

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Energy Efficiency and Renewable Energy
Golden Field Office**

**Hydropower Advancement Project (HAP) – Standard Assessments to Increase
Generation and Value**

Funding Opportunity Announcement Number: DE-FOA-0000700

Announcement Type: Amendment 000001

CFDA Number: 81.087

Issue Date: 04/12/2012
Letter of Intent Due Date: 05/03/2012, 5:00 PM Eastern Time
Application Due Date: 06/14/2012, 5:00 PM Eastern Time



Department of Energy

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DE-FOA-0000700
Amendment 000001

DATE: May 18, 2012
FROM: Pamela Brodie, Contracting Officer
TO: All Prospective Applicants
SUBJECT: Amendment 000001 to Announcement DE-FOA-0000700, "Hydropower Advancement Project (HAP) – Standard Assessments to Increase Generation and Value"

The purpose of this modification is to:

- 1) Delete the sentence found in Section III – Eligibility Information: "Any contractors and subcontractors currently working on earlier phases of the HAP Project are not eligible to apply."

and replace it with:

"Any contractors and subcontractors currently working on HAP assessment activities are not eligible to apply."

- 2) The area which has changed under Amendment 000001 is highlighted in yellow within the FOA.

All other content of the Funding Opportunity Announcement remains unchanged.

REGISTRATION REQUIREMENTS

There are several one-time actions before submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows:

- Register and create an account on EERE Exchange at <https://eere-exchange.energy.gov/>. This account will then allow the user to register for any open EERE FOAs that are currently in EERE Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission.

The applicant will receive an automated response when the [Letter of Intent or] Application is received. This will serve as a confirmation of receipt. Please do not reply to the automated response. The applicant will have the opportunity to re-submit a revised [Letter of Intent or] Application for any reason as long as the relevant submission is submitted by the specified deadline. The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements is found at <https://eere-exchange.energy.gov/Manuals.aspx>.

The EERE Exchange registration does not have a delay; however, the remaining **registration requirements below could take several weeks to process and are necessary in order for a potential applicant to receive an award under this announcement**. Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants lacking a DUNS number, or not yet registered with CCR or FedConnect should complete those registrations as soon as possible**.

Questions related to the registration process and use of the EERE Exchange website should be submitted to: EERE-ExchangeSupport@hq.doe.gov

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including the plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the Central Contractor Registry (CCR) at <https://www.ccr.gov/>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in CCR registration. Please update your CCR registration annually.
- Register in FedConnect at <https://www.fedconnect.net/>. To create an organization account, your organization's CCR MPIN is required. For more information about the CCR MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov/>

Table of Contents

<u>Number</u>	<u>Subject</u>	<u>Page</u>
SECTION I – Funding Opportunity Description		
	A. Description.....	6
	B. Objectives and Purpose	7
	C. Background.....	7
	D. Implementation	11
SECTION II – AWARD INFORMATION		
	A. Type of Award Instrument.....	20
	B. Estimated Funding	20
	C. Maximum and Minimum Award Size.....	20
	D. Expected Number of Awards	20
	E. Anticipated Award Size	20
	F. Period of Performance	20
	G. Type of Application	20
SECTION III - ELIGIBILITY INFORMATION		
	A. Eligible Applicants	21
	B. Cost Sharing.....	21
	C. Other Eligibility Requirements.....	21
SECTION IV – APPLICATION AND SUBMISSION INFORMATION.....		
	A. Address to Request Application Forms.....	23
	B. Letter of Intent	23
	C. Content and Form of Application.....	23
	D. Submissions from Successful Applicants	30
	E. Submission Dates and Times	30
	F. Intergovernmental Review.....	30
	G. Funding Restrictions.....	30
	H. Submission and Registration Requirements	31
SECTION V - APPLICATION REVIEW INFORMATION		
	A. Criteria.....	33
	B. Review and Selection Process.....	34
	C. Anticipated Notice of Selection and Award Dates.....	35
SECTION VI - AWARD ADMINISTRATION INFORMATION		
	A. Notice of Selection	36
	B. Administrative and National Policy Requirements.....	36
	DUNS and CCR Requirements.....	36
	Sub-award and Executive Reporting	37
	C. Reporting	38
SECTION VII - QUESTIONS/AGENCY CONTACTS		
	A. Questions.....	39
SECTION VIII - OTHER INFORMATION.....		
	A. Amendments	40
	B. Government Right to Reject or Negotiate.....	40
	C. Commitment of Public Funds	40
	D. Proprietary Application Information.....	40
	E. Evaluation and Administration by Non-Federal Personnel	41
	F. Notice of Right to Conduct a Review of Financial Capability.....	41

G. Notice of Potential Disclosure under Freedom of Information Act.....	41
Appendix A – Definitions	42
Appendix B – Personally Identifiable Information.....	46
Appendix C – Hydropower Facility Data Sheet	48
Appendix D – HAP Assessment Information Needs	51
Appendix E – Blank Assessment Team Table	53

SECTION I – Funding Opportunity Description

A. Description

The Department of Energy (DOE), Office of Energy Efficiency & Renewable Energy (EERE), Wind and Water Power Program is seeking applications from hydropower professionals to participate in the Hydropower Advancement Project (HAP) standard assessments activity. The legal authority for this Funding Opportunity Announcement (FOA) is the Energy Policy Act of 2005, Section 931(a)(2)(D), Section 931(g) and Section 1004, Public Law 109-58 (Aug. 8, 2005)

The HAP standard assessments will identify opportunities to increase generation and value at existing hydropower facilities. Through this FOA, DOE will select teams to perform these standard assessments.

The selected teams will perform HAP standardized assessments as described herein and per the HAP documents associated with the standard assessments. The HAP documents are available at <http://hydropower.ornl.gov/HAP/> and include the following:

1. Hydropower Technology Taxonomy (HTT)
2. Best Practices Catalog (BPC)
3. Assessment Manual

The selected teams will receive financial assistance in the form of a cooperative agreement and will complete HAP standardized assessments at five (5) or more hydropower facilities.

Assessment teams that are selected will be required to attend the HAP standard assessment training planned for October, 2012, and then to perform multiple HAP standard assessments as described herein and per the HAP documents.

Organizations may submit multiple applications for more than one assessment team.

DOE prefers that assessment team applications propose facilities for assessment. Instructions on how to submit facility proposals are located in the Project Narrative File section of this FOA.

DOE is targeting U.S. hydropower facilities with an installed capacity of 10 MW or greater. DOE is seeking a diverse portfolio of hydropower facilities for the HAP standard assessments. Diversity will be characterized by turbine type, hydrologic region, type of facility (run of river, storage), head (high, medium, low), unit capacity, and ownership (Federal, Public Non-Federal, Private).

Facilities outside of the U.S. are not eligible for assessments.

If facilities are not proposed by the assessment team applications, DOE will assign facilities to the selected teams. DOE is separately compiling a list of facilities that may be assigned to the teams selected under this FOA.

B. Objectives and Purpose

The Hydropower Advancement Project (HAP) is purposed to provide the hydropower industry with compelling cost-benefit information encouraging investment in modernization of their facilities. These investments are intended to result in increased generation and flexibility of our nation's hydropower inventory. The main objectives of the HAP are to:

- Improve estimation of increased energy availability from U.S. hydropower assets; the results from this representative sample will be used to extrapolate the potential gains that can be realized across the entire fleet;
- Stimulate assessment and improvement efforts throughout the U.S. hydropower inventory through outreach demonstrations at a representative cross-section of hydropower facilities;
- Identify barriers to increased energy availability;
- Determine DOE hydropower technology research priorities for improved asset performance and value;
- Develop and disseminate a Best Practices Catalog, an Assessment Manual, and analysis tools to maximize U.S. hydropower asset performance and value; and
- Support the workforce development of the next generation of hydropower professionals

This FOA intends to identify and select qualified assessment teams to undertake up to 40 standard assessments of a broad range of hydropower facilities throughout the U.S. These standard assessments will identify efficiency, capacity and water utilization improvements, and other facility modifications, along with estimated costs, that can be undertaken to increase generation and flexibility of these assets, in support of our nation's clean energy goals.

This information will allow facility owners to decide whether or not more detailed feasibility studies are warranted. These follow-on feasibility studies, which are not a part of this FOA, will provide detailed cost-benefit analysis for making future investment decisions and obtaining necessary project financing.

C. Background

Hydropower has generated clean, renewable, affordable electricity in the U.S. for over 100 years. The sum of U.S. hydropower nameplate capacity (not including pumped storage) is approximately 78 GW and generated 260 TWh of electricity in 2010. More than half of hydropower facilities in the U.S. are using major equipment and components, such as turbines and penstocks that were designed and installed more than 50 years ago. The efficiency and capacity of facilities has declined as the physical condition of these components has deteriorated over time. Contributing to this deterioration are losses of generation flexibility and efficiency arising from evolving regulatory constraints on reservoir elevation fluctuations and releases.

