

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

**NCSX**

\*\*\*\* Cumulative to date FY03, FY04, FY05 & FY06\*\*\*\*

**AUGUST 2006**

**ECP 50**

|  | CURRENT MONTH |              |              | CUMULATIVE TO DATE (from 4/1/03) (k) |               |               |             |            |               |            |               | Budget<br>Thru FY06 |
|--|---------------|--------------|--------------|--------------------------------------|---------------|---------------|-------------|------------|---------------|------------|---------------|---------------------|
|  | BCWS          | BCWP         | ACWP         | Budgeted Cost                        |               |               | VARIANCES   |            |               |            |               |                     |
|  |               |              |              | BCWS                                 | BCWP          | ACWP          | Sch Var     | SPI        | Cst Var       | CPI        |               |                     |
| <b>1 - Stellarator Core Systems</b>                              | <b>1,686</b>  | <b>1,091</b> | <b>1,139</b> | <b>43,913</b>                        | <b>42,943</b> | <b>44,209</b> | <b>-969</b> | <b>.98</b> | <b>-1,266</b> | <b>.97</b> | <b>45,007</b> |                     |
| <b>12 Vacuum Vessel Systems</b>                                  | <b>541</b>    | <b>236</b>   | <b>262</b>   | <b>9,404</b>                         | <b>9,279</b>  | <b>9,412</b>  | <b>-125</b> | <b>.99</b> | <b>-133</b>   | <b>.99</b> | <b>9,413</b>  |                     |
| CLOSED 1201 - Vacuum Vessel Prelim Dsn                           |               |              |              | 424                                  | 424           | 424           | 0           | 1.00       | 0             | 1.00       | 424           |                     |
| CLOSED 1202 - Vacuum Vessel R&D                                  |               |              |              | 1,770                                | 1,770         | 1,771         | 0           | 1.00       | 0             | 1.00       | 1,770         |                     |
| 1203 - Vacuum Vessel Final Dsn                                   |               | -2           | 4            | 1,270                                | 1,251         | 1,187         | -19         | .99        | 65            | 1.05       | 1,270         |                     |
| 1204-VV Sys Procurements (non VVSA)                              | 2             | 2            | -2           | 248                                  | 187           | 239           | -61         | .75        | -52           | .78        | 249           |                     |
| CLOSED 1206 - VV Field Weld Joint R&D                            |               | 0            |              | 16                                   | 16            | 16            |             | 1.00       | 0             | .98        | 16            |                     |
| 1250 - Vacuum Vessel Fabrication                                 | 540           | 236          | 261          | 5,675                                | 5,630         | 5,775 (1)     | -45         | .99        | -145          | .97        | 5,683         |                     |
| <b>13 Conventional Coils</b>                                     | <b>202</b>    | <b>78</b>    | <b>61</b>    | <b>2,651</b>                         | <b>2,416</b>  | <b>2,443</b>  | <b>-235</b> | <b>.91</b> | <b>-28</b>    | <b>.99</b> | <b>3,023</b>  |                     |
| 1301 - TF Design   |               |              | -1           | 966                                  | 965           | 972           | -1          | 1.00       | -7            | .99        | 966           |                     |
| 1302 - PF Design   |               |              | -1           |                                      |               | 20            |             |            | -20           |            | 11            |                     |
| 1303 - Central Solenoid Support Design                           | 6             | 17           | 16           | 117                                  | 117           | 124           |             | 1.00       | -7            | .94        | 117           |                     |
| 1350 - TF Coil Fabr Prep   |               |              | -2           | 547                                  | 547           | 547           |             | 1.00       | 0             | 1.00       | 547           |                     |
| 1351 - TF Coil Fabr Supplies                                     |               |              | 3            | 470                                  | 461           | 462           | -9          | .98        | 0             | 1.00       | 470           |                     |
| 1361 - TF Fabrication  | 196           | 62           | 44           | 552                                  | 326           | 319 (3)       | -225        | .59        | 8             | 1.02       | 913           |                     |
