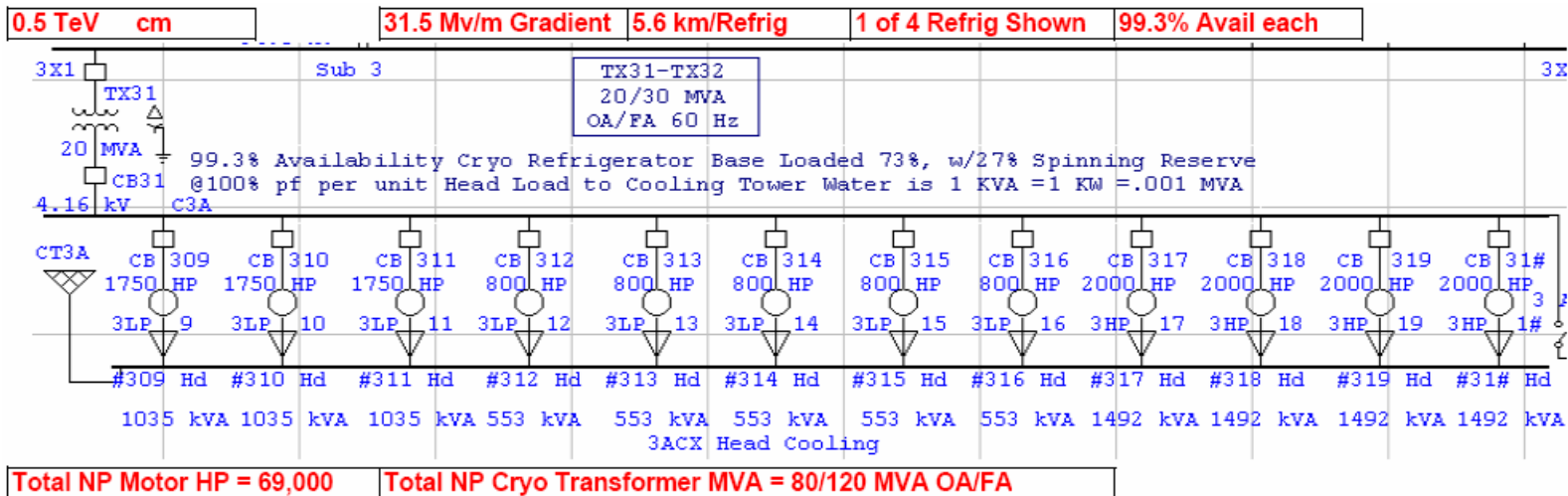