These losses of flexibility and production represent opportunities to increase generation and value of hydropower at existing U.S. hydropower facilities through capital and process improvements. Such improvements are possible because of advances in materials and manufacturing, advances in

hydro-mechanical design, smarter sensors and controls, and more robust electrical and system designs. Advances in environmental mitigation technologies have reduced the impact of hydropower facilities on the environment – emerging mitigation technologies show promise of further reductions in environmental impact concomitant with decreased penalties for energy efficiency and production.

Characteristics of the U.S. Hydropower Inventory

The DOE National Hydropower Asset Assessment Program (NHAAP, <http://nhaap.ornl.gov/>) database includes 395 hydropower facilities with an installed capacity greater than 30 MW. Of this number, 357 are conventional hydropower facilities, 24 are pumped storage facilities, and 14 have a combination of conventional turbines, pump-turbine, and pump units. There are many more small hydropower facilities, but these large facilities play a crucial role in the nation’s power systems—nearly 80 percent of the total U.S. hydropower capacity. However, 55 percent of these hydro facilities went into service prior to 1960 and 76 percent went into service before 1970.

While the HAP methodology does not exclude facilities of less than 30 MW rated capacity, the greatest near-term opportunities for increased production and value appear to be in the upgrading of these large facilities. Thus, the HAP target is to assess a diverse population of these 357 conventional hydro plants and the 1,521 generating units they contain.

Among the population of large hydro plants in the United States (>30 MW), 50-60% of generating units are Francis turbines, around 30% are Kaplan or Propeller turbines, 2-3% are Pelton turbines and another 2-3% are Axial Flow turbines (Pit, Bulb or Tubular). Regarding ownership of these large hydropower plants, 30% are federally owned comprising nearly 50% capacity, 14% are publicly/municipally owned having around 16% capacity and 55% of the plants are privately or corporately owned making up around 35% capacity.

In addition, existing U.S. large hydro facilities are located throughout 19 hydrological regions including Alaska (see Hydropower Facilities table below). The region of Souris-Red-Rainy does not have any hydro plants. Hydro plants are most densely distributed in California (20%), the Pacific Northwest (19%) and the South Atlantic-Gulf (15%); less dense but significant regions include Tennessee and Missouri (7% each), Arkansas-White-Red (6%), New England (5%), and Mid Atlantic (4%).

Hydropower Facilities 30MW or Larger per Hydrologic USGS Regions

Region	Region Name	Percentage
1	New England	5%
2	Mid Atlantic	4%
3	South Atlantic-Gulf	15%
4	Great Lakes	3%
5	Ohio	5%
6	Tennessee	7%
7	Upper Mississippi	2%

8	Lower Mississippi	1%
9	Souris-Red-Rainy	0%
10	Missouri	7%
11	Arkansas-White-Red	6%
12	Texas-Gulf	2%
13	Rio Grande	1%
14	Upper Colorado	1%
15	Lower Colorado	2%
16	Great Basin	1%
17	Pacific Northwest	19%
18	California	20%
19	Alaska	1%

HAP Standard Methodology

Through the HAP, DOE has established a systematic and standard approach to evaluate and assess existing hydropower facilities and to identify the potential for improvements. The focus of the HAP analysis is on increasing the value and generation of existing hydropower facilities. Hydropower owner/operators will benefit from assessments through the identification of improvement and expansion opportunities and quantification of the value of those improvements. DOE will utilize the results of HAP assessments to establish a baseline of the current condition of the U.S. hydropower systems and estimate the potential for increased generation through improvements and expansions at existing hydropower facilities. This will help DOE and the hydropower industry develop a better understanding of the real-world opportunities for plant improvements, the process used in making investment decisions, and the current barriers, including licensing and operational constraints, to achieving plant improvements.

This HAP standard methodology is based on the following documents which are available at <http://hydropower.ornl.gov/HAP/>. These documents are updated periodically based on new information and experience, but will not change while this FOA is open.

1. Hydropower Technology Taxonomy (HTT)
2. Best Practices Catalog (BPC)
3. Assessment Manual

The Hydropower Technology Taxonomy defines the physical hierarchy of power-producing water control projects. The taxonomy specifies the full complement of major project features (e.g. reservoir, dams, water conveyances, powerhouses, switchyard, tailwater, navigation locks), but only the hydropower-related features will be assessed in detail within the HAP. The HTT will enable applicants, awardees, DOE, and facility owners to use consistent nomenclature and functional boundaries to describe and scope efforts and results.

The Best Practices Catalog collects best practices to achieve optimal efficiency and utilization through operation, maintenance, and upgrade of major plant components. It references existing documents, including those from the Corps of Engineers, Bureau of Reclamation, Electrical Power Research Institute (EPRI), and published technical papers. It also provides guidance on processes and process improvements that maximize efficiency and production. The BPC's physical scope includes the reservoir, water intakes and other hydraulic structures, tailrace, turbine components, electrical equipment, balance of plant equipment, instrumentation and controls (I&C), and environmental mitigation equipment and processes.

The Assessment Manual references the BPC and defines the scope, methodology, and procedures for standard assessments. The Assessment Manual also describes the sequence of activities, technical scope, schedule, personnel requirements, forms and checklists for data collection and condition inspection, and anticipates the challenges that may arise during the site assessment. The Assessment Manual specifies a standard methodology for:

- Condition Assessment of hydropower assets to evaluate the physical condition of the hydropower equipment and facilities as it affects production, reliability, and availability; and
- Performance Assessment of hydroelectric units and facilities to evaluate the extent to which the hydropower facility converts the potential energy of water to electrical energy (water to wire efficiency) on an average annual basis

The proposed assessment methodology of the HAP considers three performance levels for hydropower facilities:

- **Installed performance level (IPL)** – achievable by the facility under design conditions and constraints that existed immediately after commissioning (installed name-plate capacity performance in most cases).
- **Current performance level (CPL)** – usually lower than the installed performance level (IPL) due to wear and tear, or due to the operational changes in the constraints placed on a facility that prevent it from operating as originally designed.
- **Potential performance level (PPL)** – achieved under current operating constraints through upgrading or expanding to the best available technology and implementation of best practices for operations and maintenance.

The Assessment Manual will define the scope, methodology and procedures to determine the IPL and PPL for a facility and assess the difference between the CPL and PPL. This will help to identify the potential for facility improvements including expansion(s) that align the IPL and CPL with the PPL. Process improvements related primarily to scheduling and constraints that move the CPL towards PPL will also be identified.

The assessments will highlight opportunities for improvement in two categories:

1. Efficiency Improvements - defined herein as equipment and process improvements that increase the efficiency of generation on an instantaneous and annual average basis, thereby

enabling increased energy production from the water passing through the power production facilities (conveyances and hydroelectric units).

2. Utilization Improvements - defined herein as equipment and process upgrades that enable a project to use more of the available water in streams, which will also increase energy production.

In most cases, increased utilization resulting from equipment and process improvements will decrease the levelized cost-of-energy (LCOE) for a facility or fleet of facilities by increasing average annual production. It is possible that hydropower facilities with a LCOE that is already relatively low may be cost-effective to upgrade in comparison to higher LCOE alternatives, even if the LCOE associated with incremental energy is higher than that for existing capacity. The assessments will also highlight opportunities to add or improve units so as to provide greater ancillary benefits and collectively respond to system dispatches with greater efficiency.

D. Implementation

Scope of Standard Assessments

DOE will organize a mandatory HAP standard methodology training for the selected teams.

Participating teams will adhere to the standard assessment methodology, as defined in the Assessment Manual. They will structure their work scope to prepare and deliver standardized assessment results.

The teams will collaborate with DOE to report on the progress of the assessments and coordinate their completion. The assessment team composition and roles are described in Table 1.

The estimated level of effort for a standard assessment is provided in Table 2 which will vary depending on the facility. The teams will adjust the effort in collaboration with DOE.

Table 1. Roles, Qualifications, Scope, and Information Gathering Efforts for Assessment Teams

Role	Qualifications	Scope of Assessment Effort	Inspection and Data Collection Effort
1. Assessment Leader	ME, EE, or CE with 15+ years of hydropower design, operation and inspection experience	Systems coordination, main POC with asset owner, scheduling master, safety analysis, coordination with and reporting to DOE. Interpret assessment data, assess its quality and usefulness, and follow up with facility staff to clarify understanding.	Basic and general info regarding facility and major equipment (ages, layout and design drawings, major problems experienced and maintenance/upgrade records, historic/previous assessment reports, etc.)
2. Power train & Balance of Plant Expert	ME with 5+ years of hydropower experience	Turbine, shaft, bearings, seals, lubrication, governor, cooling water system, drainage system, Supervisory Control and Data Acquisition (SCADA)	Turbine model, design parameters and characteristic curves; cavitation inspection and measurement data, gaps in the seal rings; wicket gate/blade angle settings; index tests or other testing data records; any water or oil leakage inspection & measurement data, and etc.
3. Electrical Expert	EE with 5+ years of utility experience	Generator, exciter, transformers, switchgear, circuit breakers, relays, SCADA and etc.	Generator model, design parameters and efficiency curves; Regular tests and Electromagnetic Core Imperfection Detection (EL CID) tests data for condition assessment of generators insulation; oil testing data for transformer condition assessment; inspection/data required for efficiency assessment of other components.
4. Civil Structures & Geotechnical Expert	CE with 5+ years of hydraulic structure experience	Trash racks, intakes, gates and interfacing surface, stoplogs, tunnels/canals, penstocks, draft tubes, tailrace, valves, dams, reservoirs and buildings	Observed corrosion, blockage & other physical conditions, quantified head losses for each component of water conveyance system; measured flow through turbine & released to downstream; leakage, seepages, sedimentation and condition check for reservoir and other civil works. Visional, Remotely Operated Vehicle (ROV), dewatered or diving inspections required if no recent records available.
5. Performance Specialist	Specialist-analyst with experience in hydropower plant efficiency analysis and optimization	Scoring efficiency-related data and processes (availability & soundness), unit and plant controls, operational simulations	Unit performance characteristics, unit operation logs, generation scheduling/dispatch, historic testing data including head water elevation, tailwater elevation, power, flow rate, water temperature, gate opening (blade angle), and etc.

