FY 2009 INL Performance Evaluation and Measurement Plan

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Section A
Approach and Performance Rating Process

1.0 Introduction

This contract attachment sets forth the Performance Evaluation Measurement Plan (PEMP) that will be used by the Department of Energy (DOE) to evaluate the performance of Battelle Energy Alliance, LLC (BEA) for the management and operation of the Idaho National Laboratory (INL) in Fiscal Year (FY) 2009.

The FY 2009 INL PEMP will focus on two Critical Outcomes: Nuclear Energy Programs and Laboratory Operations. The two are valued at 60% and 40% of the total fee pool, respectively. The PEMP focus for FY 2009 does not change the DOE Vision for INL (in Section C of the contract) and does not undervalue the expectation of satisfactory performance levels in other areas of the statement of work. It is expected that the contractor will continue to implement and integrate environment, safety and health (ES&H), quality, and security into its programs and operations to enhance overall mission success.

The FY 2009 PEMP focuses on the strategic role of INL in the continuing development of energy from fission by addressing challenges to safely and economically operate the current fleet of 104 nuclear plants for as long as possible—beyond 60 years; research, develop, and demonstrate a new generation of nuclear energy sources that will provide a useful range of emission-free process heat and higher temperatures for efficient production of hydrogen and oxygen from water; close the nuclear fuel cycle to assure a reliable source of future nuclear fuel that has no undue proliferation risk and that minimizes the waste burden; expand nuclear education and training; and reestablish an internationally viable U.S. nuclear science and technology infrastructure. INL's role is guided by the outstanding execution of the following ten INL Strategic Objectives:

Strategic Objective 1: Lead advanced nuclear reactor and fuel cycle research, development, and demonstration (RD&D).

Strategic Objective 2: Develop, demonstrate, and promote nuclear energy technology through public-private partnerships.

Strategic Objective 3: Build leading roles in nuclear non-proliferation and critical infrastructure protection.

Strategic Objective 4: Become a leading clean energy laboratory valued as a regional resource.

Strategic Objective 5: Build and equip facilities that advance nuclear energy and other programmatic missions using innovative approaches and maximizing existing assets.

Strategic Objective 6: Focus investments in distinctive areas to advance nuclear and multi-program research.

Strategic Objective 7: Build strategic partnerships and leverage their influence and market knowledge.

Strategic Objective 8: Build an organization that attracts and retains key nuclear and other scientific researchers/engineers, enabling INL to reach higher levels of laboratory performance.

Strategic Objective 9: Implement business and operational practices that reduce bureaucracy and promote safe, efficient, and secure mission accomplishment.

Strategic Objective 10: Develop public trust and confidence in INL and nuclear energy.

The INL PEMP defines critical outcomes and associated PEMP objectives and then uses those objectives to assess the contractor's performance in accordance with contract requirements. The success of each PEMP objective within each critical outcome will be measured based on a set of key performance measures that focus primarily on end-results and impact; not on processes and activities.

2.0 Definitions

Critical Outcome: An overarching statement of the desired outcome for each major performance area that is scored and reported under the appraisal process. The INL critical outcomes are based on DOE strategic plans.

Customer Satisfaction/Feedback: Customer satisfaction/feedback will be determined by a formal, DOE-approved customer feedback survey.

Level 1 and 2 Milestones: Milestones that have been agreed upon by INL and DOE are included for reporting purposes in the Program Information Collection System (PICS) and are approved via the INL work-package process.

PEMP Objectives: Desired accomplishment or results that contribute substantially to a critical outcome. Fully meeting stated objectives will normally result in a grade of "B+."

Peer Review: Independent scrutiny/evaluation of a project or program by qualified internal/external scientific experts (peers). Common criteria for peer review encompass questions like:

- Validity – Are the research results credible; are the design and methodology appropriate?
- Significance – Is it an important finding?
- Originality – Are the results new?
- Does the work reflect awareness of, and does it refer properly to, work done by others?

An outstanding rating by a peer panel would be when all the (peer) reviewers agree that the answers to all of the above and similar questions are unambiguously "yes."

Performance Measure: A quantitative or qualitative method for characterizing performance to assist the reviewer in assessing achievement of the corresponding performance objective (i.e., what you would measure). It may include a description of the desired condition, milestone, or target level of achievement. Absence of a performance measure does not diminish the requirement for contractor compliance with specified contractual requirements. Failure to meet a

significant contractual requirement may result in the Contracting Officer overriding the performance measures.

INL Strategic Objective: Results and outcomes the organization wants to achieve. The strategic objective identifies the priorities that deliver the overall strategy. They are the yardsticks for tracking the organization's performance and progress toward achieving the vision.

Table A. General Letter Grade and Numerical Score Definitions

Letter Grade	Numeric Grade	Definition
A+	4.3 – 4.1	Progress made toward realizing strategic objectives with significant positive impact on INL's or DOE's mission. Significantly exceeds expectations of performance as set within performance measures identified for each objective or within other areas within the purview of the objective. Areas of notable performance have or have the potential to significantly improve the overall mission of the Laboratory. No specific deficiency noted within the purview of the overall objective being evaluated.
A	4.0 – 3.8	Progress that exceeds expectations made toward realizing strategic objectives with positive impact on INL's or DOE's mission. Notably exceeds expectations of performance as set within performance measures identified for each objective or within other areas within the purview of the objective. Areas of notable performance either have or have the potential to improve the overall mission of the Laboratory. Minor deficiencies noted are more than offset by the positive performance within the purview of the overall objective being evaluated and have no potential to adversely impact the mission of the Laboratory.
A-	3.7 – 3.5	Progress that exceeds expectations made toward realizing strategic objectives. Meets expectations of performance as set within performance measures identified for each objective with some notable areas of increased performance identified. Deficiencies noted are offset by the positive performance within the purview of the overall objective being evaluated with little or no potential to adversely impact the mission of the Laboratory.
B+	3.4 – 3.1	Meets expectations of performance as set by the performance measures identified for each objective with no notable areas of increased or diminished performance identified. Minor deficiencies identified are offset by other exceptional performance and have little to no potential to adversely impact the mission of the Laboratory.
B	3.0 – 2.8	Most expectations of performance as set by the performance measures identified for each objective are met. Performance that does not meet expectations is identified but is offset by positive performance within the purview of the objective and has little to no potential to adversely impact the mission of the Laboratory.

