

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

**NCSX**

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

**DECEMBER FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)								Budget Thru FY05	TEC	EAC Incr.
	Budgeted Cost			VARIANCES							
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
<b>PPPL and ORNL</b>	<b>K</b>								<b>K</b>		
<b>1 - Stellarator Core Systems</b>	<b>17,906</b>	<b>17,184</b>	<b>17,509</b>	<b>-722</b>	<b>.96</b>	<b>-325</b>	<b>.98</b>	<b>30,008</b>	<b>50,655</b>	<b>477</b>	
<b>12 Vacuum Vessel Systems</b>	<b>3,598</b>	<b>3,346</b>	<b>3,391</b>	<b>-252</b>	<b>.93</b>	<b>-45</b>	<b>.99</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	1,771	0	1.00	-1	1.00	1,769	1,769		
1203 - Vacuum Vessel Final Dsn	689	629	720	-60	.91	-91	.87	770	770		
1204-VV Sys Procurements (non VVSA)								27	519		
1206 - VV Field Weld Joint R&D	11	10	7	-1	.89	3	1.40	210	210		
1250 - Vacuum Vessel Fabrication	704	514	469	-190	.73	45	1.10	3,739	5,045		
<b>13 Conventional Coils</b>	<b>618</b>	<b>509</b>	<b>546</b>	<b>-109</b>	<b>.82</b>	<b>-37</b>	<b>.93</b>	<b>1,501</b>	<b>4,441</b>	<b>-</b>	
1301 - TF Design	618	509	546	-109	.82	-37	.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>11,663</b>	<b>11,297</b>	<b>11,765</b>	<b>-366</b>	<b>.97</b>	<b>-468</b>	<b>.96</b>	<b>18,020</b>	<b>26,200</b>	<b>477</b>	
1401 - Mod Coil Prel.Dsn	304	303	304	-1	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	2,282	2,106	2,154	-176	.92	-48	.98	2,676	2,676		
1404-MCWF R&D & 1st Prod Casting	2,513	2,513	2,585	0	1.00	-72	.97	2,513	2,513	155	
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168		
1406 - Mod. Coil Winding	1,956	1,931	2,168	-25	.99	-237	.89	1,961	1,961	217	
1410 MC Twisted Racetrack Fabr	117	98	193	-19	.84	-95	.51	423	423	105	
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	127	252	249	125	1.98	3	1.01	303	303		
1408-Mod Coil Winding Supplies	53	45	68	-8	.86	-22	.67	766	1,722		
1409 - Mod. Coil Test Stand	428	383	394	-45	.90	-10	.97	486	486		
1411-MCWF Fabrication S005242	912	693	696	-219	.76	-3	.99	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>26</b>	<b>1.92</b>	<b>224</b>	<b>1,381</b>	<b>-</b>	
1501 - Structures Design	54	54	28	0	1.00	26	1.92	224	224		
1550 - Structures Procurement									1,156		
<b>16 - Coil Services</b>									<b>1,036</b>		
<b>17 Cryostat and Base</b>	<b>194</b>	<b>164</b>	<b>125</b>	<b>-30</b>	<b>.85</b>	<b>39</b>	<b>1.31</b>	<b>305</b>	<b>1,321</b>	<b>-</b>	
1701-Cryost&Base Sprt Strct Dsn	194	164	125	-30	.85	39	1.31	305	481		
1751 - Cryostat Procurement									509		
1752 - Base Support Structure Procuremer									330		
<b>18 Field Period Assembly</b>	<b>673</b>	<b>732</b>	<b>608</b>	<b>60</b>	<b>1.09</b>	<b>125</b>	<b>1.21</b>	<b>1,485</b>	<b>5,118</b>	<b>-</b>	
1801-Field Period Assly	61	61	61	0	1.00	0	.99	61	61		
1802 - FP Assy Oversight&Support	263	263	188	0	1.00	76	1.40	409	954		
1803- FP Assy Toolg/Constructability	108	76	76	-32	.70	0	1.00	600	1,200		
1804-FP Assy Measurement	241	332	283	91	1.38	49	1.17	415	476		
1808 - TF/Mod Coil Sub-Assembly									697		
1810 - Field Period Assembly									1,731		
<b>19 1901 - Stellarator Core Mngt&amp;Integr</b>	<b>1,107</b>	<b>1,082</b>	<b>1,045</b>	<b>-25</b>	<b>.98</b>	<b>36</b>	<b>1.03</b>	<b>1,534</b>	<b>2,421</b>		
<b>2 - Plasma Heating,Fueling &amp; Vac Sy</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		