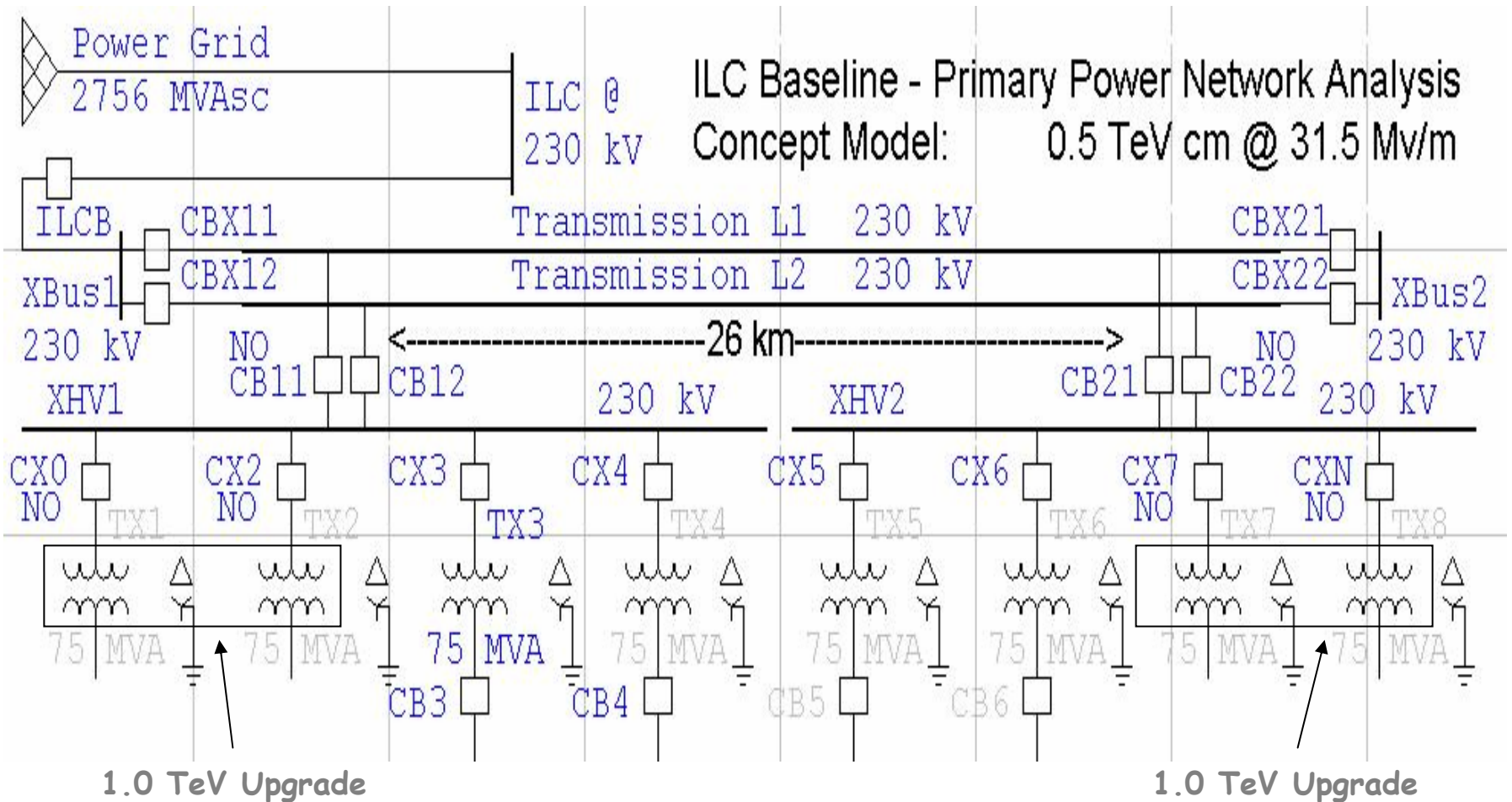