Letter Grade	Numeric Grade	Definition
B-	2.7 – 2.5	One or two expectations of performance set by the performance measures are not met and/or other deficiencies are identified, and although they may be offset by other positive performance, they may have the potential to negatively impact the objective or overall Laboratory mission accomplishment.
C+	2.4 – 2.1	Some expectations of performance set by the performance measures are not met, and/or other minor deficiencies are identified, and although they may be offset by other positive performance, they may have the potential to negatively impact the objective or overall Laboratory mission accomplishment.
C	2.0 – 1.8	A number of expectations as set by the performance measures are not met, and/or a number of other deficiencies are identified, and although they may be somewhat offset by other positive performance, they have the potential to negatively impact the objective or overall Laboratory mission accomplishment.
C-	1.7 – 1.1	Most expectations as set by the performance measures are not met, and/or other major deficiencies are identified that have or will negatively impact the objective or overall Laboratory mission accomplishment if not immediately corrected.
D	1.0 – 0.8	Most or all expectations as set by the performance measures are not met, and/or other significant deficiencies are identified which have negatively impacted the objective and/or overall Laboratory mission accomplishment.
F	0.7 – 0	All expectations as set by the performance measures are not met and/or other significant deficiencies are identified that have significantly impacted both the objective and the accomplishment of the Laboratory mission.

3.0 Scoring

The scoring system arriving at the fee determination for INL performance has three components. Each critical outcome contains a number of PEMP objectives, which are weighted. Objectives are graded by the measures described for each, and the grades for each objective are rolled up to arrive at a numerical and letter grade for each critical outcome. Unless otherwise stated, all PEMP objectives and measures are to be completed by September 30, 2009. Each of the measures identifies significant activities, requirements, and/or milestones important to the success of the corresponding critical outcome and shall be utilized as the primary means of determining the contractor's success in meeting the desired result. Measures are developed to indicate that, if fully met, the performance level is equivalent to a "B+" grade. In order to achieve any given grade, all of the requirements of the lower grades must have been met. Grades above "B+" will require accomplishment above the expectation of DOE in setting forth the objectives.

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Table B. Performance-Based Fee Earned Scale

Grade	Overall Weighted Score from Table A	Percent Fee Earned
A+	4.3 – 4.1	100%
A	4.0 – 3.8	97%
A-	3.7 – 3.5	94%
B+	3.4 – 3.1	91%
B	3.0 – 2.8	84%
B-	2.7 – 2.5	77%
C+	2.4 – 2.1	64%
C	2.0 – 1.8	38%
C-	1.7 – 1.1	0%
D	1.0 – 0.8	0%
F	0.7 – 0.0	0%

Although the measures are the primary means for determining performance, other performance information from other sources including, but not limited to, BEA's self-evaluation report, customer service evaluations, operational awareness (daily oversight) activities, "For Cause" reviews (if any), peer reviews, and other outside agency reviews (Office of the Inspector General and the General Accountability Office, etc.) may be utilized in determining BEA's overall success in meeting an objective. In accordance with Contract Clause I.19, *Conditional Payment of Fee, Profit, and Other Incentives*, if the contractor does not meet the performance requirements of the contract during any performance evaluation period established under the contract, otherwise earned fee may be unilaterally reduced by the contracting officer. It is expected that the contractor will continue to implement and integrate ES&H, quality, and security into its Programs and Operations as a means to successfully achieve performance requirements of the contract, to execute its RD&D and production missions, and to develop public trust and confidence in INL and nuclear energy.

Calculating Individual Objective Scores and Letter Grade:

Based on the measures identified, a letter grade is assigned to each objective. Using Table A, numeric scores are then assigned to each objective. Numeric scores are multiplied by the corresponding weights to arrive at a weighted score for each objective. The weighted scores are added together to arrive at a total score for each of the two outcomes: Nuclear Energy Programs and Laboratory Operations.

The total numeric score for each outcome is entered in Table C. Each total score is multiplied by the assigned weight to arrive at a weighted score for each outcome. These weighted scores are added together to arrive at a total score. The raw score from each calculation shall be carried through to the next stage of the calculation process. The total score will be rounded to the nearest hundredth of a point. A standard rounding convention of x.444 and less rounds down to

the nearest hundredth (here, x.44), while x.455 and greater rounds up to the nearest hundredth (here, x.46).

Table C. FY 2009 Contractor Score Evaluation

Outcomes		Total Numeric Score	Weight	Weighted Score	Total Score
1.0	Nuclear Energy Programs		60%		
2.0	Laboratory Operations		40%		
			Total Score		

The total score from Table C is entered in Table D. Using Table B, the percent of fee earned is entered in Table D. The percent of fee earned is multiplied by the total available fee ($18.7M for FY 2009) to determine the total fee earned.

Table D. FY 2009 Final Fee Determination Calculation

Total score from Table C (rounded to the nearest hundredth)	
% of Fee earned per Table B	
Total fee earned ($18.7M x % fee earned)	

4.0 Performance Status Reporting and Evaluation Process

PEMP administration is a formal process that includes requirements for monthly status reports, change control, quarterly status reviews, and final fee determination.

Monthly status of performance to expectations will be provided by both DOE and BEA. Areas of disagreement will be highlighted and addressed. Performance Status Reviews will be conducted periodically as agreed upon by DOE and BEA. BEA is responsible to define and coordinate the process for conducting the reviews and to ensure the involvement of appropriate DOE and BEA counterparts. Reviews will focus on PEMP objectives and measures as well as other significant issues.

On an annual basis, BEA will conduct a formal self-evaluation of its performance relative to each critical outcome, objective, measure, and progress toward achieving the strategic objectives. A written report documenting the self-evaluation will also address other significant issues and will be provided to DOE within ten calendar days after the end of the performance period. The report will be limited to 50 pages.

In addition to monthly reporting, DOE will perform and document a final evaluation of BEA's performance relative to each critical outcome, objective, and measure and will provide a final fee determination. The absence of specific PEMP measures in this plan does not diminish the need

to comply with minimum contractual requirements. The Fee Determination Official (FDO) may unilaterally adjust the fee earned based on the contractor's performance against all contract requirements. It is recognized that at the discretion of the FDO, fee earned may be adjusted upward, (not to exceed total eligible fee), based on the contractor delivering strategic value for real and relevant performance not otherwise specified in the PEMP. Data to support fee adjustments may be derived from other sources to include, but not limited to, operational awareness (daily oversight) activities; "For Cause" reviews (if any); other outside agency reviews (OIG, GAO, DCAA, etc.), significant events or incidents within the control of the contractor, or other reviews as appropriate.

5.0 Change Control

The FY 2009 PEMP was developed with the understanding that both parties engaged in good faith to define meaningful and challenging measures of success. It is also recognized that circumstances may arise in the course of the execution year that warrant a revisit of the agreements. The expectation is that as budgets and work scopes are finalized and measure scope is impacted, there may be necessary changes to the PEMP. When the need for a change has been identified, and validated in accordance with the INL change control principles, INL and DOE will engage in the INL PEMP change control process to negotiate and process changes in a timely manner.