Table 2. Estimated Level of Effort Per Assessment for Team Members

Role	Planning, Research, Analysis	Travel	Site Visit	Reporting & Analysis
	<i>Person-Hours</i>			
1. Assessment Leader	40	8 to 16	8 to 16	80
2. Powertrain & Balance of Plant Expert	16-40	8 to 16	8 to 16	24
3. Electrical Expert	16-40	8 to 16	8 to 16	24
4. Civil Structures & Geotechnical Expert	16-40	8 to 16	8 to 16	24
5. Performance Specialist	40-80	8 to 16	8 to 16	40

The standard assessments will be executed in the following phases:

1. Assessment Planning and Research
2. Site Visit
3. Analysis
4. Reporting

The teams will track and report the major milestones listed in Table 3 to DOE for each assessment. Assessment teams will be required to perform work on multiple assessments simultaneously.

Table 3. Standard Assessment Milestones

Milestone ID	Milestone Activity	Timeline (Calendar Days)
01	Initial Facility-Assessment Teleconference	0
02	Scoping Visit Completed	21
03	Design, Test, and Condition Data Received	28
04	Design Review Complete	42
05	Performance Data Received	35
06	Performance Analysis Complete	49
07	Site Visit Completed	49
08	Condition Ratings Completed	56
09	Site Visit Package submitted to DOE	63
10	Draft Final and Public Reports Transmitted to Owner and to DOE	77
11	Corrections Received from Facility Owner	91
12	Final and Public Reports Transmitted to Owner and to DOE	98

Assessment Planning and Research

Complete assessment planning and research will include collection and analyses of configuration and operations data to understand how the facility functions. The objective of this effort is to estimate the IPL, CPL, and PPL to the greatest extent possible and to determine the specific needs and goals for a site visit.

There should be a shared understanding by the assessment team and the facility staff as to what information will be made available to the team. A detailed list of facility information utilized during the performance of a HAP standard assessment is provided in Appendix D. Assessment teams will also conduct interviews with Operations and Maintenance (O&M) staff. The Performance Assessment portion of the effort will require multiple years of hourly generation, flow, and water surface elevation data for the facility and units. The absence of such data does not necessarily prevent the assessment of a facility, since it is older facilities with limited data that may benefit most from assessment and upgrades. The collected data will be reviewed and studied to determine the focus of the on-site assessment for the specific plant, and the planned level of effort

and personnel required for the on-site assessment.

In addition, other information required from the facility will include health and safety requirements/protocols and security information.

Based on the review of the data obtained, a complete site visit plan will be devised and workbooks prepared for efficiently obtaining missing data during the team site visit. To make the site visit efficient, the site visit plan, including workbooks, should be shared with the facility staff before the site visit. This will help the facility staff in their preparation for the site visit.

This phase of the effort will require focus and insight from the Assessment Team Leader, whose experience in hydropower design, operation, and inspection is crucial for a successful outcome.

Site Visit

The site visit is a critical component of the overall assessment process, and should be structured to:

- Allow the assessment team to validate, through direct observation, their understanding of how the facility operates and performs; and
- Allow the assessment team to address any remaining information needs (data gaps, quality assurance, anomalies, etc.) directly with facility staff

Preparation for the site visit will be extensive. As stated, the assessment team must establish a common understanding with facility staff of the schedule for assessment, support functions the facility staff will be expected to perform during the assessment, and any disruptions to normal operations that the assessment may produce. Members of the assessment team will arrive at the facility with a site-specific understanding of the design and layout of major components of the powertrain, balance of plant equipment, water conveyances, structures, and interconnection equipment so that on-site interactions can focus on condition and performance assessment rather than explanation of design and basic operations.

An example of an on-site activities sequence is as follows:

1. Introductory meeting with health and safety briefings
2. Review schedule and support staff requirements
3. Discuss remaining information needs; confirm or adjust estimates of IPL, CPL, and PPL; examine plant systems and discuss conditions with facility staff
4. Prepare Assessment Data Report
5. Conduct exit meeting to discuss preliminary findings with facility staff

Analysis

The analysis during a facility assessment includes both the condition ratings and performance analyses. For condition assessment, team members must be familiar with the HAP standard

assessment scoring tables and scales so as to translate observations, test data, and facility staff input obtained during the planning phase and site visit into quantitative ratings for input into the condition rating workbooks.

The purpose of the performance assessment is to quantify unit and plant performance and to investigate the opportunities for operations-based, equipment-based, and maintenance-based performance improvements leading to additional generation and value. The IPL, CPL, and PPL for the facility will first be obtained and documented. Depending on the availability of the turbine and generator original and actual or testing data, some assumptions may have to be made to analyze and calibrate the efficiency curves at IPL, CPL and PPL. Then, the following three types of performance assessments analyses will be conducted:

1. Performance process assessment
2. Hydrology-based performance analyses
3. Optimization-based performance analyses

Other analyses during a HAP assessment will include estimates for the potentially increased energy and other benefits, the order of magnitude cost estimate to implement, the recommendations for additional studies to resolve uncertainties in prioritization, costs, and benefits of improvement activities.

Reporting

Deliverables for each facility assessment are:

1. Assessment Data Report (non-public) 3 weeks after site visit
2. Draft Assessment Report (non-public) 6 weeks after site visit
3. Final Assessment Report (non-public) 9 weeks after site visit
4. Final Assessment Report (for public release) 9 weeks after site visit

The assessment team will compile and document information obtained prior to and during the site visit, including workbooks, into the Assessment Data Report (non-public). The Assessment Data Report will be submitted to facility owners and DOE.

The Draft Assessment Report (non-public) will follow the standard outline given in Table 4. The report will include quantitative scoring of facility equipment and performance, and provide sufficient information to the facility owners/operators to help make decisions on proceeding to the next level of feasibility studies. This report will be reviewed by the facility owners/operators who will provide comments and also identify sensitive information for removal in preparation of both the Final Assessment Report (non-public) and Final Assessment Report (for public release).

Table 4. Outline of a HAP Assessment Final Report

<p>Acronyms and Abbreviations</p> <p>Executive Summary</p> <p>1. Introduction</p> <p>1.1 Objective and scope of assessment</p> <p>1.2 Plant general information</p> <p>1.3 Site visits and acknowledgement</p> <p>2. Condition Assessment (Observations and Quantitative Scoring)</p> <p>2.1 Civil/ Structural Components</p> <p>2.2 Mechanical Components</p> <p>2.3 Electrical Components</p> <p>2.4 Instruments and Controls</p> <p>2.5 Plant and Units Condition Assessment</p> <p>3. Environmental Issues and Constraints (such as instream flow, water quality, fish passage, ...)</p> <p>4. Electric Power System Interconnection and Context</p> <p>5. Performance Assessment</p> <p>5.1 Hydrology-Based Performance Analyses</p> <p>5.1.1 <i>Average Historical Power Production</i></p> <p>5.1.2 <i>Long-term Stream Potential</i></p> <p>5.1.3 <i>Long-term Production Potential</i></p> <p>5.2 Optimization-Based Performance Analyses</p> <p>5.2.1 <i>Unit and Plant Performance Curves</i></p> <p>5.2.2 <i>Operation Efficiency Analyses</i></p> <p>5.2.3 <i>Scheduling Analyses</i></p> <p>5.2.4 <i>Avoidable Loss Analyses</i></p> <p>5.2.5 <i>Correlation Analysis</i></p> <p>5.2.6 <i>Potential Increased Energy Production</i></p> <p>6. Economic Valuation and Cost Estimate for Improvement Projects</p> <p>6.1 Plant Owner Characteristics (plant owner type, generation mix, load profile)</p> <p>6.2 Market Context (organized wholesale market, electricity price/tariff, ancillary services price/tariff, system load profile, state incentives for renewable energy)</p> <p>6.3 Economic Valuation (Energy, capacity, ancillary services, and generation portfolio value streams)</p> <p>6.4 Approximate Cost Estimates for Improvements</p> <p>7. Conclusions and Recommendations</p> <p>7.1 Summary of the results from condition and performance assessments</p> <p>7.2 Environmental and other constraints affecting performance and marketing</p> <p>7.3 Prioritized Opportunities for Production and Reliability Improvement</p> <p>7.4 Recommendations for additional studies to resolve uncertainties in prioritization, costs, and benefits of improvement activities</p> <p>8. References and Data Sources (List of Drawings and Reports Collected)</p> <p>Appendix I: Combined Excel File for Condition Assessment Workbooks</p> <p>Appendix II: Workbooks for Performance Analysis</p>

The assessment report (non-public) is intended to provide sufficient information to the facility owners/operators to help them make a decision to proceed to the next level of feasibility studies.

