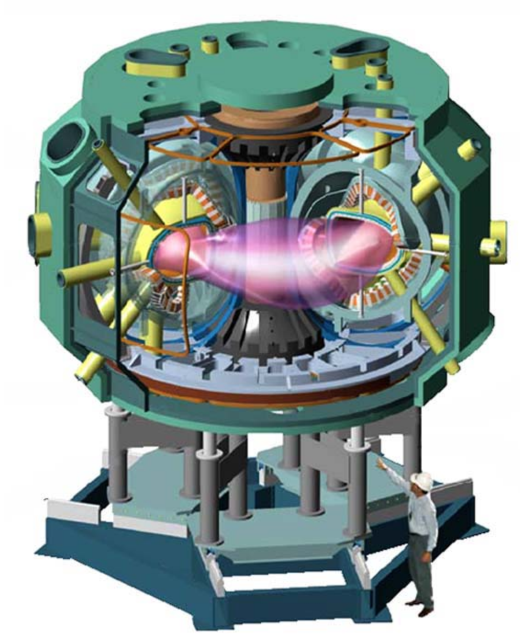

National Compact Stellarator Experiment

NCSX

ACQUISITION EXECUTION PLAN

(NCSX-PLAN-AEP)

Revision 0
June 28, 2002

NCSX Acquisition Execution Plan

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NCSX Acquisition Execution Plan

Revision	Date	Description of Changes
0		June 28, 2002

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NCSX Acquisition Execution Plan

I ACQUISITION BACKGROUND AND OBJECTIVES

A. Program Description

A.1 Statement of Need

Fusion is the power source of the sun and the stars. The sun and stars are comprised of a special state of matter called "plasma." In this plasma, hydrogen atoms combine or "fuse" to form a heavier atom, helium. In the process of fusing, some of the atoms involved are converted directly into large amounts of energy. Fusion researchers seek to harness this energy for applications such as central station electrical generation. The mission of the U.S. Fusion Energy Sciences Program is to " advance plasma science, fusion science, and fusion technology – the knowledge base needed for an economically and environmentally attractive fusion energy source."

The National Compact Stellarator Experiment (NCSX) is an integral part of the Department's Office of Fusion Energy Sciences program and provides an unique opportunity to advance its mission. The mission of the NCSX is to acquire the physics knowledge needed to evaluate compact stellarators as a fusion concept, and to advance the physics understanding of three-dimensional plasmas for fusion and basic science. This mission of the NCSX supports two of the Fusion Energy Sciences program's goals (Report of the Integrated Program Planning Activity, December, 2000), namely:

- Resolve outstanding scientific issues and establish reduced-cost paths to more attractive fusion energy systems by investigating a broad range of innovative magnetic confinement configurations.
- Advance understanding of plasma, the fourth state of matter, and enhance predictive capabilities through comparison of well-diagnosed experiments, theory, and simulation.

The NCSX and the stellarator proof-of-principle program were proposed to DOE in May, 1998. A peer review panel and later the Fusion Energy Sciences Advisory Committee (FESAC) recommended development of the physics basis and pre-conceptual design of NCSX, which was done over the next few years. As the pre-conceptual design evolved, several implementation approaches for the core device were considered, ranging from a modest reconfiguration of the existing Princeton Beta Experiment - Modification (PBX-M) device to all-new fabrication. Trade studies examining a range of plasma configurations and coil topologies were conducted to support the decision process. The main design features were established in a series of decisions in late 2000 and early 2001: the reference plasma configuration and its associated physics properties, modular coils for the main helical field magnets, and the size and performance parameters. The resultsof trade studies and alternative configurations support the conclusion that the best design approach for the mission was chosen. A second peer review, a physics validation review in March 2001, confirmed the soundness of the NCSX physics design basis and the appropriateness of the implementation approach based on the pre-conceptual design. On that basis, the compact stellarator was endorsed as a proof-of-principle concept by the FESAC, and the mission need Critical Decision 0 (CD-0) was approved by the DOE

Office of Fusion Energy Sciences (OFES) in May 2001. Since the time of the CD-0, minor adjustments have been made to the scope, cost and schedule reflecting results of the conceptual design process and >review, recent industrial manufacturing development studies, and >programmatic adjustments in the funding profile. These adjustments have been >accomplished well within the cost range identified in the FY2003 budget >request to Congress.

