

REQUEST FOR INFORMATION FOR PPPL HPC CLUSTER UPGRADE PROJECT

November 06, 2018

TO: Interested Parties

SUBJECT: Request for Information (RFI) for PPPL HPC CLUSTER UPGRADE PROJECT

The Princeton Plasma Physics Laboratory (hereafter referred to as "PPPL") is requesting information from your Company to assess mutual interest for an upcoming requisition for High Performance Computing Cluster equipment.

This RFI is not to be considered an invitation for bid, Request for Proposal (RFP), or as an obligation on the part of PPPL to acquire any products or services. No payment or reimbursement will be made for any costs associated with providing information in response to this RFI or any follow up information request. Respondents will not be notified of the results of the evaluation of the information they provide.

Founded in 1951 by the late Dr. Lyman Spitzer, a Princeton University professor of astrophysics, Princeton Plasma Physics Laboratory, sometimes referred to as "PPPL," "Lab," or "Laboratory", is a Collaborative National Centre for plasma and fusion science. Its primary mission is to develop the scientific understanding and the key innovations which will lead to an attractive fusion energy source. Associated missions include conducting world-class research along the broad frontier of plasma science and providing the highest quality of scientific education. Princeton University operates PPPL for the Department of Energy (DOE). PPPL employs over 500 employees with an annual operating budget of approximately \$100 million.

The information we are requesting is centered on assessment of suitability of your equipment, specification, overall solution along with your company technical capabilities, as well as the experiences for successful and effective execution in the areas of High Performance Computing.

PPPL Technical Specification (TECH SPEC) will explain our expected requirements in terms of minimum system specification, requirement and special notes.

Submittal Instructions:

| # | Description | Instruction |
|---|---------------------------|--|
| 1 | RFI issue date | 11/06/2018 |
| 2 | RFI issue Website | https://procurement.pppl.gov/Procurement%20Opportunities.HTM |
| 3 | Pre-submittal Conference | A Pre-submittal web conference will be hosted Sources Sought on November 15th 2018, subject to change, to allow potential vendors to present questions related to the RFI. The link to the web conference will be posted on the PPPL Procurement Division website http://procurement.pppl.gov/Procurement%20Opportunities at least 72 hours prior. Confirmation of your attendance via email to Michael Chen, mchen2@pppl.gov will be required. |
| 4 | RFI Response Deadline | COB, December 12, 2018 |
| 5 | Documentation Format | PPPL prefers that responses be in MS Word, MS Excel or Adobe Acrobat format. |
| 6 | Number of Copies | Please submit (1) electronic copy via email to Michael Chen |
| 7 | PPPL Contact and Location | Michael Chen Procurement Division Princeton Plasma Physics Laboratory |

| | | |
|---|--------------------|--|
| | | 100 Stellarator Rd. Princeton, NJ 08540 Mchen2@pppl.gov |
| 8 | Oral Presentations | PPPL may, at its election, invite selected Respondents to make oral presentations for the purpose of advancing the PPPL's understanding related to a RFI response. All such invitations will be issued in writing on or before January 7 th , 2019. |

Based on criticality of the job at hand, special in process quality assurance measures will be implemented at the onset, during the process, and at the final release. Any additional requirement will be defined in any subsequent Request for Proposal (RFP) package.

All communications between PPPL and vendors shall be confidential. If invited to tender in the next phase (RFP) then this will be subject to our separate NDA (Non-Disclosure Agreement).

Based on criticality and complexity of the work, we will request an onsite visit to fill out an assessment report. During the visit we can review the RFI package and answer any question that you may have.

Additionally, based on evaluation of the qualifications, the vendor will be pre-qualified for the next step, should the project proceed, as this request for information is for planning purposes.

Once final approvals are received to proceed, PPPL Procurement will initiate a formal Request for Proposals to all pre-qualified vendors for formal proposals, based on specific requirements, final approved Technical Specification.

As part of your submission, please, also, provide the following:

- Size of business pursuant to North American Industry Classification System (NAICS) Code:
 - Based on the above NAICS Code, state whether your company is:
 - Small Business (Yes / No)
 - Woman Owned Small Business (Yes / No)
 - Small Disadvantaged Business (Yes / No)
 - HUB Zone Certified (Yes / No)
 - Veteran Owned Small Business (Yes / No)
 - Service Disabled Veteran Small Business (Yes / No)
 - System for Award Management (SAM) registered (Yes / No)
 - A statement as to whether your company is domestically or foreign owned (if foreign, please indicate the country of ownership).

Company information must be received.