The examples of upgrading and improvements that could be recommended include:

- Advanced instrumentation and control upgrades, online condition and performance monitoring
- Runner replacement or turbine upgrade (e.g., propeller upgrading to Kaplan)
- Generator re-winding and up-rating
- Wicket gate adjustments to minimize leakage
- Tuning of blade and gate cams in double-regulated machines
- Intake and trash rack upgrades, online fouling monitors, and optimized cleaning schedules
- Water conductor system from intake to tailrace upgrades and modifications that could improve the plant performance (such as reduction in conveyance losses)
- Spillway gate sealing upgrades for leakage control

- Dam and reservoir remediation for seepage control
- Repair and recoating of water conveyances to minimize leakage and friction losses
- Incorporation of environmental mitigation-induced efficiency losses in unit commitment and load allocation
- Adding small generating units to use minimum flow releases and maximize plant efficiency
- Remediation for major safety and reliability issues, if any observed
- Rehabilitation for prolonged generation years

Assessment Training

Attendance at a training workshop planned for October, 2012 to orient teams to the HAP standard assessment methodology will be mandatory for all team members. (Your application should include allowable travel costs for this training.)

Collaborative Roles and Responsibilities

DOE will provide training to the awardee's proposed assessment team members at a HAP Training Workshop planned for October 2012. The final dates will be confirmed at the time of award selection. DOE anticipates changes to the HAP Standard Assessment Methodology documents based on the experience gained and lessons learned as the assessments progress. Such changes will be posted at <http://hydropower.ornl.gov/HAP> and notification will be provided to the awardee at the time when those changes are made.

The following list provides guidance on the roles and responsibilities of the HAP participants. This list is not intended to be comprehensive.

DOE – DOE (and/or their representative) plans on being involved in the following tasks:

- Provide training to the assessment teams
- Participate in the first teleconference between an assessment team and the facility staff
- Participate in the assessments and site visits as needed
- Facilitate the execution of any non-disclosure agreements with the facility owner needed to protect business sensitive data and results related to the facility
- Review milestone reporting from the awardee, provide a compliance review of the assessment data report and public and non-public assessment reports
- Review and monitor awardee progress, and provide consultation to the awardee's team to resolve technical questions or challenges
- Provide feedback to the awardee on performance of HAP assessments and quality of results
- Coordinate all public dissemination of assessment information
- Archive the final report and data package, and use the results to execute aggregate analyses and reporting of condition and performance trends for the set of assessed projects and, to the extent possible, extrapolation to the U.S. hydropower inventory of facilities

Awardee – The awardee will:

- Execute HAP standard assessments at one or more facilities identified in the award document
- Ensure that the proposed assessment team subject matter experts and assessment leader complete the DOE-scheduled HAP Training Workshop
- Maintain consistent team composition to ensure timely completion of all assessments—substitutions of other personnel will be discouraged and may result in termination of the award
- Be responsible for the communications, scheduling, and project management required to execute the assessment after an introductory teleconference with DOE and the facility owner
- Ensure that any necessary nondisclosure agreements are successfully negotiated and executed so that information may be shared among assessment team members and facility owners.
- Negotiate a schedule of milestones with the facility owner and DOE
- Provide DOE with a master schedule of all assessments
- Gather facility information, perform a preliminary visit, conduct a design review of the facility, conduct a performance analysis of the facility, conduct a full-team site visit, develop a qualitative and quantitative condition assessment for the facility, and prepare a draft assessment report with a supporting data package
- Revise the draft report to address comments by the facility owner and DOE, and submit a final assessment report and supporting data package to the owner and DOE
- Report progress and expenses for each facility assessed

Facility Owner – The owner will:

- Make the facility or facilities available for assessment by the assessment team
- Provide the staff resources and support required to interact with DOE and the assessment team
- Review and execute any necessary non-disclosure agreements so that information may be shared among assessment team members and facility owners
- Provide the required reports and data for assessment
- Participate in technical interviews to enable the assessment team to understand facility operations and maintenance strategies
- Host required site visits
- Review and comment on the assessment results and reports
- Identify sensitive information for removal prior to public release of Assessment Reports.
- Provide feedback to DOE and the assessment team as to the effectiveness of the assessment, the final report, and its impact on the owner's business decisions

SECTION II – AWARD INFORMATION

A. Type of Award Instrument

DOE anticipates awarding cooperative agreements under this FOA (See Part VI.B.4 Statement of Substantial Involvement).

B. Estimated Funding

Approximately \$ 5,000,000 is expected to be available for awards under this FOA, subject to Congressional appropriations.

C. Maximum and Minimum Award Size

- Ceiling (i.e., the maximum amount for an individual award made under this announcement): \$1,000,000
- Floor (i.e., the minimum amount for an individual award made under this announcement): \$400,000

D. Expected Number of Awards

Under this FOA, DOE expects to make the following number of awards: Eight (8)

E. Anticipated Award Size

While the maximum award size (i.e., the ceiling) is \$1,000,000, DOE anticipates that awards will be in the \$500,000 range for the total project period subject to Congressional appropriations.

F. Period of Performance

DOE anticipates making awards that will run for up to eighteen (18) months

G. Type of Application

DOE will accept only new applications under this FOA (i.e., applications for renewals of existing DOE funded projects will not be considered).

SECTION III - ELIGIBILITY INFORMATION

A. Eligible Applicants

The following domestic entities are eligible to apply for this FOA: (1) institutions of higher education; (2) non-profit and for-profit private entities; (3) State and local governments; and (4) consortia of entities (1) through (3). All types of domestic entities, including DOE/NNSA National Laboratory Contractors and non-DOE Federally Funded Research and Development Center (FFRDC) Contractors, are eligible to apply, except other Federal agencies, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

Foreign entities are not allowed to be prime recipients, however they can be sub-recipients with up to 25% of the proposed total project costs.

All applicants must disclose any organizational conflicts of interest in their application. Such conflicts will be considered during the compliance review. Any contractors and subcontractors currently working on HAP assessment activities are not eligible to apply.

B. Cost Sharing

Cost sharing is not required.

C. Other Eligibility Requirements

DOE National Laboratory Contractors and Other Federally Funded Research and Development Center (FFRDC) Contractors.

A DOE National Laboratory Contractor is eligible to apply for funding under this announcement if its cognizant Contracting Officer provides written authorization and this authorization is submitted with the application. If a DOE National Laboratory Contractor is selected for award, the proposed work will be authorized under the DOE work authorization process and performed under the laboratory's Management and Operating (M&O) contract.

The following wording is acceptable for the authorization:

“Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complementary to the missions of the laboratory, and will not adversely impact execution of the DOE assigned programs at the laboratory.

FFRDC contractors may be proposed as team members on another entity's application, subject to the following guidelines:

Authorization for non-DOE FFRDCs. The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of an FFRDC contractor must be consistent with the contractor's authority under its award.

Authorization for DOE FFRDCs. The cognizant Contracting Officer for the FFRDC must authorize in writing the use of a DOE FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization:

“Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complementary to the missions of the laboratory, and will not adversely impact execution of the DOE assigned programs at the laboratory.

Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE will fund a DOE FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

Cost Share. The applicant’s cost share requirement will be based on the total cost of the project, including the applicant’s and the FFRDC contractor’s portions of the effort.

FFRDC Contractor Effort: There are no restrictions for FFRDC contractor efforts

Responsibility. The applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

SECTION IV – APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Forms

The Application forms and instructions are available on EERE Exchange. To access these materials, go to <https://eere-exchange.energy.gov/> and select the appropriate funding opportunity number.

B. Letter of Intent

Applicants are requested to submit a Letter of Intent by May 3, 2012. This letter should include the name of the applicant, the title of the project, the name of the Assessment Team Leader(s), the amount of funds requested, and a one-page abstract. Letters of intent and accompanying abstracts will be used by DOE to organize and expedite the merit review process. They should not contain any proprietary or sensitive business information. Failure to submit such letters will not negatively affect a responsive application submitted in a timely fashion. The Letter of Intent should be sent through the EERE Exchange website at <https://eere-exchange.energy.gov/>. DOE will not respond to the Letter of Intent. The page limitation for Letters of Intent is two pages; one cover page and one abstract.

A pre-application is not required.