The NCSX will be designed and fabricated at the Department of Energy's Princeton Plasma Physics Laboratory (PPPL), which will have lead responsibility for execution of the NCSX project. The Oak Ridge National Laboratory (ORNL), as a partner to PPPL, will provide major support, including leadership in specific areas. Combining the PPPL and ORNL team is advantageous as both laboratories have extensive experience in the design and fabrication of stellarators and other fusion confinement experiments.

At the heart of the facility is the plasma confinement device, or stellarator core, an assembly of several magnet systems and structures that surround a highly shaped plasma. Coils will produce the magnetic field for plasma shape control, inductive current drive, and field error correction. A vacuum vessel and plasma facing components will produce a high vacuum plasma environment with access for heating, pumping, diagnostics, and maintenance. The core will be enclosed in a cryostat to permit cooling of the magnets at cryogenic temperature. Figure I.A.1-1 shows a cutaway view of the stellarator core assembly

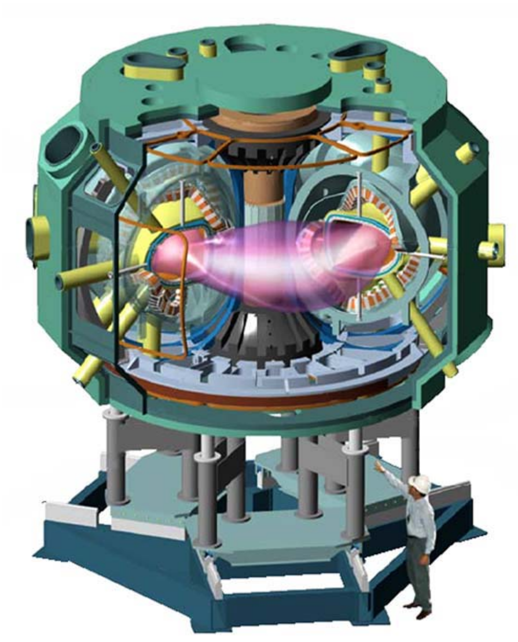

Figure I.A.1-1
Stellarator Core

A.2 Applicable Conditions

As stated in the NCSX Mission Need Statement, the DOE decided to site the NCSX device at PPPL to maximize the use of existing fusion energy program infrastructure, facilities, and resources. NCSX will use major subsystems already on site at PPPL such as the PBX-M neutral beams, the Tokamak Fusion Test Reactor power supplies, and the PBX-M/Princeton Large Torus (PLT) test cell and associated facilities. Use of the PPPL site takes advantage of the lab's decades of experience in designing and operating fusion experiments like NCSX. This long history of fusion experience has produced a knowledgeable organization, procedures, and the human resources well suited to carry out the NCSX Project.

B. Cost

B.1 Overall Cost Objective

The Office of Fusion Energy Sciences has identified the NCSX Project as a Major Item of Equipment (MIE) Project vs. a Line Item Construction Project because there is little or no civil construction related to the NCSX device. The device will be sited within existing experimental facilities at PPPL. No major building additions are required to accommodate the device; while there may be some minor interior changes in configuration, these changes will not affect the structural integrity of the existing facility. In addition, the existing facility is currently served by most of the utilities necessary to support the NCSX device, with only minor additional ancillary equipment needed. Accordingly, the project was included in the FY2003 budget as an MIE with a Total Estimated Cost (TEC) requiring only Capital Equipment Funds. The TEC includes all costs associated with the direct acquisition of the NCSX capital asset. Use of the TEC terminology for such an acquisition is consistent with past and present DOE budgeting policy.

Although an MIE Project, the same overall management concepts applicable to line item projects will be applied to the degree appropriate for a project the size and cost of the NCSX. NCSX will be funded directly to the major participants (PPPL and ORNL) via DOE Budget and Reporting (B&R) line, thereby minimizing costs. All major procurements will be through PPPL using PPPL's approved procurement system. Based upon the Pre-Conceptual Design, the NCSX TEC was established to be within the range of \$69M – \$83M in year-of-expenditure dollars, assuming project execution on the schedule given in Section I.C that follows. The project TEC baseline will be fully defined by the completion of Title I design (CD-2 milestone), and may change prior to that time as the design matures.

