

# NATIONAL COMPACT STELLARATOR PROJECT

## Engineering Change Proposal (ECP)

### COVER PAGE

*(TO BE COMPLETED BY SYSTEMS ENGINEERING SUPPORT MANAGER)*

Originator: Ron Strykowski

Date: April 29, 2005

ECP No: 030

ECP Title: Planning Changes for Risk Management

#### Required Reviewers

Required Reviewers for this ECP:

WBS Managers, Project Engineers, NCSX QA, NCSX ES&H, NCSX Engineering Manager

#### ECP Approval Level

Expedited ECP?  Yes  No

Change Level: 3 Project

Approving Official: 3 Reg ECP - Project Manager

#### Actions

Adopt new baseline

### APPROVALS

*(TO BE COMPLETED BY APPROVING OFFICIALS)*

Change Level	Approving Official	Approval?	Signature
3	NCSX Project Manager	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3a (Expedited ECP)	NCSX Engineering Manager	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	NCSX Federal Project Director	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1	Associate Director OFES	<input type="checkbox"/> Yes <input type="checkbox"/> No	
0	Under Secretary of Energy	<input type="checkbox"/> Yes <input type="checkbox"/> No	

# NATIONAL COMPACT STELLARATOR PROJECT

## Engineering Change Proposal (ECP)

### *PART I* *(TO BE COMPLETED BY ORIGINATOR)*

Originator: Ron Strykowski

Date: April 29, 2005

#### Overview of Change

Type of ECP:       EXPEDITED       STANDARD

Type of Change:     TECHNICAL     COST     SCHEDULE     EDITORIAL

(Check all that Apply)

#### Reason for Change:

This change is being made within the currently approved performance baseline for cost, schedule, and quality risk management reasons.

This ECP reflects a redistribution of budget to address cost growth risks with offsetting work reductions. It also re-aligns the schedule consistent with recent planning updates for the modular coil winding design, various vacuum vessel jobs, dimensional control planning, and other jobs. The cooling water system design and ISTP document preparation tasks have been optimized within the CD-4 requirements, resulting in some reductions.

This ECP incorporates a new plan for fabricating the TF coil windings at PPPL instead of procuring them from industry. This decision was made following a "make or buy" analysis which concluded that the change to in-house fabrication would be cost-neutral while reducing quality risks in the finished product.

These changes do not affect CD-4 deliverables nor require application of contingency.

The project is in the process of planning a new performance baseline in response to reduced DOE funding guidance for future years. It is currently estimated that those funding-related changes will delay the project completion date by 14 months (to July, 2009) and increase the TEC by \$6.0M (to \$92.3M). That proposed DOE directed baseline change has been submitted to DOE and is pending.

Although that directed baseline change has not been approved yet, the attached resource-loaded schedule anticipates its approval and is being used for planning purposes. The changes in the performance measurement baseline being implemented with this ECP are necessary, independent of the pending funding-driven changes in the overall baseline.

Impacted WBS Elements: All

Attachments: Updated Resource Loaded Schedule reflecting the new PMB

Assessment of Other Options: Not making these proposed budget and schedule changes would result in excessive cost and schedule risks. Procuring the TF coils from industry would result in excessive quality risks.

# NATIONAL COMPACT STELLARATOR PROJECT

## Engineering Change Proposal (ECP)

### PART I (TO BE COMPLETED BY ORIGINATOR)

Originator: Ron Strykowski

Date: April 29, 2005

#### Detailed Description of the Change:

Impacts of Change (Briefly Describe):

WBS	ECP-029 (\$K)	ECP-030 (\$K)	Change (\$K)	Major Reasons
12 – Vacuum Vessel	\$9,168K	\$9,204K	\$36K	(\$137K) full size well sample; +\$43K seals; +\$5K templates for VVSA; +99K for Engrg Admin; +\$31K ORNL VVSA design sppt.
13 – Conventional Coils	\$4,552	\$4,552	-	
14 – Modular Coils	\$26,839K	\$27,062K	\$223K	+\$223K TRC & final Winding Dsn & Analysis
15 – Structures	\$1,381K	\$1,381K	-	
16 – Coil Services	\$1,036K	\$1,036K	-	
17 – Cryostat & Base Sppt	\$1,321K	\$1,321K	-	
18 – Field Period Assembly	\$5,118K	\$5,118K	-	
19 – Stellarator Core Mgmt	\$2,421K	\$2,421K	-	
<i>WBS 1 - Stellarator Core</i>	<i>\$51,837K</i>	<i>\$52,096K</i>	<i>\$259K</i>	
<i>WBS 2 – Fueling &amp; Pumping</i>	<i>\$778K</i>	<i>\$778K</i>	<i>-</i>	
<i>WBS 3 – Diagnostics</i>	<i>\$1,117K</i>	<i>\$1,117K</i>	<i>-</i>	
<i>WBS 4 – Power Systems</i>	<i>\$3,214K</i>	<i>\$3,214K</i>	<i>-</i>	
<i>WBS 5 – Central I&amp;C</i>	<i>\$1,915K</i>	<i>\$1,915K</i>	<i>-</i>	
<i>WBS 6 – Facility Systems</i>	<i>\$825K</i>	<i>\$674K</i>	<i>(\$151K)</i>	<i>(\$151K) C-Site Cooling Water Commissioning</i>
<i>WBS 7 – Machine Assembly</i>	<i>\$4,208K</i>	<i>\$4,208K</i>	<i>-</i>	
<i>WBS 8 – Project Mgmt &amp; Oversight</i>	<i>\$9,713K</i>	<i>\$9,605K</i>	<i>(\$108K)</i>	<i>\$50K dimensional control coordination in FY2005; (\$37K) project management sppt in FY2006; (\$121K) ISATP documentation req'd for CD-4</i>
<i>PPPL Allocations</i>	<i>\$1,129K</i>	<i>\$1,129K</i>	<i>-</i>	
<i>Contingency</i>	<i>\$11,610K</i>	<i>\$11,610K</i>	<i>-</i>	
<i>TOTALS</i>	<i>\$86,345K</i>	<i>\$86,345K</i>	<i>-</i>	

Check typo in WBS 6 ECP-030 entry