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**DECEMBER FY05**

		CUMULATIVE TO DATE (from 4/1/03) (k)							Budget		EAC
		Budgeted Cost		ACWP			VARIANCES		Budget	TEC	Incr.
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05		
<b>3</b>	<b>- Diagnostics</b>	<b>249</b>	<b>249</b>	<b>237</b>	<b>0</b>	<b>1.00</b>	<b>12</b>	<b>1.05</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	249	249	237	0	1.00	12	1.05	301	369	
<b>4</b>	<b>- Electrical Power Systems</b>	<b>385</b>	<b>366</b>	<b>290</b>	<b>-19</b>	<b>.95</b>	<b>76</b>	<b>1.26</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	79	51	45	-28	.64	5	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	147	155	138	9	1.06	17	1.12	310	1,068	
46	4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1	
<b>5</b>	<b>- Central I&amp;C Systems</b>	<b>27</b>	<b>27</b>	<b>33</b>	<b>0</b>	<b>1.01</b>	<b>-6</b>	<b>.83</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 Supp									151	
56	56 - Central Safety Interlock System:									358	
58	5801 -Central I&C Integr	27	27	33	0	1.01	-6	.83	37	37	
<b>6</b>	<b>- 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</b>	<b>- Test Cell Prep &amp; Machine Assy</b>	<b>460</b>	<b>430</b>	<b>375</b>	<b>-30</b>	<b>.93</b>	<b>55</b>	<b>1.15</b>	<b>726</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								50	50	
73	7301 - Platform Design &								92	161	
74	7401 - TC Prep & Mach Assy Plannin	428	398	343	-30	.93	55	1.16	552	1,506	
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</b>	<b>- Project Oversight &amp; Support</b>	<b>4,375</b>	<b>4,375</b>	<b>4,618</b>	<b>0</b>	<b>1.00</b>	<b>-243</b>	<b>.95</b>	<b>6,008</b>	<b>10,579</b>	<b>83</b>
81	Project Management and Control	1,894	1,894	2,084		1.00	-190	.91	2,721	4,579	26
	8101 - Project Management & Control	1,288	1,288	1,443		1.00	-155	.89	1,806	3,090	
	8102 - NCSX MIE Management ORNL	202	202	169		1.00	33	1.20	274	360	
	8998 - Allocations	404	404	472		1.00	-68	.86	641	1,129	26
82	Project Engineering	2,069	2,069	2,064		1.00	5	1.00	2,875	4,368	-
	8202 - Engr Mgmt & Sys Eng Support	1,152	1,152	1,166		1.00	-14	.99	1,644	2,662	
	8203 - Design Integration	600	600	606		1.00	-7	.99	717	1,089	
	8204 - Systems Analysis	317	317	292		1.00	25	1.09	513	617	
84	Project Physics	412	412	470	0	1.00	-58	.88	412	1,633	57
	8401 - Project Physcis	310	310	324	0	1.00	-13	.96	310	310	13
	8402 - Project Physics MIE ORNL	102	102	146	0	1.00	-44	.70	102	102	44
	85 - Integrated Systems Testing									1,221	
<b>Subtotal</b>		<b>23,813</b>	<b>23,042</b>	<b>23,434</b>	<b>-771</b>	<b>.97</b>	<b>-392</b>	<b>.983</b>	<b>38,404</b>	<b>73,300</b>	<b>560</b>
<b>Contingency</b>									<b>1,200</b>	<b>13,053</b>	
<b>TOTAL PROJECT</b>									<b>39,604</b>	<b>86,353</b>	