FIGURE #1
7.0 km



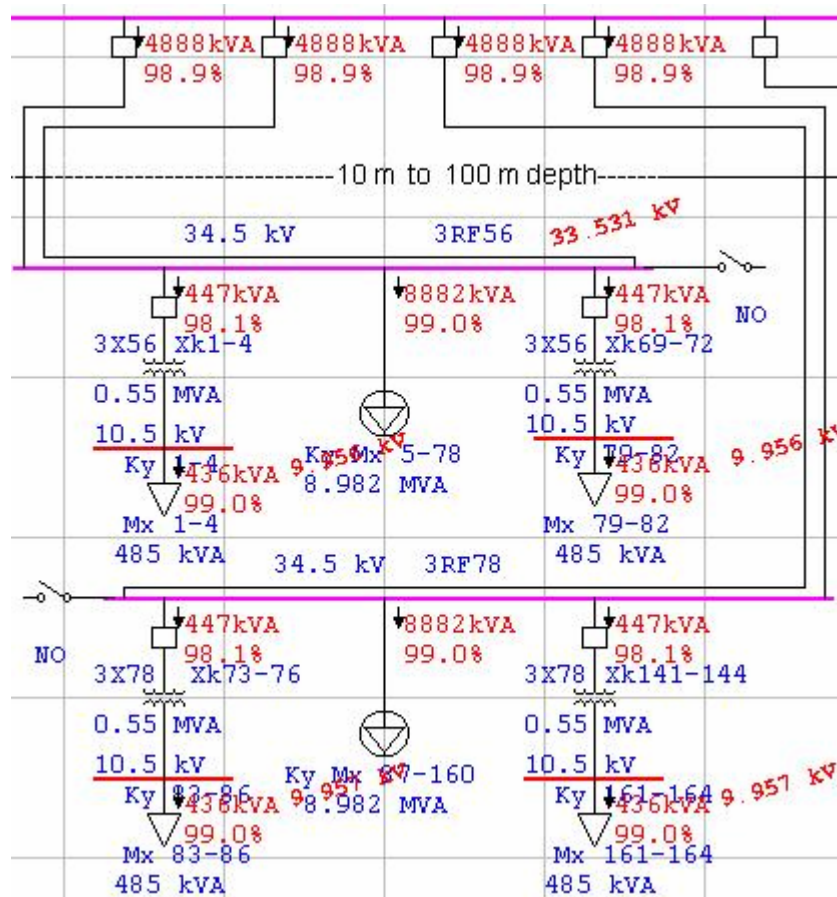
1 of 4 -&- 1 of 6 Cryo Refrigerators







One of Four Marx RF Modulator Systems for 0.5 TeV cm @ 31.5 Mv/m