Section B
Critical Outcomes, PEMP Objectives, and Measures

1.0 Nuclear Energy Programs (60%)

The DOE's vision is for INL to enhance the Nation's energy security by becoming the preeminent, internationally-recognized nuclear energy RD&D laboratory. Key in achieving the vision, INL must perform both programmatically and fulfill the role of being the lead laboratory for nuclear energy in the United States. To accomplish this, INL must focus on the following **priorities**:

- **Show Relevance and Cohesion of Nuclear Programs (corresponding INL Strategic Objectives: 1 and 3)**
  The nuclear renaissance that is underway requires that all nuclear programs participate in a coherent manner and that all critical programmatic gaps be eliminated. INL's role is to provide DOE with the information necessary to achieve this priority.
- **Excel in Coordination and Communication (corresponding INL Strategic Objectives: 1 and 10)**

  The U.S. capabilities in nuclear research are distributed over a significant number of laboratories and universities. The role of INL is to coordinate at DOE's request these institutions to bring about a coherent, integrated, and high-quality research product.
- **Excel in Execution (corresponding INL Strategic Objectives: 1, 6, 7, and 9)**

  The technical tasks under the various nuclear programs are exceedingly complex. The INL's role is to impose at DOE's request the right level of discipline and Quality Assurance (QA) throughout the programs, while maintaining the mechanisms that facilitate creative solutions.
- **Build Human Capabilities (corresponding INL Strategic Objectives: 6, 7, and 8)**

The current human capabilities in the U.S. nuclear research community are a cause for grave concerns, due in particular to the significant aging of the population. INL's role is to foster university programs that allow for an influx for new staff and put in place internal mentoring mechanisms to facilitate the training of new staff.

- **Build Physical Capabilities (corresponding INL Strategic Objectives: 5, 6, and 7)**

  The current status of experimental capabilities in the U.S. is also a cause for concern, due to the aging and reduced maintenance of many facilities. INL is currently rejuvenating its physical and experimental infrastructure.

The execution of the technical tasks assigned to INL (and described below), along with progress on the above priorities, will be graded using Table E, unless otherwise stated.

Nuclear Energy Programs Grading

1.0	Nuclear Energy Programs	Letter Grade	Numeric Score	Weight	Weighted Score	Total Score
1.1	Advanced Fuel Cycle Initiative Technical Integration Office (TIO)			10%		
1.2	Advanced Fuel Cycle Initiative (AFCI)			20%		
1.3	Next-Generation Nuclear Plant (NGNP)/Generation IV (GEN IV) Project			20%		
1.4	Nuclear Hydrogen Initiative (NHI)			5%		
1.5	Advanced Test Reactor (ATR) National Scientific User Facility (NSUF)			10%		
1.6	Radioisotope Power Systems (RPS)			10%		
1.7	Light Water Reactor (LWR) Sustainability			10%		
1.8	Building National Nuclear Capability			5%		
1.9	Implementation of Nuclear Energy (NE) University Programs			10%		
Nuclear Energy Programs Critical Outcome Total Score						

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Table E. Performance Criteria for Sections 1.1, 1.2, 1.3, 1.4, 1.5, and 1.7

Grade	Performance
A- to A+	Quality of deliverables is judged by DOE to exceed expectations defined in approved work packages. Progress towards achieving the above priorities will be considered as discriminatory factors by DOE between A-, A, and A+ grades. Completion of all Level 1 and Level 2 milestones and all tasks specified in a measure on or ahead of schedule. However, DOE has the latitude to accept Level 2 milestones and identified task deliverables beyond the scheduled date provided the overall quality exceeds expectations.
B- to B+	Quality of deliverables is judged by DOE to be within performance expectations for activities described in the approved work packages. Completion of all Level 1 milestones and all tasks specified in a measure on or ahead of schedule. Completion of Level 2 milestones shall impact the grade as follows: • 100% of milestones completed within budget and on or ahead of schedule = B+ • >95% of milestones completed within budget and on or ahead of schedule = B • >90% of milestones completed within budget and on or ahead of schedule = B-
C- to C+	Quality of deliverables is judged by DOE to be within performance expectations for activities described in approved work packages. Completion of all Level 1 milestones and all tasks specified in a measure on or ahead of schedule. Completion of Level 2 milestones shall impact the grade as follows: • >86% of milestones completed within budget and on or ahead of schedule = C+ • >82% of milestones completed within budget and on or ahead of schedule = C • ≥80% of milestones completed within budget and on or ahead of schedule = C-
D	A Level 1 milestone or task specified in a measure is not completed on schedule. Less than 80% of Level 2 milestones are met.
F	A Level 1 milestone or task specified in a measure is not completed. Less than 70% of Level 2 milestones are met.

1.1 Advanced Fuel Cycle Initiative (AFCI) Technical Integration Office (TIO)

An important role that INL shall fill as the DOE Nuclear Energy (NE) lead laboratory is the technical integration of major nuclear research and development (R&D) programs. The AFCI TIO has been established at INL to support DOE. In the role of technical integrator, INL's major responsibility is to be the point of contact between DOE and the national laboratories for coordination, integration, and reporting of the work performed by participating national laboratories and industry. This includes integration of all R&D and technology development (TD) activities necessary for effective AFCI execution; implementation of a project controls system where all AFCI program financial and schedule data are collected, analyzed, and integrated; cost and schedule reports issued, and an administrative function that will deal with activities such as QA, documentation and communications. The FY 2009 activities in support of

these objectives address execution of the project management and control system that was implemented in FY 2008.

This PEMP objective is relevant to priorities and INL Strategic Objectives by providing: (a) the technical basis for resolution of the Used Fuel Storage issue; (b) a model for coordinating activities between laboratories and industry; and (c) by requiring formal execution discipline and QA in the AFCI Program.