Responses must be sent electronically via email to the attention of Michael Chen, Procurement Specialist, mchen2@pppl.gov,

Regards,

Michael Chen
Procurement Specialist

Attachment 1: Technical Specification

TO: Interested Parties

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**TECHNICAL SPECIFICATION
FOR
HPC CLUSTER ADDITION**

CAT: A3

UNIQUE IDENTIFIER:

Reference Work Planning #: N/A

REVISION 0

DATED *August 21, 2018*

PREPARED BY: Keith Erickson
Cognizant Individual (COG)

REVIEWED BY: N/A
(list per Table 1, one line each)

APPROVED BY: Marc Cohen
(per Table 1)

**PRINCETON UNIVERSITY PLASMA PHYSICS LABORATORY
P.O. BOX 451 PRINCETON, N.J. 08543
609-243-2000**

1. INTRODUCTION & SCOPE

The Princeton Plasma Physics Laboratory (PPPL) high performance computing (HPC) cluster is undergoing an expansion of multiple similarly configured compute nodes to increase capacity and serve the growing needs of the customer base. These upgrades tend to allow freedom in their configuration to optimize the possible computational increase within the budgetary confines.

The system after deployment will primarily be used by PPPL theorists and experimentalists to further their data analysis and expand their research in support of PPPL scientific goals.

2. APPLICABLE DOCUMENTS

N/A

3. APPLICABLE DRAWINGS

N/A

4. RESPONSIBILITIES

4.1. PRINCETON PLASMA PHYSICS LABORATORY

PPPL will provide this technical specification.

4.2. SUPPLIER

Supplier will provide a set of matching computer systems in a configuration that maximizes the number of cores for the dollars spent.

5. REQUIREMENTS

5.1. PERFORMANCE REQUIREMENTS

5.1.1. PERFORMANCE CHARACTERISTICS

There is flexibility in system design and configuration that the supplier is free to customize. The focus should be to meet baseline requirements and to maximize variable requirements such that a purchase of multiple identical systems would result in an optimal dollar value efficiency.

The baseline requirements shall be:

- A minimum of 4GB memory per core, rounded up to the multiple required for multi-channel balancing
- A basic 1 TB local SATA hard drive or equivalent
- A cost-effective chassis configuration (individual 1U nodes vs various sized blade-type devices)
- A dedicated IPMI port
- A 3-year warranty or better on parts
- BIOS optimization for HPC performance

The variable requirements shall be:

- A CPU arrangement such that the total core count in a purchase of multiple systems is optimized with respect to additional nodes and the speed of individual cores
 - Optimize the number of cores per CPU (8, 16, 32, etc.)
 - Optimize the number of CPUs per node (1, 2, 4, 8, etc.)
- A modern CPU of any make from the current generation of server-grade product lines (for instance, AMD EPYC or equivalent)
- The most cost-efficient high-speed, low-latency interconnect at least equivalent to the “OnLoad” user-space SolarFlare 10 GbE network devices

5.1.2. OPERATING ENVIRONMENT

The systems shall be deployed in a data center that operates between 60 degrees Fahrenheit and 85 degrees Fahrenheit at a humidity level between 30% and 70%.

5.1.3. DESIGN LIFE

The systems shall operate for a minimum of five years.

5.1.4. RELIABILITY

The systems shall be able to operate in a continuous 24/7/365 environment at full load with adequate cooling and airflow to prevent premature failure of components before their design life.

5.1.5. MAINTAINABILITY

The systems shall be maintainable with modern chassis design to facilitate component replacement in 1 hour.

5.1.6. HUMAN FACTORS

N/A

5.1.7. SUSTAINABILITY

The cluster deployment shall meet Energy Star requirements.

5.2. EQUIPMENT DEFINITION

5.2.1. SPECIFICATIONS AND STANDARDS

See section 5.1.1

5.2.2. GENERAL DESIGN FEATURES

The system shall be installed in standard 19” data center racks with no rack-based cooling available.

5.2.3. MATERIALS

Materials used shall be RoHS compliant

5.2.4. ELECTROMAGNETIC INTERFERENCE AND SUSCEPTIBILITY

N/A

5.2.5. IDENTIFICATION AND MARKING

Industry standard markings such as UL listings shall apply

5.2.6. EQUIPMENT

N/A

6. TEST & INSPECTION REQUIREMENTS

6.1. PERFORMANCE TESTS

Verify that the systems can operate at full load for 72 hours without premature failure.

6.2. ACCEPTANCE AND INSPECTION TESTS

Systems shall be visually inspected for obvious defects prior to installation. Post installation, the systems shall be tested with a 72-hour burn in session to verify premature hardware failure using a standard LINPACK testsuite.

6.3. SUPPLIER HOLD POINTS

N/A

7. QUALIFICATIONS

N/A

8. ENVIRONMENT, SAFETY, AND HEALTH

N/A

9. QUALITY ASSURANCE REQUIREMENTS

N/A

10. SHIPPING STORAGE AND HANDLING

N/A

11. WARRANTY

Warranty shall include a minimum of 3 years parts replacement and next business day email or phone based troubleshooting support.

