

**PrincetonUniversity Plasma Physics Laboratory  
PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

**NCSX**

**\*\*\*\* Cumulative to date FY03, FY04 & FY05\*\*\*\***

**JANUARY FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP21		
	Budgeted Cost			VARIANCES					Budget		EAC
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	TEC	Incr.	
<b>PPPL and ORNL</b>	<b>K</b>								<b>K</b>		
<b>1 - Stellarator Core Systems</b>	<b>19,604</b>	<b>18,222</b>	<b>18,510</b>	<b>-1,382</b>	<b>.93</b>	<b>-289</b>	<b>.98</b>	<b>30,305</b>	<b>50,894</b>	<b>738</b>	
<b>12 Vacuum Vessel Systems</b>	<b>4,217</b>	<b>3,625</b>	<b>3,787</b>	<b>-592</b>	<b>.86</b>	<b>-162</b>	<b>.96</b>	<b>6,942</b>	<b>8,737</b>	<b>378</b>	
1201 - Vacuum Vessel Prelim Dsn	424	424	424	0	1.00	0	1.00	424	424		
1202 - Vacuum Vessel R&D	1,769	1,769	1,771		1.00	-2	1.00	1,769	1,769		
1203 - Vacuum Vessel Final Dsn	732	649	740	-83	.89	-92	.88	770	770	179	
1204-VV Sys Procurements (non VVSA)								27	519		
1206 - VV Field Weld Joint R&D	11	10	8	-1	.91	2	1.24	210	210	5	
1250 - Vacuum Vessel Fabrication	1,281	772	843	-509	.60	-71	.92	3,742	5,045	194	
<b>13 Conventional Coils</b>	<b>703</b>	<b>541</b>	<b>583</b>	<b>-162</b>	<b>.77</b>	<b>-42</b>	<b>.93</b>	<b>1,501</b>	<b>4,441</b>	<b>-</b>	
1301 - TF Design	703	541	583	-162	.77	-42	.93	738	738		
1302 - PF and CS Design								140	228		
1303 - Trim coil Design									99		
1351 - TF Coil Procurement								623	1,595		
1352 - PF Coil Procurement									1,285		
1353 - CS Structure Procurement									258		
1354 - Trim Coil Procurement									146		
1355 - WBS 13 I&C Proc & Coil Assy									93		
<b>14 Modular Coils</b>	<b>12,584</b>	<b>11,952</b>	<b>12,238</b>	<b>-633</b>	<b>.95</b>	<b>-286</b>	<b>.98</b>	<b>18,260</b>	<b>26,439</b>	<b>322</b>	
1401 - Mod Coil Prel.Dsn	304	303	304	-1	1.00	-1	1.00	303	303		
1402 - Mod.Coil Analyses	238	239	239	1	1.00		1.00	239	239		
1403 - Modular Coil Final Design	2,393	2,146	2,226	-247	.90	-80	.96	2,676	2,676	107	
1404-MCWF R&D & 1st Prod Casting	2,511	2,513	2,477	2	1.00	36	1.01	2,513	2,513		
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168		
1406 - Mod. Coil Winding	2,199	2,186	2,185	-13	.99	1	1.00	2,200	2,200		
1410 MC Twisted Racetrack Fabr	204	130	304	-74	.64	-174	.43	423	423	174	

