

ECP-4-004 Details

WBS	PDR Estimate	CD-2 Estimate	Delta CD2-PDR	PDR Recommendations	PBR/EIR Recommendations	CD-4 Scope Inclusions	Impact of Escalation/Rates Due to Resequencing	Adjusted Estimates Due to First Qtr FY2004 Information	Schedule Stetchout (8 Months)	TOTALS ADDED (w/o Cont)
111 - Limiters	\$7.6K	\$7.6K	\$0.0K							\$0.0K
<i>Subtotal WBS 11</i>	<i>\$7.6K</i>	<i>\$7.6K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>
121 - Vacuum Vessel Assembly	\$5,109.5K	\$5,377.8K	\$268.3K	\$11.3K			\$19.3K	\$237.9K		\$268.6K
122 - Vacuum Vessel Thermal Insulation	\$195.7K	\$192.9K	(\$2.7K)				(\$3.0K)			(\$3.0K)
123 - Vacuum Vessel Heating and Cooling Distrib	\$155.1K	\$387.1K	\$232.0K	\$233.3K			(\$1.3K)			\$232.0K
124 - Vacuum Vessel Supports	\$83.4K	\$81.9K	(\$1.4K)				(\$1.4K)			(\$1.4K)
125 - Vacuum Vessel Local I&C	\$28.0K	\$26.1K	(\$1.9K)				(\$1.9K)			(\$1.9K)
<i>Subtotal WBS 12</i>	<i>\$5,571.6K</i>	<i>\$6,065.8K</i>	<i>\$494.2K</i>	<i>\$244.6K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$11.7K</i>	<i>\$237.9K</i>	<i>\$0.0K</i>	<i>\$494.2K</i>
130 - General Conventional Coil Design	\$304.1K	\$303.9K	(\$0.2K)				(\$0.2K)			(\$0.2K)
131 - TF Coils	\$1,437.2K	\$1,529.4K	\$92.2K		\$81.0K		\$11.2K			\$92.2K
132 - CS Solenoid/133-PF Ring Coils	\$1,772.6K	\$1,800.5K	\$27.9K				\$27.9K			\$27.9K
133 - External Trim Coils	\$438.3K	\$437.6K	(\$0.8K)				(\$0.8K)			(\$0.8K)
134 - Conventional Coil Local I&C	\$95.2K	\$97.0K	\$1.7K				\$1.7K			\$1.7K
<i>Subtotal WBS 13</i>	<i>\$4,047.5K</i>	<i>\$4,168.4K</i>	<i>\$120.9K</i>	<i>\$0.0K</i>	<i>\$81.0K</i>	<i>\$0.0K</i>	<i>\$39.9K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$120.9K</i>
141 - Modular Coil Winding Form	\$8,132.5K	\$9,063.7K	\$931.2K	\$26.9K			\$103.8K	\$801.0K		\$931.6K
142 - Modular Coil Windings and Assembly	\$8,066.3K	\$8,783.8K	\$717.5K	\$160.9K	\$430.1K		\$17.5K	\$109.0K		\$717.5K
143 - Modular Coil Local I&C	\$121.2K	\$121.2K	\$0.0K							\$0.0K
144 - Modular Coil Winding Facility & Fixtures	\$2,049.9K	\$2,579.3K	\$529.4K		\$424.2K			\$105.4K		\$529.6K
<i>Subtotal WBS 14</i>	<i>\$18,370.0K</i>	<i>\$20,548.1K</i>	<i>\$2,178.1K</i>	<i>\$187.8K</i>	<i>\$854.3K</i>	<i>\$0.0K</i>	<i>\$121.3K</i>	<i>\$1,015.4K</i>	<i>\$0.0K</i>	<i>\$2,178.8K</i>
151 - Coil Support Structure	\$1,432.0K	\$1,449.8K	\$17.9K				\$17.6K			\$17.6K
<i>Subtotal WBS 15</i>	<i>\$1,432.0K</i>	<i>\$1,449.8K</i>	<i>\$17.9K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$17.6K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$17.6K</i>
161 - LN2 Distribution	\$265.9K	\$337.5K	\$71.6K	\$70.8K			\$1.1K			\$71.9K
162 - Electrical Leads	\$576.6K	\$621.3K	\$44.6K	\$40.2K			\$4.5K			\$44.6K