12. ATTACHMENTS

N/A

13. DELIVERABLES

13.1. ITEMS

Computer systems as agreed upon

13.2. DOCUMENTATION & DELIVERABLES

N/A

14. Deliverables List

PO / Subcontract / BOA / BPA #:

| # | Physical Deliverables Required | When Deliverable Is Required | Deliverable Received (ü) |
|--|---------------------------------|------------------------------|--------------------------|
| 1 | Computer systems as agreed upon | 30 days from award | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| Exceptions (Add justification for any missing physical deliverables that will not be received): | | | |

| # | Document Deliverables Required | When Deliverable Is Required | Deliverable format (paper, electronic etc.) | Storage Location for Deliverable | Deliverable Received (ü) |
|--|--------------------------------|------------------------------|---|----------------------------------|--------------------------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| Exceptions (Add justification for any missing document deliverables that will not be received): | | | | | |

Princeton Technical Representative/COG: _____
(Sign-off and provide to the Operations Center when job is completed and deliverables are dispositioned and placed/filed in Operations Center (or other Project, Department or Division designated file center)



PRINCETON PLASMA PHYSICS LABORATORY COMMERCIAL ITEMS OR SERVICES AGREEMENT TERMS & CONDITIONS

1. The following clauses are applicable to all subcontracts, purchase orders and agreements for commercial items or services awarded by Princeton Plasma Physics Laboratory.

1.1 DEFINITIONS (DEC 2013)

The following terms shall have the meanings set forth below:

(a) "Agreement" means Purchase Order, Subcontract, Price Agreement, Basic Ordering Agreement, Blanket Purchase Agreement or any modifications thereof.

(b) "Contracting Officer" means a federal employee with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings.

(c) "Government" means the United States of America and includes the United States Department of Energy (DOE) or any duly authorized representative thereof.

(d) "Item" means "commercial item" or "commercial component" as defined in Federal Acquisition Regulation (FAR) 52.202-1.

(e) "PPPL" means the Princeton Plasma Physics Laboratory operated by Princeton for DOE under Prime Contract No. DE-AC02-09CH11466.

(f) "Princeton" means the Trustees of Princeton University.

(g) "Procurement Specialist" means Princeton's cognizant Procurement Division representative or any duly authorized representative(s) thereof.

(h) "Subcontractor" means the person or organization that has entered into this Agreement with Princeton.

1.2 TERMS OF ACCEPTANCE (MAY 2002)

Acceptance of this Agreement is expressly limited to the terms and conditions appearing hereon and to any terms and conditions attached hereto. This Agreement, once accepted, constitutes a contract, and it shall be governed and construed according to the law of the State of New Jersey. Performance by the Subcontractor without an effective acknowledgment shall be deemed to be performance in accordance with the terms and conditions of this Agreement. This Agreement may not be modified or terminated orally, and neither modification nor any claimed waiver of any of the provisions hereof shall be binding unless in writing and signed by the party against whom such modification, termination or waiver is sought to be enforced.

1.3 ORDER OF PRECEDENCE (MAY 2002)

In the event of any inconsistency between provisions of this Agreement, the inconsistency shall be resolved by giving precedence in the following order: 1) subcontract, agreement or purchase order face page(s); 2) special terms and conditions; 3) item description, including statement of work and/or specification, if applicable; and 4) these general terms and conditions.

1.4 RESOLUTION OF DISPUTES (FEB 2010)

(a) The Subcontractor and Princeton agree to make good faith efforts to settle any dispute or claim that arises under this Agreement through discussion and negotiation. If such efforts fail to result in a mutually agreeable resolution, the parties shall consider the use of alternative disputes resolution (ADR). In the event that non-binding mediation or arbitration is agreed upon, the site of the proceedings shall be within 50 miles of Princeton, New Jersey. The mediator or arbitrator shall allocate cost, except that there shall be no pre-decisional interest costs, and each party shall bear its own discretionary costs. In the event that ADR fails or is not used, the parties may litigate the matter in a court of competent jurisdiction within the State of New Jersey, except for those matters which by statute, regulation or terms of another Subcontract clause, are to be decided by a specific body or forum. Any such proceeding in state court shall be venued in Mercer County.

(b) For substantive issues presented for mediation, arbitration, dispute, claim, litigation or other effort at resolution, the parties agree that, to the maximum extent possible and except for matters reserved by statute, regulation or specific clause of this Agreement, the Federal common law of government contracts will govern the construction and interpretation of this Agreement or work performed under this Agreement or claims of breach of this Agreement, regardless of the forum or venue in which any party may bring any such action. For purposes of this Agreement, the Federal common law of government contracts will consist of the interpretation of contract clauses and the law enunciated and applied to government contracts by the Boards of Contract Appeals, the Comptroller General (CG), and the Federal Courts having jurisdiction over the Boards or the CG. The term "Boards of Contract Appeals" means those established under the Contract Disputes Act of 1978, 41 U.S.C. 607(a)(1), and their successor bodies. Patent related disputes arising under this Agreement shall be resolved in accordance with the provisions of the Patent Rights clause of this Agreement, as well as applicable federal law and regulation.