Major tasks for the AFCI TIO include:

- Complete development of the draft FY 2008 AFCI Status Report to Congress and submit it for DOE-NE review by November 30, 2008
- Provide monthly financial analysis, schedule analysis, and trend interpretation reports to DOE-NE by the last day of the following month (e.g., October 2008 information will be provided by November 30, 2008). These reports will include cost and schedule variance analysis, milestone status information, carry-over projections and evaluations (to be included in the March 2009 through September 2009 reports), accomplishment descriptions, and corrective action plans for activities with schedule or cost deviations of greater than 10%. Additionally, preliminary financial data for the past month, without significant analysis, will be provided by the 15th of each month (e.g., preliminary October 2008 data will be provided by November 15, 2008)
- Complete an assessment of quality rigor determinations included in the FY 2009 AFCI work packages by January 31, 2009. Ensure these determinations were performed in accordance with the approved QA Graded Approach Procedure, and that they accurately reflect the level of QA that should be applied to each work package
- Submit a draft revision of the AFCI QA Program Document to DOE-NE that is consistent with the current version of the NQA-1 standard and incorporates updated GNEP organizational responsibilities, and meets or exceeds Nuclear Regulatory Commission requirements within 30 days of the end of the continuing resolution period or by August 31, 2009, whichever comes sooner
- Develop training presentations on use of the AFCI Document Management System and use of the AFCI Portal, and place the presentations on the AFCI Portal where community members can access them, by March 31, 2009
- Organize and hold meetings with nuclear industry teams to build partnerships and gain industry perspective on near-term technology development needs and priorities. Use the Design Data Need system to inform AFCI work planning by June 30, 2009
- Complete development of Planning Packages for FY 2010 within five weeks after budget guidance is provided by DOE-NE

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc., in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.2 Advanced Fuel Cycle Initiative (AFCI)

Closing the fuel cycle is an important step in ensuring sustainable nuclear energy. The INL has an important role in the R&D necessary to ensure nuclear energy is sustainable for the long term. Towards this end, the INL will work with DOE-NE to plan R&D in support of AFCI Program objectives. Key elements for the AFCI R&D program in FY 2009 include AFCI fuels fabrication and irradiations; aqueous and electrochemical fuel reprocessing technology development; and systems analysis.

INL has state-of-the-art expertise in metal fuels in general and transuranic fuel R&D. The infrastructure to support this expertise is quickly being developed. INL is developing ceramic transuranic fuel expertise and capabilities to complement and build on our metal fuel capabilities while taking advantage of synergistic infrastructure to reduce the overall cost of fuels R&D. Development of a state-of-the-art post-irradiation examination (PIE) capability is also an important element of a world-class nuclear R&D organization, and is a necessary capability to support fuels R&D in the AFCI R&D program.

This PEMP objective is relevant to priorities and INL Strategic Objectives by providing: (a) systems analyses needed to support AFCI program decisions; (b) a disciplined execution approach; (c) acquisition of experimental equipment; and (d) hiring and training of new staff.

Towards these ends, the following performance measures are included in FY 2009:

- Work with DOE-NE to plan R&D in support of AFCI Program objectives
- Support systems analysis needs for NE program decisions
- Initiate project documentation towards development of a state-of-the-art ceramic fuel capability at INL. The approved FY 2009 AFCI work packages will form the basis for measurement of this item
- Initiate project documentation towards development of a recognized state-of-the-art PIE capability. The approved FY 2009 AFCI work packages will form the basis for measurement of this item
- PIE Equipment Upgrade (per the DOE-approved Project Execution Plan)
    - Complete Scanning Thermal Diffusivity Microscope (STDM) mockup testing, and evaluation by October 31, 2008
    - Complete installation, testing, and evaluation of the Thermal Ionization Mass Spectrometer (TIMS) in the Analytical Laboratory by May 31, 2009
    - Complete installation, testing, and evaluation (for cold samples) of the Focused Ion Beam (FIB) instrument and Micro X-Ray Diffractometer (MXRD) in an initial location by June 30, 2009
- Complete installation of the radiolysis/hydrolysis test loop by August 31, 2009

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc. in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.3 Next-Generation Nuclear Plant (NGNP)/Generation IV (GEN IV) Project

INL will continue to pursue the successful development and implementation of technologies to design, license, and build NGNP by 2021 as stipulated in the Energy Policy Act (EPAct) 2005. In FY 2009, emphasis will be placed on continued fuels and graphite development, adherence to QA requirements, identifying licensing requirements, as well as outlining strategies to balance risk within funding and schedule constraints.

This PEMP objective is relevant to priorities and INL Strategic Objectives by: (a) allowing the expansion of nuclear energy beyond the production of electricity; (b) providing the tools for coordinating technical work between several laboratories; (c) imposing formal execution discipline and QA in the NGNP Program; and (d) hiring and training of new staff.

Milestones in areas of focus are as follows:

Fuels development:

- Perform Final Design Review of AGR-2 by May 31, 2009
- Complete UO2 Particle Fabrication and Characterization by March 31, 2009

Graphite development:

- Achieve AGC-1 "ready to insert" status by April 30, 2009

  The following language defines "ready to insert." The AGC-1 "ready to insert" milestone will be complete when:

  - The test train is fully assembled and ready for insertion
  - The gas control system has been installed and tested
  - The Experiment Safety Assurance Package (ESAP) is completed and approved by the Safety and Operations Review Committee (SORC)
- Complete status report on environmental experiments and mechanical tests of potential intermediate heat exchanger (IHX) alloys
- Graphite characterization equipment installed and operational at INL by March 31, 2009

Design:

- Complete NGNP Design Development/Technical Selection Study for Power Conversion System (PCS) Alternatives and Selection Study (AREVA and GA) by December 30, 2008

- Complete NGNP Technology Development Roadmaps (TDRMs) for critical Structures, Systems, and Components (SSCs) by January 9, 2009
- Issue Risk Management Plan

Component Test Facility:

- Complete Component Test Facility (CTF) Test Loop Pre-Conceptual Design by January 9, 2009

QA:

- Pass QA Audit (with no significant findings)

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc., in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.4 Nuclear Hydrogen Initiative (NHI)

In the NHI, RD&D is being conducted to develop technology that will produce hydrogen from steam via high-temperature electrolysis (HTE) using the heat and energy of a nuclear reactor. Large quantities of hydrogen are used today in the upgrading and refining of petroleum for gasoline, diesel, and jet fuel. HTE does not produce green-house gases in contrast with current methods used in the hydrogen production.

> **This PEMP objective is relevant to priorities and INL Strategic objectives** by: (a) allowing the expansion of nuclear energy beyond the production of electricity; (b) providing tools for coordinating technical work between several laboratories; and (c) acquiring experimental equipment.

FY 2009 progress is defined by INL and DOE-NE program/project plans and work packages, including operation of the HTE Integrated Laboratory-Scale (ILS) Experiment. Focus for FY 2009 will include determination of the root causes for electrolytic cell degradation, as defined in the Level 1 and 2 milestones.

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc. in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.5 ATR National Scientific User Facility (NSUF)

The ATR NSUF exists to meet DOE needs for conducting nuclear research by providing access to world-class nuclear R&D capabilities. The user community represents a large extension of DOE-NE's research capability, and a well-functioning ATR User Facility allows users to conduct research that advances the state of nuclear energy development in the United States. Conduct of world-class research requires a system that is easy to use and maintains world-class capabilities. Development of a user community knowledgeable with nuclear fuel and material and other technology issues and knowledgeable of available research capability is also essential to the conduct of this mission.

This PEMP objective is relevant to priorities and INL Strategic Objectives by: (a) enhancing ATR experimental capabilities; (b) making them available to the broader user community; and (c) providing a training ground for future engineers and scientists.