164 klystrons-modulators @ 100% Full Load Shown Above,
To Index w/ 576 meter Cryo Maintenance unit.



1 of 4 Refrigerators

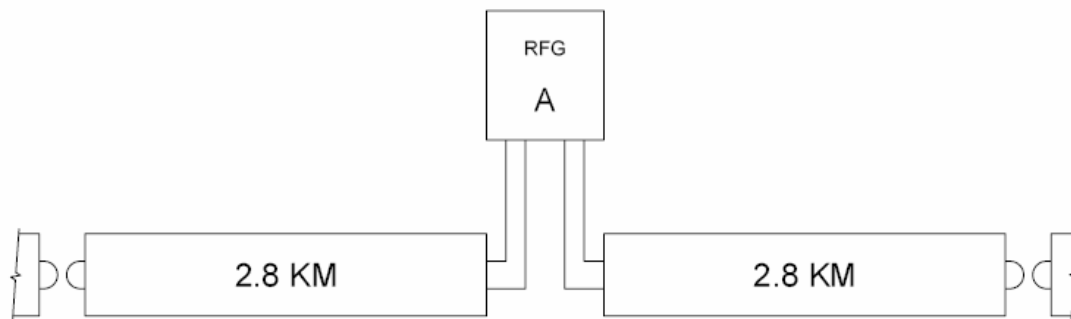
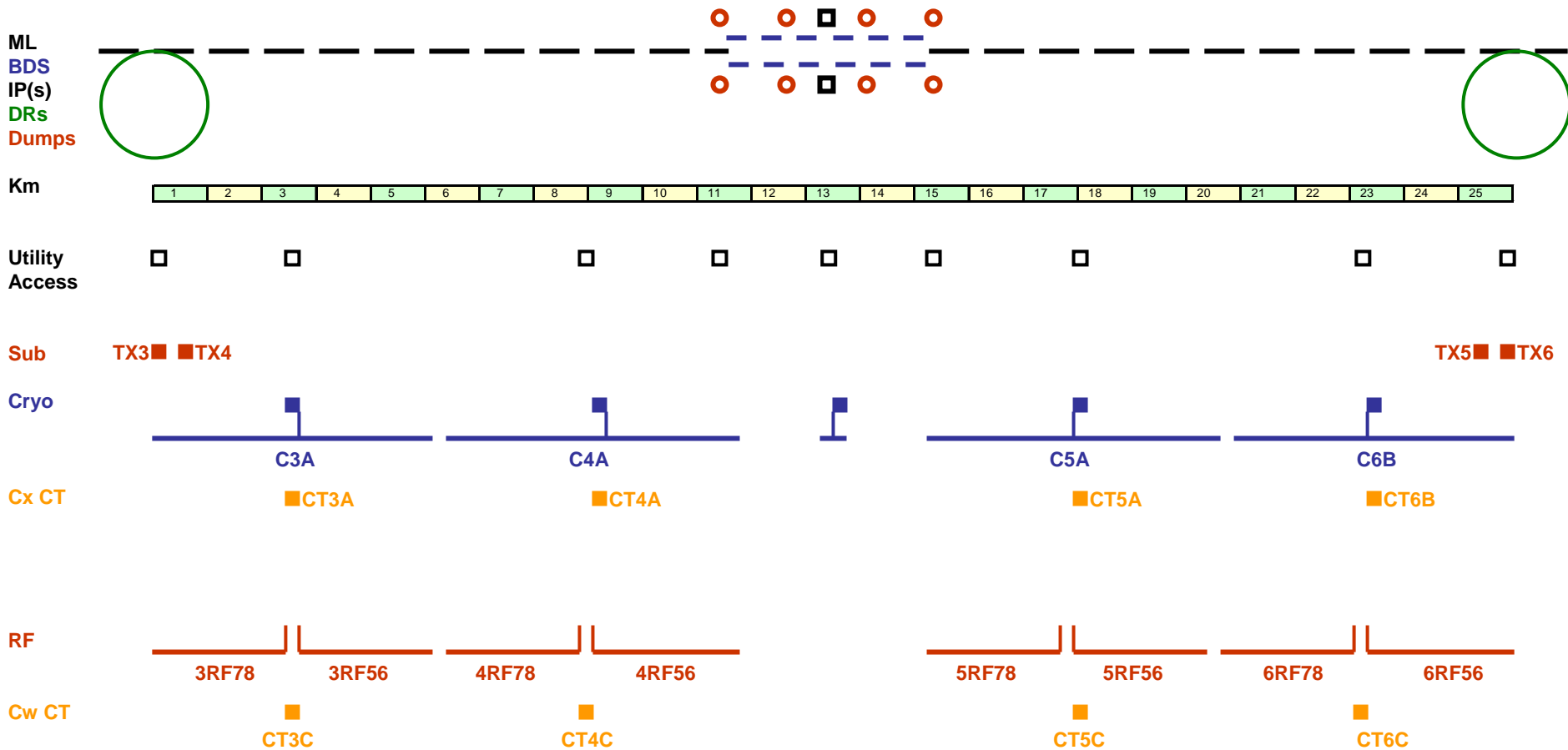


