

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO. 1. CONTRACT ID CODE PAGE 1 OF PAGE 2

2. AMENDMENT/MODIFICATION NO. 0001
 3. EFFECTIVE DATE **AUG 04 2009**
 4. REQUISITION/PURCHASE REQ. NO. 42-07-483T006M001
 09748306015
 5. PROJECT NO. (If applicable)

6. ISSUED BY CODE 3100
 U.S. Nuclear Regulatory Commission
 Div. of Contracts
 Attn: Kala Shankar 492-3638
 Mail Stop TWB 01-B10M
 Washington, DC 20555
 7. ADMINISTERED BY (If other than Item 6) CODE 3100
 U.S. Nuclear Regulatory Commission
 Div. of Contracts
 Mail Stop TWB 01-B10M
 Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)
 ENERGY RESEARCH INC
 6167 EXECUTIVE BLVD
 ROCKVILLE MD 208523901
 CODE 621211259 FACILITY CODE
 9A. AMENDMENT OF SOLICITATION NO. (X)
 9B. DATED (SEE ITEM 11)
 10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-42-07-483 0006
 10B. DATED (SEE ITEM 13) X 08-21-2008

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 ACKNOWLEDGMENT 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) 925-15-171-111; Q4015; 252A; 31X0200
 OBLIGATE: \$39,370.33

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

(X) 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).
 C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
 D. OTHER (Specify type of modification and authority) Mutual Agreement of Both Parties
 X

E. IMPORTANT: Contractor is not, is required to sign this document and return ² _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
 The purpose of this modification is to increase the task order ceiling by \$39,370.33; fund the task order in the amount of \$39,370.33; and incorporate the revised SOW.
 Task Order Ceiling: \$106,235.89 (changed)
 Total Obligated Amount: \$106,235.89 (changed)
 Period of Performance: 08/21/2008 - 08/20/2010 (unchanged)

See continuation pages

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) Mohsen Khatib-Rahbar, President
 15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign) Moh Khatib-Rahbar
 15C. DATE SIGNED 8/4/09
 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Kala Shankar, Contracting Officer
 16B. UNITED STATES OF AMERICA, BY Kala Shankar (Signature of Contracting Officer)
 16C. DATE SIGNED 8/4/09

TEMPLATE ADMO01

SUNSI REVIEW COMPLETE

STANDARD FORM Prescribed by ADM002 243

AUG 21 2009

The purpose of this modification is to 1) increase the task order ceiling to reflect an increased level of effort; 2) add funds; and 3) incorporate the revised SOW. Accordingly the task order is hereby modified as follows:

Page 2, paragraphs 2 and 3 of the basic Task Order 6 are hereby deleted in its entirety and replaced with the following:

Task Order No. 06 shall be in effect from August 21, 2008 through August 20, 2010, with a cost ceiling of \$106,235.89. The amount of \$101,177.04 represents the estimated reimbursable costs, and the amount of \$5,058.85 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$106,235.89, of which \$101,177.04 represents the estimated reimbursable costs, and the amount of \$5,058.85 represents the fixed fee.

The task order is fully funded.

****ALL OTHER TERMS AND CONDITIONS OF THE SUBJECT TASK ORDER
REMAIN UNCHANGED****

A summary of obligations for this contract, from award date through the date of this action, is given below:

Total FY07 Obligation Amount:	\$ 66,865.56
Total FY09 Obligation Amount:	<u>\$ 39,370.33</u>
Cumulative Total of NRC Obligations:	\$106,235.89

