

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

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

**OCTOBER FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)							Budget Thru FY05	TEC	EAC
	Budgeted Cost			VARIANCES						
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI			
<b>1 - Stellarator Core Systems</b>	<b>15,221</b>	<b>15,403</b>	<b>15,449</b>	<b>182</b>	<b>1.01</b>	<b>-45</b>	<b>1.00</b>	<b>30,008</b>	<b>50,655</b>	
<b>12 Vacuum Vessel Systems</b>	<b>2,877</b>	<b>3,016</b>	<b>3,148</b>	<b>140</b>	<b>1.05</b>	<b>-132</b>	<b>.96</b>	<b>6,939</b>	<b>8,737</b>	
1201 - Vacuum Vessel Prelim Dsn	424	424	424		1.00	0	1.00	424	424	
1202 - Vacuum Vessel R&D	1,769	1,769	1,803	0	1.00	-34	.98	1,769	1,769	
1203 - Vacuum Vessel Final Dsn	632	631	626	0	1.00	5	1.01	770	770	
1204-VV Sys Procurements (non VVSA)								27	519	
1206 - VV Field Weld Joint R&D	1	1	147	0	1.00	-146	.01	210	210	
1250 - Vacuum Vessel Fabrication	50	190	147	140	3.80	43	1.29	3,739	5,045	
<b>13 Conventional Coils</b>	<b>467</b>	<b>456</b>	<b>458</b>	<b>-11</b>	<b>.98</b>	<b>-2</b>	<b>1.00</b>	<b>1,501</b>	<b>4,441</b>	-
1301 - TF Design	467	456	458	-11	.98	-2	1.00	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>10,104</b>	<b>10,101</b>	<b>10,229</b>	<b>-2</b>	<b>1.00</b>	<b>-128</b>	<b>.99</b>	<b>18,020</b>	<b>26,200</b>	-
1401 - Mod Coil Prel.Dsn	303	303	304	0	1.00	-1	1.00	303	303	
1402 - Mod.Coil Analyses	239	239	239	0	1.00		1.00	239	239	
1403 - Modular Coil Final Design	1,963	1,948	1,960	-15	.99	-11	.99	2,676	2,676	
1404-MCWF R&D & 1st Prod Casting	2,374	2,350	2,224	-24	.99	126	1.06	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	1,904	1,902	2,143	-3	1.00	-242	.89	1,961	1,961	
1410 MC Twisted Racetrack Fabr		3	22	3		-19	.15	423	423	
1407 -Mod Coil Winding Facility	2,565	2,565	2,546	0	1.00	19	1.01	2,565	2,565	
1412 - Complete Winding Facilities	49	76	104	27	1.55	-28	.73	303	303	
1408-Mod Coil Winding Supplies	32	32	56	0	1.00	-23	.58	766	1,722	
1409 - Mod. Coil Test Stand	397	371	358	-26	.93	14	1.04	486	486	
1411-MCWF Fabrication S005242	108	143	106	35	1.33	38	1.36	4,622	8,378	
1431 - Modular Coil Local I&C									120	
1451 - Mod Coil Winding								994	4,342	
<b>15 Structures</b>	<b>54</b>	<b>54</b>	<b>28</b>	<b>0</b>	<b>1.00</b>	<b>25</b>	<b>1.90</b>	<b>224</b>	<b>1,381</b>	-
1501 - Structures Design	54	54	28	0	1.00	25	1.90	224	224	
1550 - Structures Procurement									1,156	
<b>16 16 - Coil Services</b>									<b>1,036</b>	
<b>17 Cryostat and Base</b>	<b>174</b>	<b>164</b>	<b>115</b>	<b>-10</b>	<b>.94</b>	<b>49</b>	<b>1.42</b>	<b>305</b>	<b>1,321</b>	-
1701-Cryostat&Base Sprt Strct Dsn	174	164	115	-10	.94	49	1.42	305	481	
1751 - Cryostat Procurement									509	
1752 - Base Support Structure Procurement									330	
<b>18 Field Period Assembly</b>	<b>537</b>	<b>614</b>	<b>494</b>	<b>76</b>	<b>1.14</b>	<b>119</b>	<b>1.24</b>	<b>1,485</b>	<b>5,118</b>	-
1801-Field Period Assly	61	61	61	0	1.00	0	.99	61	61	
1802 - FP Assy Oversight&Support	235	235	159	0	1.00	76	1.48	409	954	
1803- FP Assy Toolg/Constructability			14				-14	600	1,200	
1804-FP Assy Measurement	241	318	261	76	1.32	57	1.22	415	476	
1808 - TF/Mod Coil Sub-Assembly									697	
1810 - Field Period Assembly									1,731	
<b>19 1901 - Stellarator Core Mngtt&amp;Integr</b>	<b>1,009</b>	<b>998</b>	<b>976</b>	<b>-11</b>	<b>.99</b>	<b>22</b>	<b>1.02</b>	<b>1,534</b>	<b>2,421</b>	