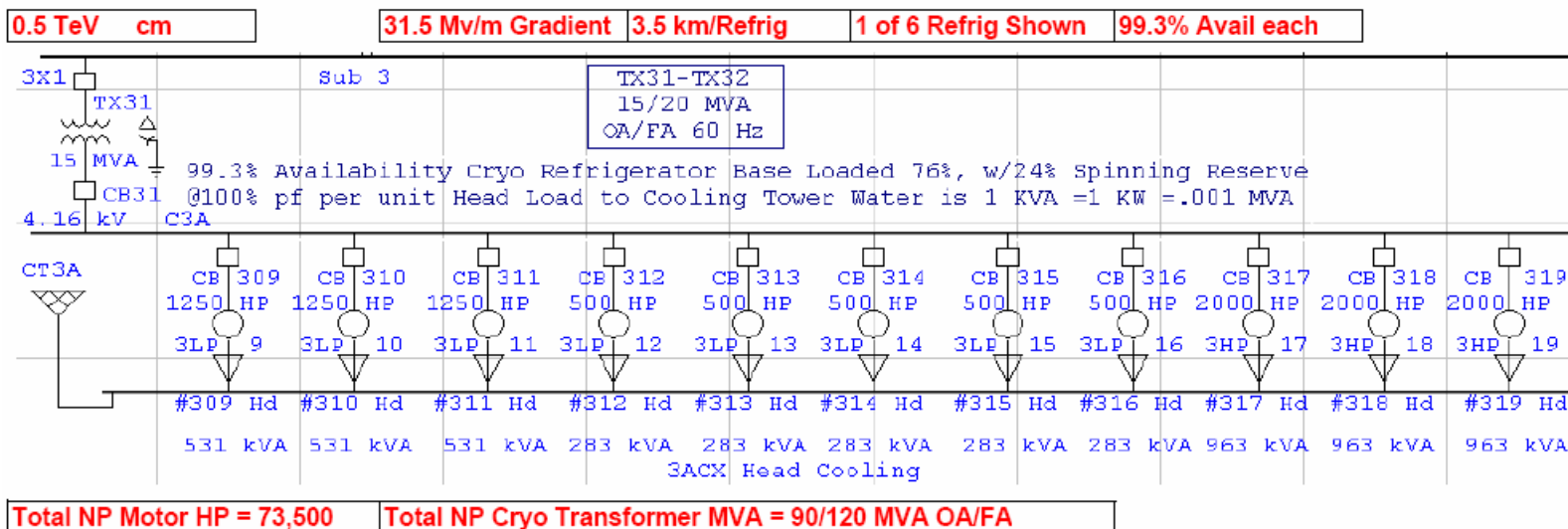
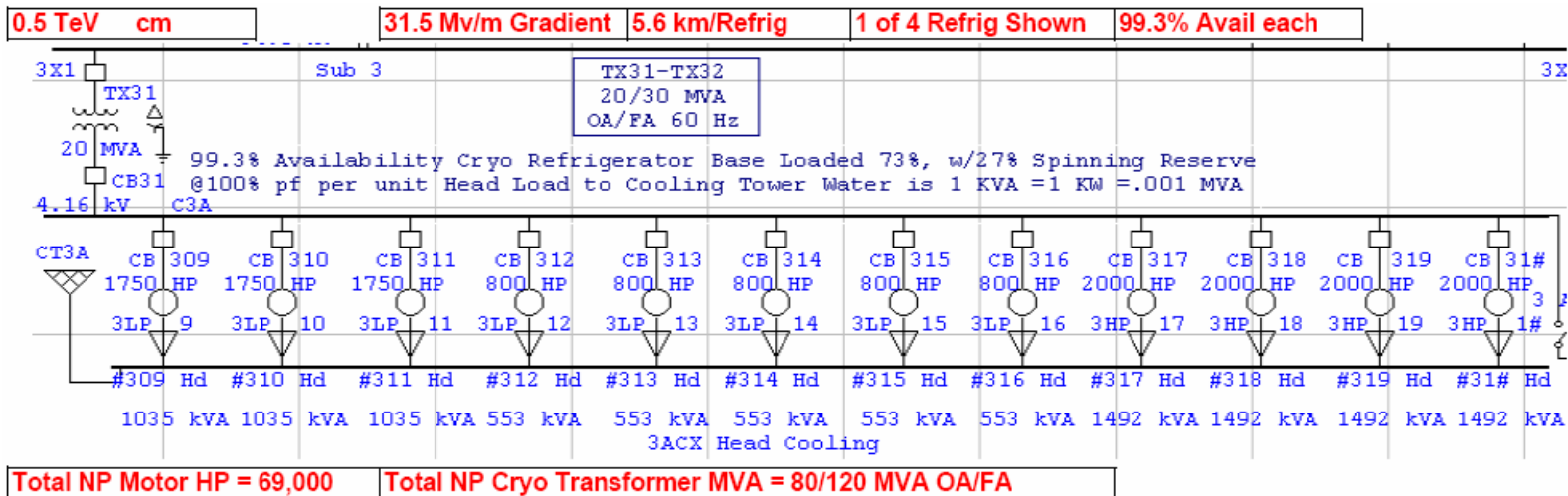
FIGURE #2
5.6 km