| <b>14 Modular Coils</b>  | <b>676</b>    | <b>608</b>   | <b>700</b>   | <b>27,012</b>                        | <b>26,547</b> | <b>27,635</b> | <b>-465</b> | <b>.98</b> | <b>-1,088</b> | <b>.96</b> | <b>27,503</b> |                     |
| CLOSED 1401 - Mod Coil Prel.Dsn                                  |               |              |              | 304                                  | 304           | 304           | 0           | 1.00       | 0             | 1.00       | 304           |                     |
| CLOSED 1402 - Mod.Coil Analyses                                  |               |              |              | 239                                  | 239           | 239           | 0           | 1.00       | 0             | 1.00       | 239           |                     |
| 1403 - MoCoil Final Dsn (incl job<br>1421 coil interface hw dsn) | 24            | 5            | 13           | 3,668                                | 3,495         | 3,508         | -173        | .95        |               |            | 3,688         |                     |
| 1416 - Mod Coil Type A&B Final Design                            | 53            | 11           | 10           | 427                                  | 321           | 360           | -106        | .75        | -40           | .89        | 446           |                     |
| CLOSED 1404-MCWF R&D & 1st Prod Casting                          |               |              |              | 2,544                                | 2,544         | 2,544         | 0           | 1.00       | 0             | 1.00       | 2,544         |                     |
| CLOSED 1405-Mod Coil Winding R&D Prep                            |               |              |              | 168                                  | 168           | 168           | 0           | 1.00       | 0             | 1.00       | 168           |                     |
| CLOSED 1406 - Mod. Coil Winding Facility                         |               | 0            |              | 2,264                                | 2,264         | 2,263         |             | 1.00       | 0             | 1.00       | 2,264         |                     |
| CLOSED 1407 -Mod Coil Winding Facility                           |               |              | -1           | 2,571                                | 2,571         | 2,571         |             | 1.00       | 1             | 1.00       | 2,571         |                     |
| 1408-Mod Coil Winding Supplies                                   | 64            | 77           | 139          | 1,766                                | 1,540         | 1,683         | -226        | .87        | -143          | .92        | 1,767         |                     |
| CLOSED 1410 MC Twisted Racetrack Fabr                            |               |              | 0            | 1,050                                | 1,050         | 1,051         | 0           | 1.00       | -1            | 1.00       | 1,050         |                     |
| 1411-MCWF Fabrication S005242                                    | 230           | 237          | 243          | 7,600                                | 7,774         | 7,876 (2)     | 175         | 1.02       | -102          | .99        | 7,796         |                     |
| CLOSED 1412 - Complete Winding Facilities                        |               |              | 0            | 541                                  | 541           | 542           |             | 1.00       | -1            | 1.00       | 541           |                     |
| CLOSED 1413 - Mod Coil Fracture Analysis                         |               |              |              | 28                                   | 28            | 28            | 0           | 1.01       | 0             | 1.01       | 28            |                     |
| CLOSED 1409 - Mod. Coil Test Stand                               |               |              | 2            | 826                                  | 826           | 828           | 0           | 1.00       | -2            | 1.00       | 826           |                     |
| CLOSED 1414 - Coil Testing                                       |               |              | -13          | 675                                  | 675           | 664           | 0           | 1.00       | 11            | 1.02       | 675           |                     |
| CLOSED 1415 - Dimensional Control Testing                        |               |              |              | 24                                   | 24            | 24            | 0           | .99        | 0             | .99        | 24            |                     |
| CLOSED 1419 - Winding Facility Modification                      |               |              |              | 55                                   | 55            | 48            |             | 1.00       | 7             | 1.14       | 55            |                     |

