

Beam Delivery System US R&D Program - Goals, Resources

- FY07-FY **10** Plan Details:
 - Design & build tooling for **full length, small diameter direct-wind** coils
 - Build & vertically cold test **full length QDO / SDO prototype** coil assembly (verifies quench & field characteristics)
 - Design & build ILC Insertion Region **helium vessel & cryostat**
 - **Configured for later inclusion of all final focus and extraction line elements**
 - **Build a mechanical model first, to validate vibration msmt system**
 - Design and build **a sub-cooled helium heat exchanger & lead vessel**
 - Install QDO/SDO prototype, other coil "structures" into cryostat, and **perform preliminary horizontal cold test:**
 - Validate coil performance using actual accelerator hardware
 - Validate heat exchanger performance
 - Complete the IP design / magnet integration work
 - **Iterate accelerator magnet design based on testing, optics, etc.**

FY07-FY10 Plan Details

Fiscal Year	FY07	FY08	FY09	FY10
Activity	Design & build long coil tooling Do long coil winding tests Perform coil quench threshold tests Continue prototype / reference magnet design Start conceptual design of He heat exch. / lead assy	Build & vert. cold test prototype QDO/SDO coil Complete prototype / reference magnet design Buy long lead time magnet parts Design magnet tooling Complete He heat exchanger / lead assy design Do preliminary vibration msmts on mechanical model	Buy remaining magnet parts Fabricate/Build magnet tooling Build insertion region cryostat Buy He heat exchanger parts Build He heat exchanger / lead assy Buy vibration hardware based on FY08 results & continue vibration studies Begin Magnet Assembly	Complete Magnet Assembly Perform horizontal cold test Do vibration msmts on magnet Update reference design as needed based on results
Budget	<i>\$0.97M + \$344K (BNL)</i>	<i>\$1.8M?</i>	<i>\$3.5M?</i>	<i>\$2.0M?</i>