B.2 Life Cycle Cost

Although the total life-cycle cost has yet to be determined, it is possible to identify the components. Fusion experiments like NCSX typically operate for about 10 years or more, and the major stellarator core components are expected to have operating lifetimes equal to that of the entire experiment. As is typical of fusion experiments, it is anticipated that additional upgrades to enhance the performance will be acquired during the project's lifetime. At this stage of the project the annual facility operating and upgrade expenses are not yet estimated. However, it should be expected to be similar to that of the National Spherical Torus Experiment (NSTX), a facility comparable to NCSX in size and scope. It should be noted that both the National Spherical Torus Experiment (NSTX) and NCSX will be sharing some common power supplies and hence will operate on alternate schedules. Because of this, some efficiencies resulting from shared resources can be anticipated. An annual NCSX operating budget in the range of $25M - $35M in as spent dollars is considered reasonable until a more definitive estimate can be developed. It is anticipated that this more definitive estimate will be developed by the CD-2 milestone.

At the end of the project's life, it is anticipated that the facility will be decommissioned and dismantled with much of the equipment likely to be re-used by other projects. The remaining equipment would be removed and it is expected that these activities should be routine and relatively inexpensive, although a small amount of radioactive activation and/or contamination of the structures is expected.

B.3 Design-To-Cost

The NCSX Project adopted a design philosophy that balanced technical scope, schedule, and budgets to arrive at the overall technical scope, schedule and cost objectives. As a guiding principle, the project endeavors to control the technical scope, costs, and schedule consistent with the mission requirements.

B.4 Application of Should-Cost Methodologies

The NCSX Project does not utilize the special forms or analyses associated with a formal should-cost methodology. The TEC breaks out the estimated costs for the design, fabrication, and manufacturing development budgets. The starting point for the NCSX estimate is the Conceptual Design Report, which was reviewed by the Office of Science in May 2002. This estimate relied on a bottoms-up methodology where the cost for each individual function was estimated using either direct industrial estimates or applicable labor rates and material costs (including fees, expenses, applicable overheads, and escalation). Conceptual and/or preliminary performance specifications and drawings were developed for all systems as the basis for the estimate. Cost estimates in design, fabrication, and manufacturing development are based on budgetary quotations from vendors or actual experiences from recent similar fusion energy sciences projects and contracts. Going forward, every procurement will use some form of price or cost analysis to compare with the TEC estimates for validation. As a result, as the project evolves, the TEC will serve as the should-cost benchmark. .

C. Capability

The facility will be capable of producing magnetized plasmas with a well-defined set of configuration properties, such as size, shape, magnetic field strength, and pressure, which in turn determine its physics properties. The NCSX will provide the flexibility to vary the configuration parameters over a range of flexibility. The plasmas to be studied are three-dimensional toroids, that is, doughnut-shaped plasmas whose cross sectional shape varies depending on where it is sliced. The magnetic field coils, which control the plasma shape, must be accurately constructed to precise shape specifications. The NCSX will provide an initial set of plasma control, heating, diagnostic, and power and particle handling systems and will be able to accommodate later upgrades, to meet the needs of the research program.

D. Delivery Requirements

The NCSX Project is scheduled for completion in June 2007. The following list is a schedule of key milestones for the NCSX Project.

Milestone	**Schedule**
DOE CD-1 Approval	August 2002
EIR/DOE PDR Completed	April 2003
DOE CD-2 Approval	June 2003
DOE CD-3 Approval	November 2003
Modular Coils Contract Awarded	February 2004
Vacuum Vessel Contract Awarded	July 2004
Assembly of Field Periods Completed	September 2006
Operational Readiness Assessment Completed	May 2007
DOE CD-4 Completed	June 2007

The stellarator core components will be the major procurements for this project as the ancillary systems will make extensive use of existing systems and components with only relatively minor modifications and refurbishment anticipated. Annex I to this Acquisition Execution Plan provides a listing of the major procurements.