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**AUGUST 2006**

|  |  | CURRENT MONTH |            |            | CUMULATIVE TO DATE (from 4/1/03) (k) |              |              |            |             |             |             |              | ECP 50<br>Budget<br>Thru FY06 |
|--|--|---------------|------------|------------|--------------------------------------|--------------|--------------|------------|-------------|-------------|-------------|--------------|-------------------------------|
|  |  | BCWS          | BCWP       | ACWP       | Budgeted Cost                        |              |              | VARIANCES  |             |             |             |              |                               |
|  |  |               |            |            | BCWS                                 | BCWP         | ACWP         | Sch Var    | SPI         | Cst Var     | CPI         |              |                               |
|  | 1451 - Mod Coil Winding (incl 1459 unplanned work) | 306           | 278        | 305        | 2,263                                | 2,128        | 2,933        | -134       | .94         | -805        | .73         | 2,517        |                               |
| <b>15</b>  | <b>Structures</b>                                  | <b>31</b>     | <b>1</b>   | <b>-1</b>  | <b>113</b>                           | <b>99</b>    | <b>120</b>   | <b>-14</b> | <b>.88</b>  | <b>-20</b>  | <b>.83</b>  | <b>139</b>   |                               |
|  | 1501 - Structures Design                           | 31            | 1          | -1         | 113                                  | 99           | 116          | -14        | .88         | -16         | .86         | 139          |                               |
|  | 1550 - Structures Procurement                      |               |            | 0          |                                      |              | 4            |            |             | -4          |             | -            |                               |
| <b>16</b>  | <b>16 - Coil Services</b>                          |               |            | 0          | 3                                    | 3            | 3            |            | 1.00        | 0           | 1.03        | <b>3</b>     |                               |
| <b>17</b>  | <b>Cryostat and Base</b>                           | <b>33</b>     | <b>-1</b>  | <b>-1</b>  | <b>484</b>                           | <b>421</b>   | <b>419</b>   | <b>-64</b> | <b>.87</b>  | <b>1</b>    | <b>1.00</b> | <b>487</b>   |                               |
|  | 1701-Cryostat&Base Sprt Strct Dsn                  | 33            | -1         | -1         | 484                                  | 421          | 419          | -64        | .87         | 1           | 1.00        | 487          |                               |
| <b>18</b>  | <b>Field Period Assembly</b>                       | <b>155</b>    | <b>119</b> | <b>102</b> | <b>2,280</b>                         | <b>2,213</b> | <b>2,280</b> | <b>-67</b> | <b>.97</b>  | <b>-67</b>  | <b>.97</b>  | <b>2,433</b> |                               |
|  | CLOSED 1801-Field Period Assly                     |               |            | 0          | 65                                   | 65           | 65           |            | 1.00        | 0           | 1.00        | 65           |                               |
|  | 1802 - FP Assy Oversight&Support                   | 36            | 36         | 36         | 633                                  | 634          | 655          | 0          | 1.00        | -22         | .97         | 664          |                               |
|  | 1803- FP Assy Tooling/Constructability             | 75            | 35         | 34         | 873                                  | 836          | 901          | -37        | .96         | -65         | .93         | 954          |                               |
|  | 1804-FP Assy Measurement                           | 2             | 2          | 16         | 548                                  | 547          | 549          | -1         | 1.00        | -2          | 1.00        | 549          |                               |
|  | 1810 - Field Period Assembly                       | 42            | 46         | 16         | 161                                  | 132          | 111          | -29        | .82         | 21          | 1.19        | 200          |                               |
| <b>19</b>  | <b>1901 - Stellarator Core Mngtt&amp;Integr</b>    | <b>47</b>     | <b>47</b>  | <b>16</b>  | <b>1,966</b>                         | <b>1,966</b> | <b>1,897</b> | <b>0</b>   | <b>1.00</b> | <b>69</b>   | <b>1.04</b> | <b>2,007</b> |                               |
| <b>2 - Plasma Heating, Fueling &amp; Vac Sys</b> |  |               |            | -1         | <b>348</b>                           | <b>348</b>   | <b>348</b>   | <b>0</b>   | <b>1.00</b> |             | <b>1.00</b> | <b>348</b>   |                               |
|  | CLOSED 2001-VPS Gas& Cond Sys Oversight            |               |            | -1         | 64                                   | 63           | 63           | -1         | .99         |             | 1.00        | 63           |                               |
|  | CLOSED 2501 - Neutral Beam Refurbishment           |               |            | 0          | 285                                  | 285          | 285          | 0          | 1.00        |             | 1.00        | 285          |                               |
| <b>3 - Diagnostics</b>                           |  | <b>7</b>      | <b>9</b>   | <b>8</b>   | <b>749</b>                           | <b>726</b>   | <b>784</b>   | <b>-22</b> | <b>.97</b>  | <b>-58</b>  | <b>.93</b>  | <b>757</b>   |                               |
