

|  |                                    |  |  |
|--|------------------------------------|--|--|
| <b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>  |                                    | 1. CONTRACT ID CODE  | PAGE OF PAGES<br>1 2                   |
| 2. AMENDMENT/MODIFICATION NO.<br>239   | 3. EFFECTIVE DATE<br>See Block 16C | 4. REQUISITION/PURCHASE REQ. NO.   | 5. PROJECT NO. (If applicable)         |
| 6. ISSUED BY<br>Idaho Operations<br>U.S. Department of Energy<br>Idaho Operations<br>1955 Fremont Avenue<br>Idaho Falls ID 83415   | CODE 00701                         | 7. ADMINISTERED BY (If other than Item 6)<br>Idaho Operations<br>U.S. Department of Energy<br>Idaho Operations<br>1955 Fremont Avenue<br>MS 1221<br>Idaho Falls ID 83415 | CODE 00701                             |
| 8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)<br>BATTELLE ENERGY ALLIANCE, LLC<br>Attn: Dana Storms<br>P.O. BOX 1625<br>IDAHO FALLS ID 834150001 |                                    | (x) 9A. AMENDMENT OF SOLICITATION NO.  | 9B. DATED (SEE ITEM 11)                |
| CODE 152020629 FACILITY CODE   |                                    | x 10A. MODIFICATION OF CONTRACT/ORDER NO.<br>DE-AC07-05ID14517   | 10B. DATED (SEE ITEM 13)<br>11/09/2004 |

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended.  is not extended.  
 Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

**12. ACCOUNTING AND APPROPRIATION DATA (If required)**

See Schedule

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

|           |   |
|-----------|---|
| CHECK ONE | A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.  |
|           | B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b). |
| X         | C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:<br>See Block 14  |
|           | D. OTHER (Specify type of modification and authority)   |

**E. IMPORTANT:** Contractor  is not.  is required to sign this document and return 1 copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

Tax ID Number: 68-0588324

DUNS Number: 152020629

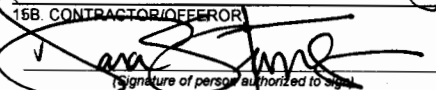

Modification Authority: IAW Part I Section H, "Special Contract Requirements," Contract Clause H.34 entitled "Agreements and Commitments."

THE PURPOSE OF THIS MODIFICATION IS TO: Update Part III Section J, "List of Documents, Exhibits, and Other Attachments," Attachment J-R, "Agreements and Commitments," to incorporate changes to the contract.

(See Continuation Page)

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

|   |  |
|---|--|
| 15A. NAME AND TITLE OF SIGNER (Type or print)<br>Dana Storms, Manager   | 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)<br>Suzette M. Olson |
| 15B. CONTRACTOR/OFFEROR<br>         | 15C. DATE SIGNED<br>5/07/2012  |
| 16B. UNITED STATES OF AMERICA<br> | 16C. DATE SIGNED<br>5/9/12   |

NAME OF OFFEROR OR CONTRACTOR  
 BATTELLE ENERGY ALLIANCE, LLC

| ITEM NO.<br>(A) | SUPPLIES/SERVICES<br>(B)   | QUANTITY<br>(C) | UNIT<br>(D) | UNIT PRICE<br>(E) | AMOUNT<br>(F) |
|-----------------|--|-----------------|-------------|-------------------|---------------|
|                 | <p>Part III Section J Attachment R, "Agreements and Commitments" pages (1-66) are deleted in thier entirety and replaced with the attached Section J Attachment R pages (1-28)</p> <p>All other terms and conditions remain unchanged<br/>           Period of Performance: 11/09/2004 to 09/30/2014</p> |                 |             |                   |               |

|  |                                    |  |                                |
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THE PURPOSE OF THIS MODIFICATION IS TO: Update Part III Section J, "List of Documents, Exhibits, and Other Attachments," Attachment J-R, "Agreements and Commitments," to incorporate changes to the contract.

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|---|------------------|--|--------------------------------|
| 15A. NAME AND TITLE OF SIGNER (Type or print)                           |                  | 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)<br>Suzette M. Olson           |                                |
| 15B. CONTRACTOR/OFFEROR<br><br>(Signature of person authorized to sign) | 15C. DATE SIGNED | 16B. UNITED STATES OF AMERICA<br>Signature on File<br>(Signature of Contracting Officer) | 16C. DATE SIGNED<br>05/09/2012 |

**CONTINUATION SHEET**

REFERENCE NO. OF DOCUMENT BEING CONTINUED  
DE-AC07-05ID14517/239

PAGE OF  
2 | 2

NAME OF OFFEROR OR CONTRACTOR  
BATTELLE ENERGY ALLIANCE, LLC

| ITEM NO.<br>(A) | SUPPLIES/SERVICES<br>(B)  | QUANTITY<br>(C) | UNIT<br>(D) | UNIT PRICE<br>(E) | AMOUNT<br>(F) |
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CONTINUATION PAGE

**The following changes have been made to Section J, Attachment R:**

1. Delete Resource Commitment Form and Form Instructions;
2. Table 3-1 Revision 5 is deleted in its entirety and replaced with the attached Table 3-1 Revision 6;
3. Delete the following Resource Commitment Forms in their entirety:  
3, 6, 8, 13, 14, 15, 16, 17, 18, 19, 21, 25, 26, 27, and 28.
4. Delete Organizational Structure;
5. Resource Commitment Form #2 is deleted in its entirety and replaced with the attached Resource Commitment Form #2R;
6. Resource Commitment Form #7 is deleted in its entirety and replaced with the attached Resource Commitment Form #29;
7. Add Resource Commitment Form #30; and
8. Close the Access elements for Resource Commitment Forms #4, 5, and 23.

The open Resource Commitments are as follows:

- 1 – Battelle Energy Alliance, LLC
- 2R – Battelle Energy Alliance, LLC;
- 4 – Battelle Energy Alliance, LLC;
- 5 – BWXT;
- 9 – Electric Power Research Institute;
- 10 – Electric Power Research Institute;
- 11R – Electric Power Research Institute;
- 12 – State of Idaho;
- 20 – Westinghouse Electric Corporation;
- 22 – Battelle Energy Alliance, LLC;
- 23 – Areva;
- 24 – USRA;
- 29 – URS; and
- 30 – Battelle Energy Alliance, LLC.

**All other terms and conditions remain unchanged**

**PART III SECTION J, ATTACHMENT R**  
**AGREEMENTS AND COMMITMENTS**

## Resource Commitments

Table 3-1.