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		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	TEC	Incr.
<b>PPPL and ORNL</b>		<b>K</b>							<b>K</b>		
	1407 -Mod Coil Winding Facility	2,564	2,565	2,546	1	1.00	19	1.01	2,565	2,565	
	1412 - Complete Winding Facilities	171	278	275	107	1.63	4	1.01	303	303	
	1408-Mod Coil Winding Supplies	91	66	77	-25	.73	-11	.86	766	1,722	
	1409 - Mod. Coil Test Stand	442	394	427	-48	.89	-33	.92	486	486	
	1411-MCWF Fabrication S005242	1,299	962	1,010	-337	.74	-47	.95	4,638	8,378	15
	1431 - Modular Coil Local I&C									120	
	1451 - Mod Coil Winding								979	4,342	26
<b>15</b>	<b>Structures</b>	<b>55</b>	<b>54</b>	<b>32</b>	<b>-1</b>	<b>.98</b>	<b>21</b>	<b>1.66</b>	<b>224</b>	<b>1,381</b>	<b>-</b>
	1501 - Structures Design	55	54	32	-1	.98	21	1.66	224	224	
	1550 - Structures Procurement									1,156	
<b>16</b>	<b>16 - Coil Services</b>									<b>1,036</b>	
<b>17</b>	<b>Cryostat and Base</b>	<b>203</b>	<b>139</b>	<b>137</b>	<b>-64</b>	<b>.69</b>	<b>3</b>	<b>1.02</b>	<b>305</b>	<b>1,321</b>	<b>-</b>
	1701-Cryostat&Base Sprt Strct Dsn	203	139	137	-64	.69	3	1.02	305	481	
	1751 - Cryostat Procurement									509	
	1752 - Base Support Structure Procuremer									330	
<b>18</b>	<b>Field Period Assembly</b>	<b>697</b>	<b>776</b>	<b>652</b>	<b>79</b>	<b>1.11</b>	<b>123</b>	<b>1.19</b>	<b>1,538</b>	<b>5,118</b>	<b>38</b>
	1801-Field Period Assly	61	61	61		1.00	0	1.00	61	61	
	1802 - FP Assy Oversight&Support	279	279	199	0	1.00	80	1.40	409	954	
	1803- FP Assy Toolg/Constructability	116	99	101	-17	.85	-2	.98	654	1,200	

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		CUMULATIVE TO DATE (from 4/1/03) (k)							ECP21		
		Budgeted Cost			VARIANCES				Budget		EAC
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	TEC	Incr.
<b>PPPL and ORNL</b>		<b>K</b>							<b>K</b>		
	1804-FP Assy Measurement	241	337	292	96	1.40	46	1.16	415	476	38
	1808 - TF/Mod Coil Sub-Assembly									697	
	1810 - Field Period Assembly									1,731	
<b>19</b>	<b>1901 - Stellarator Core Mngtt&amp;Integr</b>	<b>1,145</b>	<b>1,136</b>	<b>1,082</b>	<b>-9</b>	<b>.99</b>	<b>54</b>	<b>1.05</b>	<b>1,534</b>	<b>2,421</b>	
<b>2 - Plasma Heating,Fueling &amp; Vac Sys</b>		<b>366</b>	<b>369</b>	<b>347</b>	<b>3</b>	<b>1.01</b>	<b>22</b>	<b>1.06</b>	<b>369</b>	<b>780</b>	<b>-</b>
	21 - Fueling Systems									81	
	22 - Torus Vacuum Pumping Systems									330	
	2001-VPS Gas& Cond Sys Oversight	59	60	63	1	1.02	-3	.96	60	60	
	2501 - Neutral Beam Refurbishment	307	309	284	2	1.01	25	1.09	309	309	
<b>3 - Diagnostics</b>		<b>255</b>	<b>258</b>	<b>246</b>	<b>3</b>	<b>1.01</b>	<b>12</b>	<b>1.05</b>	<b>502</b>	<b>1,117</b>	<b>-</b>
#	3101 Magnetic Diagnostics		3	3	3		0	1.00	201	414	
#	36 - Edge and Divertor Diagnostics									43	
38	38 - Electron Beam (EB) Mapping									291	
39	3901 - Diagnostics sys Integration	255	255	242	0	1.00	12	1.05	301	369	
<b>4 - Electrical Power Systems</b>		<b>443</b>	<b>371</b>	<b>295</b>	<b>-72</b>	<b>.84</b>	<b>77</b>	<b>1.26</b>	<b>709</b>	<b>3,216</b>	<b>-</b>
41	4101 - AC Power	158	157	81	-1	1.00	77	1.95	157	485	
43	4301 - DC Systems	122	56	50	-66	.46	6	1.12	239	446	
44	4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1	1,216	
45	4501 - Power Sys Dsn & Integr	161	155	138	-6	.97	17	1.12	310	1,068	
46	4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1	
<b>5 - Central I&amp;C Systems</b>		<b>28</b>	<b>28</b>	<b>33</b>		<b>1.00</b>	<b>-5</b>	<b>.85</b>	<b>37</b>	<b>1,917</b>	<b>-</b>
51	51 - TCP/IP Infrastructure Systems									265	
52	52 - Central Instrumentation & Contr									571	
53	53 - Data Acquisition & Fac Computi									328	
54	54 - Facility Timing & Synchronizatic									207	
55	55 - Real Time Plasma & Power Supj									151	
56	56 - Central Safety Interlock System:									358	
58	5801 -Central I&C Integr	28	28	33		1.00	-5	.85	37	37	
<b>6 - Facility Systems</b>		<b>41</b>	<b>42</b>	<b>24</b>	<b>1</b>	<b>1.01</b>	<b>17</b>	<b>1.72</b>	<b>42</b>	<b>825</b>	<b>-</b>
61	61 - Water Systems									240	
	6163 - Facility Systems Support FY04	32	32	15	0	1.01	17	2.17	32	32	
#	62 - Cryogenic Systems									440	
63	63 - Utility Systems									103	