(c) Pending settlement or final judgment with regard to the dispute, the Subcontractor shall proceed diligently with the performance hereof in accordance with Princeton's direction and instructions.

1.5 INDEMNITY (MAY 2002)

(a) The Subcontractor agrees to indemnify and hold harmless the Trustees of Princeton University and the United States Government, and their respective officers, employees and agents (the "Indemnitees"), from and against any and all liabilities, of whatsoever kind or nature, arising out of or in any way connected with the Subcontractor's performance under this Agreement, excepting only (i) liability arising from affirmative acts, done with intent to cause loss, damage or injury, by the Indemnitees; (ii) liability arising from the sole negligence of the Indemnitees; or (iii) any express liability as may be specified elsewhere in this Agreement.

(b) In the event of a claim or litigation arising out of Subcontractor's undertakings, activities or performance under this Agreement, the Subcontractor shall take charge of any such claim and/or litigation and shall be responsible for defending same at Subcontractor's expense through legal counsel designated by the Subcontractor or the Subcontractor's insurer. Princeton shall have the right, in its discretion and without expense to the Subcontractor, to



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provide counsel to participate with the Subcontractor's counsel in the conduct of the defense. The Subcontractor may, at the Subcontractor's own expense; negotiate a settlement of any such claim and/or litigation. The Subcontractor shall pay, at the Subcontractor's own expense, any and all judgments arising out of or resulting from any such claims or litigation.

1.6 TERMINATION FOR CONVENIENCE (MAY 2002)

Princeton reserves the right to terminate this Agreement, or any part hereof, for the convenience of itself or the Government. In the event of such termination, the Subcontractor shall immediately stop all work terminated and shall immediately cause any and all of its affected suppliers and sub-subcontractors to cease work. Subject to the terms of this Agreement, the Subcontractor shall be paid a percentage of the price reflecting the percentage of work performed prior to the notice of termination, plus reasonable charges that the Subcontractor, using its standard record keeping system, and to the satisfaction of Princeton, can demonstrate have resulted from the termination. The Subcontractor shall not be required to comply with cost accounting standards or contract cost principles for this purpose. This clause does not give Princeton or the Government the right to audit the Subcontractor's records. The Subcontractor shall not be paid for any work performed or costs incurred, which reasonably could have been avoided.

1.7 TERMINATION FOR DEFAULT (MAY 2002)

(a) Princeton may terminate this Agreement for default, in whole or in part, if the Subcontractor fails to comply with any of the terms of this Agreement, or fails to provide adequate assurance of future performance. In that event, Princeton shall not be liable for any amount for items not accepted and the Subcontractor shall be liable to Princeton for any and all rights and remedies provided by law or this Agreement.

(b) If this Agreement is terminated for default, Princeton may require the Subcontractor to deliver to Princeton all supplies and materials, manufacturing materials, and manufacturing drawings that the Subcontractor has specifically produced or acquired for the terminated portion of this Agreement. Princeton shall pay the agreed-upon price for completed items delivered and accepted. Princeton and the Subcontractor shall agree on the amount of payment for all other deliverables. Failure to agree will be a dispute under the Resolution of Disputes clause.

(c) The Subcontractor shall not be liable to Princeton for delays in performance occasioned by causes beyond the Subcontractor's reasonable control and without its fault or negligence, including but not limited to acts of God or of the public enemy, acts of the government in its sovereign capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of the Subcontractor's suppliers at any tier. However, delays of the Subcontractor's suppliers at any tier must be proved to be beyond the control of both the Subcontractor and its suppliers and without fault or negligence of either.

(d) The rights and remedies of Princeton in this clause are in addition to any other rights and remedies provided by law or under this Agreement.

1.8 INSPECTION (MAY 2002)

Princeton has the right to inspect and evaluate the work performed or being performed under the Agreement, and the premises where work is being performed, at all reasonable times and in a manner that will not unduly delay the work. If Princeton performs inspection or evaluation on the premises of the Subcontractor or a lower-tier subcontractor, the Subcontractor shall furnish all reasonable facilities and assistance for the safe and convenient performance of these duties.

1.9 TAXES (MAY 2002)

(a) Princeton is exempt from New Jersey Sales Tax under Exemption Permit Number E-210-634-501/000. Subcontractor shall exclude New Jersey State Sales Tax from the Agreement price.

(b) Subcontractor warrants that the Agreement price includes all other applicable federal, state and local taxes and duties.

1.10 BANKRUPTCY (MAY 2002)

If the Subcontractor enters into bankruptcy, it shall give written notice via certified mail to the Subcontract Administrator within five days of initiation of the proceedings. The notification shall include the date on which the proceeding was filed, the identity and location of the court, and a listing, by Princeton Agreement number, of all Princeton Agreements for which final payment has not yet been made.