163 - Coil Protection System	\$78.1K	\$78.1K	\$0.0K							\$0.0K
<i>Subtotal WBS 16</i>	<i>\$920.6K</i>	<i>\$1,036.8K</i>	<i>\$116.2K</i>	<i>\$110.9K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$5.6K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$116.5K</i>
171 - Cryostat	\$856.9K	\$864.3K	\$7.4K				\$7.4K			\$7.4K
172 - Base Support Structure	\$442.0K	\$441.0K	(\$1.0K)				(\$1.0K)			(\$1.0K)
<i>Subtotal WBS 17</i>	<i>\$1,299.0K</i>	<i>\$1,305.3K</i>	<i>\$6.4K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$6.4K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$6.4K</i>
181 - Field Period Assembly Planning/Oversight	\$1,370.8K	\$1,370.8K	\$0.0K							\$0.0K
182 - TFTR Test Cell Area preparations	\$91.4K	\$92.9K	\$1.5K				\$1.5K			\$1.5K
183 - Receive Inspect and Test Coils	\$77.4K	\$77.4K	\$0.0K							\$0.0K
184 - Receive Inspect and Test VV	\$287.7K	\$326.3K	\$38.5K	\$38.5K						\$38.5K
185 - Assemble Field Periods	\$1,325.3K	\$1,356.8K	\$31.6K	\$16.4K			\$15.1K			\$31.6K
186 - Tooling Design and Fabrication	\$1,333.0K	\$1,338.4K	\$5.4K	\$5.4K						\$5.4K
187 - Measurement Systems	\$550.0K	\$547.9K	(\$2.1K)				(\$2.1K)			(\$2.1K)
<i>Subtotal WBS 18</i>	<i>\$5,035.5K</i>	<i>\$5,110.5K</i>	<i>\$74.9K</i>	<i>\$60.4K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$14.6K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$74.9K</i>
191 - Stellarator Core Management & Oversight	\$920.5K	\$1,083	\$162.0K						\$162.0K	\$162.0K
192 - Stellarator Core Integration & Analysis	\$1,452.1K	\$1,580	\$128.0K						\$128.1K	\$128.1K
<i>Subtotal WBS 19</i>	<i>\$2,372.6K</i>	<i>\$2,662.6K</i>	<i>\$290.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$290.1K</i>	<i>\$290.1K</i>
21 - Fueling Systems	\$135.0K	\$140.0K	\$5.0K				\$5.2K			\$5.2K
<i>Subtotal WBS 21</i>	<i>\$135.0K</i>	<i>\$140.0K</i>	<i>\$5.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$5.2K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$5.2K</i>
22 - Torus Vacuum Pumping Systems	\$376.8K	\$384.2K	\$7.4K				\$7.3K			\$7.3K
<i>Subtotal WBS 22</i>	<i>\$376.8K</i>	<i>\$384.2K</i>	<i>\$7.4K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$7.3K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$7.3K</i>
25 - Neutral Beam Injection System	\$1,095.3K	\$1,103.2K	\$7.9K				\$9.0K			\$9.0K
<i>Subtotal WBS 25</i>	<i>\$1,095.3K</i>	<i>\$1,103.2K</i>	<i>\$7.9K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$9.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$9.0K</i>
31 - Magnetic Diagnostics	\$452.1K	\$454.1K	\$2.0K				\$2.0K			\$2.0K
<i>Subtotal WBS 31</i>	<i>\$452.1K</i>	<i>\$454.1K</i>	<i>\$2.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$2.0K</i>	<i>\$0.0K</i>	<i>\$0.0K</i>	<i>\$2.0K</i>