Increase University User Involvement in the ATR NSUF

- Four FY 2008 ATR NSUF university projects are ready to insert or under irradiation by August 21, 2009
- Initiate four additional university or non-proprietary experiments, at least one with increased complexity, such as an instrumented experiment, by September 25, 2009
  - Four additional university or non-proprietary experiments awarded. All four experiments have developed an initial planning schedule, including ATR insertion schedule, if required; at least one experiment is more complex than the 2008 experiments
- Implement enhanced ATR NSUF internship program, summer sessions, and workshops by September 4, 2009
  - Increase university student researcher participation in ATR NSUF internship and summer sessions by 50% over FY 2008 participation
  - Increase the range of ATR summer courses and offer courses with greater technical depth for student and faculty researchers
- Perform university user satisfaction, suggestion, and improvement analysis by May 15, 2009
  - From analysis, develop continuous improvements to processes, and plan equipment or experiment improvements/suggestions as appropriate

Increase Industry Participation in the ATR NSUF

- Complete installation of the first LWR unirradiated material crack growth rate measurement system
  - LWR material crack growth rate measurement system for unirradiated material is installed for future use in experiments by March 13, 2009
- Perform industry user satisfaction, suggestion, and improvement analysis by April 17, 2009
  - From analysis, develop continuous improvements to processes and plan equipment or experiment improvements/suggestions as appropriate

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In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, Program Office reviews/oversight, deliveries against milestone dates, etc. in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.6 Radioisotope Power Systems (RPS)

In FY 2009, INL's support to the RPS programs will focus on fueling, testing, and providing ground support operations for the Multi-Mission Radioisotope Thermo-electric Generator (MMRTG) flight unit; preparatory activities for the assembly of the Advanced Stirling Radioisotope Generator (ASRG); RPS infrastructure activities, which include supporting lead laboratory activities (i.e., Material Review Board and Document Configuration Control Board actions), maintaining facility and transportation packages availability, supporting transportation of RPS units and components, and supporting neptunium transportation and storage; and supporting DOE's goals for re-establishing domestic production of Pu-238 and improving processing techniques for production of Pu-238 heat sources.

This PEMP objective is relevant to priorities and INL Strategic Objectives by allowing the continuation of non-traditional nuclear missions and requiring formal execution discipline and QA.

In determining the performance of the objective, the DOE evaluator(s) shall consider the following milestones as well as progress reports, peer reviews, customer feedback, etc.:

- Complete testing of the MMRTG within 180 calendar days of receiving the electrically heated thermoelectric generator (ETG). In the case of a failure of government-furnished equipment during testing, DOE will consider allowing more time to complete testing
- Complete all activities required to be ready to ship the MMRTG to Kennedy Space Center (KSC) within 35 calendar days after completing MMRTG testing
- Execute ground support operations at KSC (including implementation of an approved Documented Safety Analysis for MMRTG operations at KSC) concluding with delivery of the MMRTG to the Vehicle Integration Facility in accordance with the National Aeronautics and Space Administration (NASA) requirements to support launch (current expectation is no later than five days prior to launch)
- Transport remaining stores of neptunium oxide from Savannah River Site (SRS) and place into storage at the MFC
- Execute readiness activities for transportation of the Field Support Units from Pacific Northwest National Laboratory (PNNL) to user storage with sign-off of successful completion by DOE
- Provide shipping container hardware to Russia to support the procurement of plutonium 238 three months prior to the estimated ship date. In the case where the Certificate of Compliance for the 9516 Safety Analysis Report for Packaging (USA/9516/B(u)F-96) is not

approved 150 calendar days prior to the estimated ship date, DOE will consider allowing more time to fabricate and ship the secondary containment vessels to Russia

NOTE: If the scheduled completion of any of the above milestones moves into FY 2010 as a result of the provisions expressed in the milestones and all other milestones are completed on time and within budget, a portion of the fee associated with this measure will be paid provisionally. If completion of the milestone(s) that moves into FY 2010 is not completed on time and within budget as agreed by the parties, the provisional fee associated with this measure will be returned to DOE.

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc. in accordance with the performance criteria in the table below.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

Grading for 1.6, Radioisotope Power Systems

Grade	Performance
A- to A+	Measures of performance to exceed B+ rating include: 1) Demonstrated progress and effort towards supporting DOE's goal for re-establishing domestic production of Pu-238 and/or progress towards down selecting alternatives to the current aqueous and powder processing techniques for production of Pu-238 heat sources. Success will be based on establishing collaborations with universities, industry, other laboratories, etc., securing relevant research funding and/or providing DOE with planning support. 2) BEA accelerates schedule durations to be ready to ship the MMRTG to KSC in accordance with the NASA requirements (current expectation is by April 17, 2009), to accommodate schedule slips for the delivery of the generator or other government-furnished equipment. 3) Demonstrated progress and effort towards DOE's goal for establishing the ability to fuel and test a radioisotope powered Stirling engine by 2013 to support a 2014 NASA mission. Meets above milestones on or ahead of schedule and within budget as defined in the lifecycle project baseline and: • All three additional measures completed = A+ • Two additional measures completed = A • One additional measure completed = A-
B- to B+	Meets above milestones on or ahead of schedule and within budget as defined in the lifecycle project baseline.
C- to C+	Above milestones met no more than one week late and within budget as defined in the lifecycle project baseline.
D to F	Does not meet above milestones on schedule and within budget as defined in the

Grade	Performance
	lifecycle project baseline.

1.7 Light Water Reactor (LWR) Sustainability

The LWR Sustainability Program Technical Integration Office has been established at INL to support DOE. In the role of technical integrator, INL's major responsibility is to lead all major DOE national laboratories for coordination, integration, and reporting of the work being performed by participating national laboratories, universities, and industry. This includes integration of all R&D activities necessary for effective LWR Sustainability Program execution. The FY 2009 activities in support of these objectives address execution of the program plan that was published in FY 2008.

This PEMP objective is relevant to priorities and INL Strategic Objectives by enabling the existing nuclear industry to continue to fulfill its mission with increased safety, reliability, and reduced costs.

Major tasks for the LWR Sustainability Program TIO include:

- Implement LWR Sustainability Program infrastructure
- Organize and hold meetings with the TIO Steering Committee and industry stakeholders to discuss program goals, objectives and deliverables within 30 days of the FY 2009 budget being finalized
- Initiate R&D work within 2 of the 4 R&D Pathways within 60 days of the FY 2009 budget being finalized
- Initiate R&D work in all 4 major R&D Pathways: 1) Nuclear Materials Aging and Degradation, 2) Advanced LWR Fuel Development, 3) Risk-Informed Safety Margin Characterization, and 4) Advanced Instrumentation and Control Technologies within 90 days of the FY 2009 budget being finalized
- Investigate international R&D cooperative agreements
- Complete development of Planning Packages for FY 2010 within five weeks after budget guidance is provided by DOE-NE

In determining the performance of this objective, the DOE evaluator(s) shall consider progress reports, completion of Level 1 and 2 milestones, Program Office reviews/oversight, deliveries against milestone dates, etc. in accordance with the performance criteria in Table E.