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: Become familiar with NRC regulations (10 CFR 50 and 52) and staff review guidance documents that include Branch Technical Positions (BTPs), Regulatory Guides (RGs), IEEE Standards in electrical areas and SRP Chapters: 8 (Electric Power), 9 (section 9.5.3-lighting), 14 (14.2-Preoperational tests in electrical areas and 14.3.6-ITAAC), 16 (Electrical Power Systems - Technical Specification), design control document (DCD) for ABWR and, NRC's new reactor licensing program (LPP), and its management tool - Enterprise Project Management (EPM). Get appropriate training in LPP/EPM as necessary.</p> <p>STANDARD: Written confirmation that familiarization is complete</p>	<p>* 2 weeks after authorization of work</p>	<p>Documentation that assigned personnel have reviewed references</p>
<p>2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and contract management</p> <p>STANDARD: Attendance by individuals designated by NRC.</p>	<p>TBD</p>	<p>N/A</p>
<p>3. REQUIREMENT: Acceptance review. Support staff's acceptance review to determine the completeness and technical sufficiency of a combined license application Sections 8, 9.5.3, 14.2, 14.3.6, and 16. This includes identifying major deficiencies in the application that might impact the review process or affect the planned resources and schedule.</p> <p>STANDARD: Written documentation that review is complete.</p>	<p>* 2 weeks after receipt of application</p>	<p>Acceptance review results documented in Attachment 2</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>5. REQUIREMENT: Review response to the RAIs to determine if they adequately resolve the outstanding issues. Identify any other open items. Incorporate the review results in the evaluation report completed under Task 4.</p> <p>STANDARD: Completed Technical Evaluation Report that follows the NRC provided template without deviation. No deviation from the guidance defined in Section III of RAI Guidance (Attachment 1) of Contract Statement of Work. One round of comment incorporation is acceptable.</p>	<p>* 3 weeks after receipt of the responses.</p>	<p>Revised Technical Evaluation Report</p>
<p>6. REQUIREMENT: <i>(If required)</i> Prepare for and travel to the applicant's office and participate in an NRC review team to:</p> <ul style="list-style-type: none"> a. Audit the design information, including calculations and analysis supporting the design as described in the RCOL for South Texas. b. Evaluate and discuss the applicant's responses to the unresolved issues identified in Task 5 to determine if the outstanding issues are adequately resolved. c. Prepare a trip report (as an input to NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions. <p>STANDARD: Complete evaluation as defined in Task. Submit Trip Report within two weeks of site review.</p>	<p>* 2 Weeks after the trip</p>	<p>Trip Report</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>5. REQUIREMENT: Review response to the RAIs to determine if they adequately resolve the outstanding issues. Identify any other open items. Incorporate the review results in the evaluation report completed under Task 4.</p> <p>STANDARD: Completed Technical Evaluation Report that follows the NRC provided template without deviation. No deviation from the guidance defined in Section III of RAI Guidance (Attachment 1) of Contract Statement of Work. One round of comment incorporation is acceptable.</p>	<p>* 3 weeks after receipt of the responses.</p>	<p>Revised Technical Evaluation Report</p>
<p>6. REQUIREMENT: <i>(If required)</i> Prepare for and travel to the applicant's office and participate in an NRC review team to:</p> <ul style="list-style-type: none"> a. Audit the design information, including calculations and analysis supporting the design as described in the RCOL for South Texas. b. Evaluate and discuss the applicant's responses to the unresolved issues identified in Task 5 to determine if the outstanding issues are adequately resolved. c. Prepare a trip report (as an input to NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions. <p>STANDARD: Complete evaluation as defined in Task. Submit Trip Report within two weeks of site review.</p>	<p>* 2 Weeks after the trip</p>	<p>Trip Report</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>7. REQUIREMENT: Review the applicant's response to the open items identified as a result of the design audit (Tasks 5 & 6). Identify any unresolved issues and prepare a safety evaluation report w/open items if any, as a Technical Evaluation Report.</p> <p>STANDARD: Complete Technical Evaluation Report that follows the NRC provided template without deviation.</p>	<p>* 6 weeks after receipt of responses</p>	<p>Update TER w/open items</p>
<p>8. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff at meetings with the applicant and phone calls and during related ACRS meetings and hearing proceedings.</p> <p>STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.</p>	<p>TBD</p>	<p>Prepare Presentation Materials. Attend Meetings, if required</p>

* These Work Schedules are subject to change by the NRC Contracting Officer (CO) to support the needs of the NRC Licensing Program Plan.