| Provider   | Resource Commitment  | Type of Resource Commitment |                        |                       |
|--|--|-----------------------------|------------------------|-----------------------|
|  |  | Direct <sup>(1)</sup>       | Program <sup>(2)</sup> | Access <sup>(3)</sup> |
| Battelle Energy Alliance   | 1. Upgrades to Advanced Test Reactor Research Capability and Fuel Line                         | \$20.0M                     |                        |                       |
| Battelle Energy Alliance   | 2R. Support for Education Programs   | \$0.9M                      |                        |                       |
| Battelle Energy Alliance   | 4. National Security Consulting and Access to Battelle Ventures                                |                             | \$2.0M                 |                       |
| BWXT   | 5. Access to BWXT Lynchburg Technology Center (LTC)  |                             | \$1.5M                 |                       |
| Electric Power Research Institute  | 9. Establish the Center for Nuclear Fuels and Materials Research (CNFMR)                       |                             | \$41.2M                | \$25.0M               |
|  | 10. Access to EPRI's Technology Application Centers  |                             | \$2.9M                 | \$20.0M               |
|  | 11R. Provision of Technical Support to Advanced Nuclear Technology Development                 |                             | \$1.8M                 | \$10.0M               |
| State of Idaho   | 12. State Support for CAES   | \$7.2M                      |                        |                       |
| Westinghouse Electric Corp   | 20. Support the Center for Nuclear Fuels and Materials Research – WEC                          |                             | \$1.5M                 |                       |
| BEA  | 22. Program Funds to be provided as replacement for original RC #22.                           |                             | \$30.0M                |                       |
| AREVA  | 23. Support the Center for Nuclear Fuels and Materials Research (CNFMR)                        | \$2.0M                      | \$20.0M                |                       |
| USRA   | 24. Establish the Center for Space Nuclear Research (CSNR)                                     | \$1.5M                      |                        |                       |
| URS  | 29. Subsidizing Allowable Cost for Key Technical Staff   |                             | \$5.0M <sup>(4)</sup>  |                       |
| Battelle Energy Alliance   | 30. Technology Based Economic Development, Community Organizations, and Mission-Related Events | \$0.975M                    |                        |                       |
| <b>Open Resource Commitments</b>   |  | <b>\$32.575M</b>            | <b>\$105.9M</b>        | <b>\$55.0M</b>        |
| <b>Original Resource Commitments</b>   |  | <b>\$62.66M</b>             | <b>\$106.14M</b>       | <b>\$1.064B</b>       |
| <p>(1) Direct – funds committed to a specific purpose at INL.<br/> (2) Program – funds available for prescribed project or consulting activity.<br/> (3) Access – capital or replacement value of an asset being offered for use.<br/> (4) Initial value of resource commitment was \$5.0M. Replacement RC #29 will track progress against original value.</p> |  |                             |                        |                       |



## 1. Resource Description:

**Upgrades to Advanced Test Reactor Research Capability and Fuel Line.** BEA proposes to upgrade the Advanced Test Reactor (ATR) at INL in order to extend its capabilities to support national security and nuclear power program commitments and opportunities. BEA proposes to make an investment of \$20M to enable the following (should programmatic funding become available for any portion of the commitments made by BEA, other ATR investments will be made to maintain the \$20M commitment):

- **\$1M – Remanufacture and Reinstall the Irradiation Test Vehicle (ITV).** The ITV is a unique test facility located in the Center Flux Trap of ATR. The ITV will be removed during the upcoming Core Internal Changeout, due to lack of a replacement facility. The ITV provides a flexible, individually controlled, reconfigurable, multi-capsule testing capability for conducting high-temperature irradiations in the ATR. Reinstallation of the ITV will support a wide variety of potential customers desiring to conduct material testing (e.g., graphite) or fuel testing in a high-temperature and high-flux gas environment.
- **\$4.5M – Reactivate Pressurized Water Test Loop and install an In-Pile-Tube in the ATR.** To attract commercial nuclear plant irradiation test programs, a dedicated pressurized water loop to support PWR and BWR irradiation test programs is needed. This reactivated loop could also potentially support preliminary supercritical water testing of fuels and materials with controlled water chemistry. This capability will support the EPRI/industry fuel reliability program, high-burnup LWR fuel development, and Generation IV supercritical water reactor development programs without impacting support currently provided to the Naval Reactors Irradiation Test Program.
- **\$1.5M – Sitewide Hot Cell Study and Preliminary Design of ATR Direct Transfer Hot Cell Facility.** State-of-the-art hot cell capability is required at the Test Reactor Area to support fuels and materials development, full-scope irradiation testing, and post-irradiation-examination and out-of-pile safety testing. In the first year of the INL contract, BEA will conduct a comprehensive study of hot cell needs versus existing INL hot cell capabilities to develop a site-wide hot cell strategy and business plan. If this study supports the need for a new hot cell facility connected to the ATR canal, BEA will complete the preliminary design for the new ATR hot cell facility to provide DOE with the mission need, design, and cost information to support the line-item funding needed for the ATR hot cell. Locating this new hot cell facility over/adjacent to the ATR canal will permit for the direct transfer of ATR irradiation test vehicles into the hot cell where they can be examined, repaired, reconfigured, or disassembled for post-irradiation-examination. This will eliminate the need to procure a certified shipping cask and the associated expense of transporting test samples to a remote hot cell. A state-of-the-art ATR hot cell facility will add substantial additional value and mission infrastructure to irradiation test programs at INL. In the near-term, BEA will supply \$500K of base funding to allow for the restart of the Test Reaction Area (TRA) hot cells and provide an optical metallograph and scanning electron microscope to carry out fundamental post-irradiation measurements, while more elaborate post-irradiation-examination will continue to be conducted in the near-term at the ANL-W site. In addition, we anticipate that the existence of a fully functioning ATR Canal-Hot Cell Facility would provide Naval Reactors with the option to move a portion of its hot cell operations at NRF to TRA providing substantial cost savings to the Naval Reactors Program. Another benefit this facility will provide is the cost savings associated with the transfer of ATR spent fuel and irradiated core components directly from the canal to dry storage.

## Resource Commitment Form #1 (continued)

- **\$6M – ATR Transfer Shuttle Irradiation System (Rabbit).** Installing a Rabbit in ATR supports new mission execution for the ATR in the areas of medical isotope production and isotope research. A new Rabbit will permit short-term exposures to ATR's high flux without interfering with long-term experiments presently in the reactor, enhancing ATR's mission infrastructure. Potential research needs, in addition to medical isotope production, that will be supported are: neutron activation, flux monitoring, neutron hardening, and isotope research. A Rabbit system also will provide a back-up source for strategic isotope production. The Rabbit system will use an in-core position that offers both volume for the piping and capsule and will provide high-neutron flux, the most attractive position being the south flux trap.
- **\$2M – ATR Hot Cell Equipment Upgrades.** Contingent on the DOE's decision to proceed with line item construction of the new ATR Canal Hot Cell Facility, BEA will further invest in equipping the ATR hot cells with state-of-the-art research instruments to support the long-term post-irradiation-examination mission. This includes spectrometers, microscopes, diffractometers, and mechanical and physical property testing systems.
- **\$5M – Upgrade to ATR Fuel Fabrication Line Equipment.** Much of the equipment used for the manufacture of university and ATR fuel has not been updated since the production line was originally started in the 1980s. Several critical pieces of equipment (Fluoroscope, UT-clad/bonding scanner, welder, fuel compactor) are in very poor condition and failure could occur in the near future. Additionally, the current fuel manufacturing equipment is highly "skill of the operator" dependent due to the lack of modern computer numerical control systems that would make fabrication much more efficient. In addition to the upgrades needed for the ATR fuel line, BEA proposes to initiate the creation of low enriched uranium (LEU)/U-Moly production line. This is in support of DOE Secretary Abraham's commitment to convert domestic research reactors to LEU by 2013. The production line is needed to produce U-moly foil and to encapsulate U-moly foil in A1 plates. This will be a necessary step to industrial capability to produce high density LEU fuel elements that are necessary for high neutron flux research reactors conversions from HEU to LEU.

These fuel line production upgrades will enable BWXT to provide an assured supply of fuel for the ATR, the High Flux Isotope Reactor (HRIF), and university reactors, all important components of the revitalization of nuclear energy research and research infrastructure. Modernization and enhanced automation will lead to process variability reduction, leading to tighter manufacturing specifications, as well as increased production capability necessary to meet expected future demand. With this BEA investment, BWXT will maintain the variable supply for research reactor fuel and ensure continuity of the supply on the most favorable economic terms.

### 2. Location of Resource:

The investments will be made in accordance with a plan approved by the DOE, and funded by BEA using earned fee. The investments will occur at the Advanced Test Reactor in Idaho Falls, Idaho, and at the BWXT, Nuclear Products Division in Lynchburg, Virginia.