**Princeton University Plasma Physics Laboratory  
PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE  
NCSX**

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

**OCTOBER FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)							Budget Thru FY05	TEC	EAC
	Budgeted Cost		ACWP	VARIANCES						
	BCWS	BCWP		Sch Var	SPI	Cst Var	CPI			
<b>2 - Plasma Heating,Fueling &amp; Vac Sys</b>	<b>369</b>	<b>369</b>	<b>347</b>	<b>0</b>	<b>1.00</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		60	60	63	0	1.00	-3	.96	60	60
2501 - Neutral Beam Refurbishment		309	309	284	0	1.00	25	1.09	309	309
<b>3 - Diagnostics</b>	<b>239</b>	<b>239</b>	<b>231</b>	<b>0</b>	<b>1.00</b>	<b>8</b>	<b>1.03</b>	<b>506</b>	<b>1,117</b>	<b>-</b>
# 3101 Magnetic Diagnostics									205	414
# 36 - Edge and Divertor Diagnostics										43
38 38 - Electron Beam (EB) Mapping										291
39 3901 - Diagnostics sys Integration		239	239	231	0	1.00	8	1.03	301	369
<b>4 - Electrical Power Systems</b>	<b>306</b>	<b>336</b>	<b>271</b>	<b>30</b>	<b>1.10</b>	<b>64</b>	<b>1.24</b>	<b>709</b>	<b>3,216</b>	<b>-</b>
41 4101 - AC Power		157	157	81	0	1.00	77	1.95	157	485
43 4301 - DC Systems			30	29	30		0	1.02	239	446
44 4401 - Control & Protection		1	1	22	0	1.00	-21	.05	1	1,216
45 4501 - Power Sys Dsn & Integr		147	147	138	0	1.00	8	1.06	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>25</b>	<b>25</b>	<b>31</b>	<b>0</b>	<b>1.00</b>	<b>-6</b>	<b>.81</b>	<b>37</b>	<b>1,917</b>	<b>-</b>
51 51 - TCP/IP Infrastructure Systems										265
52 52 - Central Instrumentation & Control										571
53 53 - Data Acquisition & Fac Computing										328
54 54 - Facility Timing & Synchronization										207
55 55 - Real Time Plasma & Power Supply										151
56 56 - Central Safety Interlock Systems										358
58 5801 -Central I&C Integr		25	25	31	0	1.00	-6	.81	37	37
<b>6 - Facility Systems</b>	<b>42</b>	<b>42</b>	<b>24</b>	<b>0</b>	<b>1.00</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	1.00	17	2.17	32	32
# 62 - Cryogenic Systems										440
63 63 - Utility Systems										103
# 6501 - Facility Systems Integration		9	9	9		1.00	0	1.00	9	9
<b>7 - Test Cell Prep &amp; Machine Assy</b>	<b>413</b>	<b>413</b>	<b>367</b>	<b>0</b>	<b>1.00</b>	<b>46</b>	<b>1.13</b>	<b>723</b>	<b>4,208</b>	<b>-</b>
# 7101 - Shield Wall Modif		32	32	32	0	1.00		1.00	32	32
72 7201 - Control Room Walls&Floors									50	50
73 7301 - Platform Design &									92	92
74 7401 - TC Prep & Mach Assy Planning		381	381	335	0	1.00	46	1.14	549	1,572
75 Machine Assembly										2,239
7501 - Construction Support Crew										1,003
7502 - Test Cell Facility Preparations										53
7503 - Machine Assembly										1,183
76 7601 - Tooling Design & Fabrication										223
<b>8 - Project Oversight &amp; Support</b>	<b>4,022</b>	<b>4,005</b>	<b>4,196</b>	<b>-17</b>	<b>1.00</b>	<b>-192</b>	<b>.95</b>	<b>6,008</b>	<b>10,579</b>	<b>-</b>
81 Project Management and Control		1,715	1,713	1,855	-2	1.00	-141	.92	2,721	4,579
8101 - Project Management & Control		1,176	1,174	1,311	-1	1.00	-137	.90	1,806	3,090
8102 - NCSX MIE Management ORNL		187	187	154	0	1.00	33	1.21	274	360
8998 - Allocations		353	352	390	-1	1.00	-37	.90	641	1,129
82 Project Engineering		1,894	1,879	1,872	-15	.99	7	1.00	2,875	4,368
8202 - Engr Mgmt & Sys Eng Support		1,045	1,044	1,044	-1	1.00	0	1.00	1,644	2,662
8203 - Design Integration		574	561	589	-13	.98	-28	.95	717	1,089
8204 - Systems Analysis		275	274	239	-1	1.00	35	1.15	513	617
84 Project Physics		412	412	470	0	1.00	-57	.88	412	1,633
8401 - Project Physcis		310	310	323	0	1.00	-13	.96	310	310
8402 - Project Physics MIE ORNL		102	102	146	0	1.00	-44	.70	102	102
85 - Integrated Systems Testing										1,221
<b>Subtotal</b>	<b>20,637</b>	<b>20,832</b>	<b>20,917</b>	<b>195</b>	<b>1.01</b>	<b>-85</b>	<b>1.00</b>	<b>38,401</b>	<b>73,296</b>	
<b>Contingency</b>								<b>1,200</b>	<b>13,053</b>	
<b>TOTAL PROJECT</b>								<b>39,601</b>	<b>86,349</b>	