E. Trade-offs

Certain trade-offs were analyzed in arriving at the acquisition strategy described in this plan. They are based on the assumption that the NCSX Project will be built at PPPL and that the PPPL and ORNL Management and Operating (M&O) contractors would function as the prime contractors for the NCSX Project. Next, there were efficiencies that favored having all of the stellarator core systems procured by the PPPL procurement organization, with PPPL providing the primary technical and Quality Assurance (QA) contacts with suppliers. Even though both PPPL and ORNL have key design and management responsibilities, it is deemed advantageous to flow all the procurement through the host (PPPL) institution's procurement organization rather than splitting them between two institutions.

As the design matures, it is anticipated that additional opportunities for trade-offs will be identified and pursued.

F. Risk

Although technically challenging, the risks associated with this project and acquisition strategy are manageable. From an environmental perspective, there are no significant ES&H risks. Previous projects with scopes similar to NCSX such as the NSTX have been determined to offer no significant ES&H risk. As a result, NCSX is following an Environmental Assessment model similar to the one successfully implemented for NSTX. The existing Integrated Safety Management (ISM) Program in place at PPPL will be applied in the design and fabrication of NCSX. NCSX Project management is responsible for the safe execution of the NCSX Project.

The main risk of NCSX is in the cost and schedule risks that are associated with the manufacturing of major components with unique shapes and precise tolerance requirements. To mitigate these risks, the project opted for early involvement of vendors in ten manufacturing studies as part of the conceptual design process. The Project further plans to mitigate these risks by conducting periodic design reviews as the design evolves, to aggressively pursue additional manufacturing development activities, to utilize both sub-scale and full-scale prototypes, and to implement a phased procurement strategy.

The Project has taken a proactive approach to technical, cost, and schedule risk mitigation by applying value engineering early in the conceptual design phase. The ten manufacturing studies included the review of potential fabrication techniques for the highest risk items in the stellarator core, namely the modular coils and the vacuum vessel. Valuable fabrication and costing information was developed through these efforts and these data are being factored into the Project's plans. It is expected that these efforts will result in further mitigation of risk and refinement of design and fabrication details.

PPPL has a DOE-approved procurement system that will be used to procure manufacturing development prototypes, and final components fabrication. The capability and experience to handle all types of procurement activity, including equipment purchases and any necessary design and fabrication work is in place. For example, many of the procurement risks for fabrication services and supply contracts will be mitigated by allowing NCSX to enjoy the savings earned on basic ordering agreement contracts already in place at PPPL; e.g., electrical power services, engineering design services, etc..

G. Acquisition Streamlining

The procurement systems and processes to streamline the NCSX Project are already in place. While the NCSX Project consists of an integrated team of both PPPL and ORNL personnel, imposing a single point of contact for major procurements offers significant advantages. Assigning the major procurements to PPPL will streamline the procurement process by utilizing the same procurement personnel to conduct all procurements regardless of whether designed by PPPL or ORNL.

Commercial and best business practices will be used to accomplish all procurements. Many of the equipment procurements will use commercial or best value source selection concepts allowing cost and technical trade-offs to ensure the best value is obtained in acquiring components. Fixed price contracts are contemplated for all production procurements. As part of the phased acquisition strategy described in Section E above, early involvement of industry in developing viable manufacturing solutions should facilitate the use of fixed price contracts for the production phase. In addition, consideration will be given to a wide dissemination of draft solicitations prior to formal solicitation as well as the use of pre-proposal and pre-award conferences.

II. ACTION PLAN

A. Sources

The NCSX Project has committed to a high degree of supplier input and participation in the development of requirements for major systems, while at the same time maintaining appropriate in-house control and responsibility for definition, design and integration of these items. The Project will continue to encourage supplier participation through publication of preliminary design information on its public web site. To date, the Project's efforts to identify interested industrial suppliers has generated a list of more than 20 firms from the United States, Europe and Japan that are now actively participating in NCSX manufacturing studies or tracking the Project with the object of participation in its later phases.

B. Competition

B.1 Consideration of Performance-Based Subcontractor Incentives

The majority of the subcontracted work to be performed for NCSX consists of hardware fabrication. The major stellarator core components to be specially fabricated for NCSX will be the subject of a multi-stage development program that will yield designs that permit fabrication under fixed-price "build-to-print" subcontracts. Depending on schedule considerations, it may be appropriate to use one or more fixed-price incentive subcontracts, with negotiated targets based on delivery or cost. These performance based subcontractor incentives will be considered by the Project if such incentives appear necessary or appear to offer appropriate cost, schedule, or technical advantages to the Project. For the ancillary systems components, it is anticipated that the majority are readily available off-the-shelf.