### 3. Monetary Value

Total Monetary Value: \$20 million (direct)

### 4. Describe which Project/Program would benefit from the resource and why:

This commitment benefits the Nuclear Energy National Security, S&T, and Education programs at the INL. For the INL to fulfill its mission to support the revitalization of nuclear energy, it must serve a wide variety of customer needs, including the DOE and Nuclear Regulatory Commission, the nuclear power industry, and the international nuclear community. The BEA

**Resource Commitment Form #1 (continued)**

vision for the INL includes R&D Centers at the ANL-W site for fuel cycle research and Pu<sup>238</sup> separations, and at the Test Reactor Area for advanced fuels and materials irradiation testing using the ATR. BEA has identified the lack of in-core irradiation test vehicles and out-of-pile test assembly and post-irradiation-examination instruments and hot cell facilities as key needs to support this mission.

**5. Date the resource will be provided:**

Assuming award of the contract February 1, 2005, BEA will negotiate an upgrade plan for DOE approval with planned implementation by the end of FY05. Though impacted by facility production and availability schedule, our intent is to complete the investments during the first 5 years of the contract to maximize the impact.

**6. The resource will be provided by:**

Battelle Energy Alliance, LLC using earned fee

**7. Describe any liability related to this resource financial or otherwise:**

The upgrades represent a net reduction in received fee for the purposes of seeing that fee used for critical improvements benefiting the critical missions supported by the Advanced Test Reactor. Although BEA will provide the financial resources, this does not constitute BEA taking any financial ownership in the ATR or liability for either the installation of those upgrades or the impact of those approved upgrades, once installed.

**8. How the resource will be managed:**

An upgrade plan will be negotiated with DOE and approved for implementation by the end of FY05.

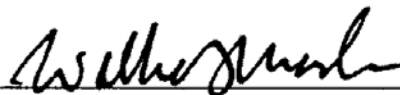
**9. How the resource will be integrated into the INL:**

The upgrade plan elements will be incorporated into the Site Ten-Year Infrastructure Plan proposed under the leadership of our Associate Laboratory Director for Nuclear Operations. They will be managed as standard procurements and/or construction projects under the oversight of the INL.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

N/A

**11. Signature of responsible corporate official and date of signature:**



\_\_\_\_\_  
Battelle Energy Alliance, LLC, by its sole member,  
Battelle Memorial Institute  
William J. Madia, Executive Vice President, Battelle

## Resource Commitment Form #2R – Battelle Energy Alliance

I am committing the following resources to the INL:

### 1. Resource Description

**Support for Education Programs.** With this modification to Resource Commitment #2, under which BEA provided \$6.228M through FY 2011 in full satisfaction of the original resource commitment, BEA and BMI commit to invest further resources to support educational programs and partnerships at all levels. BEA and BMI will support various K-12 and post-secondary academic, experiential, or infrastructure programs and activities, particularly in the State of Idaho. All investments will support developing the STEM workforce of the future; in post-secondary involvements, the emphasis will be on disciplines related to the nuclear workforce of the future.

### 2. Location of Resource

The investments will be made predominantly within the State of Idaho but may include support for initiatives outside the state where significant opportunities for leverage are identified.

### 3. Monetary Value

BEA and BMI commit to invest an average of at least \$300K per year for the duration of BEA's engagement under contract DE-RP07-03ID14517. This commitment is in a total amount of at least \$900K through EOFY-2014 and, should DOE exercise the option in the subject contract for a full five years, an additional minimum of \$1,500K between FY-2015 and EOFY-2019.

### 4. Describe which Project/Program would benefit from the resource and why

Various educational interests relevant to NE missions will be impacted.

### 5. Date the resource will be provided

The resource will be made available on an annual basis commencing October 1, 2011.

### 6. The resource will be provided by

Battelle Energy Alliance will fund from earned fee.

### 7. Describe any liability related to this resource, financial or otherwise

None known at this time

### 8. How the resource will be managed and credited to this resource commitment

The resource will be managed by the BEA Director of Education Programs consistent with annual plans developed and approved by the BEA LMT. Direct credit will be given for all BEA and related BMI expenditures as well as third party cash and in-kind investments that demonstrably result from or leverage the BEA and BMI investments (e.g. matching grants, etc.).

### 9. How the resource will be integrated into the INL

The resource will primarily fund activities external to the INL and be managed by the Director of Education Programs.

### 10. Other pertinent information

N/A.

### 11. Signature of responsible corporate official and date of signature



John J. Grossenbacher  
Director, Idaho National Laboratory and  
President, Battelle Energy Alliance, LLC

11-21-11

Date

## **Resource Commitment Form #4 – Battelle**

I am committing the following resources to the INL:

### **1. Resource Description:**

**National Security Consulting and Access to Battelle Ventures.** Battelle is committing people and know-how to achieve two major goals at INL:

- Grow and diversify the INL R&D business volume in National and Homeland Security
- Enhance the commercialization of INL and university innovations to create new investment funds for the Laboratory, and to grow new technology-based businesses in Idaho.

**Business Growth and Diversification:** Battelle has a \$600M per year program with Federal agencies other than DOE, and in particular the Department of Defense (DoD) and Department of Homeland Security (DHS). Battelle has recruited a number of experts in the fields of national and homeland security, who are skilled in connecting National Laboratory technologies and capabilities to the needs of the armed forces, intelligence and related organizations. We propose to assign these individuals to INL to review the current research portfolio, and identify opportunities to deploy capabilities in current Battelle projects, as well as connect INL staff with our other Laboratories to create new program opportunities for INL. **This will be an ongoing effort of ~0.5 FTE per year over the course of the 10-year contract. (Estimated value is \$1.5M)**

**Commercialization and New Business Creation:** Battelle has created award-winning "Technology Based Economic Development Programs" at both Pacific Northwest National Laboratory (PNNL) and Oak Ridge National Laboratory (ORNL) to grow new businesses and jobs for the area. We propose to bring this model to Idaho Falls, as a means to link the Laboratory with the local business community and the three Idaho universities in a comprehensive "Technology Commercialization and New Business Creation Program." The two key commitments to achieve this goal are:

- *Assignment of the Senior Battelle Advisor*, who was the architect of the PNNL and ORNL programs, to work with INL, the universities and community to develop the new Center for Advanced Energy Studies. **This will be a one year effort, at ~0.5FTE, plus intermittent consulting support over the life of the contract. ( Estimated value is \$500K)**
- *Engagement of the Battelle Ventures (BV) group* to provide business consulting and investment services for INL. Battelle Ventures is managed by a world-class team focused on early-stage investments in technology-based business. The \$150 million venture capital fund's primary purpose is to create commercial value from Battelle managed technologies; 80 percent of the fund must be invested at Battelle managed Laboratories. BV will bring added value to INL's Technology Transfer program in three areas:
  1. Bundling of IP with other Battelle-managed laboratories, universities, and other companies to produce new RD&D and licensing opportunities for INL
  2. Consulting, including technology assessments, analyzing licensing and/or new business creation opportunities, and technology commercialization and business formation training
  3. Increasing INL revenues from IP licensing and royalties for reinvestment into INL programs.

### **2. Location of Resource:**

Battelle, 505 King Avenue, Columbus, Ohio

Resource Commitment Form #4 (continued)

**3. Monetary Value (Consulting)**

Total Monetary Value: \$2M (direct) plus access to the \$150M Venture Capital Fund (access)

Battelle will pay for the time of all the consultants/advisors as required. No DOE funds are involved.

**4. Describe which Project/Program would benefit from the resource and why:**

This Commitment Benefits Homeland Security and Science & Technology Programs at INL.

- National and Homeland Security Programs will benefit from the Battelle marketing assistance, which will produce new R&D business and new customers for INL.
- The Technology Transfer and Small Business Programs will benefit directly from the commercialization and new business creation assistance, with more technology transferred to industry, more R&D contracts with industry, and new businesses created. The revenues that result will be reinvested in INL.

**5. Date the resource will be provided:**

Immediately upon contract signing, and periodically, as required by INL's program schedule, for the 10-year contract life. We commit to at least one BV team visit to INL per year, but more will result as engagements and deals increase. This is the experience we have had at our other Laboratories.