The Technical Monitor may issue technical instruction from time to time throughout the duration of this task order. Technical instructions must be within the general statement of work delineated in the task order and shall not constitute new assignments of work or changes of such a nature as to justify an adjustment in cost or period of performance. The contractor shall refer to Section G.1 of the base contract for further information and guidance on any technical directions issued under this task order.

Any modifications to the scope of work, cost or period of performance of this task order must be issued by the CO and will be coordinated with the NRO Project Officer.

4.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

As specified in the base contract, the contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. Specific qualifications for this effort include:

- *A strong background in electric power systems theory, principles, and design practices to review the design of electric power systems and components needed for safe nuclear power plant operation and safe shutdown during normal, transient, and accident conditions as described in the RCOL applications and to determine its compliance with relevant NRC requirements.*

- *Extensive knowledge of (1) Class 1E electrical power systems of nuclear power plants, (2) the regulatory requirements for the design of offsite power system and its inter connections to the nuclear unit and other grid connections;(3) the roles of Transmission System Operators and Independent System Operators, (4) the regulatory requirements for the design of onsite power sources, its distribution systems, and auxiliary supporting systems provided to supply power to safety-related systems in the event of a loss of the offsite power (5) the design of dc power systems which includes those power sources (i.e., batteries, battery chargers) and their distribution systems that supply motive or control power to safety-related equipment and (6) the regulatory requirements for station blackout (SBO) that nuclear power plants must be designed to be able to withstand for a specified duration or cope with and recover from SBO.*
- *Knowledge of (1) normal and emergency lighting systems provided for nuclear power plants, (2) initial testing and inspection programs and electrical ITAACs for nuclear power plants to assure that the electrical systems are built as designed and (3) Technical Specification requirements for onsite and offsite power systems.*
- *Experienced in performing (1)short circuit and voltage drop calculations, (2) breaker and relay coordination, (3) degraded voltage and loss of voltage relay setpoints determinations, and (4) sizing of battery and battery chargers. In addition, the individual must be familiar with the design of lightning protection provided for offsite power system components and the design of grounding system provided for nuclear power plants.*

The contractor shall provide a contractor project manager (PM) to oversee the effort and ensure the timely submittal of quality deliverables so that all information is accurate and complete as defined in the base contract.

The NRC will rely on representations made by the contractor concerning the qualifications of the personnel assigned to this task order, including assurance that all information contained in the technical and cost proposals, including resumes, is accurate and truthful. The resume for each professional proposed to work under this task order (contractor, subcontractor, or consultant) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this contract is subject to the NRC technical monitor's (TM's) approval. This includes any proposed changes to key personnel during the life of the task order.

5.0 REPORTING REQUIREMENTS

Task Order Progress Report

The contractor shall provide a bi-weekly progress report summarizing accomplishments, expenditures, contractor staff hours expended, percent completed for each task under this task order, and any problems encountered by the contractor. The report shall be sent via e-mail to the NRC TM, Task Order Project Officer (PO) and CO.

Please refer to Section F of the basic contract award document for contract reporting requirements.

Technical reporting requirements

Unless otherwise specified above, the contractor shall provide all deliverables as draft products. The NRC TM will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the contractor. The contractor shall revise the draft deliverable based on the comments provided by the TM, and then deliver the final version of the deliverable. When mutually agreed upon between the contractor and the TM, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The contractor shall provide the following deliverables in hard copy and electronic formats. The electronic format shall be provided in MS Word or other word processing software approved by the TM. For each deliverable, the contractor shall provide one hard copy and electronic copy to both the PM and the TM. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: JCN No.: Q-4015 Technical Assignment Control No. (TAC): RX0290, Task Order No.: 6; the licensee: NRG Energy; and, the site: South Texas.