36 - Edge and Divertor Diagnostics	\$97.2K	\$99.3K	\$2.1K				\$2.2K			\$2.2K

**ECP-4-004 Details**

<b>WBS</b>	<b>PDR Estimate</b>	<b>CD-2 Estimate</b>	<b>Delta CD2-PDR</b>	<b>PDR Recommendations</b>	<b>PBR/EIR Recommendations</b>	<b>CD-4 Scope Inclusions</b>	<b>Impact of Escalation/Rates Due to Resequencing</b>	<b>Adjusted Estimates Due to First Qtr FY2004 Information</b>	<b>Schedule Stetchout (8 Months)</b>	<b>TOTALS ADDED (w/o Cont)</b>
<i>Subtotal WBS 36</i>	\$97.2K	\$99.3K	\$2.1K	\$0.0K	\$0.0K	\$0.0K	\$2.2K	\$0.0K	\$0.0K	\$2.2K

ECP-4-004 Details

WBS	PDR Estimate	CD-2 Estimate	Delta CD2-PDR	PDR Recommendations	PBR/EIR Recommendations	CD-4 Scope Inclusions	Impact of Escalation/Rates Due to Resequencing	Adjusted Estimates Due to First Qtr FY2004 Information	Schedule Stetchout (8 Months)	TOTALS ADDED (w/o Cont)
38 - Electron Beam (EB) Mapping	\$283.4K	\$292.1K	\$8.7K				\$8.7K			\$8.7K
Subtotal WBS 38	\$283.4K	\$292.1K	\$8.7K	\$0.0K	\$0.0K	\$0.0K	\$8.7K	\$0.0K	\$0.0K	\$8.7K
39 - Diagnostics Integration	\$671.7K	\$835.9K	\$164.1K				\$20.6K		\$143.5K	\$164.1K
Subtotal WBS 39	\$671.7K	\$835.9K	\$164.1K	\$0.0K	\$0.0K	\$0.0K	\$20.6K	\$0.0K	\$143.5K	\$164.1K
411 - Auxiliary AC Power Systems	\$560.9K	\$568.2K	\$7.2K				\$7.4K			\$7.4K
412 - Experimental AC Power Systems	\$42.8K	\$42.8K	\$0.0K							\$0.0K
Subtotal WBS 41	\$603.7K	\$611.0K	\$7.3K	\$0.0K	\$0.0K	\$0.0K	\$7.4K	\$0.0K	\$0.0K	\$7.4K
422 - D-Site AC/DC Converters	\$22.0K	\$23.5K	\$1.6K				\$1.6K			\$1.6K
Subtotal WBS 42	\$22.0K	\$23.5K	\$1.6K	\$0.0K	\$0.0K	\$0.0K	\$1.6K	\$0.0K	\$0.0K	\$1.6K
431 - C-Site DC Systems	\$328.5K	\$332.7K	\$4.2K				\$4.2K			\$4.2K
432 - D-to-C Site DC Systems	\$1,314.8K	\$1,323.6K	\$8.8K				\$8.8K			\$8.8K
433 - D-Site DC Systems	\$488.7K	\$491.1K	\$2.4K				\$2.4K			\$2.4K
Subtotal WBS 43	\$2,132.0K	\$2,147.4K	\$15.4K	\$0.0K	\$0.0K	\$0.0K	\$15.4K	\$0.0K	\$0.0K	\$15.4K
441 - Electrical Interlocks	\$567.6K	\$575.5K	\$7.9K				\$8.1K			\$8.1K
442 - Kirk Key Interlocks	\$95.1K	\$98.0K	\$2.9K				\$2.9K			\$2.9K
443 - Real Time Control Systems	\$37.8K	\$38.4K	\$0.6K				\$0.6K			\$0.6K
444 - Instrument Systems	\$424.9K	\$432.9K	\$8.0K				\$8.0K			\$8.0K
445 - Coil Protection Systems	\$278.0K	\$281.4K	\$3.4K				\$3.4K			\$3.4K
446 - Ground Fault Monitoring System	\$0.0K	\$167.0K	\$167.0K			\$167.0K				\$167.0K
Subtotal WBS 44	\$1,403.3K	\$1,593.2K	\$189.9K	\$0.0K	\$0.0K	\$167.0K	\$23.1K	\$0.0K	\$0.0K	\$190.1K
451 - System Design and Interfaces	\$576.0K	\$578.8K	\$2.8K				\$2.8K			\$2.8K
452 - Electrical Systems Support	\$89.1K	\$90.7K	\$1.6K				\$1.6K			\$1.6K