**6. The resource will be provided by:**

Battelle Memorial Institute

**7. Describe any liability related to this resource financial or otherwise:**

N/A

**8. How the resource will be managed:**

- New National and Homeland Security Business Development will be managed by the ALD, National and Homeland Security Programs, Dr. K.P. Ananth
- The Battelle Ventures engagement will be managed by the INL Director of Technology Partnerships

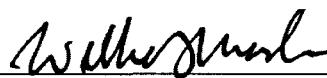
**9. How the resource will be integrated into the INL:**

- The marketing support from Battelle will become an integral part of the INL Homeland and National Security Program. Dr. K.P. Ananth is currently a senior Battelle manager, responsible for Air Force and Homeland Security Programs, so integration will be straightforward.
- The Battelle Ventures engagement will enhance the normal functions of National Laboratory Technology Transfer offices. As a member of the Battelle-managed Laboratories, INL will become part of the Battelle-wide Technology Transfer team (PNNL, ORNL, NREL, and BNL).
- The Laboratory's Technology Transfer office is linked to the local business organizations, and the Idaho University Business Schools.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

N/A

**Signature of responsible corporate official and date of signature:**



Battelle Energy Alliance, LLC, by its sole member,  
Battelle Memorial Institute  
William J. Madia, Executive Vice President, Battelle

## **Resource Commitment Form #5 – BWXT**

I am committing the following resources to the INL:

### **1. Resource Description:**

**Access to BWXT Lynchburg Technology Center (LTC).** BWXT will extend the materials, engineering and technology applications of the INL through access to its Lynchburg Technology Center (LTC). Access to this Center will benefit the Nuclear Energy Program and the NGNP activity. BWXT will provide INL with expedited preferential laboratory services on a cost-only basis for the term of the INL contract. BWXT LTC will provide at no cost to INL, the equivalent of 0.25 annual full-time equivalent (FTE) senior laboratory staff support to facilitate LTC support of INL. In addition, BWXT's nuclear fuel R&D and production capabilities will be made available to support the INL nuclear programs. BWXT will provide, on a cost-only basis, two annual FTEs via the BWXT Assess, Improve and Modernize (AIM) Teams. BWXT nuclear professionals will be available to support the scientific, operational, educational and business management functions of the INL on a cost-only basis.

### **2. Location of Resource:**

BWX Technologies, Inc., 2016 Mount Athos Road, Lynchburg, Virginia 24504

### **3. Monetary Value**

Total Monetary Value: \$1.5M, which includes \$1M of consulting and \$500K in estimated R&D revenue (program). These resources will be funded from BWXT corporate funds. Estimated Total Estimated Monetary Value: access to the \$100M Lynchburg Technology Center (access).

### **4. Describe which Project/Program would benefit from the resource and why:**

This commitment benefits the Nuclear Energy and National Security Programs at INL. All INL programs associated with nuclear energy, including fuel and materials research, NGNP, GEN IV, Advanced Fuel Cycle Initiative (AFCI), Space Nuclear, Nonproliferation, and the Center for Advanced Energy Studies, will benefit from this resource commitment.

The NGNP, AFCI, GEN IV, space nuclear programs and the CAES will benefit through the use of BWXT's LTC senior personnel who have significant experience in nuclear technologies relevant to the nuclear fuel cycle. Further benefits could be realized through the use of our LTC facilities that support a variety of nuclear material testing. In the area of nonproliferation, BWXT has subject matter experts who have provided vulnerability assessments as it relates to detecting and transporting nuclear materials. They also have significant capabilities and experience in providing physical security engineering in the protection of SNM.

BWXT LTC maintains extensive facilities for analyzing and testing radioactive materials. BWXT operates under NRC license SNM-42, which is a broad Special Nuclear Material (SNM), Source and Byproduct license that allows receipt and handling of essentially all types and quantities of radioactive materials.

The organization includes an experienced staff of engineers, chemists, program managers, health physicists and technicians, as well as a quality assurance program that meets the requirements of NQA-1 and 10CFR50, Appendix B. BWXT LTC also maintains a Nuclear Materials Engineering (NME) unit, a Non-Destructive Examination (NDE) unit, and a Metallurgical Laboratory. Laboratories are structured to successfully complete critical projects such as failure investigations and NRC-mandated Post Accident Sample analysis on a rapid turnaround basis. The Laboratory Services department maintains facilities for handling and examining radioactive samples or components. Examples of the types of services accessible by the INL include:

## **Resource Commitment Form #9 – EPRI**

I am committing the following resources to the INL:

### **1. Resource Description:**

**Establish the Center for Nuclear Fuels and Materials Research.** Working with other BEA research affiliates, EPRI will establish the Center for Nuclear Fuels and Materials Research at INL, a world-class fuel and core materials testing center. To assure its success, EPRI will provide the following:

- The EPRI Director of the Fuel Reliability Program, on a 0.33 FTE basis. The Director will support (1) developing plans to bring INL Fuel Evaluation Facilities and ATR to international standards, capable to perform tests for LWR and NGNP needs; (2) developing domestic and international business for INL; and (3) providing technology transfer.
- Preferential status for INL to perform R&D for EPRI of \$4 to \$6 million per year (includes an estimated \$1 to \$2 million per year of commercial fuel-related R&D)
- A fuel program office in Idaho Falls as part of the EPRI Idaho office, and resident staff who will link INL with the EPRI “fuel and core community”
- Intellectual property (valued at \$2.5 million per year) available to INL in areas relating to fuel performance, fuel reliability, operation and analysis.
- Inclusion of INL technical staff in the Fuel Reliability Program and other industry meetings to enhance the technology transfer and to better position INL to address industry needs.

EPRI will act as a liaison to domestic and international utilities to provide host plants, and irradiated fuel for INL program needs.

### **2. Location of Resource:**

3412 Hillview Avenue, Palo Alto, California 94304

### **3. Monetary Value**

Total Monetary Value: \$41.2M (\$1.2M in staff and \$40M in R&D funds) (program).

Total Estimated Monetary Value: \$25M (access to IP, equally distributed over the 10-year contract)

### **4. Describe which Project/Program would benefit from the resource and why:**

- INL Nuclear Energy Programs will benefit from the direct connection to the commercial U.S. and worldwide nuclear power industry. This connection will bring more funding to INL and will help ensure the R&D conducted at INL is relevant to industry.
- INL Fuel Evaluation Facilities
  - In addition to having a direct link to the commercial industry, EPRI will provide directions and expertise to bring INL to industry standards to be able to serve as the premier Laboratory for the nuclear industry.
  - EPRI will bring expertise and provide technology transfer from oversea test reactors and laboratories to ATR
  - INL will get more funds from DOE NE to upgrade the facilities.
  - INL will get more work from the LWR industry and DOE NE in the near future and become the fuel R&D hub for NGNP in the future

### **5. Date the resource will be provided:**

Within 120 days of the project start.

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**6. The resource will be provided by:**

EPRI

**7. Describe any liability related to this resource financial or otherwise:**

- Additional DOE funding is contingent on DOE NE funds to support nuclear fuel R&D.
- The EPRI Fuel R&D funds assume EPRI fuel programs stay at the current funding level.
- The business plan for fuel reliability work must allow a cost-competitive business structure to be developed at INL. This also requires the acceptance by DOE of a "Use Permit."

**8. How the resource will be managed:**

The resource will be managed technically by the EPRI Director for the Fuel Reliability Program. She will activate the fuel-related activities in the Idaho EPRI offices within 120 days of the contract award. EPRI project managers will be provided on temporary-assignment basis to the Idaho EPRI offices, as appropriate.

**9. How the resource will be integrated into the INL:**

Integration will be through INL's Associate Laboratory Director, Nuclear Programs and Director of Technology Partnerships.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

EPRI retains its rights to intellectual property. Acceptable commercial proprietary information standards must be developed and adhered to if multiple fuel manufacturers are to use the site facilities. This resource commitment will require resolution of fuel disposal issues with the State of Idaho.