4 Main Linac Cryo Refrigerators @ 0.5 TeV cm,
Initial Gradient 31.5Mv/m, Qualified Gradient 35 Mv/m



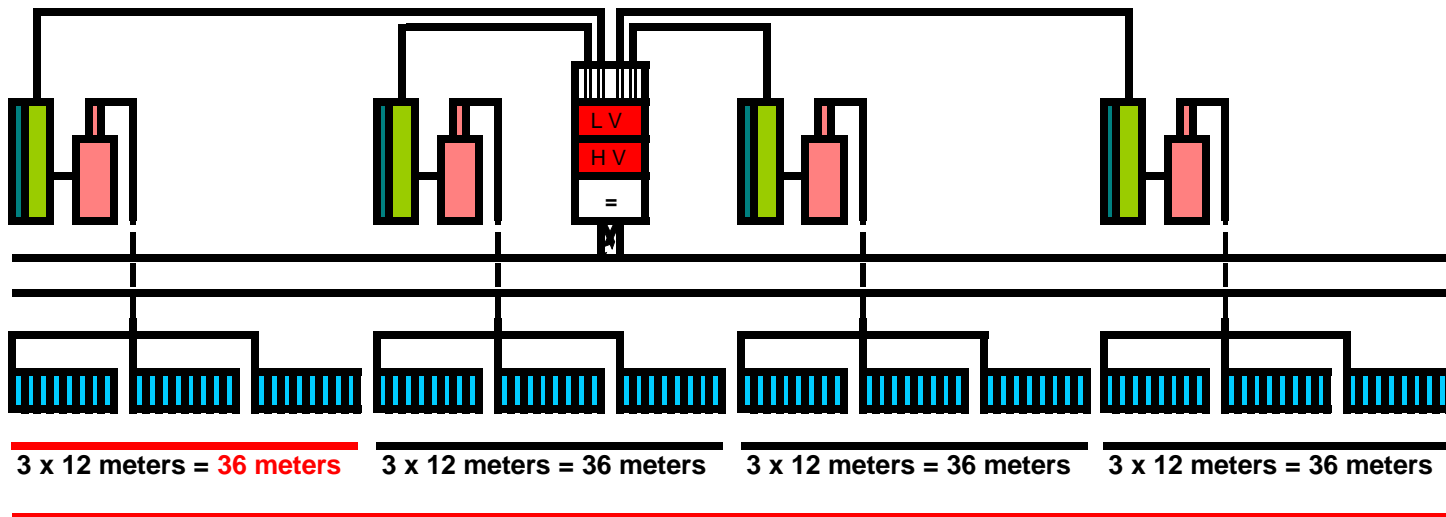
1 of 4 & 1 of 6 Refrigerators





RF & Cryo Maintenance Units

- # 250 GeV Main Linac
- @ 250 GeV
- 82 Disconnects (4 per)
- 82 RF Pwr Transformers
- 82 Control Racks
- 82 Marx Modulators
- 328 10 MW Klystrons
- 82 Primary RF Switch
- 2 Primary Power Loop
- 984 8 Cavity Cryomodules (3 per cluster)
- 82 RF Power Unit
- 1 RF Power System
- 2 Cryo Refrigerators
- 24 Cryo Maint. Units
- 20.5 Cryo Maint. Units
- RF Pwr Units per Cryo Maintenance Unit



RF Power Unit = 144 meters

Total 250 GeV Linac RF Length: 82 x 144 meters = 11,808 meters

Total 250 GeV Linac Cryo Refrigerator Length: 11,808 / 2 = 5,904 meters

Total 250 GeV Linac Cryo Maintenance Unit Length: 11,808 / 24 = 492 meters

Total 250 GeV Linac Cryo Maintenance Unit Length: 11,808 / 20.5 = 576 meters = 16 x 36 meters

RF Power Units per Cryo Maintenance Units: 576 meters / 144 meters = 4



BCD baseline to Index Cryo & RF in the Main Linac

Suggest that the BCD cryo maintenance unit be 576 meters,

**Or better stated, as the length of 48, eight cavity, 12 meter,
cryomodules, whatever dimension that actually becomes.**