1. At the completion of Task 3, submit acceptance review results. See **Attachment 2**.
2. At the completion of Task 4, submit a Technical Evaluation Report (TER) that contains, for each Sub-section of the SER (see **Attachment 1** for the outline, format and content of the report): a description of the information proposed by the applicant including the assumptions for the analysis, design, and references to consensus standards; review findings (including the basis for the findings), as a result of comparison with the review guidelines; and a list of "Requests for Additional Information (RAIs). See **Attachment 1** in the base contract SOW for the guidelines for developing RAIs.
3. At the completion of Task 5, submit a TER (**see Attachment 1**) that contains a summary of the review results and the updated report completed under Task 4 incorporating the findings from the resolution of the RAIs. Include a separate list of the remaining open items and the basis for such determination.
4. At the completion of Task 6, submit a trip report, as an input to NRC audit report, that contains a summary of documents audited, a summary of meeting discussion conducted with the applicant, list of outstanding issues, significance of these issues, and the basis for the conclusion. Incorporate the findings in the report developed under Task 4.
5. At the completion of Task 7, submit a TER (**see Attachment 1**) that contains a safety evaluation report with open items resulting from the work performed in Task 5 & 6, and update of the Technical Evaluation Report developed under Task 6.

6.0 MEETINGS AND TRAVEL

One 1__-person, 1-day working meeting to kickoff project and contractor orientation.*

(If required) __,1__ person, 4-day trip to the applicant's facility (Task 6).

One 1__-person, 1__-day working meetings at NRC headquarters to review deliverables*

__, 1-person, 2-day meetings, if needed, for hearing or ACRS meeting.

(any additional trips that may be required)

*At the discretion of the NRC TM, meeting may be conducted via telephone or video conference.

7.0 NRC FURNISHED MATERIAL

The following NRC furnished materials will be provided to the contractor together with SOW:

- a. CD-ROM containing RCOL Sections and the relevant Appendices from the RCOL application.
- b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

8.0 LEVEL OF EFFORT

The estimated level of effort in professional staff hours apportioned among the tasks and by labor category is as follows:

Task(s)	Labor Category	Level of Effort FY-08 (hours)	Level of Effort FY-09 (hours)	Level of Effort FY-10 (hours)
1	Senior Staff Engineers		40	
2	Senior Staff Engineers		10	
3	Senior Staff Engineers		40	
4	Senior Staff Engineers		100 +100	
5	Senior Staff Engineers		20+ 60	
6	Senior Staff Engineers		80	
7	Senior Staff Engineers		50	
8	Senior Staff Engineers			40
9	Administrative		20	5
Task 1 - 8	Project Manager	5	30+ 20	5
Total		5	390+ 180	50

Attachment 1
Outline, format, and sample for the TER (draft SER input)

X.Y.Z Title of Section

X.Y.Z.1 Regulatory Criteria

Develop an outline that follows the format and topics presented in the AREAS OF REVIEW section of the appropriate SRP section. This information will correspond to the SRP sections that are the subject of this Task Order. For each unique SRP review area contained in the TER, the contractor should specify the acceptance criteria that were used for its review. Summarize the applicable regulations and other regulatory references, including regulatory guides, generic letters, or NRC staff positions, that are relevant to this topic.

Contractors are encouraged to use the descriptions of acceptance criteria from previously issued Safety Evaluation Reports for completed design certifications (e.g., NUREG-1793 for the AP1000 Final Safety Evaluation Report) when applicable.

X.Y.Z.2 Summary of Technical Information

Describe the key technical points that were made in the application. It is not necessary to restate the application verbatim or to address all the details in the application.

X.Y.Z.3 Technical Evaluation

Document the contractor's evaluation of the application against the relevant regulatory criteria. The evaluation should support the contractor's conclusions as to whether the regulations are met. State what the contractor did to evaluate the applicant's submittal. The contractor's evaluation may include verification that the applicant followed applicable regulatory guidance, performance of independent calculations, and validation that the appropriate assumptions were made. The contractor may state that certain information provided by the applicant was not considered essential to the contractor's review and was not reviewed by the contractor. While the contractor may summarize the information offered by the applicant in support of its application, the contractor should clearly articulate the bases for its conclusions.