453 - System Testing (PTP's)	\$186.6K	\$192.0K	\$5.4K				\$5.4K			\$5.4K
Subtotal WBS 45	\$851.8K	\$861.5K	\$9.7K	\$0.0K	\$0.0K	\$0.0K	\$9.8K	\$0.0K	\$0.0K	\$9.8K
46 - FCPC Building Modifications	\$80.9K	\$80.9K	\$0.0K				\$0.0K			\$0.0K
Subtotal WBS 46	\$80.9K	\$80.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
51 - TCP/IP Infrastructure Systems	\$416.9K	\$429.0K	\$12.1K				\$12.1K			\$12.1K
Subtotal WBS 51	\$416.9K	\$429.0K	\$12.1K	\$0.0K	\$0.0K	\$0.0K	\$12.1K	\$0.0K	\$0.0K	\$12.1K
52 - Central Instrumentation & Control	\$574.4K	\$578.0K	\$3.6K				\$3.6K			\$3.6K
Subtotal WBS 52	\$574.4K	\$578.0K	\$3.6K	\$0.0K	\$0.0K	\$0.0K	\$3.6K	\$0.0K	\$0.0K	\$3.6K
53 - Data Acquisition & Facility Computing	\$405.3K	\$407.8K	\$2.6K				\$2.6K			\$2.6K
Subtotal WBS 53	\$405.3K	\$407.8K	\$2.6K	\$0.0K	\$0.0K	\$0.0K	\$2.6K	\$0.0K	\$0.0K	\$2.6K
54 - Facility Timing & Synchronization	\$344.0K	\$352.0K	\$8.1K				\$8.1K			\$8.1K
Subtotal WBS 54	\$344.0K	\$352.0K	\$8.1K	\$0.0K	\$0.0K	\$0.0K	\$8.1K	\$0.0K	\$0.0K	\$8.1K
55 - Real Time Plasma & Power Supply Control Sys	\$289.7K	\$293.3K	\$3.6K				\$3.6K			\$3.6K
Subtotal WBS 55	\$289.7K	\$293.3K	\$3.6K	\$0.0K	\$0.0K	\$0.0K	\$3.6K	\$0.0K	\$0.0K	\$3.6K
56 - Central Safety Interlock Systems	\$398.7K	\$399.9K	\$1.2K				\$1.2K			\$1.2K
Subtotal WBS 56	\$398.7K	\$399.9K	\$1.2K	\$0.0K	\$0.0K	\$0.0K	\$1.2K	\$0.0K	\$0.0K	\$1.2K
57 - Control Room Facility	\$116.8K	\$119.7K	\$2.9K				\$2.9K			\$2.9K
Subtotal WBS 57	\$116.8K	\$119.7K	\$2.9K	\$0.0K	\$0.0K	\$0.0K	\$2.9K	\$0.0K	\$0.0K	\$2.9K
611 - C-Site Cooling System	\$147.6K	\$153.3K	\$5.7K				\$5.7K			\$5.7K
612 - NB Water Cooling Systems	\$238.8K	\$239.9K	\$1.1K				\$1.1K			\$1.1K
613 - Vacuum Pumping System	\$98.5K	\$99.8K	\$1.3K				\$1.3K			\$1.3K
614 - Bakeout Water System	\$38.5K	\$38.5K	\$0.0K				\$0.0K			\$0.0K
Subtotal WBS 61	\$523.3K	\$531.5K	\$8.2K	\$0.0K	\$0.0K	\$0.0K	\$8.2K	\$0.0K	\$0.0K	\$8.2K

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621 - LN2-LHe Supply System	\$177.2K	\$252.9K	\$75.7K		\$72.2K		\$3.4K			\$75.7K
622 - LN2 Coil Cooling Supply	\$273.4K	\$274.4K	\$1.0K				\$1.0K			\$1.0K
623 - 623 - GN2 Cryostat Cooling System	\$336.2K	\$220.2K	(\$116.1K)				\$0.2K	(\$116.3K)		(\$116.1K)
Subtotal WBS 62	\$786.8K	\$747.4K	(\$39.4K)	\$0.0K	\$72.2K	\$0.0K	\$4.6K	(\$116.3K)	\$0.0K	(\$39.4K)
63 - Utility Systems	\$118.8K	\$120.5K	\$1.7K				\$1.7K			\$1.7K
Subtotal WBS 63	\$118.8K	\$120.5K	\$1.7K	\$0.0K	\$0.0K	\$0.0K	\$1.7K	\$0.0K	\$0.0K	\$1.7K
64 - PFC/VV Heating & Cooling	\$625.8K	\$628.9K	\$3.1K				\$3.1K			\$3.1K
Subtotal WBS 64	\$625.8K	\$628.9K	\$3.1K	\$0.0K	\$0.0K	\$0.0K	\$3.1K	\$0.0K	\$0.0K	\$3.1K
65 - Facility Systems Integration	\$9.3K	\$9.3K	\$0.0K							\$0.0K