B.2 Methods of Competition

The Project will attempt to promote and maintain the cost-leveraging effects of competition throughout all phases of acquisition, including the acquisition of major components. As described above, the designs of those components that pose the highest degree of manufacturing risk will be developed through a series of manufacturing studies, a prototype fabrication and finally, a production fabrication subcontract. At each step, to the maximum degree possible, information will be made available to all interested suppliers, and the submission of competitive proposals will be encouraged. Off-the-shelf hardware will be purchased through the PPPL procurement system, using a variety of appropriate, competitively-awarded purchasing vehicles, including subcontracts, purchase orders and blanket purchase agreements.

C Options for Source Selection Procedures

C.1 General Approach

The PPPL purchasing system provides a variety of source selection procedures geared to the cost and technical complexity of the product to be purchased. The PPPL Director will convene a formal Subcontractor Proposal Evaluation Board (SPEB) for actions with an estimated value in excess of $1 million, or for lower dollar value actions when determined appropriate. The SPEB includes responsible technical, procurement, QA and safety representatives. The SPEB is charged with developing a source selection plan for best value procurement. The SPEB, which includes representation from the Procurement Division, develops the solicitation package, evaluates all proposals received, and prepares a report documenting its evaluation and recommendation to the Source Selection Official (SSO), who makes the ultimate selection decision. Once the selection is made, the SPEB chair and technical members work with the Procurement representative to debrief unsuccessful proposers.

For lower dollar value procurements that have some technical or administrative complexity, the PPPL purchasing system provides a tailored approach to the implementation of best value procurement techniques. The core requirement of these less-formal methods is the development of a clear, coherent set of evaluation factors that are consistently applied to all proposals.

For standard, build-to-print fabrications and the purchase of off-the-shelf equipment for routine applications, available purchasing techniques include price competition among technically qualified suppliers and use of competitively awarded blanket purchase agreements.

C.2 Justification for Non-Competitive Procurements

At the present time, the project acquisition philosophy is to encourage full competition to the maximum extent feasible. Should unavoidable sole source requirements be identified during the course of the project, these will be documented on a case-by-case basis in accordance with PPPL's approved procurement procedures.

D. Contracting Considerations

D.1 Contract Type

Whenever feasible, the Project intends to utilize firm fixed price contracts. Certainly for production units, this approach seems reasonable. However, due to the uncertainties associated with the manufacturing development procurements for the subscale and full scale prototypes; it is anticipated that cost reimbursement contracts will be more appropriate.

D.2 Statement on Contracting Responsibility

The highly specialized technology and experience required to design, procure, fabricate, and assemble a complex research device such as NCSX is most efficiently obtained for DOE by PPPL as opposed to direct government procurement. The combined physics and engineering knowledge base required to successfully accomplish a project of this nature is already in place at PPPL and ORNL, whereas DOE would have to assemble and develop a team of experts to carry out the project.

E. Budgeting and Funding

Figure II.E-1 provides the Budget Authority (BA) funding profiles for both the NCSX MIE Project TEC and the separate category of NCSX Research Preparations and Facility Operations. These profiles reflect current project planning that incorporates results from the recent Conceptual Design Review. Both of these profiles are provided for completeness.

As shown in this figure, the parallel research preparation activity, funded separately from the MIE project, will be carried out during the NCSX project period (FY2003-FY2007). This activity includes funds in FY2006 and FY2007 for hardware upgrades needed to support later phases of the research program. Also included are funds for the preparation of the analytical and hardware tools that will be needed beyond project completion and beyond the flux-surface mapping phases of the research program. These tasks will maintain an active physics component of the NCSX program during machine fabrication. This is very similar to the approach that was followed on NSTX. Also included in the figure are facility operations funds for part of FY 2007 following project completion in June 2007..