C. Content and Form of Application

You must complete the following application forms found on the EERE Exchange website at <https://eere-exchange.energy.gov/>, in accordance with the instructions. **Applicants will receive a Control Number once they “Apply to this FOA” on the EERE Exchange website and should include the Control Number in the file name, as indicated below.**

1. SF-424 – Application for Federal Assistance

Complete all required fields in accordance with the instructions on the form. The list of certifications and assurances in Field 21 can be found at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>, under Certifications and Assurances. Note: The dates and dollar amounts on the SF 424 are for the complete project period and not just the first year, first phase or other subset of the project period. Save the information in a single file titled “ControlNumber_LeadOrganization_App424.”

2. Project Summary/Abstract File

The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the Assessment Team Leader(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information, as the

Department may make it available to the public if an award is made. The project summary must not exceed 1 page when printed using standard 8.5” by 11” paper with 1” margins (top, bottom, left and right), single spaced, with font not smaller than 11 point. Save the information in a single file titled “ControlNumber_LeadOrganization_Summary.”

3. Project Narrative File

The project narrative must not exceed **20** pages, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right), single spaced. **EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE.** The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Section VIII.D for instructions on how to mark proprietary application information. Save the information in a single file titled “ControlNumber_LeadOrganization_Project.”

The project narrative must include:

- Project Objectives:
This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.

- Merit Review Criterion Discussion:
This section should be formatted to address each merit review criterion and sub-criterion listed in Part V. A. below. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. This section should discuss the technical and project management approach to complete at least 5 HAP standard assessments in an 18 month time period while accomplishing the objectives of the HAP. Applicants should utilize the material presented in the Background section of this FOA and the HAP methodology as described on the HAP website (<http://hydropower.ornl.gov/HAP/>).

- DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT SEPARATELY ADDRESS EACH MERIT REVIEW CRITERION AND SUB-CRITERION.

- Project Timetable:
This section should outline as a function of time, year by year, all the important activities or phases of the project, including any activities planned beyond the project period. Successful applicants must use this project timetable to report progress.

- Relevance and Outcomes/Impacts:
This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts. The justification for the proposed project should include a clear statement of the importance of the project in terms of the utility of the outcomes and the target community of beneficiaries. This

section should also describe how the HAP methodology and experience gained through the completion of HAP assessments will benefit the assessment team.

- Roles of Participants:

For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the applicant and participants, and how the various efforts will be integrated and managed. See Appendix E for an example template.

- Facilities and Other Resources:

Identify the facilities (e.g., office, laboratory, computer, etc.) to be used at each performance site listed, and, if appropriate, indicate their capacities pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Provide any information describing the other resources available to the project, such as machine and electronics shops.

- Bibliography and References, if applicable:

Provide a bibliography for any references cited in the Project Narrative section. This section must include only bibliographic citations.

- Statement of Project Objectives (SOPO):

The Statement of Project Objectives should be provided in a similar format as the SOPO template shown in the following location: <https://www.eere-pmc.energy.gov/Forms.aspx>

The SOPO must address how the project objectives will be met. It must contain a clear, concise description of all activities to be completed during the project performance and follow the requirements in the template. The SOPO may be released to the public by DOE, in whole or in part, at any time. Therefore, it is required that it shall not contain proprietary or confidential business information. All the components of your Project Narrative must be within the Narrative page limit specified in paragraph 3. Documents listed below may be included as clearly marked appendices to your Narrative and will not count towards the Project Narrative page limit. Please note that some of the required documents listed below may have their own page limits to which you must adhere.

Hydropower Facility Data Sheets

DOE prefers that assessment team applications propose facilities for assessment. Instructions on how to submit facility proposals are located in the Project Narrative File section of this FOA.

DOE is targeting U.S. hydropower facilities with an installed capacity of 10 MW or greater, in all 50 states. DOE is seeking a diverse portfolio of hydropower facilities for

the HAP standard assessments. Diversity will be characterized by turbine type, hydrologic region, type of facility (run of river, storage), head (high, medium, low), unit capacity, ownership (Federal, Public Non-Federal, Private) and geographic location.

Facilities outside of the U.S. are not eligible for assessments. If facilities are not proposed by the assessment team applications, DOE will assign facilities to the selected teams. DOE is separately compiling a list of facilities that may be assigned to the teams selected under this FOA.

Letter of Commitment from Facility Owners

For applications that include facilities, provide a Letter of Commitment from each facility owner.

Provide the Letter of Commitment from each facility owner as an Appendix to the Project Narrative File.

4. Resume File

Provide a resume and letters of recommendation for each team member proposed, including sub-awardees and consultants if they meet the definition of a team member. Please refer to Tables 1. and 2. for information on teams and team members. The biographical information for each resume or letter of recommendation must not exceed 2 pages when printed on 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right), single spaced, with font not smaller than 11 point and should include the information below, if applicable. Save the information in a file titled “ControlNumber_LeadOrganization_Resume/Letter of Recommendation.”

In addition to resumes and letters of recommendation, applicants should provide information about members of the assessment team as they relate to Table 1. A blank assessment team table provided in Appendix E may be utilized to present the assessment team and qualifications. The experience and capabilities of the assessment team leader and adherence to the standardized assessment methodology will be critical to project success.

Of the key personnel identified in this file, indicate the Principal Investigator(s) (PI(s))

For Multiple Principal Investigators:

The applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple PIs. The decision to use multiple PIs for a project is the sole responsibility of the applicant. If multiple PIs will be designated, the application must identify the Contact PI/Project Coordinator and provide a “Coordination and Management Plan” that describes the organization structure of the

project as it pertains to the designation of multiple PIs. This plan should, at a minimum, include:

- Process for making decisions on scientific/technical direction
- Publications
- Intellectual property issues
- Communication plans

- Procedures for resolving conflicts
- PIs' roles and administrative, technical, and scientific responsibilities for the project

The resume file does not have a page limitation.

5. Budget File

SF 424 A Excel, Budget Information – Non-Construction Programs File

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF 424 A Excel, “Budget Information – Non Construction Programs” form on the DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>. The SF424A provides columns for each individual budget-year as well as the commulative project-budget.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (see Section IV, G). Save the information in a single file titled “ControlNumber_LeadOrganization_SF424A”

6. Budget Justification File (PMC 123.1)

PMC 123.1 Budget Justification File

You must justify the costs proposed in each Object Class Category/Cost Classification category using the PMC 123.1 Budget Justification File. Applicants should complete budget justification file for 5 assessments utilizing average labor and travel costs for a diverse set of facilities in a variety of locations in the United States.

Save the budget justification information in a single file titled “ControlNumber_LeadOrganization_Budget.”

7. Letters of Commitment from Facility Owners

All Letters of Commitment must be attached as an Appendix to the Project Narrative File. Letters of Commitment from the facility owners must be included as part of this Appendix to the Narrative. Please include a separate Letter of Commitment for each facility proposed in the application. Letters of Commitment will not count towards the Project Narrative page

limit.

8. Sub-award Budget File(s)

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each sub-awardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). Use the SF 424 A Excel for Non Construction Programs. This form is found on the DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>. Save each Sub-award budget in a single file titled “ControlNumber_LeadOrganization_Subawardee_SF424A.”

A PMC 123.1 Budget Justification file for the sub-award budget is also required. The budget justification must include the same justification information described in Paragraph 6 above. Save each Sub-award budget justification in a single file titled “ControlNumber_LeadOrganization_Subawardee_BudgetJust.pdf”.

9. Budget for DOE Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable

If a DOE FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal (FWP) in accordance with the requirements in DOE Order 412.1 Work Authorization System. The DOE Order 412.1, Work Authorization System and the DOE O 412.1, Field Work Proposal form are available at the following link, under “DOE Budget Forms”: <https://www.directives.doe.gov/directives/current-directives/412.1-Border-a/view>. Save the Field Work Proposal in a single file titled “ControlNumber_LeadOrganization_FFRDC_FWP.”

10. Authorization for non-DOE or DOE FFRDCs

Save the Authorization for non-DOE or DOE FFRDCs, as specified in Section III.C. Other Eligibility Requirements, in a single file titled “ControlNumber_LeadOrganization_FFRDC_Auth”

11. SF-LLL Disclosure of Lobbying Activities

Complete the SF- LLL. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying.” Save the SF-LLL in a single file titled “ControlNumber_LeadOrganization_SF LLL.”