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		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	TEC	Incr.
<b>PPPL and ORNL</b>		<b>K</b>							<b>K</b>		
#	6501 - Facility Systems Integration	9	9	9	0	1.04	0	1.00	9	9	
<b>7 -</b>	<b>Test Cell Prep &amp; Machine Assy</b>	<b>547</b>	<b>439</b>	<b>436</b>	<b>-108</b>	<b>.80</b>	<b>3</b>	<b>1.01</b>	<b>723</b>	<b>4,211</b>	<b>-</b>
#	7101 - Shield Wall Modif	32	32	32	0	1.00		1.00	32	32	
72	7201 - Control Room Walls&Floors	35			-35				50	50	
73	7301 - Platform Design &	39			-39				92	161	
74	7401 - TC Prep & Mach Assy Plannin	441	407	404	-34	.92	3	1.01	549	1,506	
<b>75</b>	<b>Machine Assembly</b>								<b>-</b>	<b>2,239</b>	<b>-</b>
	7501 - Construction Support Crew									1,003	
	7502 - Test Cell Facility Preparations									53	
	7503 - Machine Assembly									1,183	
<b>76</b>	<b>7601 - Tooling Design &amp; Fabrication</b>									<b>223</b>	
<b>8 -</b>	<b>Project Oversight &amp; Support</b>	<b>4,582</b>	<b>4,582</b>	<b>4,748</b>		<b>1.00</b>	<b>-166</b>	<b>.97</b>	<b>6,066</b>	<b>10,637</b>	<b>26</b>
<b>81</b>	<b>Project Management and Control</b>	<b>1,970</b>	<b>1,970</b>	<b>2,139</b>		<b>1.00</b>	<b>-169</b>	<b>.92</b>	<b>2,721</b>	<b>4,579</b>	<b>26</b>
	8101 - Project Management & Control	1,335	1,335	1,483		1.00	-148	.90	1,806	3,090	
	8102 - NCSX MIE Management ORNL	210	210	177		1.00	34	1.19	274	360	
	8998 - Allocations	426	426	479		1.00	-54	.89	641	1,129	26
<b>82</b>	<b>Project Engineering</b>	<b>2,141</b>	<b>2,141</b>	<b>2,139</b>		<b>1.00</b>	<b>2</b>	<b>1.00</b>	<b>2,875</b>	<b>4,368</b>	<b>-</b>
	8202 - Engr Mgmt & Sys Eng Support	1,196	1,196	1,212		1.00	-15	.99	1,644	2,662	
	8203 - Design Integration	610	610	619		1.00	-9	.99	717	1,089	
	8204 - Systems Analysis	335	335	308		1.00	27	1.09	513	617	
<b>84</b>	<b>Project Physics</b>	<b>470</b>	<b>470</b>	<b>470</b>		<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>470</b>	<b>1,691</b>	<b>-</b>
	8401 - Project Physcis	324	324	324		1.00	0	1.00	324	324	
	8402 - Project Physics MIE ORNL	146	146	146		1.00	0	1.00	146	146	
	85 - Integrated Systems Testing									1,221	
	<b>Subtotal</b>	<b>25,866</b>	<b>24,310</b>	<b>24,639</b>	<b>-1,556</b>	<b>.94</b>	<b>-329</b>	<b>.99</b>	<b>38,752</b>	<b>73,597</b>	<b>764</b>
	<b>Contingency</b>								<b>2,603</b>	<b>12,756</b>	
	<b>TOTAL PROJECT</b>								<b>41,355</b>	<b>86,352</b>	