1.11 ASSIGNMENT (MAY 2002)

(a) The Subcontractor shall not assign rights or obligations to third parties without the prior written consent of Princeton. However, the Subcontractor may assign rights to be paid amounts due or to become due to a financing institution if Princeton is promptly furnished written notice and a signed copy of such assignment. Payments to an assignee shall be subject to setoff or recoupment for any present or future claims of Princeton against the Subcontractor.

(b) Princeton reserves the right to transfer its duties and obligations under this Agreement to any third party.

1.12 TRANSPORTATION (MAY 2002)

If transportation is specified "FOB Origin," (a) no insurance cost shall be allowed unless authorized in writing by Princeton; (b) Subcontractor shall use the method of shipping designated by Princeton; and (c) the bill of lading shall be annotated to read: "Transportation is for the U. S. Department of Energy, and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement Contract No. DE-AC02-09CH11466. This may be confirmed by contacting the U. S. Department of Energy, Princeton Site Office, P. O. Box 102, Princeton, New Jersey 08542-0102."

1.13 TITLE (MAY 2002)

Unless specified elsewhere in this Agreement, title to items furnished under this Agreement shall pass to the Government upon acceptance, regardless of when or where Princeton takes physical possession.



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1.14 RISK OF LOSS (MAY 2002)

Where Princeton is liable to the Subcontractor for loss of conforming items occurring after the risk of loss has passed to Princeton, Princeton shall pay the Subcontractor the lesser of (1) the agreed price of such items; or (2) the Subcontractor's cost of replacing such items. Such loss shall entitle the Subcontractor to an equitable extension in delivery schedule obligations.

1.15 PAYMENT (DEC 2013)

Unless otherwise provided, terms of payment shall be net 30 days from the latter of (1) receipt of the Subcontractor's proper invoice, if required, or (2) delivery of items/completion of work; however, based on the Subcontractor's representation that it is a small business as defined by the US Small Business Administration, PPPL will make every practicable effort to pay the subcontractor net 15 days in lieu of net 30 days. Any offered discount shall be taken if payment is made within the discount period that the Subcontractor indicates. Payments shall be made either by check or electronic funds transfer, at the option of Princeton. Payment shall be deemed to have been made as of the date of mailing or the date on which an electronic funds transfer was made.

1.16 COMPLIANCE WITH LAWS (MAY 2002)

The Subcontractor shall comply with all applicable federal, state and local laws and ordinances and all pertinent lawful orders, rules and regulations, and such compliance shall be a material requirement of this Agreement. The Subcontractor warrants that each chemical substance constituting or contained in items furnished by this Agreement is on the list of substances published by the Administrator of the Environmental Protection Agency pursuant to the Toxic Substances Control Act as amended. With each delivery, the Subcontractor shall provide Princeton with any applicable Material Safety Data Sheet as required by the Occupational Safety and Health Act and applicable regulations including, without exception 29 CFR 1910.1200.

1.17 WARRANTY (MAY 2002)

The Subcontractor warrants that items delivered under this Agreement shall be in accordance with the Subcontractor's affirmation, description, sample or model and compliant with all requirements of this Agreement. The warranty shall begin upon acceptance and extend for a period of (1) the manufacturer's warranty period or six months, whichever is longer, if the Subcontractor is not the manufacturer and has not modified the item; or (2) the manufacturer's warranty period or one year, whichever is longer, if the Subcontractor is the manufacturer of the item or has modified it. If any nonconformity with item appears within the warranty period, the Subcontractor shall promptly repair or replace such items or re-perform services at its own expense. Transportation of replacement items and return of nonconforming items and repeat performance of services shall be at the Subcontractor's expense. If repair or replacement or re-performance of services is not timely, Princeton may elect to return the nonconforming items or repair or replace them or re-procure the services at the Subcontractor's expense.

1.18 NEW MATERIALS (MAY 2002)

Unless otherwise specified in this Agreement, all items delivered shall consist of new materials. New is defined as

previously unused which may include residual inventory or unused former Government surplus property. This does not exclude the use of recycled or recovered materials as defined by the Environmental Protection Agency in 40 CFR 247.

1.19 SUSPECT/COUNTERFEIT PARTS (FEB 2011)

(a) "Suspect/counterfeit parts" are parts that may be of new manufacture, but labeled to represent a different class of parts, or used and/or refurbished parts, complete with false labeling, that are represented as new parts. These parts could include any item where a marking indicates a higher value item. Three of the most common categories of suspect/counterfeit parts are:

- (1) Hardened fasteners, including bolts and nuts, made of carbon steel or stainless steel.;
- (2) Piping valves and flanges bearing labels that falsely indicate that the items meet nationally recognized consensus standards, such as ASME, ANSI or ASTM; and
- (3) Used or refurbished molded-case electrical circuit breakers or similar type switch gear.