Summary of Required Forms/Files
Your application must include the following documents:

Name of Document	Format	File Name
SF 424 - Application for Federal Assistance	PDF	ControlNumber_Lead Organization_App424
Project Summary/Abstract File	PDF	ControlNumber_Lead Organization_Summar y
Project Narrative File, including required appendices (Hydropower Facility Data Sheet and Letters of Commitment from Facility Owners, if applicable)	PDF	ControlNumber_Lead Organization_Project
Resume File	PDF	ControlNumber_Lead Organization_Resume/ Letter of Recommendation
SF 424A Excel – Budget Information for Non-Construction Programs File	Excel	ControlNumber_Lead Organization_SF424A
PMC 123.1 Budget Justification File	PDF	ControlNumber_Lead Organization_Budget Just
Sub-award Budget File(s), if applicable PMC 123.1 Budget Justification(s), if applicable	Excel	See Instructions
Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable.	PDF	See instructions
Authorization from cognizant Contracting Officer for FFRDC, if applicable.	PDF	ControlNumber_Lead Organization_FFRDC _Auth
SF-LLL Disclosure of Lobbying Activities	PDF	ControlNumber_Lead Organization_SF LLL

D. Submissions from Successful Applicants

If selected for award, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5)
- Representation of Limited Rights Data and Restricted Software, if applicable
- Environmental Questionnaire
- Commitment Letter from Third Parties Contributing to Cost Share, if applicable

E. Submission Dates and Times

1. Letter of Intent Due Date

If an applicant submits a Letter of Intent it must be received by May 3, 2012, not later than **5:00PM Eastern Time**. You are encouraged to transmit the Letter of Intent well before the deadline. **LETTERS OF INTENT MUST BE SUBMITTED VIA EERE EXCHANGE AT <https://eere-exchange.energy.gov/>**. Letters of Intent are optional.

2. Application Due Date and Submission Time

Applications must be received by June 14, 2012 not later than **5:00 PM Eastern Time**. You are encouraged to transmit your application well before the deadline. **APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

Announcement Open Until Determined Date

- This announcement will remain open until June 14, 2012. Applications may be submitted at any time before the announcement closes. You are encouraged to submit your application as soon as practicable.

F. Intergovernmental Review

Program Not Subject to Executive Order 12372

- This program is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs

G. Funding Restrictions

Cost Principles

Costs must be allowable in accordance with the applicable Federal cost principles referenced in: 2 CFR 220 for Educational Institutions; 2 CFR 225 for State, Local, and Indian Tribal Governments; 2 CFR 230 for Non Profit Organizations and FAR Part 31 for commercial organizations.

Pre-award Costs

Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award and no earlier than the selection date, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the Contracting Officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

If recipients are State or Local Governments, they may not incur pre-award costs prior to award, without prior approval of the DOE Contracting Officer.

H. Submission and Registration Requirements

1. Where to Submit

LETTERS OF INTENT (OPTIONAL) AND APPLICATIONS MUST BE SUBMITTED UNDER THIS ANNOUNCEMENT THROUGH EERE EXCHANGE at <https://eere-exchange.energy.gov/> TO BE CONSIDERED FOR AWARD. You cannot submit a Letter of Intent or an application through EERE Exchange unless you are registered. Please read the registration requirements below carefully and start the process immediately. Letters of Intent or Applications submitted by any other means will not be accepted.

If you have problems completing the registration process or submitting your application, send an email to the EERE Exchange helpdesk at EERE-ExchangeSupport@hq.doe.gov. It is the responsibility of the applicant to verify successful transmission, prior to the Application due date and time.

2. Registration Process Requirements

There are several one-time actions that must be completed before submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows:

- Register and create an account on EERE Exchange at: <https://eere-exchange.energy.gov/>. This account will then allow the user to register for any open EERE FOAs that are currently in Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the appropriate contact point for each submission.

The applicant will receive an automated response when the Letter of Intent or Application is received. This will serve as a confirmation of receipt. Please do not reply to the automated response. The applicant will have the opportunity to re-submit a revised Letter of Intent or Application for any reason as long as the revised submission

is submitted by the specified deadline. Any application that is submitted beyond the specified deadline will not be reviewed. The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements is found at <https://eere-exchange.energy.gov/Manuals.aspx>.

The EERE Exchange registration does not have a delay; however, the remaining **registration requirements below could take several weeks to process and are necessary in order for a potential applicant to receive an award under this announcement.** Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants lacking a DUNS number, or not yet registered with CCR or FedConnect should complete those registrations as soon as possible.**

Questions related to the registration process and use of the EERE Exchange website should be submitted to: EERE-ExchangeSupport@hq.doe.gov

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the Central Contractor Registry (CCR) at: <https://www.bpn.gov/ccr/default.aspx>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in CCR registration. Please update your CCR registration annually.
- Register in FedConnect at <https://www.fedconnect.net/>. To create an organization account, your organization's CCR MPIN is required. For more information about the CCR MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov/>

3. Electronic Authorization of Applications and Award Documents

Submission of an application and supplemental information under this announcement through electronic systems used by the Department of Energy, including EERE Exchange, constitutes the authorized representative's approval and electronic signature.

Submission of award documents, including modifications, through electronic systems used by the Department of Energy, including FedConnect, constitutes the authorized representative's approval and acceptance of the terms and conditions of the award. Award acknowledgement via FedConnect constitutes the authorized representative's electronic signature.

SECTION V - APPLICATION REVIEW INFORMATION

A. Criteria

1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the FOA. If an application fails to meet these requirements, it may be deemed non-responsive and eliminated from full Merit Review.

2. Merit Review Criteria

Applications will be evaluated against the merit review criteria shown below:

Criterion 1: Assessment Team Experience and Qualifications [40%]

- The degree to which the application demonstrates the skills, qualifications and experience of the assessment team lead and proposed team members as they relate to the requirements described in Table 1
- The demonstrated ability of the proposed project team to participate in Standard Methodology Training and complete all assessments within the applicant's proposed schedule, not to exceed eighteen (18) months

Criterion 2: Technical Approach to Project Assessment [40%]

- The degree to which the proposed work scope, schedule, budget, and deliverables are clearly stated, organized, timely, and achievable
- The adequacy and completeness of the proposed tasks and resources identified to successfully address all elements of the scope and deliverables required as part of the standard assessments

Criterion 3: Alignment with HAP Objectives, Purpose and Standard Methodology [20%]

- The degree to which the application demonstrates alignment with the HAP objectives, purpose, and standard methodology referenced in Section I of this FOA

3. Other Selection Factors

Program Policy Factors

The selection official may consider the following program policy factors in the selection process:

- The number, diversity, and commitment of proposed hydropower facilities
- Geographic diversity of teams and facilities, if proposed
- Alignment with mission and goals of the Water Power Program (<http://www1.eere.energy.gov/water/mission.html>)
- Significance of benefits for the amount of funding requested
- Re-licensing schedule for the facility under consideration

B. Review and Selection Process

1. Merit Review

Applications that pass the initial review will be subject to a merit review in accordance with the guidance provided in the “Department of Energy Merit Review Guide for Financial Assistance”. This guide is available at <http://energy.gov/management/office-management/operational-management/financial-assistance> under Financial Assistance Policy and Guidance.

2. Pre-Selection Clarification

The Contracting Officer may contact applicants if he/she determines that pre-selection clarification is necessary and appropriate. The Contracting Officer has exclusive authority to make this determination. The Contracting Officer may contact one, multiple, or no applicants at his/her discretion. The Contracting Officer will convey any questions or requests for clarification to the applicant and set a deadline for responses. All responses must be sent to the Contracting Officer by the given deadline.

3. Selection

The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available.

4. Discussions and Award

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including, but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special terms and

conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. Anticipated Notice of Selection and Award Dates

DOE anticipates notifying applicants selected for award by the end of August 2012 and making awards by the end of September 2012

SECTION VI - AWARD ADMINISTRATION INFORMATION

A. Notice of Selection

1. Notice of Selection

Selected Applicants Notification

DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Section IV.G with respect to the allowability of pre-award costs.)

Non-selected Notification

Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award

A Financial Assistance Award or Assistance Agreement issued by the Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference: (1) Special Terms and Conditions; (2) Applicable program regulations, if any; (3) Application as approved by DOE; (4) DOE assistance regulations at 10 CFR part 600; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110, the Award also includes the Research Terms and Conditions and the DOE Agency Specific Requirements located at:

<http://www.nsf.gov/bfa/dias/policy/rtr/index.jsp>.

B. Administrative and National Policy Requirements

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in Title 10 CFR Part 600 (See: [10 CFR 600](#)). Grants and cooperative agreements made to universities, non-profits and other entities subject to Title 10 CFR Part 600 are subject to the Research Terms and Conditions located on the National Science Foundation web site at:

<http://www.nsf.gov/bfa/dias/policy/rtr/index.jsp>.

DUNS and CCR Requirements

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR, Part 25 (See: <http://ecfr.gpoaccess.gov>). Prime awardees must keep their data at CCR current. Sub-awardees at all tiers must obtain DUNS numbers and provide the DUNS to the prime awardee before the sub-award can be issued.

Sub-award and Executive Reporting

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR, Part 170. (See: <http://ecfr.gpoaccess.gov>). Prime awardees must register with the new FSRS database and report the required data on their first tier sub-awardees. Prime awardees must report the executive compensation for their own executives as part of their registration profile in the CCR.

2. Special Terms and Conditions and National Policy Requirements

The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at:

<http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>.

