UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
INTERAGENCY AGREEMENT

1A. AGREEMENT NUMBER	1B. MOD NUMBER	2. REQUISITION NUMBER	3. COST AUTHORITY
R11PG30024		11301000002	A10-0344-6100-BOR-00-0-1-3205000-253H

4. REQUESTING OFFICE	5. SERVICING AGENCY
U.S. Department of the Interior **Bureau of Reclamation** **P.O. Box 61470** **Boulder City, NV 89006-1470**	**U.S. Department of Energy,** **Golden Field Office** **1617 Cole Blvd.** **Golden CO 80401-3305**
6. RECLAMATION ADMINISTRATIVE POINT OF CONTACT **Paula Cerda,** **Bureau of Reclamation** **P.O. Box 61470** **Boulder City NV 89006-1470** **Telephone/Fax: 702-293-8527/702-293-8332** **PCerda@usbr.gov**	7. SERVICING AGENCY PROGRAM OFFICE REPRESENTATIVE **Scott Haase** **National Renewable Energy Laboratory (NREL)** **1617 Cole Blvd. Mail Stop RSF-402** **Golden CO 8401-3305** **Telephone: 303-275-3057** **Scott.Haase@nrel.gov**
8. RECLAMATION INTERAGENCY AGREEMENT TECHNICAL REPRESENTATIVE (IATR) **Sandra Eto** **Bureau of Reclamation, Phoenix Area Office** **6150 W. Thunderbird Road** **Glendale AZ 85306-4001** **Telephone/Fax: 623-773-6254/623-773-6485** **SEto@usbr.gov**	9A. INITIAL EFFECTIVE DATE: **See Block 16a** 9B. MODIFICATION EFFECTIVE DATE: 10. COMPLETION DATE **August 1, 2012**

11A. STATUTORY AUTHORITY
[X] Economy Act, 31 U.S.C. 1535
[ ] Other: (Provide Specific Citation(s)

12. FUNDING INFORMATION		13. ACCOUNTING AND APPROPRIATION DATA	
Funds in the amount of $333,000 are being obligated under this agreement under cost authority # A10-0344-5100-BOR-00-0-1-3205000-253H. **Additional funds in the amount of $227,000 for work anticipated to begin in FY 2012 will be made available for obligation as it is received from cost share partners**		Cost Center	3205000
		Object Code	253H
		Agency Location Code	1406-0905
		Business Event Type Code	DISB
Total Estimated Amount	$560,000	DUNS / BPN #	969794551
This Obligation	$333,000	Funding Agency Code	1425
Previous Obligation	$0	Funding Office Code	3205000
Total Obligation	$333,000	Treasury Account Symbol	14-06-0905

14. PROJECT TITLE AND BRIEF SUMMARY OF PURPOSE AND OBJECTIVES OF PROJECT –

Navajo Generating Station Options Study – Phase I - conduct a study to develop additional information and analysis pertinent to the determination by the Environmental Protection Agency (EPA) of what type of control technology constitutes the Best Available Retrofit Technology (BART) in a Federal Implementation Plan for NGS and to evaluate the technical and economic feasibility of integrating clean energy technologies into the current operation of the Navajo Generating Station (NGS), which would satisfy the Environmental Protection Agency's (EPA) Best Available Retrofit Technology (BART) requirements.

15a. SERVICING AGENCY: Acceptance of this Interagency Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of the above named Agency	16a. RECLAMATION (REQUESTING AGENCY) Award of this Assistance Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of the United States of America, Department of the Interior, Bureau of Reclamation
See Page B-5, Paragraph B.18	See Page B-5, Paragraph B.18
SIGNATURE DATE	SIGNATURE DATE
15b. NAME AND TITLE OF REQUESTING AGENCY SIGNATORY Jean M. Siekerka, Contracting Officer 303-275-4924	16b. NAME OF CONTRACTING OFFICER Beverly K. Nelson 702-293-8524

Interagency Agreement R11PG30024
PART A – General Terms & Conditions

A.1 Purpose

This Part of the IA (hereinafter "Part A") describes the terms and conditions that govern the provision of acquisition assistance between the **Bureau of Reclamation**, hereinafter "the Requesting Agency" and the **Department of Energy Golden Field Office**, hereinafter "the Servicing Agency."

No fiscal obligations are created through the execution of Part A. A fiscal obligation arises when the Requesting Agency demonstrates a bona fide need, provides the necessary requirements and funding information to the Servicing Agency and both parties execute a funding document using Part B of this IA or an alternate funding document.