Contractor should provide a clear and concise description of any request for additional information (RAIs). The description should include a justification of the requested information that the requested information is not provided in the application and is absolutely needed to determine or confirm whether the relevant regulatory requirements (articulate specific requirements) have been met. The contractor should discuss its technical evaluation of the licensee's response to the RAIs and determine whether it is acceptable. The contractor should clearly articulate the bases for its acceptance or rejection. If the RAI response is not acceptable, it will be classified as an 'open item'. All open items will be resolved in Phase 3.

X.Y.Z.4 Conclusions

Summarize the contractor's conclusions regarding the application, including words such as the following. As set forth above in Sections X.Y.Z.2 and X.Y.Z.3 of this report, [provide specific bases for conclusions that follow]. Accordingly, the staff concludes that the application meets [or, if applicable, does not meet] the relevant requirements of 10 CFR Part XX and is [or, if applicable, is not] acceptable.

X.Y.Z.5 References

9.0 PERIOD OF PERFORMANCE

The projected period of performance is 24 months from date of task order award.

10.0. OTHER APPLICABLE INFORMATION

a. License Fee Recovery

All work under this task order is/is not fee recoverable and must be charged to the appropriate TAC number(s).

b. Assumptions and Understandings:

The level of effort for Tasks 3 and 4 is based on the assumption that the contractor is familiar with the review procedures of (SRP) Sections: 8, 9, 14, and 16.

The level of effort for Task 5 is based on the assumption that there will be **40** RAIs and it will take, on the average, **2 hours** to review and address each response.

The level of effort for Task 6 is based on one, one-person, four-day trip (including travel time) plus four days to prepare for the trips and to write the trip reports.

The level of effort for Task 7 is based on the need to resolve 5 open items and it will take, on the average, 1 hour to review and resolve each open item, and prepare an SER.

The level of effort in Task 8 is based on requiring one trip to the site and one trip to NRC headquarters.

It is assumed that the contractor has access to the NRC furnished material available on the Internet.

It is understood that the scope of the review consists of conference calls with the NRC staff, and with the NRC staff and the applicant, to discuss open items in an attempt to obtain additional information or reach resolution.

The primary deliverable, or output of this regulatory review, shall be the Technical Evaluation Report (TER). The TER will serve as input to the NRC staff's Safety Evaluation Report (SER) which will document the NRC's technical, safety, and legal basis for approving the RCOL application. The TER must provide sufficient information to adequately explain the NRC staff's rationale for why there is *reasonable assurance* that public health and safety is protected. The TER, and ultimately the SER, should be written in a manner whereby a person with a technical (non-nuclear) background and unfamiliar with the applicant's request could understand the basis for the staff's conclusions. The TER format is described in Attachment 1 to this Task Order Statement of Work.

Attachments:

1. Outline, Format, and Content for the TER Input

2. Safety Analysis Report Acceptance Review Results (Table 1)

Table 1: Safety Analysis Report Acceptance Review Results for [Applicant Name] [Design Center Name] [Application Type]

SER Section: _____ Technical Branch: _____ (Primary/Secondary) Technical Reviewer: _____
 Branch Chief: _____ SRP Section: _____ Date: _____

Does the section address the applicable regulations: Yes/No

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews	
	2. Is the regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is sCOL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)

*Review Area/Topic: Item identified in RG 1.206 or the regulations for a COLA referencing a DC, including COL information items and departures from the design certification.

**Technical Sufficiency: The application is compared against the SRP acceptance criteria. Note: New safety features, alternate regulatory compliance approaches, and/or deviations from DCs, should not be treated as deficiencies and factored into the basis for rejecting the application, unless staff determines that there is insufficient technical information associated with the respective item. These items are factored into confirmation of planning assumptions.

***Significant deficiencies are those review area/topic which impact the staff's ability to begin the detailed technical review or complete its review within a predictable timeframe.

****DSRA will provide risk significance information at time of review, if available.