Approved changes to work-package milestone dates supersede the above milestones in case of conflict. Any other inconsistencies between work-package milestones and PEMP measures should be evaluated for a change to the PEMP and documented.

1.8 Building National Nuclear Capability

INL is closely working with NE to reestablish an internationally viable U.S. nuclear science and technology infrastructure. This includes building core competencies; fostering collaborations

between industry, academia, and national laboratories; enhancing capabilities; maintaining and modifying currently available facilities; and providing new RD&D facilities and associated equipment. Over the next three years, these efforts could lead to the start of modifications to restart Transient Reactor Test (TREAT) Facility to provide key U.S. capability for international collaboration on fast reactor technology; a decision to deploy Advanced Fuel Cycle Facility capabilities at MFC; the placement of international collaborative research agreements allowing access to RD&D facilities in Europe and/or Asia; collaborative effort with Japan to restart Monju; and decision on Pu-238 production.

This PEMP objective is relevant to priorities and INL Strategic Objectives by providing DOE with a well- founded pathway to optimize its use of resources to upgrade the facilities in the complex.

Tasks to be accomplished in FY 2009 include:

- Publish a completed baseline infrastructure assessment that includes all Battelle and INL documents as well as open critiques from university, industry, laboratory, regulatory, and international stakeholders by March 31, 2009
- Support "facilitization" plan as requested by NE
- Engage in Phenix shutdown experiments through International Atomic Energy Agency (IAEA) protocol, coordinating U.S. response with Argonne National Laboratory (ANL)
- Engage in Monju startup experiments through IAEA protocol, coordinating U.S. response with ANL
- Negotiate temporary personnel assignments for both Phenix (June 1, 2009) and Monju

Grading for 1.8, Building National Nuclear Capability

Grade	Performance
A- to A+	All FY 2009 milestones completed on schedule, with one or more completed at least one week early or one or more milestones exceeding expectations with all others satisfactory. The additional measures will be considered as discriminatory factors: • Organize a workshop relevant to developing capabilities. • Provide technical collaboration for Monju restart issues as requested by Japan Atomic Energy Agency. • Using available funding sources, initiate development of Modeling & Simulation Validation data center to preserve irreplaceable legacy data. A+ = All measures completed with at least one exceeding expectations and two of the above additional measures met A = All measures completed and met expectations with two of the above additional measures met A- = All measures completed and met expectations with one of the above additional measures met

Grade	Performance
B- to B+	Meets the objective of establishing baseline options for Strategic Nuclear Energy Capability Initiative, provides acceptable assistance in development of DOE-NE facilitization plan, and completes at least one foreign collaboration goal.
C- to C+	Partially meets the objective of establishing baseline options for Strategic Nuclear Energy Capability Initiative and partially succeeds in international initiatives.
D to F	Does not meet expectations in most objectives.

1.9 Implementation of Nuclear Energy University Programs

To help U.S. universities and colleges stay at the forefront of nuclear energy and science education and research, INL will administer the NE program for university R&D. INL activities include alignment of university research with programmatic needs, competitive awards and peer reviews, establishing standards for quality and relevance, and broadly communicating research results.

This PEMP objective is relevant to priorities and INL Strategic Objectives by delivering new investment in university education, research, and training capabilities to ensure domestic needs for nuclear scientists and engineers are met.

Tasks to be accomplished in FY 2009 include:

- By December 31, 2008, transition NE University Program activities to the Center for Advanced Energy Studies (CAES)
- By March 2, 2009, recruit and hire a program director to lead CAES NE University Program activities
- By May 1, 2009, award 90% of the available FY 2009 university funding
- By June 30, 2009, conduct the first bi-annual workshop to review research progress

Grading for 1.9, Implementation of NE University Programs

Grade	Performance
A+ to A-	Greater than 90% of available funding is awarded. Improvements to process implemented in response to university and NE feedback
B+	Measures are fully achieved
B to B-	Measures achieved and greater than 80% of available funding awarded
C+	Greater than 50% of available funding awarded
D	Less than 50% of available funding awarded
F	Measures not achieved

2.0 Laboratory Operations (40%)

To support the NE mission to promote nuclear power as a resource capable of meeting the Nation's energy, environmental, and national security needs, INL must progress towards achieving its strategic objectives by: building strategic partnerships, establishing an organization

that attracts and retains researchers and engineers, focusing investments to enhance key capabilities, and implementing business and operational practices that promote safe, efficient, and secure mission accomplishment. The Laboratory Operations section provides the PEMP objectives and measures needed to move INL closer to a preeminent nuclear energy RD&D laboratory.

Laboratory Operations Grading

2.0	Laboratory Operations	Letter Grade	Numeric Score	Weight	Weighted Score	Total Score
2.1	Integrated Performance			20%		
2.2	Technical Capabilities			20%		
2.3	Facility Operations			35%		
2.4	Other Contract Mission Areas			20%		
2.5	Center for Advanced Energy Studies			5%		
Laboratory Operations Critical Outcome Total Score						

Table F. Performance Criteria for Sections 2.1, 2.2, 2.3, and 2.5

Grade	Performance
A- to A+	Significant progress across all identified measures. Quality of deliverables is judged by DOE to exceed expectations. Progress towards achieving strategic objectives will be considered as discriminatory factors by DOE between A-, A, and A+ grades. However, DOE has the latitude to accept identified task deliverables beyond the scheduled date provided the overall quality exceeds expectations.
B- to B+	Significant progress across most identified measures. Quality of deliverables is judged by DOE to be within performance expectations.
C- to C+	Progress across a few identified areas. Quality of deliverables is judged by DOE to be within performance expectations for described activities.
D	Fails to make progress on identified areas.
F	Fails to implement change in identified areas or occurrence of a high profile incident that demonstrates gross incompetence in program execution.

2.1 Integrated Performance

In FY 2009, INL should bring about measurable improvements in management systems, controls, and deploy management practices that increase operational effectiveness.

This PEMP objective is relevant to INL Strategic Objectives by deploying improved processes for resource utilization, upgrading safety analysis documentation for MFC nuclear facilities, and maturing processes for contractor assurance.