**11. Signature of responsible corporate official and date of signature:**



Theodore U. Marston, Vice President and Chief Technology Officer  
Electric Power Research Institute (EPRI)

## **Resource Commitment Form #10 – EPRI**

I am committing the following resources to the INL:

### **1. Resource Description:**

**Access to EPRI's Technology Application Centers.** EPRI will provide access to its Nuclear Maintenance Applications Center (NMAC) and its other Technology Applications Centers, the Centers' personnel, intellectual property and networks to support the nuclear power, science and partnership missions of INL. EPRI resources committed to INL in this area include:

- Technology transfer process including pre-qualification of R&D products. EPRI Charlotte's network of domestic and international members and customers opens up a vast market for the qualified products of INL R&D.
- EPRI Charlotte resources that are valuable as technical support or technical partnerships with the INL. The world recognized leadership in NDE, welding, materials research and applications, power generation, and transmission/distribution technologies will become accessible to INL through this single node.
- EPRI intellectual property (IP) valued at \$2M per year will be made available to INL in areas relating to nuclear power design, development, operations, and maintenance and engineering support. Use of this material will be for INL projects exclusively, subject to terms in Battelle/EPRI MOA.
- The INL Director of Technology Partnerships will be charged with making this relationship a success. To assure that success, EPRI will provide the following:
  - The availability of Senior EPRI personnel on a 0.35 FTE basis to support international program development, technology transfer, and program audits and assessments; and to act as a representative of INL to industry groups such as INPO and NEI.
  - An EPRI liaison at 0.25 FTE will be established at the Charlotte facility. This person will be responsible for integrating the activities of INL with NMAC
- EPRI NMAC will establish an annual technology transfer workshop at INL to identify and develop R&D concepts as candidates for a qualification and technology transfer process.
- EPRI NMAC will provide qualification, qualification support and technology transfer of INL nuclear power-related technologies to the commercial nuclear power industry both at a national and international level.

### **2. Location of Resource:**

EPRI NMAC is based at the EPRI Charlotte facility, 1300 West WT Harris Blvd., Charlotte, North Carolina 28262

### **3. Monetary Value**

Total Monetary Value: \$2.9M (\$500K in annual workshops and \$2.4M in staff allocations; total staff allocation = 0.60 FTE) (program)

Total Estimated Monetary Value: \$20M in IP (\$2M per year access)

### **4. Describe which Project/Program would benefit from the resource and why:**

The Nuclear Energy, National Security, and Science and Technology Programs will benefit from the direct connection to the commercial nuclear industry. This connection will allow a pathway from the engineering and scientific activities underway in the laboratory to a relevant and practical application of the work commercially. The engineering and scientific staff will also

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**Resource Commitment Form #10 (continued)**

benefit from feedback from industry, which will enhance the technology for future work at the Laboratory.

NGNP will be able to connect to some of the ongoing science and technology in areas like high-temperature materials and nuclear fuels.

Facilities and operations will have the expertise of several programs available to help improve predictive and preventive maintenance, perform maintenance optimization, improve procurement for nuclear-grade hardware, and support changes and repairs to critical equipments.

The qualification of engineering and scientific projects for use in commercial power programs and the support to develop these activities into service opportunities or commercial ventures will be a fundamental benefit to all engineering and scientific activities at INL.

**5. Date the resource will be provided:**

The resources will be available within 90 days of the project start. The first workshop will be held in the 4th quarter of 2005.

**6. The resource will be provided by:**

EPRI

**7. Describe any liability related to this resource financial or otherwise:**

None

**8. How the resource will be managed:**

A senior staff member at EPRI Charlotte will interface internally at EPRI with the appropriate engineering and scientific personnel, the Director of Power Production and the VP Nuclear will manage the resource. His interface at INL will be with the Director, Technology Partnerships.

**9. How the resource will be integrated into the INL:**

Initially, training and workshops will be used to present the capabilities and the information that is available. The workshops on technology transfer candidates will continue on a yearly basis with the engineering and scientific staff. The Director of Technology Partnerships will be responsible for a program of continuing awareness of IP available from EPRI and issues at INL.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

IP will remain the property of EPRI. Appropriate use licenses will be developed by EPRI.

**11. Signature of responsible corporate official and date of signature:**



Theodore U. Marston, Vice President and Chief Technology Officer  
Electric Power Research Institute (EPRI)

### **Resource Commitment Form #11 – EPRI – (Revision 1)**

The Electric Power Research Institute, Inc. is committing the following resources to the INL:

#### **1. Resource Description**

Provide technical support to Advanced Nuclear Technology Development at Idaho National Laboratory (INL). This commitment is comprised of two areas of emphasis:

A. Advanced nuclear reactors and reactor systems, including advanced nuclear fuel cycles. This effort primarily focuses on reactor and fuel cycle systems beyond current ALWR technology, including HTGRs for process heat and hydrogen generation and closed nuclear fuel cycles (i.e., fast spectrum reactors and advanced recycling).

B. Advanced nuclear technologies that support advances in LWR and ALWR technologies. The work primarily focuses on technology areas that fall within the definition of the Nuclear Energy Systems Support Program (NESSP) authorized in the 2005 Energy Policy Act, that: "... support R&D activities addressing reliability, availability, productivity, component aging, safety, and security of existing nuclear power plants." It is anticipated that technologies that support current plants within this scope are also equally applicable to ALWRs. This subsection could include work associated with DOE's NP2010 program, but could also include work funded by other DOE programs. This area of emphasis potentially may include additional grid work beyond that which was conducted under the previous Resource Commitment No. 11, to which the parties may mutually agree.

#### **Resource Description for Area of Emphasis A: Advanced Nuclear Technology ("ANT"):**

Provide technical support to Advanced Nuclear Technology programs, such as Generation IV, Advanced Fuel Cycle Initiative (AFCI), Next Generation Nuclear Plant (NGNP), Nuclear Hydrogen Initiative, Global Nuclear Energy Partnership (GNEP) and related advanced reactor and advanced fuel cycle programs. It also includes support for cooperative efforts between DOE's Office of Nuclear Energy and DOE's Office of Civilian Radioactive Waste Management toward achieving an integrated spent fuel management system.

- Support the development, update and implementation of INL's industry-focused Business Plan for the NGNP.
- Support the development, finalization and implementation of INL's industry-focused Business Plan for GNEP.
- Develop with INL a Consensus Nuclear R&D Strategy and seek NEI and DOE support. Revise and re-issue the Strategy in 2007 or 2008, and as necessary.
- Provide assistance for INL in its DOE-assigned tasks related to creation of Technology Development Plans, Program Plans, review of proposals, etc. Participate in INL meetings, conferences, etc. to coordinate provision of input and assistance from industry.
- Coordinate provision of perspectives of the commercial nuclear utilities to INL for matters covered in this commitment, including review by relevant EPRI advisory committees.

#### **Resource Description for Area of Emphasis B: NESSP:**

Provide technical support to LWR technology development for current plants and near-term deployment ALWRs in areas supporting the objectives of the Congressionally-authorized NESSP.

- Provide access to selected areas of prior EPRI research that is relevant to current INL needs. Specific EPRI products to be provided to INL will be identified by mutual agreement.
- Conduct joint projects in areas of mutual interest as determined by both INL and EPRI, with an anticipated emphasis on:

- Instrumentation and Control: potential areas such as diagnostics and prognostics; digital I&C and human system interface, all-digital control rooms, technical and regulatory solutions; wireless technologies, etc.
- Non-Destructive Examination: seek development of new poolside fuel cladding NDE techniques; laser UT technology, etc.
- Advanced nuclear safety analyses, potentially including advanced plant analysis risk methods (including external event risk sources such as seismic and security threats, grid impacts, etc.), and support to INL's new Center for Advanced Modeling and Simulation.
- In support of Resource Commitment #9, facilitate steps toward recognition of advanced, high performance fuel development (high burnup) as an important element of NESSP.
- General support of INL technical efforts to improve its capabilities to support current nuclear plants, which may lead to funding support to achieve the aims of the NESSP for the benefit of the public.