(b) Supplies furnished to Princeton under this Agreement shall not include suspect/counterfeit parts nor shall such parts be used in performing any work under this Agreement whether on or off the PPPL site.

(c) If suspect/counterfeit parts are furnished under this Agreement and are found on the PPPL site, such parts shall be impounded by Princeton or the Subcontractor shall remove them as directed by Princeton. The Subcontractor shall promptly replace such parts with supplies acceptable to Princeton, and the Subcontractor shall be liable for all costs relating to impoundment, removal and replacement.

(d) The rights of Princeton under this clause are in addition to any other rights provided by law or under this Agreement.

1.20 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 2002)

(This clause is mandatory for agreements in excess of \$100,000)

(a) The Subcontractor shall report to Princeton, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Subcontractor has knowledge.

(b) In the event of any claim or suit against Princeton or the Government on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed under this Agreement, the Subcontractor shall furnish, through Princeton, to the Government, when requested by Princeton, all evidence and information in the Subcontractor's possession and information pertaining to such claim or suit. Such evidence and information shall be furnished at the expense of Princeton except where the Subcontractor has agreed to indemnify Princeton and the Government.



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(c) The Subcontractor shall include the substance of this clause, including this paragraph (c), in all Agreements that are expected to exceed the simplified acquisition threshold.

1.21 AUTHORIZATION AND CONSENT (DEC 2007)

(This clause is mandatory for agreements in excess of \$100,000)

(a) The Government authorizes and consents to all use and manufacture, in performing this Agreement or any Agreement at any tier, of any invention described in and covered by a United States patent—(1) Embodied in the structure or composition of any article the delivery of which is accepted by Princeton under this Agreement; or (2) Used in machinery, tools, or methods whose use necessarily results from compliance by the Subcontractor or a lower-tier subcontractor with (i) specifications or written provisions forming a part of this Agreement or (ii) specific written instructions given by Princeton's Procurement Specialist directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this Agreement or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent herein above granted.

(b) The Subcontractor shall include the substance of this clause, including this paragraph (b), in all lower-tier Agreements that are expected to exceed the simplified acquisition threshold. However, omission of this clause from any Agreement, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.

1.22 PRINTING (DEC 2000)

(a) To the extent that duplicating or printing services may be required in the performance of this subcontract, the Subcontractor shall provide or secure such services in accordance with the Government Printing and Binding Regulations, Title 44 of the U.S. Code, and DOE Directives relative thereto.

(b) The term "Printing" includes the following processes: Composition, plate making, presswork, binding, microform publishing, or the end items produced by such processes. Provided, however, that performance of a requirement under this contract involving the duplication of less than 5,000 copies of a single page, or no more than 25,000 units in the aggregate of multiple pages, will not be deemed to be printing.

(c) Printing services not obtained in compliance with this guidance shall result in the cost of such printing being disallowed.

(d) The Subcontractor shall include the substance of this clause in all lower tier subcontracts hereunder, which require printing (as that term is defined in Title I of the U.S. Government Printing and Binding Regulations).

1.23 REMOVED

1.24 REMOVED

1.25 REMOVED

1.26 PATENT INDEMNITY (APR 1984)

(a) The Subcontractor shall indemnify Princeton and the U.S. Government and their officers, agents, and employees against liability, including costs, for infringement of any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of the manufacture or delivery of supplies, the performance of services, or the construction, alteration, modification, or repair of real property (hereinafter referred to as "construction work") under this subcontract, or out of the use or disposal by or for the account of Princeton of such supplies or construction work.

(b) This indemnity shall not apply unless the Subcontractor shall have been informed as soon as practicable by Princeton of the suit or action alleging such infringement and shall have been given such opportunity as is afforded by applicable laws, rules, or regulations to participate in its defense. Further, this indemnity shall not apply to—

(1) An infringement resulting from compliance with specific written instructions of Princeton directing a change in the supplies to be delivered or in the materials or equipment to be used, or directing a manner of performance of the contract not normally used by the Subcontractor;

(2) An infringement resulting from addition to or change in supplies or components furnished or construction work performed that was made subsequent to delivery or performance; or

(3) A claimed infringement that is unreasonably settled without the consent of the subcontractor, unless required by final decree of a court of competent jurisdiction.

1.27 COMMON SECURITY CONFIGURATIONS IN INFORMATION TECHNOLOGY ACQUISITIONS (APR 2009) (applicable to acquisition of computer hardware and software)

All information technology acquired under this Agreement shall include the appropriate information technology security policies and requirements, including use of common security configurations available from the National Institute of Standards and Technology's website at <http://checklists.nist.gov>.

1.28 WHISTLEBLOWER PROTECTION FOR CONTRACTOR EMPLOYEES (DEC 2000)

(a) The Subcontractor shall comply with the requirements of "DOE Contractor Employee Protection Program" at 10 CFR Part 708 for work performed on behalf of DOE directly related to activities at DOE-owned or-leased sites.