2.1.1 Production Control

Resource prioritization and scheduling at MFC and ATR Complex are managed to enable integration of facility and project activities to achieve mission priorities while maintaining safe operation and maintenance of the facilities:

- By February 13, 2009, issue a production process overview document for MFC and ATR Complex. This document will describe how the process works at each location and describe metrics that will trend maintenance and process operations
- By March 13, 2009, issue integrated Production Control process procedures for the new integrated Production Control systems at MFC and ATR Complex. Procedures shall define requirements for integrating work processes, including resource scheduling; key organizational interfaces; and roles and responsibilities for project and support group organizations
- By May 13, 2009, formalize and implement a prioritization matrix and associated process for prioritizing project, operations, and maintenance activities for nuclear facilities at MFC and the ATR Complex
- Provide a report evaluating performance against metrics that trend maintenance and process operations

2.1.2 Contractor Assurance System (CAS)

BEA must demonstrate increased maturation and effectiveness of the CAS. Institutional development, utilization and integration of the CAS are paramount to moving the current system to a comprehensive risk-based performance management tool. Success will be measured by the completion all of assurance portfolios, the utilization of these portfolios in identifying negative performance trends, and the effectiveness of identified corrective actions.

2.1.3 Business Processes

Increase maturity of integrated business processes to deliver actionable planning products that inform institutional decision-making. It is paramount that INL effectively utilize and optimize non-programmatic resources by establishing and, most importantly, executing resource actions directly integrated with mission accomplishment. These actions will facilitate the speed, effectiveness, and quality of fully achieving mission objectives. Demonstrate, through completion of tangible products, and maturity (integration with business planning) in using the outcomes identified in portal charts to deliver on INL strategic objectives. Performance in this area should demonstrate improved utilization of non-programmatic resources directly enhancing mission success.

2.2 Technical Capabilities

The focus of this objective is to improve facilities, equipment, staff capabilities, and reputation necessary for achieving the mission and end-state vision of INL. As the DOE lead nuclear energy laboratory, INL must focus on developing a workforce that mirrors the disciplines required to support nuclear energy programs, and have capabilities highly valued by the scientific and engineering peer community and industries.

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This PEMP objective is relevant to INL Strategic Objectives by (a) acquiring new facility and equipment capabilities; (b) expanding collaboration with universities and industry; (c) expanding the laboratory influence in the region through its contribution to energy development; and (d) expanding laboratory efforts to hire and retain scientific and engineering staff.

2.2.1 Staff

Progress against objectives relevant to attraction, retention, and development of scientists and engineers, as shown in the Human Capital Management Plan to be updated by December 31, 2008, will be measured and tracked. Performance in this area should be demonstrated by completion of key tasks in the plan and measured improvement in the desired outcome(s), such as advanced degree demographics and hiring proficiency according to plan.

2.2.2 Facilities

INL will implement technical capabilities in radiochemistry, post-irradiation examination, fuel and experiment assembly through the acquisition of new facilities as defined in the individual Project Execution Plans.

- Construction completion of a Radiochemistry Laboratory at MFC – This project will deliver a laboratory building to house radiation measurement and radiochemistry laboratories. Facility activities include low background counting, wet chemistry for determination of radionuclides, inorganic analyses, and associated support functions (PLN-2575)
- Initiation of construction of a Radioanalytical Chemistry Laboratory at the ATR Complex – This facility will be aligned with the ATR NSUF and support RD&D activities that advance nuclear energy missions (PLN-2618)
- Construction completion of a Test Train Assembly Facility at the ATR Complex – This facility will support the Irradiation Test Program and will replace program facilities at the ATR Complex that are inadequate for program needs (PLN-2788)
- Construction completion of a common support building at the ATR Complex – This project will deliver an office building facility and a Control Development Lab to support the ATR NSUF (PLN-2718)
- Complete projects and activities for Materials Test Reactor (MTR) relocation to allow turnover of all identified MTR labs to CWI per negotiated agreement between BEA and CWI by December 31, 2008, while maintaining full ATR operability (PLN-2544)

2.2.3 World Class Reputation

Science and engineering eminence information will be used to demonstrate strategic mission alignment and impact. Measures of impact and alignment will include items such as the number and value of joint proposals and projects with universities, publications, presentations, awards, and leadership positions of high impact to the INL mission.

2.2.4 Partnerships

Industrial engagement index information will be used to demonstrate strategic mission alignment and impact. Measures of impact and alignment will emphasize nuclear energy and include items such as the number, value, and impact of joint proposal and projects with industry, national laboratories, and other government agencies.

2.3 Facility Operations

Effective and efficient facility operations enable mission success and INL's achievement of preeminence as the nation's nuclear energy laboratory. Facility Operations includes how well nuclear and non-nuclear operations are conducted safely and securely, the effective and efficient use of energy, and how well nuclear materials are managed.

This PEMP objective is relevant to INL Strategic Objectives by supporting the Secretary's energy initiatives, reducing nuclear material inventories and improving (consolidating) nuclear material management activities, and ensuring ATR and MFC operations effectively support mission requirements.

2.3.1 ATR Operations Customer Requirements

All major customer (Naval Reactors, NGNP, AFCI, etc.) irradiation requirements are met based on the agreed-upon annual test plan for 2009, normally approved and issued in September. The customer requirements form is generated by INL after approval of the FY 2009 Test Plan and approved by DOE-ID. The form contains objective measures for the major experiment requirements for the year. The grading and objective criteria are included in the approved form in table format and are consistent with the overall grading process described within the 2009 PEMP.

2.3.2 MFC Operations Customer Requirements

Develop a baseline measure of customer satisfaction with MFC's ability to meet schedule, cost, and scope requirements for key programmatic customers. Starting in July 2009, INL will measure how well it is improving customer satisfaction with MFC's ability to meet programmatic needs and develop action plans to address barriers to desired performance.

2.3.3 MFC Documented Safety Analysis (DSA) Upgrades

Complete upgrade and implementation of MFC DSAs in accordance with agreed-upon schedule. The focus on upgrades is to address the most significant risks associated with existing operations and to establish capability to support future INL mission scope. In FY 2009 the following deliverables will be evaluated:

- Submit remaining two of the top four priority DSAs for DOE review and approval per DOE-approved plan, NS-18308, "MFC Work Plan for Safety Basis Upgrade"
- Submit Space and Security Power Systems Facility (SSPSF) DSA for DOE review and approval

- Complete 100% implementation of upgraded DSAs for the Fuel Manufacturing Facility (FMF) and the Radioactive Scrap and Waste Facility (RSWF)

2.3.4 Nuclear Materials Management

INL is responsible for management of spent nuclear fuel and unirradiated or slightly irradiated special nuclear materials that are primarily stored at MFC and ATR Complex. The effective and efficient management of nuclear materials is essential for supporting INL missions and is achieved by ensuring materials needed to support DOE/laboratory missions are available, and by dispositioning, either through recycle or disposal, materials that are no longer needed.