2. Location of Resource

3420 Hillview Avenue, Palo Alto California, 94304 and 1300 West W.T. Harris Boulevard, Charlotte, NC 28262.

3. Monetary Value

Total Monetary Value: \$180,000 / year (Total staff allocated to this resource will be approximately 0.45 FTE annually or approximately 824 hours per year).

Total Estimated Monetary Value: \$1M per year value of EPRI research and development IP access as set forth in the Subcontract.

4. Describe which Project / Program would benefit from the Resource Commitment and why:

This commitment is intended to focus on strategic program areas that are of current highest priority to INL. Most Advanced Nuclear R&D programs (e.g., GEN IV, NGNP, AFCI, etc. are anticipated to benefit directly, as will nearer term programs such as NP2010 and NESSP (currently unfunded)).

5. Date the resource will be provided:

This resource commitment revises the initial submission. EPRI will begin to actively support the revised commitment starting upon the approval of these revisions.

6. The Resource will be provided by:

Electric Power Research Institute, Inc. (EPRI).

7. Describe any liability related to this resource, financial or otherwise:

EPRI's ability to provide this resource as currently configured will depend on levels of current funding and interest from EPRI's members in the areas covered hereunder, and also depends upon anticipated support from INL and DOE in these subject areas.

8. How the resource will be managed:

Two separate individuals, both EPRI senior staff members with management responsibility, will provide the management interface and oversight for the two areas of emphasis under this resource commitment (i.e., two management interfaces, for each of the ANT and NESSP areas of emphasis). These managers will interface internally within EPRI with appropriate engineering and scientific personnel, and will interface with the INL Associate Director, Nuclear Systems, via the Director, Technology Partnerships.

9. How the resource will be integrated into the INL:

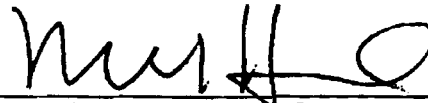
Initially, EPRI intends to conduct training and workshops to present the capabilities and the information that is available at EPRI. Similarly, the INL will engage EPRI staff, through the two identified EPRI managers, in its planning, programmatic, and R&D activities on programs [mutually agreed to by EPRI and INL] within the defined scope, and seek to employ EPRI resources to meet INL's obligations to the DOE. This commitment includes a strategic planning function to further integrate the R&D efforts of EPRI and the INL. The Director of Technology Partnerships will be responsible for a program of continuing awareness of IP available from EPRI and current emphasis of scientific areas of research ongoing at INL.

10. Other pertinent information (e.g., exclusive rights and control of the resource):

All EPRI background IP existing in EPRI Materials now or developed in the future remains the property of EPRI; all EPRI Materials are provided to BEA under the license set forth in Exhibit D of the Subcontract.

This resource commitment, upon its approval, replaces the old Resource Commitment #11, titled "Provisions of Technical Support at Critical Infrastructure Testbed," which is deleted in its entirety. All resources provided by EPRI to the INL during 2005 and 2006 under the previous version of Resource Commitment #11 will be carried forward and credited under this revised Resource Commitment #11.

11. Signature of responsible Corporate Official and Date of Signature:



Michael W. Howard, Ph.D., P.E.  
Sr. Vice President, R&D  
Electric Power Research Institute, Inc.

Date: November 12, 2007

12. Approval of Revision:

NOT APPLICABLE

Battelle Energy Alliance, LLC

Date: \_\_\_\_\_ 2007

## **Resource Commitment Form #12 – State of Idaho**

I am committing the following resources to the INL:

### **1. Resource Description:**

**State Support for Center for Advanced Energy Studies (CAES).** The State of Idaho, Idaho State University, the University of Idaho, Boise State University, Battelle and Washington Group International have a strong interest in the establishment of a joint laboratory/university Center for Advanced Energy Studies (CAES) in Idaho Falls. In the event BEA is awarded the contract for operation on the INL, the State of Idaho and universities will support the design and construction of a State-owned facility to house the CAES, estimated to cost approximately \$14 million, as follows:

- A total of \$5 million dollars from the INEEL Settlement Fund, as defined in the Idaho Code 67-806A, for use according to the terms of the Agreement for the Construction of Center for Science and Technology in Idaho Falls, dated June 29, 2001, between the Office of the Governor of the State of Idaho and the Regents of the University of Idaho and the Trustees of Idaho State University.
- A total of \$1,942,756 in grants from the U.S. Department of Housing and Urban Development (HUD) to the University of Idaho, HUD Grant B-00-SP-ID-0116 in the amount of \$925,000 and HUD Grant B-01-SP-ID-0172 in the amount of \$1,017,756, for use according to the terms of the grants.
- Land acreage (about 7 acres) whose value is estimated to be \$245,000, provided by an Idaho university or Idaho university foundation in Idaho Falls, Idaho, upon which the CAES will be built.
- Additional support for CAES design and construction through the issuance of bonds, subject to State Board of Education approval, exempt from Federal income taxation, in the amount of an additional \$7 million, by the Idaho Universities to be retired by Battelle.

The CAES will be a resource to the INL as a research and education center.

### **2. Location of Resource:**

The CAES facility will be located in Idaho Falls, Idaho on land provided by one of the Idaho universities or an Idaho university foundation.

### **3. Monetary Value**

Total Monetary Value: \$7,187,756 (direct)

### **4. Describe which Project/Program would benefit from the resource and why:**

All programs at the INL are expected to benefit from the design and construction of the Center for Advanced Energy Studies. The CAES, in close collaboration with the INL, will be a hub for conducting academic instruction, performing research and hosting national and international technical meetings related to nuclear and other advanced forms of energy production. It will be a primary facility for developing the next generation of scientists for carrying out the important research work required for advanced nuclear energy system commercialization. The CAES requires the facilities, equipment and environment necessary to attract, retain and enable students, faculty, scientists, and researchers to achieve the full potential of the world-class research institution that is envisioned. This will foster an academic and research-working environment commensurate with the vision of a world-class institution.

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**5. Date the resource will be provided:**

The State and universities will cooperate with BEA as it prepares a CAES development proposal for submittal to DOE. It is expected that the CAES facility will be constructed and operational within 3 years.

**6. The resource will be provided by:**

State of Idaho, Boise, Idaho, University of Idaho and Idaho State University

**7. Describe any liability related to this resource financial or otherwise:**

None

**8. How the resource will be managed:**

BEA will incorporate state and university resources into its CAES development proposal.

**9. How the resource will be integrated into the INL:**

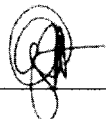
The State of Idaho will work with DOE, Battelle, Washington Group, and BEA to integrate CAES activities with INL operations. BEA will coordinate activities with the DOE as set forth in the requirements of the RFP.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

N/A

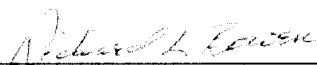
**Signature of responsible corporate official and date of signature:**

**For the State of Idaho**



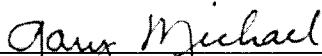
Mary Givens  
State of Idaho CST Contract Officer

**For Idaho State University**



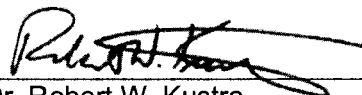
Dr. Richard L. Bowen  
President

**For University of Idaho**



Gary G. Michael  
Interim President

**For Boise State University**



Dr. Robert W. Kustra  
President



**Resource Commitment Form #20 – Westinghouse Electric Corporation (WEC), a BNFL Company**

I am committing the following resources to the INL

**1. Resource Description:**

**Support the Center for Nuclear Fuels and Materials Research NEC.** BNFL commits to support EPRI in the establishment of a Center for Nuclear Fuels and Materials Research at INL. In addition to the NSTS and BNFL Inc. staff at BNFL's headquarters for nuclear program support, resources from WEC Reactor Technology Group will be relocated to the INL. This resource will bring expertise across the full range of BNFL Group reactor technologies, initially with 3 staff. WEC currently plans to vacate its Science and Technology Center in Pittsburgh during the period of this contract. As part of the evaluation of alternatives, WEC will include INL as a preferred location, particularly for its hot cell facilities.

