

ECP-04-006 Details
Attachment 1

WBS	ECP-04-005 Baseline	ECP-04-006 Estimate	Delta	Underestimate			Added Scope	TOTALS ADDED
				Re-Estimate of R&D Tasks	Revised M&S Estimate for Prototype Contracts	Re-Estimate of Analyses & Design Tasks	Coil Test Facility	w/o Contingency
111 - Limiters	\$0.1K	\$0.1K	\$0.0K					\$0.0K
Subtotal WBS 11	\$0.1K	\$0.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
121 - Vacuum Vessel Assembly	\$5,929.0K	\$6,260.3K	\$331.3K	\$43.8K	\$212.5K	\$75.0K		\$331.3K
122 - Vacuum Vessel Thermal Insulation	\$174.9K	\$174.9K	\$0.0K					\$0.0K
123 - Vacuum Vessel Heating and Cooling Distrib	\$375.8K	\$375.8K	\$0.0K					\$0.0K
124 - Vacuum Vessel Supports	\$62.6K	\$62.6K	\$0.0K					\$0.0K
125 - Vacuum Vessel Local I&C	\$26.7K	\$26.7K	\$0.0K					\$0.0K
Subtotal WBS 12	\$6,569.0K	\$6,900.3K	\$331.3K	\$43.8K	\$212.5K	\$75.0K	\$0.0K	\$331.3K
130 - General Conventional Coil Design	\$407.1K	\$460.1K	\$53.0K			\$53.0K		\$53.0K
131 - TF Coils	\$1,546.3K	\$1,546.3K	\$0.0K					\$0.0K
132 - CS Solenoid/133-PF Ring Coils	\$1,747.4K	\$1,747.4K	\$0.0K					\$0.0K
133 - External Trim Coils	\$372.0K	\$372.0K	\$0.0K					\$0.0K
134 - Conventional Coil Local I&C	\$85.5K	\$85.5K	\$0.0K					\$0.0K
Subtotal WBS 13	\$4,158.3K	\$4,211.3K	\$53.0K	\$0.0K	\$0.0K	\$53.0K	\$0.0K	\$53.0K
141 - Modular Coil Winding Form	\$9,171.9K	\$9,198.9K	\$27.0K			\$27.0K		\$27.0K
142 - Modular Coil Windings and Assembly	\$8,683.4K	\$8,683.4K	\$0.0K					\$0.0K
143 - Modular Coil Local I&C	\$121.2K	\$121.2K	\$0.0K					\$0.0K
144 - Modular Coil Winding Facility & Fixtures	\$2,283.4K	\$2,501.4K	\$218.0K			\$80.0K	\$138.0K	\$218.0K
Subtotal WBS 14	\$20,259.9K	\$20,504.9K	\$245.0K	\$0.0K	\$0.0K	\$107.0K	\$138.0K	\$245.0K
151 - Coil Support Structure	\$1,435.9K	\$1,435.9K	\$0.0K					\$0.0K
Subtotal WBS 15	\$1,435.9K	\$1,435.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
161 - LN2 Distribution	\$337.5K	\$337.5K	\$0.0K					\$0.0K
162 - Electrical Leads	\$621.3K	\$621.3K	\$0.0K					\$0.0K
163 - Coil Protection System	\$78.1K	\$78.1K	\$0.0K					\$0.0K
Subtotal WBS 16	\$1,036.9K	\$1,036.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
171 - Cryostat	\$858.5K	\$858.5K	\$0.0K					\$0.0K
172 - Base Support Structure	\$438.2K	\$438.2K	\$0.0K					\$0.0K
Subtotal WBS 17	\$1,296.7K	\$1,296.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
181 - Field Period Assembly Planning/Oversight	\$1,379.3K	\$1,379.3K	\$0.0K					\$0.0K
182 - TFTR Test Cell Area preparations	\$92.9K	\$92.9K	\$0.0K					\$0.0K
183 - Receive Inspect and Test Coils	\$77.4K	\$77.4K	\$0.0K					\$0.0K
184 - Receive Inspect and Test VV	\$326.3K	\$326.3K	\$0.0K					\$0.0K
185 - Assemble Field Periods	\$1,357.3K	\$1,357.3K	\$0.0K					\$0.0K
186 - Tooling Design and Fabrication	\$1,341.5K	\$1,341.5K	\$0.0K					\$0.0K
187 - Measurement Systems	\$588.8K	\$588.8K	\$0.0K					\$0.0K
Subtotal WBS 18	\$5,163.5K	\$5,163.5K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K