In determining the performance of this measure, DOE shall evaluate the following deliverables against the established criteria:

- Relocate Sandia Sodium Debris Bed from the RSWF to the Zero Power Physics Reactor (ZPPR) vault within one year of receiving required funding
- Complete offsite shipment of at least 300 Kg of excess Special Nuclear Material
- Initiate reactivation of CPP-651 taking into consideration appropriate mission requirements, by completing the following within one year of receiving required funding:
  - Complete preparation of facility reactivation Project Execution Plan (PEP)
  - Prepare facility for reactivation by removing unneeded storage racks and cabinets and repairing hydraulic doors
  - Design and construct a physical barrier around CPP-651 defining the Property Protection Area (PPA), and design and initiate construction of an intrusion detection system and alarm assessment system for the CPP-651 PPA

2.3.5 Energy Management

Implement cost-effective requirements from DOE Order 430.2B at INL by incorporating energy reduction principles into operations and management activities and culture. As a minimum, the following activities have been identified as Performance Objectives in the INL Long-Range Energy Stewardship Executable Plan:

- Utilize Energy Savings Performance Contracts (ESPC) or other private sector, third party financing options to implement energy reduction projects by identifying and developing at least one additional project through the Detailed Energy Survey stage that will reduce energy by a minimum of 6% for INL
- Through a water leak analysis and life-cycle cost-effective measures, reduce INL water consumption intensity by 4% relative to the FY 2007 baseline
- Develop and implement methods to decrease petroleum-based fuel use in the INL Fleet by at least 2% from FY 2008 and increase alternative fuel use at least 10% from FY 2008
- All new buildings will incorporate the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles), as outlined in DOE Order 430.2B, to the extent practical and lifecycle cost effective. All new buildings and major building renovations at Critical Decision 1 (CD-1) or lower, with a value exceeding $5M,

must implement the Guiding Principles and attain U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification. All new construction or major renovation projects must incorporate renewable energy equipment into building design to the maximum extent feasible

- Plan for and achieve progress toward ensuring that 15% of INL's enduring infrastructure are compliant with the Guiding Principles by FY 2015 by implementing sustainable principles in a minimum of an additional 2% of those facilities
- The Transformational Energy Action Management (TEAM) Initiative and DOE Order 430.2B sustainable practices regarding energy and water, transportation fuels, and building sustainability will be incorporated into the INL Environmental Management System with a declaration of full implementation by May 2009

Weighted scores for each deliverable and total weighted score are calculated using the table below:

Facility Operations Grading

Deliverable		Grade	Score	Weight	Weighted Score
2.3.1	ATR Operations Customer Requirements			35%	
2.3.2	MFC Operations Customer Requirements			15%	
2.3.3	MFC DSA Upgrades			25%	
2.3.4	Nuclear Materials Management			10%	
2.3.5	Energy Management			15%	
Total Weighted Score					

2.4 Other Contract Mission Areas

INL supports Department of Defense and National Security programs with targeted RD&D that leverages the Laboratory's unique capabilities. Science and Technology support of the principal missions is being performed to improve the efficiency, cost effectiveness, and environmental impacts of systems that generate, transmit, distribute, and store electricity and fuels. In FY 2009, performance in other contract mission areas will be determined via achieving production goals at Specific Manufacturing Capability (SMC) and the development of capabilities for R&D of Alternate Application of Nuclear Energy and Regional Energy Strategy and Alliances.

This PEMP objective is relevant to INL Strategic objectives by exploring alternatives in the use of nuclear power for industrial applications while building regional strategic alliances, and excelling in SMC production.

2.4.1 Specific Manufacturing Capability (SMC) Production

INL shall accomplish and fulfill all the requirements for SMC and will be measured by the following:

Grading for 2.4.1, SMC Production

Grade	Performance
Excellent Pass (4.3)	Produce 240 or more A/B units Produce 420 or more SA units Fabricated Parts Quality Performance Yield >98%
Pass (3.3)	Produce 204-239 A/B units Produce 342-419 SA units Fabricated Parts Quality Performance Yield 90-98%
Fail (0.7)	Deliverables do not meet expectations

2.4.2 Alternate Application of Nuclear Energy

Focus energy systems analysis, design, and development activities on evaluation and demonstration of the sustainability and feasibility of alternative and/or expanded application of nuclear systems to industrial heat, chemical, and synthetic fuels production. The measure would be met through accomplishment of the following item: Establish a nuclear-driven integrated energy test laboratory effort and commence testing of two or more component integration demonstrations with coordinated computational engineering as well as advanced process diagnostics and controls development.

Grading for 2.4.2, Alternate Application of Nuclear Energy

Grade	Performance
Excellent Pass (4.3)	Deliverables exceed expectations
Pass (3.3)	Deliverables meet expectations
Fail (0.7)	Deliverables do not meet expectations

2.4.3 Regional Energy Strategy and Alliances

Collaborate to publish an Idaho State Energy Plan. Expand partnerships with Western Inland Energy Corridor states and provinces - as demonstrated by *any* of the following: (a) development of a multi-state/provincial energy alliance; (b) direct support to state/provincial stakeholders in Energy and Environmental areas; (c) joint project with regional universities; and (d) federal program sponsorship of Western Inland Energy Corridor project/program effort.

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Grading for 2.4.3, Regional Energy Strategy and Alliances

Grade	Performance
Excellent Pass (4.3)	Two or more of the listed deliverables are achieved
Pass (3.3)	Any one of the listed deliverables is achieved
Fail (0.7)	None of the listed deliverables are achieved

Weighted scores for each deliverable and total weighted score are calculated using the table below:

Other Contract Mission Areas Grading

Deliverable		Grade	Score	Weight	Weighted Score
2.4.1	SMC Production			80%	
2.4.2	Alternate Application of Nuclear Energy			10%	
2.4.3	Regional Energy Strategy and Alliances			10%	
Total Weighted Score					

2.5 Center for Advanced Energy Studies (CAES)

The CAES is a public/private partnership comprised of the three Idaho public universities, private industry, and INL. The CAES mission is to integrate resources, ability, and expertise to create new research capabilities, expand collaborations, and enhance energy-related educational opportunities.

This PEMP objective is relevant to INL Strategic objectives by supporting student education, research and training in activities of direct relevance to the programmatic needs, while seeking programmatic growth in non-traditional areas.

Development of the CAES program will continue including advancing research and education components:

- The new CAES facility will be 70% occupied by CAES-assigned staff including installation and use of scientific and technical equipment
- CAES will establish one industrial partnership with real contributions valued at greater than $500K
- CAES will establish a minimum of two externally funded proposals valued at greater than $200K. At least one of these proposals will be nuclear science- or technology-related