Figure II.E-1
Preliminary NCSX Funding Profiles

	FY2003	FY2004	FY2005	FY2006	FY2007
NCSX MIE Project TEC * (Equipment Funds)	**$11.0M**	**$16.0M**	**$20.5M**	**$17.8M**	**$ 8.2M**
NCSX Research Preparations and Facility Operations (Operating Funds)**	**$ 1.0M**	**$ 1.2M**	**$ 1.6M**	**$ 4.8M**	**$18.0M**
Total Funding	***$12.0M***	***$17.2M***	***$22.1M***	***$22.6M***	***$26.2M***

* MIE Project completion scheduled for June 2007. TEC equals $73.5M.
** Facility operations will begin in June 2007.

F. Business Considerations

F.1 Government Roles

DOE will provide scientific and administrative oversight of the NCSX project. The Office of Fusion Energy Sciences will provide scientific oversight. The DOE Princeton Area Office will provide Project Management, Administrative, and Environmental Safety & Health oversight, including review and approval of contractual activities in support of NCSX.

The DOE Project Manager assigned to the NCSX project is fully responsible and accountable for all project activities and serves as the Integrated Project Team leader. In that capacity, he conducts regular team meetings, receives and reviews periodic project reports, and manages the project's baseline change control system, as well as performing all other necessary duties to insure the success of the project.

The project will utilize Earned Value Management System reporting as described in the PPPL Project Control System Description. This system has been in use at PPPL for a number of years and is well developed. Integrated Safety Management Systems principles are in place at PPPL and will be applied to all phases of the project.

Project inspection and acceptance criteria will be developed based on the completion criteria as specified in the Project Execution Plan. The DOE Project Manager will review and concur that all specified systems criteria have been met. A Operational Readiness

Assessment (ORA) will be performed by DOE prior to integrated startup activities and CD-4 (Approve Project Transition to Operations).

F.2 Contractor Roles

As described above, both PPPL and ORNL will have project management responsibilities, with PPPL taking responsibility for all procurement activity, and conducting such activity in accordance with its DOE-approved procurement system. All suppliers of NCSX components will be subcontractors to PPPL. All work associated with the NCSX Project will be performed by contractors. All major procurements will be handled by the PPPL DOE-approved procurement system. In some instances, it might be advantageous to utilize the ORNL DOE-approved procurement system for some minor components in the R&D phase. There does not appear to be any advantage in DOE directly handling NCSX procurements, including design, fabrication, and manufacturing development.

F.3 Management Information Requirements

Both PPPL and ORNL will utilize earned value reporting, including tracking and reporting costs by Work Breakdown Structure, and provide progress schedules to measure performance. This requirement will be passed down as appropriate to lower tier subcontractors providing the components for NCSX. As required by the Prime Contract between DOE and Princeton University(DE-AC02-76CH03073), PPPL and the NCSX Project will comply with the Contractor Requirement section of DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets,* at the frequency and intervals required by the order and the Federal Project Manager. Also, as required by the prime contract, Project Assessment and Reporting System (PARS) requirements will be met.

F.4 Interrelationship between Principal Contractors

PPPL and ORNL will carry out project management responsibilities in accordance with the provisions of the approved NCSX Project Execution Plan (PEP).

F.5 Security

Normal site access security requirements will exist for NCSX activity in accordance with PPPL site security procedures. None of the work on NCSX is classified.

F.6 International Cooperation and Considerations

Suppliers from Japan and Europe have participated in the NCSX manufacturing studies, and it is possible that one or more foreign suppliers will provide major components for the NCSX device. As the host site, PPPL is well versed in contracting with foreign suppliers. PPPL is also very familiar with the requirements for coordination of work and visits by foreign nationals, as set forth in DOE Notice 142.1, Unclassified Foreign Visits and Assignments; DOE Notice 205.1, Foreign National Access to DOE Cyber Space; and DOE Order 551.1A, Official Foreign Travel.

F.7 Make-or-Buy Considerations

Both PPPL and ORNL have resources and capabilities to design and fabricate/assemble selected equipment (e.g., modular coil windings). PPPL anticipates buying the majority of components for the NCSX Project. In-house fabrication of the modular coils windings on procured winding forms is planned, and other in-house fabrication activities may be considered where appropriate. The guiding principal will be that in-house fabrication will be used when it can significantly reduce cost, schedule, and risk.