(b) The Subcontractor shall insert or have inserted the substance of this clause, including this paragraph (b), in subcontracts, at all tiers, involving work performed on behalf of DOE directly related to activities at DOE-owned or leased sites.

1.29 ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING (AUG 2011)



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COMMERCIAL ITEMS OR SERVICES AGREEMENT TERMS &
CONDITIONS

(This clause is mandatory for agreements in excess of \$3,000)

(a) Definitions. As used in this clause--

"Driving"—

(1) Means operating a motor vehicle on an active roadway with the motor running, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise.

(2) Does not include operating a motor vehicle with or without the motor running when one has pulled over to the side of, or off, an active roadway and has halted in a location where one can safely remain stationary.

"Text messaging" means reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include glancing at or listening to a navigational device that is secured in a commercially designed holder affixed to the vehicle, provided that the destination and route are programmed into the device either before driving or while stopped in a location off the roadway where it is safe and legal to park.

(b) This clause implements Executive Order 13513, Federal Leadership on Reducing Text Messaging while Driving, dated October 1, 2009.

(c) The Subcontractor is encouraged to—

(1) Adopt and enforce policies that ban text messaging while driving—

(i) Company-owned or -rented vehicles or Government-owned vehicles; or

(ii) Privately-owned vehicles when on official Government business or when performing any work for or on behalf of the Government.

(2) Conduct initiatives in a manner commensurate with the size of the business, such as—

(i) Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and

(ii) Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

(d) Lower Tier Subcontracts. The Subcontractor shall insert the substance of this clause, including this paragraph (d), in all lower tier subcontracts that exceed the micro-purchase threshold.

1.30 CONTRACTOR EMPLOYEE WHISTLEBLOWER RIGHTS AND REQUIREMENTS TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS (APR 2014)

(This clause is applicable to subcontracts that exceed the Simplified Acquisition Threshold)

(a) This subcontract and employees working on this subcontract will be subject to the whistleblower rights and remedies in the pilot program on Contractor employee whistleblower protections established at 41 U.S.C. 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and FAR 3.908.

(b) The Subcontractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. 4712, as described in section 3.908 of the Federal Acquisition Regulation.

(c) The Subcontractor shall insert the substance of this clause, including this paragraph (c), in all lower-tier subcontracts over the simplified acquisition threshold.

1.31 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (DEC 2013) (DEVIATION)

(a) Upon receipt of accelerated payments from PPPL, the subcontractor shall make accelerated payments to its lower tier small business subcontractors under this subcontract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.

(b) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(c) Include the substance of this clause, including this paragraph (c), in all lower tier subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial items

2. Applicable when purchased items include services.

2.1 CHANGES (MAY 2002)

(a) Princeton may at any time, by written notice, make changes within the general scope of this Agreement in any one or more of the following: (1) description of the services to be performed; (2) place of performance; and (3) the amount of services to be furnished. If any such change causes a difference in the cost of the services or the time required for performance, an equitable adjustment shall be made in the price and/or delivery schedule and other affected provisions. Such adjustment shall be made by written amendment to this Agreement signed by both parties. Any claim for adjustment by the Subcontractor must be made within 30 days from the date of receipt of Princeton's change notice, although Princeton in its sole discretion may receive and act upon any claim for adjustment at any time before final payment.

(b) Only the Procurement Specialist is authorized on behalf of Princeton to issue changes. If the Subcontractor considers that any direction or instruction by Princeton personnel constitutes such a change, the Subcontractor shall not rely upon such instruction without written confirmation from the Procurement Specialist. Nothing in this clause, including disagreement with Princeton about the equitable adjustment, shall excuse the Subcontractor from proceeding with the Agreement as changed.

3.0 STATUTES OR EXECUTIVE ORDERS INCORPORATED BY REFERENCE: The Subcontractor agrees to comply with the following Federal Acquisition Regulation (FAR) and Department of Energy Acquisition Regulation (DEAR) clauses by reference, as they exist on the effective date of this Agreement, with the same force and effect as if they were in full text. For FAR provisions incorporated by reference, "Government" means "Princeton", Contracting Officer" means "Princeton Plasma Physics Laboratory's Procurement Division Procurement Specialist", except where statute or regulation vests authority exclusively in specific agencies or individuals, and "Contractor" means "Subcontractor". The FAR clauses are available through the General Services Administration (GSA) at <http://www.acquisition.gov/far/> and the DEAR clauses are available at, <http://energy.gov/management/downloads/searchable-electronic-department-energy-acquisition-regulation> or they may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. To the maximum extent practicable, the Supplier shall incorporate, and require its subcontractors, divisions, subsidiaries or affiliates at all tiers to incorporate commercial items or non-developmental items as components of items to be supplied under this Agreement. The Supplier is not required to include any FAR provisions or clauses other than those listed below to the extent that they are applicable and as may be required to establish the reasonableness of prices under FAR 15, in a subcontract at any tier for commercial items or components. The Supplier shall include the terms of this clause, including this statement, in lower-tier subcontracts awarded under this Agreement.