| <b>31</b>  | <b>3101 Magnetic Diagnostics</b>                   |               | <b>2</b>   | <b>6</b>   | <b>409</b>                           | <b>386</b>   | <b>467</b>   | <b>-22</b> | <b>.95</b>  | <b>-80</b>  | <b>.83</b>  | <b>411</b>   |                               |
| <b>39</b>  | <b>3901 - Diagnostics sys Integration</b>          | <b>7</b>      | <b>7</b>   | <b>2</b>   | <b>340</b>                           | <b>340</b>   | <b>317</b>   |            | <b>1.00</b> | <b>22</b>   | <b>1.07</b> | <b>345</b>   |                               |
| <b>4 - Electrical Power Systems</b>              |  |               |            | -3         | <b>757</b>                           | <b>722</b>   | <b>720</b>   | <b>-34</b> | <b>.95</b>  | <b>2</b>    | <b>1.00</b> | <b>757</b>   |                               |
| <b>41</b>  | <b>4101 - AC Power</b>                             |               |            |            | <b>107</b>                           | <b>108</b>   | <b>107</b>   | <b>1</b>   | <b>1.01</b> | <b>0</b>    | <b>1.00</b> | <b>107</b>   |                               |
| <b>43</b>  | <b>4301 - DC Systems</b>                           |               |            | -4         | <b>382</b>                           | <b>382</b>   | <b>379</b>   | <b>0</b>   | <b>1.00</b> | <b>4</b>    | <b>1.01</b> | <b>382</b>   |                               |
| <b>44</b>  | <b>4401 - Control &amp; Protection</b>             |               |            | -1         | <b>82</b>                            | <b>83</b>    | <b>82</b>    | <b>0</b>   | <b>1.00</b> | <b>1</b>    | <b>1.01</b> | <b>82</b>    |                               |
| <b>45</b>  | <b>4501 - Power Sys Dsn &amp; Integr</b>           |               |            | 2          | <b>184</b>                           | <b>148</b>   | <b>151</b>   | <b>-36</b> | <b>.80</b>  | <b>-3</b>   | <b>.98</b>  | <b>184</b>   |                               |
| <b>46</b>  | <b>4601 - FCPC Bldg Mods</b>                       |               |            |            | <b>1</b>                             | <b>1</b>     | <b>1</b>     |            | <b>1.00</b> |             | <b>1.00</b> | <b>1</b>     |                               |
| <b>5 - Central I&amp;C Systems</b>               |  |               | <b>3</b>   |            | <b>41</b>                            | <b>43</b>    | <b>33</b>    | <b>2</b>   | <b>1.06</b> | <b>10</b>   | <b>1.31</b> | <b>46</b>    |                               |
| <b>58</b>  | <b>5801 -Central I&amp;C Integr</b>                |               | <b>3</b>   |            | <b>41</b>                            | <b>43</b>    | <b>33</b>    | <b>2</b>   | <b>1.06</b> | <b>10</b>   | <b>1.31</b> | <b>46</b>    |                               |
| <b>6 - Facility Systems</b>                      |  |               | <b>0</b>   |            | <b>24</b>                            | <b>24</b>    | <b>24</b>    | <b>0</b>   | <b>1.02</b> | <b>0</b>    | <b>1.01</b> | <b>24</b>    |                               |
|  | 6163 - Facility Systems Support FY04               |               |            |            | 15                                   | 15           | 15           |            | 1.00        | 0           | 1.01        | 15           |                               |
|  | 62 - Cryogenic Systems                             |               |            |            |                                      |              |              |            |             |             |             | -            |                               |
|  | 63 - Utility Systems                               |               |            |            |                                      |              |              |            |             |             |             | -            |                               |
|  | CLOSED 6501 - Facility Systems Integration         |               |            | 0          | 9                                    | 9            | 9            | 0          | 1.04        | 0           | 1.00        | 9            |                               |
| <b>7 - Test Cell Prep &amp; Machine Assy</b>     |  |               | <b>1</b>   | <b>-1</b>  | <b>938</b>                           | <b>942</b>   | <b>949</b>   | <b>4</b>   | <b>1.00</b> | <b>-7</b>   | <b>.99</b>  | <b>938</b>   |                               |
|  | CLOSED 7101 - Shield Wall Modif                    |               | <b>1</b>   | <b>0</b>   | <b>32</b>                            | <b>33</b>    | <b>33</b>    | <b>1</b>   | <b>1.02</b> | <b>0</b>    | <b>1.00</b> | <b>32</b>    |                               |
|  | 7201 - Control Room Walls&Floors                   |               |            |            | 75                                   | 76           | 76           | 1          | 1.02        | 0           | 1.00        | 75           |                               |
|  | 7301 - Platform Design &                           |               |            | 0          | 831                                  | 833          | 840          | 2          | 1.00        | -7          | .99         | 831          |                               |
|  | 7401 - TC Prep & Mach Assy Planning                |               |            | -1         |                                      |              |              |            |             |             |             |              |                               |
| <b>8 - Project Oversight &amp; Support</b>       |  | <b>220</b>    | <b>222</b> | <b>172</b> | <b>8,577</b>                         | <b>8,578</b> | <b>8,862</b> | <b>2</b>   | <b>1.00</b> | <b>-284</b> | <b>.97</b>  | <b>8,766</b> |                               |
| <b>81</b>  | <b>Project Management and Control</b>              | <b>105</b>    | <b>106</b> | <b>77</b>  | <b>4,035</b>                         | <b>4,035</b> | <b>4,060</b> | <b>1</b>   | <b>1.00</b> | <b>-24</b>  | <b>.99</b>  | <b>4,126</b> |                               |