F.8 Warranty Considerations

Suppliers of off-the-shelf components and commercial services will be required to provide PPPL with their standard commercial warranty. Specially designed components will be warranted for one year from date of delivery and/or acceptance in accordance with standard PPPL practice, unless such coverage is determined by the Project not to be cost-effective.

F.9 Licensing Considerations

At this time there are no known intellectual property licensing issues associated with the NCSX Project.

F.10 Safety Considerations

PPPL, as the host site for the NCSX Project, maintains a vigorous ISM program, and will extend the provisions of the ISM program to all suppliers working on the PPPL site. PPPL complies with all Federal and State regulations governing safety in the work place, including the submittal of Material Safety Data Sheets (MSDSs) for all substances brought onto the PPPL site. PPPL also requires that all subcontractor personnel working more than 40 hours on the PPPL site undergo General Employee Training, which includes both industrial hygiene and radiological awareness training. Further, PPPL requires special training and/or certification for work in confined spaces, operation of hoisting and rigging equipment and work with open flames.

F.11 Priorities, Allocations, and Allotments

There are no special priorities, allocations, or allotments requirements associated with procuring components for the NCSX Project.

G. Logistic Considerations

G.1 Contractor Support

PPPL will provide all logistical support to the NCSX Project, including warehousing, shipping and traffic control of NCSX components received from suppliers. Unique logistical considerations are not currently foreseen for the NCSX Project. Delivery of the highly technical critical stellarator core components may require close scrutiny to ensure that operational commitments are met.

G.2 DOE Support

At this time, it does not appear that any DOE logistical support is required.

G.3 Computer-Aided Acquisition Systems

PPPL is currently in the process of implementing the Business Information Systems Upgrade (BISU), an enterprise resource planning (ERP) software system that will integrate all project planning, budgeting, accounting, procurement and receiving functions. BISU will enable electronic requisitioning and data interchange with suppliers. It is currently expected to be fully operational in late FY2003. Commencing at that time, the NCSX procurements will be placed via the BISU system.

G.4 Other Considerations

At this time, there are no other significant considerations.

H. Test and Evaluation

PPPL has standard receipt inspection and acceptance testing for all delivered components. These receipt inspections and acceptance testing criteria closely mirror established industry practices.

I. Government Furnished Property

As part of the development of the overall acquisition strategy for the NCSX Project, the use of government furnished equipment will be considered when there are clear cost, schedule, or technical advantages demonstrated.

J. Government Furnished Information

The NCSX General Requirements Document, PEP, and Conceptual Design Report will be provided to potential bidders via access to the NCSX Manufacturing web page at < http://www.pppl.gov/me/NCSX_MFG/ > to ensure an understanding of the requirements for the NCSX Project.

K. Environmental and Energy Conservation Considerations

All work done on NCSX will be in accordance with applicable Federal, state and local guidelines for environmental objectives. Informal discussions with the responsible DOE Field Office (CH) have determined that an EA, similar to one prepared for a recent fusion project constructed at PPPL – the NSTX – is the appropriate National Environmental Policy Act (NEPA) documentation. At the time of the Conceptual Design Review, the NCSX Project will have submitted the necessary input NEPA documentation to DOE to permit the EA to proceed.

Additionally, energy conservation objectives are outlined in specifications and drawing requirements, and comply with 10 CFR 45 (Energy Conservation Requirements)

L. Milestones for the Acquisition Cycle

Milestones for major items of equipment are listed in Annex I to this plan.

M. Participants in Preparing this Acquisition Execution Plan

The following DOE, NCSX Project, PPPL, and ORNL staff participated in developing this NCSX Acquisition Execution Plan:

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* Members of the Integrated Project Team (IPT)

NCSX Acquisition Execution Plan

Annex I

Major Project Procurements

Procurement	Expected Award Date	Direct Contract Value ($K)
Modular Coil Winding Forms Manufacturing Development/ R&D	December 2002	$1,200K
Modular Coils Winding Forms	February 2004	$4,100K
Vacuum Vessel	July 2004	$2,500K
Toroidal Field Magnets	August 2004	$894K
Poloidal Field Magnets	October 2004	$825K
Machine Support Structure	October 2004	$500K
D Site to C-Site Cable Installation	October 2004	$550K