The National Policy Assurances To Be Incorporated as Award Terms are located at

<http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>

By submitting an application in response to this FOA the Applicant certifies that:

- (1) It is **not** a corporation that has been convicted (or had an officer or agent of such corporation acting on behalf of the corporation convicted) of a felony criminal violation under any Federal law within the preceding 24 months,
- (2) It is **not** a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,
- (3) If the Applicant's financial assistance application is chosen for award and the award is in excess of \$1,000,000, the applicant will, by the end of the fiscal year, upgrade the efficiency of their facilities by replacing any lighting that does not meet or exceed the energy efficiency standard for incandescent light bulbs set forth in Section 325 of the Energy Policy and Conservation Act (42 U.S.C. 6295).

3. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>

4. Statement of Substantial Involvement

DOE will have substantial involvement in this project.

DOE has the right to intervene in the conduct or performance of project activities for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities”. Refer to 10 CFR 600.5 (d) for additional language and citations.

DOE will be actively involved in performing compliance reviews of assessment reports, coordinating public dissemination of assessment information, providing consultation to the assessment teams in order to resolve technical issues or challenges and participate in the assessments and site visits as needed.

Assessment teams will be required to attend a DOE-provided assessment training workshop planned for October 2012. The workshop will be used to orient the assessment teams to the HAP standard assessment methodology.

In addition DOE will coordinate the assignment of hydropower facilities with assessment teams. Facilities will be assigned as needed.

C. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement.

Additional reporting requirements for all awards resulting from this FOA will include the following:

- **Assessment Data Report** submitted **3 weeks** after each site visit
- **Draft Assessment Report** submitted to DOE **6 weeks** after each site visit
- **Final Assessment Report and Public Assessment Report** submitted to DOE **9 weeks** after site visit
- **Quarterly technical progress reports**

SECTION VII - QUESTIONS/AGENCY CONTACTS

A. Questions

Questions regarding the content of this announcement must be submitted to HAPHydrofoa@go.doe.gov not later than 3 business days prior to the application due date.

All questions and answers related to this FOA will be posted on EERE Exchange at: <https://eere-exchange.energy.gov/>. **Please note that you must first select this specific FOA Number in order to view the questions and answers specific to this FOA.** DOE will attempt to respond to a question within 3 business days, unless a similar question and answer has already been posted on the website.

Questions related to the registration process and use of the EERE Exchange website should be submitted to: EERE-ExchangeSupport@hq.doe.gov

SECTION VIII - OTHER INFORMATION

A. Amendments

Amendments to this announcement will be posted on the EERE eXCHANGE web site and the Grants.gov system. However, you will only receive an email when an amendment or an announcement is posted on these sites if you register for email notifications for this FOA in Grants.gov. DOE recommends that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any amendments or other announcements.

B. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. Commitment of Public Funds

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. Proprietary Application Information

DOE will use data and other information contained in applications strictly for evaluation purposes. Applicants should not include confidential, proprietary, or privileged information in their applications unless such information is necessary to convey an understanding of the proposed project.

Applications containing confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

The cover sheet of the application must be marked as follows and identify the specific pages containing confidential, proprietary, or privileged information:

Notice of Restriction on Disclosure and Use of Data:

Pages [*list applicable pages*] of this document may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: “Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure.”

In addition, every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

E. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. Notice of Right to Conduct a Review of Financial Capability

DOE reserves the right to conduct an independent third party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

G. Notice of Potential Disclosure under Freedom of Information Act

Applicants should be advised that identifying information regarding all applicants, including applicant names and/or points of contact, may be subject to public disclosure under the Freedom of Information Act, whether or not such applicants are selected for negotiation of award.

REFERENCE MATERIAL

Appendix A – Definitions

“Amendment” means a revision to a Funding Opportunity Announcement

"Applicant" means the legal entity or individual signing the Application. This entity or individual may be one organization or a single entity representing a group of organizations (such as a Consortium) that has chosen to submit a single Application in response to a Funding Opportunity Announcement.

"Application" means the documentation submitted in response to a Funding Opportunity Announcement.

“Authorized Organization Representative (AOR)” is the person with assigned privileges who is authorized to submit grant applications through Grants.gov on behalf of an organization. The privileges are assigned by the organization’s E-Business Point of Contact designated in the CCR.

"Award" means the written documentation executed by a DOE Contracting Officer, after an Applicant is selected, which contains the negotiated terms and conditions for providing Financial Assistance to the Applicant. A Financial Assistance Award may be either a Grant or a Cooperative Agreement.

"Budget" means the cost expenditure plan submitted in the Application, including both the DOE contribution and the Applicant Cost Share.

“Central Contractor Registration (CCR)” is the primary database which collects, validates, stores and disseminates data in support of agency missions.

"Consortium (plural consortia)" means the group of organizations or individuals that have chosen to submit a single Application in response to a Funding Opportunity Announcement.

"Contracting Officer" means the DOE official authorized to execute Awards on behalf of DOE and who is responsible for the business management and non-program aspects of the Financial Assistance process.

"Cooperative Agreement" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and Substantial Involvement (see definition below) is anticipated between DOE and the Applicant during the performance of the contemplated activity. Refer to [10 CFR 600.5](#) for additional information regarding cooperative agreements.

"Cost Sharing" means the respective share of Total Project Costs to be contributed by the Applicant and by DOE. The percentage of Applicant Cost Share is to be applied to the Total Project Cost (i.e., the sum of Applicant plus DOE Cost Shares) rather than to the DOE contribution alone.

“Data Universal Numbering System (DUNS) Number” is a unique nine-character identification number issued by Dun and Bradstreet (D&B). Organizations must have a DUNS number prior to registering in the CCR. Call 1-866-705-5711 to receive one free of charge.

“E-Business Point of Contact (POC)” is the individual who is designated as the Electronic Business Point of Contact in the CCR registration. This person is the sole authority of the organization with the capability of designating or revoking an individual’s ability to conduct CCR transactions.

“E-Find” is a Grants.gov webpage where you can search for Federal Funding Opportunities in FedGrants. <http://www.grants.gov/search/searchHome.do>

“EERE Exchange” is the Department of Energy, Energy Efficiency and Renewable Energy’s web system for posting Federal Funding Opportunity Announcements and receiving applications. <https://eere-exchange.energy.gov/FileContent.aspx?FileID=e10b8886-1826-447d-b1bf-8d9f0bf06f8e>

"Financial Assistance" means the transfer of money or property to an Applicant or Participant to accomplish a public purpose of support authorized by Federal statute through Grants or Cooperative Agreements and sub-awards. For DOE, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

“FedConnect” is where federal agencies make awards via the web. <https://www.fedconnect.net/FedConnect/>

“Federally Funded Research and Development Center (FFRDC)” means a research laboratory as defined by Federal Acquisition Regulation 35.017.

“Funding Opportunity Announcement (FOA)” is a publicly available document by which a Federal agency makes known its intentions to award discretionary grants or cooperative agreements, usually as a result of competition for funds. Funding opportunity announcements may be known as program announcements, notices of funding availability, solicitations, or other names depending on the agency and type of program.

"Grant" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and no Substantial Involvement is anticipated between DOE and the Applicant during the performance of the contemplated activity.

“Grants.gov” is the “storefront” web portal which allows organizations to electronically find grant opportunities from all Federal grant-making agencies. Grants.gov is THE single access point for over 900 grant programs offered by the 26 Federal grant-making agencies. <http://www.grants.gov>

“Indian Tribe” means any Indian tribe, band, nation, or other organized group or community, including Alaska Native village or regional or village corporation, as defined in or established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688)[43 U.S.C. § 1601 et seq.], which are recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

"Key Personnel" mean the individuals who will have significant roles in planning and implementing the proposed Project on the part of the Applicant and Participants, including FFRDCs.

“Marketing Partner Identification Number (MPIN)” is a very important password designated by your organization when registering in CCR. The E-Business Point of Contact will need the MPIN to assign privileges to the individual(s) authorized to perform CCR transactions on behalf of your organization. The MPIN must have 9 digits containing at least one alpha character (must be in capital letters) and one number (no spaces or special characters permitted).

"Participant" for purposes of this Funding Opportunity Announcement only, means any entity, except the Applicant substantially involved in a Consortium, or other business arrangement (including all parties to the Application at any tier), responding to the Funding Opportunity Announcement.

“Principal Investigator” refers to the technical point of contact/Project Manager for a specific project award.

"Project" means the set of activities described in an Application, State plan, or other document that is approved by DOE for Financial Assistance (whether such Financial Assistance represents all or only a portion of the support necessary to carry out those activities).

“Proposal” is the term used to describe the documentation submitted in response to a Funding Opportunity Announcement. Also see Application.

“Recipient” means the organization, individual, or other entity that receives a Financial Assistance Award from DOE, is financially accountable for the use of any DOE funds or property provided for the performance of the Project, and is legally responsible for carrying out the terms and condition of the award.

"Selection" means the determination by the DOE Selection Official that negotiations take place for certain Projects with the intent of awarding a Financial Assistance instrument.

"Selection Official" means the DOE official designated to select Applications for negotiation toward Award under a subject Funding Opportunity Announcement.

"Substantial Involvement" means involvement on the part of the Government. DOE's involvement may include shared responsibility for the performance of the Project; providing technical assistance or guidance which the Applicant is to follow; and the right to intervene in the

conduct or performance of the Project. Such involvement will be negotiated with each Applicant prior to signing any agreement.