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WBS	ECP-04-005 Baseline	ECP-04-006 Estimate	Delta	Underestimate			Added Scope	TOTALS ADDED
				Re-Estimate of R&D Tasks	Revised M&S Estimate for Prototype Contracts	Re-Estimate of Analyses & Design Tasks	Coil Test Facility	w/o Contingency
191 - Stellarator Core Management & Oversight	\$1,083.0K	\$1,083.0K	\$0.0K					\$0.0K
192 - Stellarator Core Integration & Analysis	\$1,581.6K	\$1,581.6K	\$0.0K					\$0.0K
Subtotal WBS 19	\$2,664.6K	\$2,664.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
21 - Fueling Systems	\$140.0K	\$140.0K	\$0.0K					\$0.0K
Subtotal WBS 21	\$140.0K	\$140.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
22 - Torus Vacuum Pumping Systems	\$384.2K	\$384.2K	\$0.0K					\$0.0K
Subtotal WBS 22	\$384.2K	\$384.2K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
25 - Neutral Beam Injection System	\$1,169.1K	\$1,169.1K	\$0.0K					\$0.0K
Subtotal WBS 25	\$1,169.1K	\$1,169.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
31 - Magnetic Diagnostics	\$454.1K	\$454.1K	\$0.0K					\$0.0K
Subtotal WBS 31	\$454.1K	\$454.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
36 - Edge and Divertor Diagnostics	\$99.3K	\$99.3K	\$0.0K					\$0.0K
Subtotal WBS 36	\$99.3K	\$99.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
38 - Electron Beam (EB) Mapping	\$292.1K	\$292.1K	\$0.0K					\$0.0K
Subtotal WBS 38	\$292.1K	\$292.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
39 - Diagnostics Integration	\$847.2K	\$847.2K	\$0.0K					\$0.0K
Subtotal WBS 39	\$847.2K	\$847.2K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
411 - Auxiliary AC Power Systems	\$569.3K	\$569.3K	\$0.0K					\$0.0K
412 - Experimental AC Power Systems	\$42.8K	\$42.8K	\$0.0K					\$0.0K
Subtotal WBS 41	\$612.1K	\$612.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
422 - D-Site AC/DC Converters	\$23.5K	\$23.5K	\$0.0K					\$0.0K
Subtotal WBS 42	\$23.5K	\$23.5K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
431 - C-Site DC Systems	\$326.7K	\$326.7K	\$0.0K					\$0.0K
432 - D-to-C Site DC Systems	\$1,328.7K	\$1,328.7K	\$0.0K					\$0.0K
433 - D-Site DC Systems	\$487.9K	\$487.9K	\$0.0K					\$0.0K
Subtotal WBS 43	\$2,143.3K	\$2,143.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
441 - Electrical Interlocks	\$578.6K	\$578.6K	\$0.0K					\$0.0K
442 - Kirk Key Interlocks	\$98.0K	\$98.0K	\$0.0K					\$0.0K
443 - Real Time Control Systems	\$38.4K	\$38.4K	\$0.0K					\$0.0K
444 - Instrument Systems	\$433.2K	\$433.2K	\$0.0K					\$0.0K
445 - Coil Protection Systems	\$283.4K	\$283.4K	\$0.0K					\$0.0K
446 - Ground Fault Monitoring System	\$167.0K	\$167.0K	\$0.0K					\$0.0K
Subtotal WBS 44	\$1,598.6K	\$1,598.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K

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				Re-Estimate of R&D Tasks	Revised M&S Estimate for Prototype Contracts	Re-Estimate of Analyses & Design Tasks	Coil Test Facility	w/o Contingency
451 - System Design and Interfaces	\$591.4K	\$591.4K	\$0.0K					\$0.0K
452 - Electrical Systems Support	\$91.4K	\$91.4K	\$0.0K					\$0.0K
453 - System Testing (PTP's)	\$192.0K	\$192.0K	\$0.0K					\$0.0K
Subtotal WBS 45	\$874.8K	\$874.8K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
46 - FCPC Building Modifications	\$78.6K	\$78.6K	\$0.0K					\$0.0K
Subtotal WBS 46	\$78.6K	\$78.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
51 - TCP/IP Infrastructure Systems	\$429.0K	\$429.0K	\$0.0K					\$0.0K
Subtotal WBS 51	\$429.0K	\$429.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
52 - Central Instrumentation & Control	\$578.0K	\$578.0K	\$0.0K					\$0.0K
Subtotal WBS 52	\$578.0K	\$578.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
53 - Data Acquisition & Facility Computing	\$407.8K	\$407.8K	\$0.0K					\$0.0K
Subtotal WBS 53	\$407.8K	\$407.8K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
54 - Facility Timing & Synchronization	\$352.0K	\$352.0K	\$0.0K					\$0.0K
Subtotal WBS 54	\$352.0K	\$352.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
55 - Real Time Plasma & Power Supply Control Sys	\$293.3K	\$293.3K	\$0.0K					\$0.0K
Subtotal WBS 55	\$293.3K	\$293.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
56 - Central Safety Interlock Systems	\$399.9K	\$399.9K	\$0.0K					\$0.0K
Subtotal WBS 56	\$399.9K	\$399.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
57 - Control Room Facility	\$119.7K	\$119.7K	\$0.0K					\$0.0K
Subtotal WBS 57	\$119.7K	\$119.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
611 - C-Site Cooling System	\$153.3K	\$153.3K	\$0.0K					\$0.0K
612 - NB Water Cooling Systems	\$239.9K	\$239.9K	\$0.0K					\$0.0K
613 - Vacuum Pumping System	\$100.0K	\$100.0K	\$0.0K					\$0.0K
614 - Bakeout Water System	\$38.5K	\$38.5K	\$0.0K					\$0.0K
Subtotal WBS 61	\$531.7K	\$531.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
621 - LN2-LHe Supply System	\$252.9K	\$252.9K	\$0.0K					\$0.0K
622 - LN2 Coil Cooling Supply	\$274.4K	\$274.4K	\$0.0K					\$0.0K
623 - 623 - GN2 Cryostat Cooling System	\$220.2K	\$220.2K	\$0.0K					\$0.0K
Subtotal WBS 62	\$747.5K	\$747.5K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
63 - Utility Systems	\$120.9K	\$120.9K	\$0.0K					\$0.0K
Subtotal WBS 63	\$120.9K	\$120.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K