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|--|--|---------------|--------------|--------------|--------------------------------------|---------------|---------------|---------------|-------------|---------------|-------------|---------------|---------------------|
|  |  | BCWS          | BCWP         | ACWP         | Budgeted Cost                        |               |               | VARIANCES     |             |               |             |               |                     |
|  |  |               |              |              | BCWS                                 | BCWP          | ACWP          | Sch Var       | SPI         | Cst Var       | CPI         |               |                     |
|  | 8101 - Project Management & Control  | 59            | 59           | 25           | 2,537                                | 2,538         | 2,544         | 0             | 1.00        | -7            | 1.00        | 2,588         |                     |
|  | 8102 - NCSX MIE Management ORNL  | 16            | 16           | 5            | 415                                  | 415           | 407           | 0             | 1.00        | 7             | 1.02        | 429           |                     |
|  | 8998 - Allocations   | 31            | 31           | 47           | 1,083                                | 1,083         | 1,108         | 0             | 1.00        | -25           | .98         | 1,109         |                     |
|  | <b>82 Project Engineering</b>  | <b>115</b>    | <b>115</b>   | <b>95</b>    | <b>4,072</b>                         | <b>4,072</b>  | <b>4,333</b>  | <b>0</b>      | <b>1.00</b> | <b>-261</b>   | <b>.94</b>  | <b>4,171</b>  |                     |
|  | 8202 - Engr Mgmt & Sys Eng Support   | 58            | 58           | 52           | 2,191                                | 2,191         | 2,256         | 0             | 1.00        | -66           | .97         | 2,241         |                     |
|  | 8203 - Design Integration  | 13            | 13           | 17           | 815                                  | 815           | 847           |               | 1.00        | -32           | .96         | 826           |                     |
|  | 8204 - Systems Analysis  | 27            | 27           | 24           | 803                                  | 803           | 985           |               | 1.00        | -182          | .81         | 826           |                     |
|  | 8205 - Dimensional Control Coord.  | 18            | 18           | 21           | 264                                  | 264           | 244           |               | 1.00        | 19            | 1.08        | 278           |                     |
|  | <b>84 Project Physics</b>  |               | <b>1</b>     |              | <b>470</b>                           | <b>471</b>    | <b>470</b>    | <b>1</b>      | <b>1.00</b> | <b>1</b>      | <b>1.00</b> | <b>470</b>    |                     |
|  | CLOSED 8401 - Project Physics  |               | 0            |              | 324                                  | 324           | 324           | 0             | 1.00        | 1             | 1.00        | 324           |                     |
|  | CLOSED 8402 - Project Physics MIE ORNL                                       |               | 0            |              | 146                                  | 146           | 146           | 1             | 1.00        | 0             | 1.00        | 146           |                     |
|  | <b>Subtotal</b>  | <b>1,912</b>  | <b>1,324</b> | <b>1,316</b> | <b>55,345</b>                        | <b>54,327</b> | <b>55,930</b> | <b>-1,018</b> | <b>.98</b>  | <b>-1,603</b> | <b>.97</b>  | <b>56,643</b> |                     |
|  | <b>Contingency/Management Reserve</b>  |               |              |              |                                      |               |               |               |             |               |             | <b>500</b>    |                     |
|  | <b>Incremental Funding</b>   |               |              |              |                                      |               |               |               |             |               |             | <b>1,291</b>  |                     |
|  | <b>1% hold back on FY06 BA</b>   |               |              |              |                                      |               |               |               |             |               |             | <b>(172)</b>  |                     |
|  | <b>DCMA QA Inspection services</b>   |               |              |              |                                      |               |               |               |             |               |             | <b>75</b>     |                     |
|  | <b>TOTAL PROJECT</b>   |               |              |              |                                      |               |               |               |             |               |             | <b>58,337</b> |                     |
|  | (1) Reflects accrual INCREASE of \$107 k based on MTM's earned value report  |               |              |              |                                      |               |               |               |             |               |             |               |                     |
|  | (2) Reflects accrual INCREASE of \$ 32 k based on EIO's earned value report  |               |              |              |                                      |               |               |               |             |               |             |               |                     |
|  | (3) Reflects accrual DECREASE of \$271 k on Everson/Tesla estimated progress |               |              |              |                                      |               |               |               |             |               |             |               |                     |