“Technology Investment Agreement (TIA)” is a type of assistance instrument used to support or stimulate research projects involving for-profit firms, especially commercial firms that do business primarily in the commercial marketplace. TIAs are different from grants and cooperative agreements in that the award terms may vary from the Government-wide standard terms (See DOE TIA regulations at 10 CFR Part 603). The primary purposes for including a TIA in the type of available award instruments are to encourage non-traditional Government contractors to participate in an R&D program and to facilitate new relationships and business practices. A TIA can be particularly useful for awards to consortia (See 10 CFR 603.225(b) and 603.515, Qualification of a consortium).

"Total Project Cost" means all the funds to complete the effort proposed by the Applicant, including DOE funds (including direct funding of any FFRDC) plus all other funds that will be committed by the Applicant as Cost Sharing.

“Tribal Energy Resource Development Organization or Group” means an “organization” of two or more entities, at least one of which is an Indian Tribe (see “Indian Tribe” above) that has the written consent of the governing bodies of all Indian Tribes participating in the organization to apply for a grant or loan, or other assistance under 25 U.S.C. § 3503.

Appendix B – Personally Identifiable Information

In responding to this Announcement, Applicants must ensure that Protected Personally Identifiable Information (PII) is not included in the following documents: Project Abstract, Project Narrative, Biographical Sketches, Budget or Budget Justification. These documents will be used by the Merit Review Committee in the review process to evaluate each application. PII is defined by the Office of Management and Budget (OMB) and DOE as:

Any information about an individual maintained by an agency, including but not limited to, education, financial transactions, medical history, and criminal or employment history and information that can be used to distinguish or trace an individual's identity, such as their name, social security number, date and place of birth, mother's maiden name, biometric records, etc., including any other personal information that is linked or linkable to an individual.

This definition of PII can be further defined as: (1) Public PII and (2) Protected PII.

- a. **Public PII:** PII found in public sources such as telephone books, public websites, business cards, university listing, etc. Public PII includes first and last name, address, work telephone number, email address, home telephone number, and general education credentials.
- b. **Protected PII:** PII that requires enhanced protection. This information includes data that if compromised could cause harm to an individual such as identity theft.

Listed below are examples of Protected PII that Applicants must not include in the files listed above to be evaluated by the Merit Review Committee.

- Social Security Numbers in any form
- Place of Birth associated with an individual
- Date of Birth associated with an individual
- Mother's maiden name associated with an individual
- Biometric record associated with an individual
- Fingerprint
- Iris scan
- DNA
- Medical history information associated with an individual
- Medical conditions, including history of disease
- Metric information, e.g. weight, height, blood pressure
- Criminal history associated with an individual
- Employment history and other employment information associated with an individual
- Ratings
- Disciplinary actions
- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual's performance appraisal

- Financial information associated with an individual
- Credit card numbers
- Bank account numbers
- Security clearance history or related information (not including actual clearances held)

Listed below are examples of Public PII that Applicants may include in the files listed above to be evaluated by the Merit Review Committee:

- Phone numbers (work, home, cell)
- Street addresses (work and personal)
- Email addresses (work and personal)
- Digital pictures
- Medical information included in a health or safety report
- Employment information that is not PII even when associated with a name
- Resumes, unless they include a Social Security Number
- Present and past position titles and occupational series
- Present and past grades
- Present and past annual salary rates (including performance awards or bonuses, incentive awards, merit pay amount, Meritorious or Distinguished Executive Ranks, and allowances and differentials)
- Present and past duty stations and organization of assignment (includes room and phone numbers, organization designations, work email address, or other identifying information regarding buildings, room numbers, or places of employment)
- Position descriptions, identification of job elements, and those performance standards (but not actual performance appraisals) that the release of which would not interfere with law enforcement programs or severely inhibit agency effectiveness
- Security clearances held
- Written biographies (e.g. to be used in a program describing a speaker)
- Academic credentials
- Schools attended
- Major or area of study
- Personal information stored by individuals about themselves on their assigned workstation or laptop unless it contains a Social Security Number

Appendix C – Hydropower Facility Data Sheet

1. Name:	
2. Owner:	
3. Location / Coordinates:	
4. Contact Information:	
5. River:	
6. City/County, State:	
7. Project Purposes:	
8. Operation Mode (run of river; storage, peaking):	
9. Diversions / Dam Features:	
a. Type	b. Height
c. Length at Top	d. Spillway
e. Total Drainage Area	f. Other
10. Reservoir Capacity and Management	
a. Max Res. Level For Power Gen.	b. Min Res. Level
c. Dead Storage Level	d. Gross Storage
e. Dead Storage	f. Net Storage
g. Sedimentation levels	
11. Water conductor system -	
a. Intake	
b. Power tunnel / Canal – Length section	
c. Penstock – Length and Diameter	
d. Tailrace – Length and section	
e. Surge Tank Features	
12. Powerhouse Description:	
a. Location	
b. Type (surface / underground)	
c. Number and rated capacity of each unit	
d. Turbine type(s) rated head, flow and power	
e. Generator Type and rated capacity	
13. Avg. Annual Generation	
14. Year of commercial operation	
15. Year of next FERC relicense	
16. Historic Upgrade Events	



Additional Information (provide a brief response if applicable):

1. Availability of information identified in the HAP Facility Assessment Needs Appendix D and facility experts to support the HAP assessment team
2. Known potential for increased generation and value at the facility
 - For example: recent performance assessment results, changes in operation that affected facility performance, new constraints imposed or likely to be imposed
3. How a HAP standard assessment would benefit the facility
 - For example: the likelihood that opportunities identified would be implemented, barriers that may prevent implementation, and decision process for upgrade investments
4. Other comments

Appendix D – HAP Assessment Information Needs

General:

- **Plant General Information and Data**
 - General plant history
 - Location/coordinates
 - Maintenance/upgrade history, major events/failures
 - Previous assessment reports
 - Upgrade plans/studies
 - Cost and benefit information for upgrade projects
 - License/Constraint information
- **Equipment Specifications (original and upgraded)**
 - Turbine specifications: nameplate info, speed ring/shaft/runner design, materials/alloys
 - Governor specifications: nameplate info, design info
 - Generator specifications: nameplate, design info
 - Transformer and switchgear specifications: nameplate, design info
 - Vibration monitoring specifications
- **Drawings**
 - General: Site arrangement, general layout/elevation drawings
 - Civil: Outline of water conveyances (Intake, Trash Racks, Tunnel/Penstock/Open Channel, Penstock Valves, scroll/spiral case, Draft Tube, Tailrace)
 - Civil: dam, spillway, sluice/outlet, powerhouse, intake concrete sections
 - Mechanical: trashrack, turbine equipment, balance of plant, raw water piping drawings and flow diagrams
 - Mechanical: governing system
 - Instrumentation and Controls (I&C): Process and Instrumentation Diagrams for Units
 - Electrical: single line for generators/exciters/transformers/switchgear

Condition Assessment Data

- **Inspection/Test Reports/Results**
 - Summary of scheduled/routine inspection program
 - Leakage and seepage observations and data from spillway gates, dams, and reservoir
 - Corrosion, blockage, other damage to conveyances
 - Conveyance head loss measurements/observations
 - Cavitation inspection and measurement data
 - Visual, Remotely Operated Vehicle (ROV), dewatered, or diving inspection results
 - Seal ring inspection data (gap widths)
 - Water or oil leakage inspection & measurement data
 - Bearing lube oil analysis results
 - Generator field test data

- History of any significant generator faults/repairs/upgrades in stator or rotor
- Transformer test data including factory and field tests.
- Transformer oil quality and dissolved gas test reports
- **I&C, Condition Monitoring, and Decision Support Systems Info**
 - Control narrative
 - I/O (Input/Output) list
 - Network diagram
 - Condition monitoring overview, trending, maintenance
 - Hardware and software systems vendors

Performance Assessment Data

- **Unit and Plant Performance Data and Information**
 - Turbine characteristic curves (original and current)
 - Model test data
 - Field test data
 - Generator efficiency curves
 - Hourly (sub-hourly, if available) operational data for multiple years
 - total plant releases including spill/slucice/bypass values vs. time
 - Head water level, tail water level, unit power, unit flow vs. time
 - Wicket gate and blade (Kaplan) position vs. time
 - Trash rack hydraulic head differential vs. time (if available)
 - Air flow rates and air on or off for aerating units
 - Air effects on unit efficiency for aerating units
 - Environmental constraints
 - Unit operating constraints (minimum flow, cavitation and vibration constraints, Generator constraints)
 - Generator capability curves
 - Generator excitation curves
- **Generating Availability Data System (GADS) Report**
 - Unit operating hours and number of starts
 - Dispatch requests

Appendix E – Blank Assessment Team Table

Role	Name	Qualifications
1. Assessment Leader		
2. Power train & Balance of Plant Expert		
3. Electrical Expert		
4. Civil Structures & Geotechnical Expert		
5. Performance Specialist		