**2. Location of Resource:**

Currently at various WEC facilities, but will be located in Idaho Falls/INL

**3. Monetary Value:**

Total Monetary Value: \$1.5M-\$7.5M in new programs over the first 5 years of the contract (program).

**4. Describe which Project/Program would benefit from the resource and why:**

Advanced Fuel Cycle Initiative (AFCI), NGNP, and Nuclear Energy, through access to expertise and experience gained in ongoing BNFL fuel cycle technology programs.

**5. Date the resource will be provided:**

Commencement of contract

**6. The resource will be provided by:**

The commitment is from WEC; the access will be through BNFL Inc, 1235 Jefferson Davis Highway, Suite 700, Arlington, Virginia 22202.

**7. Describe any liability related to this resource financial or otherwise:**

None.

**8. How the resource will be managed:**

The resource will be accessed through an on-site BNFL manager who will be an integrated member of the BEA management team.

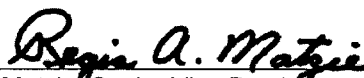
**9. How the resource will be integrated into the INL:**

The INL Director of Technology Partnerships will manage the interface, and ensure that the approvals and supporting systems are in place to allow the projects and programs being moved to INL to be safely, securely, and professionally performed.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

This resource commitment is subject to corporate approvals. Where WEC provides IP or other proprietary information, WEC will in return have full access to and unfettered rights to use any and all directly resulting information, IP and technology.

**11. Signature of responsible corporate official and date of signature:**



Dr. Regis Matzie, Senior Vice President and Chief Technology Officer, Westinghouse Electric Corporation

## RESOURCE COMMITMENT NUMBER 22

Resource Commitment No.22, to support the Center for Nuclear Fuels and Materials Research, is hereby assigned to BEA.

Program funding of \$30M (R&D Programs over 10 years) is still an outstanding issue to be honored by BEA. This program funding commitment is to be provided not later than September 30, 2008.

## **Resource Commitment Form #23 – AREVA**

I am committing the following resources to the INL:

### **1. Resource Description:**

**Support of the Center for Nuclear Fuels and Materials Research.** AREVA will collaborate with and support EPRI in the establishment of the Center for Nuclear Fuels and Materials Research at INL (Reference Resource Commitment #9). AREVA will:

1. Provide planning and evaluation methodology for commercial and research reactor fuels
2. Plan a qualified site for the examination, analysis, and data management of nuclear fuel
3. Provide support to critical research needs in fuel cycle management
4. Provide the plan and technical resources to define construction and refurbishment requirements for facilities at INL to support examination, processing and materials testing needs
5. Provide support to promote and advance nuclear fuels knowledge.

In addition to the strategic fuel examination program actions above AREVA can provide support and will participate and collaborate in the following areas:

1. Support, research, development and testing of advanced nuclear fuel types under future planned operating conditions and manufacturing techniques. Operations support for capital equipment to facilitate advances in examinations, waste handling, transportation and related services. Research into advance examination techniques for plant site analysis, modeling, simulation and transportation options. Strategic and tactical plans to address advanced fuel examination needs either in hot cells or at reactor sites, to meet operating conditions, water chemistry changes, heat loads, and life cycle improvements.
2. Training, business development and information including performance data and software (controlled through appropriate proprietary and licensing agreements).
3. Participation in planning and programmatic development of technology and equipment in related areas of transportation, fuel manufacturing, material handling, chemical processing systems and residual fuel or waste processing.
4. Subject to appropriate proprietary and licensing agreements, access to AREVA International Technical Centers, spread out over four sites, two in France (at Chalon and Le Creusot) and two in Germany (at Erlangen and Karlstein). These sites provide access to more than 350 specialists and engineers and nuclear fuel and reactor technology test and evaluation facilities worth more than \$50M. On the same terms, AREVA will also provide access to fuel manufacturing, research and training sites in Richland, WA and Lynchburg, VA where over 600 engineers and \$70 million of facilities are engaged in nuclear fuel research, development and manufacturing.
5. Planning and programmatic development of a nuclear fuel instrument and measurement equipment and facility qualification process.

### **2. Location of Resource:**

Currently at various AREVA facilities but critical resources, including certain equipment and key personnel will be located in Idaho Falls, ID.

### **3. Monetary Value:**

**New programs** – A target total of \$20 million averaging \$2.0M per year for the ten-year contract in new, private programs will be transferred or added to INL

**Direct** – \$2.0M in new equipment to enhance this new center will be brought to INL

**Access** – AREVA will provide access to its International Technical Centers, spread out over six sites, two in France Chalon and Le Creusot; two in Germany Erlangen and Karlstein; and two in

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**Resource Commitment Form #23 (continued)**

the USA, Richland WA., and Lynchburg, VA. The value of these direct new programs, new and refurbished equipment, training, and access to commercial facilities will add value to the INL mission estimated to be worth more than \$50 million.

**4. Describe which Project/Program would benefit from the resource and why:**

The INL nuclear fuel development, testing and manufacturing program CNFMR, with advanced examination, testing and analysis equipment and facilities will meet the expectation of fuel manufactures, end user utilities and research facilities. This program will enhance the NE mission by being among the leading nuclear fuel development and testing facilities in the world.

**5. Date the resource will be provided:**

Commencement of contract. Transition of protocols, detailed business plan development, operating parameters, key personnel and work by a transition team will begin at transition. Funded examinations will begin as required by commercial contracts. Research on advanced fuel examination, plant site examinations will begin within 3 months of contract start or facility operational certification, whichever is later.

**6. The resource will be provided by:**

The commitment and access will be via Framatome-ANP, Inc., 400 South Tryon Street, Charlotte, North Carolina 28285. Attention Thomas R. Stevens, Senior Vice President.

**7. Describe any liability related to this resource financial or otherwise:**

Standard allowable costs under the contract. Fuel examinations will require the transfer and storage of nuclear fuel and spent nuclear fuel to the INL. Disposition of the material after the examination will remain at and with the INL.

**8. How the resource will be managed:**

The resource will be accessed through an on-site AREVA manager who will be an integrated member of the BEA management team.

**9. How the resource will be integrated into the INL:**

The INL Director of Technology Partnerships will manage the interface, and ensure that the approvals and supporting systems are in place to allow the projects, programs, and assets being moved to INL to be safely, securely, and professionally performed. He will also ensure that reverse access to AREVA offered capabilities is being appropriately provided.

**10. Other pertinent information (e.g., exclusive rights and control of the resource):**

The transportation and storage of nuclear fuel at the INL for any interim period may require an amendment to existing state regulations. Discussions with the appropriate regulators and administrators support the plan to establish a comprehensive Nuclear Fuels and Research Program, however active progress in establishing a specific amendment must move forward on a comparable pace with the Program.

**11. Signature of responsible corporate official and date of signature:**



Tom Christopher, President and CEO  
Framatome ANP, Inc

## **Resource Commitment Form #24 – Universities Space Research Association**

I am committing the following resources to the INL

### **1. Resource Description:**

**Center for Space Nuclear Research (CSNR).** Universities Space Research Association (USRA) will establish and grow a Center for Space Nuclear Research (CSNR). This center will engage university scientists in research and development of advanced space reactor and radioisotope power systems. USRA will work with the University of New Mexico and its Institute for Space and Nuclear Power Studies, as well as the General Atomics company to create this center.

### **2. Location of Resource:**

USRA is an independent non-profit association of 95 universities, founded in Washington, D.C., in 1969 by the National Academy of Sciences. The CSNR will draw on resources from those USRA member universities. The center will be located in Idaho Falls.