| <u>Clause:</u> | <u>Title:</u> | <u>FAR Reference:</u> |
|----------------|--|-----------------------|
| 3.1 | CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT (Applicable to agreements with a value greater than \$5 Million and a term greater than 120 days) | 52.203-13 |
| 3.2 | PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL (Applicable to all Agreements where access to a Princeton IT resource is required, OR an on-site presence of more than 6 months is required) | 52.204-9 |
| 3.3 | UTILIZATION OF SMALL BUSINESS CONCERNS (Applicable to all Agreements that offer further subcontracting opportunities. If the Agreement (except to small business concerns) exceeds \$650,000, clause must be included in lower-tier subcontracts that offer subcontracting opportunities) | 52.219-8 |
| 3.4 | REMOVED | |
| 3.5 | EQUAL OPPORTUNITY | 52.222-26 |
| 3.6 | EQUAL OPPORTUNITY FOR VETERANS (Applicable to all Agreements greater than \$100,000) | 52.222-35 |
| 3.7 | AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (Applicable to all Agreements greater than \$10,000) | 52.222-36 |
| 3.7A | EMPLOYMENT REPORTS ON VETERANS (Applicable to all Agreements ≥ \$100,000) | |
| 3.8 | NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT (Applicable to all Agreements greater than \$10,000) | 52.222-40 |
| 3.9 | COMBATING TRAFFICKING IN PERSONS | 52.222-50 |
| 3.9A | EMPLOYMENT ELIGIBILITY VERIFICATION (applicable to all Agreements for services with a value in excess of \$3,000 and performed In the United States) | 52.222-54 |
| 3.9B | ENERGY EFFICIENCY IN ENERGY-CONSUMING PRODUCTS | 52.223-15 |
| 3.9C | IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products | 52.223-16 |
| 3.10 | BUY AMERICAN ACT – SUPPLIES (Applicable to Agreements greater than \$3,000) | 52.225-1 |
| 3.11 | SUBCONTRACTS FOR COMMERCIAL ITEMS | 52.244-6 |
| 3.12 | PREFERENCE FOR PRIVATELY OWNED U.S.-FLAG COMMERCIAL VESSELS (Applies when ocean transportation of supplies may be involved) | 52.247-64 |

| <u>Clause:</u> | <u>Title:</u> | <u>DEAR Reference:</u> |
|----------------|--|------------------------|
| 4.1 | SENSITIVE FOREIGN NATIONS CONTROLS | 952.204-71 |
| 4.2 | COMPUTER SECURITY (Applicable to all Agreements where access is provided to computers owned, leased or operated on behalf of the DOE) | 952.204-77 |

52.204-23 Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities.

As prescribed in 4.2004, insert the following clause:

PROHIBITION ON CONTRACTING FOR HARDWARE, SOFTWARE, AND SERVICES DEVELOPED OR PROVIDED BY KASPERSKY LAB AND OTHER COVERED ENTITIES (JUL 2018)

(a) *Definitions.* As used in this clause—

Covered article means any hardware, software, or service that—

- (1) Is developed or provided by a covered entity;
- (2) Includes any hardware, software, or service developed or provided in whole or in part by a covered entity; or
- (3) Contains components using any hardware or software developed in whole or in part by a covered entity.

Covered entity means—

- (1) Kaspersky Lab;
- (2) Any successor entity to Kaspersky Lab;
- (3) Any entity that controls, is controlled by, or is under common control with Kaspersky Lab; or
- (4) Any entity of which Kaspersky Lab has a majority ownership.

(b) *Prohibition.* Section 1634 of Division A of the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91) prohibits Government use of any covered article. The Contractor is prohibited from—

- (1) Providing any covered article that the Government will use on or after October 1, 2018; and
- (2) Using any covered article on or after October 1, 2018, in the development of data or deliverables first produced in the performance of the contract.

(c) *Reporting requirement.* (1) In the event the Contractor identifies a covered article provided to the Government during contract performance, or the Contractor is notified of such by a subcontractor at any tier or any other source, the Contractor shall report, in writing, to the Contracting Officer or, in the case of the Department of Defense, to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Contractor shall report the following information pursuant to paragraph (c)(1) of this clause:

(i) Within 1 business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; brand; model number (Original Equipment Manufacturer (OEM) number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the report pursuant to paragraph (c)(1) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of a covered article, any reasons that led to the use or

submission of the covered article, and any additional efforts that will be incorporated to prevent future use or submission of covered articles.

(d) *Subcontracts*. The Contractor shall insert the substance of this clause, including this paragraph (d), in all subcontracts, including subcontracts for the acquisition of commercial items.

(End of clause)