Subtotal WBS 65	\$9.3K	\$9.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
71 - Shield Wall Reconfiguration	\$27.1K	\$27.1K	\$0.0K							\$0.0K
Subtotal WBS 71	\$27.1K	\$27.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
72 - Control Room Refurbishment	\$47.9K	\$48.0K	\$0.1K				\$0.1K			\$0.1K
Subtotal WBS 72	\$47.9K	\$48.0K	\$0.1K	\$0.0K	\$0.0K	\$0.0K	\$0.1K	\$0.0K	\$0.0K	\$0.1K
73 - Platform Design & Fabrication	\$195.2K	\$196	\$0.8K				\$0.8K			\$0.8K
Subtotal WBS 73	\$195.2K	\$196.1K	\$0.8K	\$0.0K	\$0.0K	\$0.0K	\$0.8K	\$0.0K	\$0.0K	\$0.8K
741 - Planning Prior to Machine Assembly	\$343.0K	\$343.0K	\$0.0K							\$0.0K
742 - Construction Management	\$890.0K	\$1,184.4K	\$294.4K				\$7.0K		\$287.4K	\$294.4K
Subtotal WBS 74	\$1,233.0K	\$1,527.4K	\$294.4K	\$0.0K	\$0.0K	\$0.0K	\$7.0K	\$0.0K	\$287.4K	\$294.4K
75 - Test Cell and Basement Assembly Operations	\$1,829.0K	\$2,234.4K	\$405.4K		\$89.2K	\$264.5K	\$50.7K			\$404.4K
Subtotal WBS 75	\$1,829.0K	\$2,234.4K	\$405.4K	\$0.0K	\$89.2K	\$264.5K	\$50.7K	\$0.0K	\$0.0K	\$404.4K
76 - Tooling Design & Fabrication	\$217.1K	\$220.7K	\$3.7K				\$3.7K			\$3.7K
Subtotal WBS 76	\$217.1K	\$220.7K	\$3.7K	\$0.0K	\$0.0K	\$0.0K	\$3.7K	\$0.0K	\$0.0K	\$3.7K
77 - Measurement Systems	\$0.0K	\$0.0K	\$0.0K							\$0.0K
Subtotal WBS 77	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
81 - Project Management and Control	\$2,842.4K	\$3,195.4K	\$353.0K					(\$8.1K)	\$361.2K	\$353.0K
Subtotal WBS 81	\$2,842.4K	\$3,195.4K	\$353.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	(\$8.1K)	\$361.2K	\$353.0K
82 - Project Engineering	\$3,986.3K	\$4,689.1K	\$702.8K				\$9.8K		\$692.9K	\$702.7K
Subtotal WBS 82	\$3,986.3K	\$4,689.1K	\$702.8K	\$0.0K	\$0.0K	\$0.0K	\$9.8K	\$0.0K	\$692.9K	\$702.7K
84 - Project Physics	\$471.5K	\$501.4K	\$29.9K				(\$0.2K)	\$30.0K		\$29.9K
Subtotal WBS 84	\$471.5K	\$501.4K	\$29.9K	\$0.0K	\$0.0K	\$0.0K	(\$0.2K)	\$30.0K	\$0.0K	\$29.9K
85 - Integrated Systems Testing	\$769.8K	\$1,224.8K	\$455.1K			\$455.1K				\$455.1K
Subtotal WBS 85	\$769.8K	\$1,224.8K	\$455.1K	\$0.0K	\$0.0K	\$455.1K	\$0.0K	\$0.0K	\$0.0K	\$455.1K
AA - PPPL Allocations	\$955.7K	\$955.7K	\$0.0K							\$0.0K
Subtotal Allocations	\$955.7K	\$955.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
CC - Contingency	\$16,541.1K	\$15,910.0K	(\$631.1K)	(\$197.3K)	(\$251.0K)	(\$224.3K)	\$41.6K			(\$631.1K)
Subtotal Contingency	\$16,541.1K	\$15,910.0K	(\$631.1K)	(\$197.3K)	(\$251.0K)	(\$224.3K)	\$41.6K	\$0.0K	\$0.0K	(\$631.1K)
<b>Totals</b>	<b>\$80,987.2K</b>	<b>\$86,328.8K</b>	<b>\$5,341.6K</b>	<b>\$406.4K</b>	<b>\$845.7K</b>	<b>\$662.3K</b>	<b>\$494.5K</b>	<b>\$1,159.0K</b>	<b>\$1,775.1K</b>	<b>\$5,343.0K</b>