### **3. Monetary Value**

Estimated Total Monetary Value \$1.5M (direct). The cost avoidance for having USRA administer this center is estimated to be \$500K for establishing the CSNR, and approximately \$100K per year for administration, resulting in a total cost avoidance of \$1.5M over the 10-year contract.

### **4. Describe which Project/Program would benefit from the resource and why:**

The center will be a focus for involving university research and education programs in space nuclear research at the INL, and in linking INL to research being performed by USRA's members involving space nuclear.

### **5. Date the resource will be provided:**

Assuming contract award on February 1, 2005, a BEA-funded proposal for the center will be submitted to NASA in FY05 with a target date of establishing the CSNR in 2006.

### **6. The resource will be provided by:**

USRA, 10211 Wincopin Circle, Suite 500, Columbia, MD 21044-3432

### **7. Describe any liability related to this resource financial or otherwise:**

None.

### **8. How the resource will be managed:**

For the CSNR proposal, USRA will nominate a Director who, with NASA approval of the center will direct the development and operation of that center, reporting to the INL Associate Laboratory Director for Nuclear Programs. The CSNR will be co-located with the Center for Advanced Energy Studies in Idaho Falls, Idaho. The CSNR will likely be a seconded employee from USRA or one of its affiliated members, and will be the primary interface between USRA and INL.

### **9. How the resource will be integrated into the INL:**

The CSNR will be part of the INL Nuclear Programs Directorate, and its activities will be coordinated through that organization.

### **10. Other pertinent information (e.g., exclusive rights and control of the resource):**

N/A

### **Signature of responsible corporate official and date of signature:**



Dr. W. David Cummings  
USRA Executive Director

## Resource Commitment #29 – URS - Subsidizing Allowable Cost for Key Technical Staff

### 1. Resource Description

**Subsidize Allowable Costs for Key Technical Staff.** URS will provide corporate resources to subsidize allowable costs under the Prime Contract for key technical URS employees seconded to BEA who would otherwise be unavailable to BEA due to compensation issues. This will apply only to URS business and scientific staff who are not designated members of the LMT. Costs to be covered may include one-time costs associated with recruitment and/or recurring annual costs as determined by BEA on a case-by-case basis. Types of costs to be covered include:

- Supplemental Salary
- Fringe on Supplemental Salary
- Sign-on Bonus
- Incentive Compensation (IC)
- Supplemental relocation
- Third-party company relocation payback buyout
- Third-party company sign-on bonus payback buyout
- Third-party company retention bonus payback buyout
- Third-party company benefit value reconciliation buyout
- Value of stock options
- Company-paid payroll tax on non-base taxable payments

### 2. Monetary Value

Through July 1, 2011, URS provided \$358,810 of such support since the contract start date related to the assignment of four employees. Experience to date suggests that URS will subsidize costs of one to five employees each year and that the subsidy costs are likely to aggregate to \$1.2 million or more through FY 2014 (estimated minimum value, including amounts provided through July 1, 2011). This commitment shall remain in force for the duration of the URS engagement with BEA on the INL contract, including any contract option periods or extensions.

### 3. Value to Mission

Allowable cost constraints on compensation currently limit INL options in attracting industry technical talent to the INL. Industry compensation packages for key talent frequently include one or more of the compensation features noted above that are outside the allowable cost models for compensation under the BEA contract. This resource commitment addresses that constraint and, by supplementing allowable costs with URS corporate resources, will enable INL (through URS) to recruit key industry technical talent. Effective interaction with industry is of increasing importance in INL mission efforts. Access to new talent

grounded in private sector experience and perspective will help INL develop and deliver programs of greater relevance and impact to industry.

**4. Conditions of Offer**

Given the extent of unknown variables regarding staffing needs and opportunities, the actual resource provided may be less than or more than the estimated minimum value in a given time period. URS offers the resource with the express stipulation that all actual costs for compensating the identified key URS technical staff not reimbursed under the contract, including such costs incurred for employees seconded to INL prior to acceptance of this resource commitment by DOE, shall be credited under this resource commitment. Total costs incurred by URS will be reported on an annual basis along with the number and identity of seconded employees whose allowable costs have been subsidized but without itemization of costs associated with individual cases.

Subsidized costs attributable to the resource commitment are generally bounded by the dates employees are actually assigned and providing services to INL; reasonable pre and post INL assignment costs incurred for the benefit of INL may also be included. Incentive compensation and associated fringe costs will be attributable to the resource commitment on a pro rata basis according to the number of days during the calendar year the respective employee is assigned to INL even if paid to the employee after the end of the INL assignment. No URS costs associated with administration of the resource commitment shall be reported or credited.

**5. How the resources will be managed and integrated into INL mission.**

BEA and URS shall agree on the specific terms of employment, compensation and cost to be incurred by and credited to URS in conjunction with each covered employee prior to assignment of the employee to the INL contract.

David E Hollan

David E. Hollan, Vice President  
Human Resources and Communication  
URS Corporation

10/3/11

Date

## Resource Commitment Form #30 – Battelle Energy Alliance

I am committing the following resources to the INL:

### 1. Resource Description:

**Funding for Technology Based Economic Development, Community Organizations, and Mission- Related Events.** BEA commits to invest earned fee in technology based economic development in INL's host region, local and regional organizations promoting various charitable and quality of life interests, and local, regional, and national mission-related events.

### 2. Location of Resource:

The investments will be made predominantly within the State of Idaho but may include support for initiatives outside the state where significant opportunities for leveraging BEA investments and furthering the role of INL as the nation's lead lab for nuclear energy are identified.

### 3. Monetary Value:

BEA commits to investing an average of at least \$325K per year for the duration of BEA's engagement under contract DE-RP07-03ID14517. This commitment is in a total amount of at least \$975K through EOFY-2014 and, should DOE exercise the option in the subject contract for a full five years, an additional minimum of \$1,625K between FY-2015 and EOFY-2019.

### 4. Describe which Project/Program would benefit from the resource and why

The overall stature, impact, and stakeholder support of the INL within the region will benefit from increased stakeholder goodwill resulting from corporate citizenship investments in technology based economic development and support for local and regional organizations promoting various charitable and quality of life interests. The economic development investments will also support INL's technology deployment activities related to economic stimulation in the host region. INL's stature and visibility within the world of nuclear power will be increased as a result of the sponsorship of events and activities that serve the common interest of the nuclear power community.

### 5. Date the resource will be provided:

The resource will be made available on an annual basis commencing October 1, 2011.

### 6. The resource will be provided by:

Battelle Energy Alliance will fund from earned fee.

### 7. Describe any liability related to this resource, financial or otherwise:

None known at this time.

### 8. How the resource will be managed and credited to this resource commitment:

The resources will be managed by the Director of Technology Deployment (in the case of technology based economic development), the Director of Communications and Government Affairs (in the case of support for local and regional organizations promoting charitable and quality of life interests), and by the Deputy Laboratory Director for Science and Technology (in the case of sponsorship of events and activities that serve the common interest of the nuclear power community). Resources will be invested consistent with annual plans developed and approved by the BEA LMT. Credit will be given for all BEA expenditures as well as third party cash and in-kind investments that demonstrably result from or leverage the BEA investments (e.g. matching grants, etc.) in various activities. Third party investments may include investments made by BEA core team members, i.e. BMI, URS, B&W and EPRI. Investments in these areas may be supplemented by staff support funded by allowable



fund sources; no allowable costs associated with these efforts will be claimed for credit under the resource commitment.


9. How the resource will be integrated into the INL:

The resource will primarily fund activities external to the INL.

10. Other pertinent information:

N/A.

11. Signature of responsible corporate official and date of signature:



John J. Grossenbacher  
Director, Idaho National Laboratory and  
President, Battelle Energy Alliance, LLC

11-21-11  
Date