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				Re-Estimate of R&D Tasks	Revised M&S Estimate for Prototype Contracts	Re-Estimate of Analyses & Design Tasks	Coil Test Facility	w/o Contingency
64 - PFC/VV Heating & Cooling	\$628.9K	\$628.9K	\$0.0K					\$0.0K
Subtotal WBS 64	\$628.9K	\$628.9K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
65 - Facility Systems Integration	\$41.6K	\$41.6K	\$0.0K					\$0.0K
Subtotal WBS 65	\$41.6K	\$41.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
71 - Shield Wall Reconfiguration	\$32.2K	\$32.2K	\$0.0K					\$0.0K
Subtotal WBS 71	\$32.2K	\$32.2K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
72 - Control Room Refurbishment	\$47.6K	\$47.6K	\$0.0K					\$0.0K
Subtotal WBS 72	\$47.6K	\$47.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
73 - Platform Design & Fabrication	\$159.6K	\$159.6K	\$0.0K					\$0.0K
Subtotal WBS 73	\$159.6K	\$159.6K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
741 - Planning Prior to Machine Assembly	\$430.0K	\$430.0K	\$0.0K					\$0.0K
742 - Construction Management	\$1,184.2K	\$1,184.2K	\$0.0K					\$0.0K
Subtotal WBS 74	\$1,614.2K	\$1,614.2K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
75 - Test Cell and Basement Assembly Operations	\$2,160.0K	\$2,160.0K	\$0.0K					\$0.0K
Subtotal WBS 75	\$2,160.0K	\$2,160.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
76 - Tooling Design & Fabrication	\$223.7K	\$223.7K	\$0.0K					\$0.0K
Subtotal WBS 76	\$223.7K	\$223.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
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
81 - Project Management and Control	\$3,354.3K	\$3,354.3K	\$0.0K					\$0.0K
Subtotal WBS 81	\$3,354.3K	\$3,354.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
82 - Project Engineering	\$4,723.1K	\$4,723.1K	\$0.0K					\$0.0K
Subtotal WBS 82	\$4,723.1K	\$4,723.1K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
84 - Project Physics	\$507.7K	\$507.7K	\$0.0K					\$0.0K
Subtotal WBS 84	\$507.7K	\$507.7K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K
85 - Integrated Systems Testing	\$1,225.0K	\$1,225.0K	\$0.0K					\$0.0K
Subtotal WBS 85	\$1,225.0K	\$1,225.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K

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				Re-Estimate of R&D Tasks	Revised M&S Estimate for Prototype Contracts	Re-Estimate of Analyses & Design Tasks	Coil Test Facility		w/o Contingency
AA - PPPL Allocations	\$983.3K	\$983.3K	\$0.0K						\$0.0K
Subtotal Allocations	\$983.3K	\$983.3K	\$0.0K	\$0.0K	\$0.0K	\$0.0K	\$0.0K		\$0.0K
CC - Contingency	\$15,350.8K	\$14,721.5K	(\$629.3K)	(\$43.8K)	(\$212.5K)	(\$235.0K)	(\$138.0K)		(\$629.3K)
Subtotal Contingency	\$15,350.8K	\$14,721.5K	(\$629.3K)	(\$43.8K)	(\$212.5K)	(\$235.0K)	(\$138.0K)		(\$629.3K)
Totals	\$86,336.6K	\$86,336.6K							