A.2. Authority

[X] The Economy Act (31 U.S.C. 1535)

A.3 Part A Identifier

a. Agreement No. Requesting Agency: **R11PG30024**
Agreement No. Servicing Agency: **IAG-11-1823**

b. Requisition No. **11301000002**

c. Cost Authority No. **A10-0344-6100-BOR-00-0-1-3205000-253H**

A.4. Scope

a. Organizations authorized to request acquisition assistance – The Bureau of Reclamation, Lower Colorado Region is the only organization authorized to obtain acquisition assistance from the Servicing Agency under the IA.

b. Organizations authorized to provide acquisition assistance – The Servicing Agency is authorized to provide acquisition assistance to the Bureau of Reclamation's, Lower Colorado Region under this IA.

c. The goal of the overall study is to provide Navajo Generating Station (NGS) stakeholders, including EPA, with additional data and input regarding the technical and economic feasibility of options for compliance with the Clean Air Act's (CAA) Best Available Retrofit Technology (BART) and reasonable progress requirements at NGS. An essential element of the study is that it be carried out by an objective third-party expert. DOE's National Renewable Energy Laboratory (NREL) is recognized and accepted by all stakeholders as being that objective third-party expert. A copy of the Study scope of work (SOW) is provided as Attachment One.

Under the first phase of this study, additional information and analysis will be generated, pertinent to the determination by the Environmental Protection Agency (EPA) of what type of control technology constitutes BART for NGS in a Federal Implementation Plan. It will focus primarily on the compilation of additional detailed information and completion of a comprehensive analysis consistent with the five statutorily prescribed BART factors.

A.5. Period of Agreement

The terms and conditions described in Part A of the IA become effective when signed by authorized officials of both agencies and remain effective through August 1, 2012 unless amended in accordance with Section 11 or terminated in accordance with Section 12.

A.6. Roles & Responsibilities of Servicing Agency and Requesting Agency

The effective management and use of interagency contracts is a shared responsibility of the Requesting Agency and the Servicing Agency. The parties hereby agree to the following roles and responsibilities, which are derived from the Checklist in Appendix 1 of *Interagency Acquisitions*, guidance issued by the Office of Federal Procurement Policy.

a. Roles and Responsibilities of the Servicing Agency: The Servicing Agency will serve as the Contracting Officer for this Study on behalf of the National Renewable Energy Laboratory (NREL), and will be responsible for the following:

   1. Committing and procuring the services of NREL to perform the SOW;
   2. Receiving and managing the funding provided by Reclamation;
   3. Monitoring NREL performance and expenditures associated with the SOW; and
   4. Ensuring proper close-out of the IA at the completion of all work

b. Roles and Responsibilities of the Requesting Agency: Reclamation will serve as the Program Manager for this study on behalf of the Department of the Interior, and will be responsible for the following:

   1. Overseeing the progress and performance of the work performed through the IA;
   2. Reviewing progress reports and monitoring work performed vs. budget expended Processing requests for payments; and
   3. Ensuring receipt of all deliverables including but not limited to the draft and final reports

A.7. Billing & Payment

The Requesting Agency will pay the Servicing Agency for costs of each modification to their NREL contract required to facilitate the work required under this study. Billings may include the amounts due under the contract plus any assisted service fees identified in Part B of this IA.

The Servicing Agency shall be paid by Reclamation using the Intergovernmental Payment and Collection (IPAC) method. The Servicing Agency shall bill via IPAC to Reclamation's Agency Location Code (ALC) 14-06-0905. The Servicing Agency shall submit IPAC billings on a monthly basis for costs incurred as authorized. Billing may not begin until the date of award.

a. Description block of IPAC billing must include the following:

   1. Reclamation accounting information;
   2. IA number;
   3. billing period;
   4. accountable contact; and
   5. telephone number.

b. Payments:

   1. The Servicing Agency shall coordinate IPAC draw-downs with their contractor payment requests;
   2. The Servicing Agency shall review, approve, and authorize contractor payments; and
   3. The Servicing shall submit the appropriate IPAC support documentation to Reclamation's Denver Finance Office and to the Technical Representative identified in Part B, Section B.17.

A.8. Small Business Credit

This condition is not applicable to this IA.

A.9. Contract Termination, Disputes and Protests

If a contract or order awarded pursuant to this IA is terminated or cancelled or a dispute or protest arises from specifications, solicitation, award, performance or termination of a contract, appropriate action will be taken in accordance with the terms of the contract and applicable laws and regulations. The Requesting Agency shall be responsible for all costs associated with termination, disputes, and protests, including settlement costs. The Servicing Agency shall consult with the Requesting Agency before agreeing to a settlement or payments to ensure that the Servicing Agency has adequate time in which to raise or address any fiscal or budgetary concerns arising from the proposed payment or settlement.

A.10. Review of Part A

The parties agree to review jointly the terms and conditions in Part A at least annually if the period of this agreement, as identified in Section 5, exceeds one year. Appropriate changes will be made by amendment to this agreement executed in accordance with Section 11.

The parties further agree to review performance under this IA to determine if expectations are being met and document a summary of their assessment. The responsible reviewing official at each agency shall sign and date the assessment.

A.11. Amendments

Any amendments to the terms and conditions in Part A shall be made in writing and signed by both the Servicing Agency and the Requesting Agency.

A.12. IA Termination

This IA may be terminated upon thirty (30) calendar days of written notice by either party. If this agreement is cancelled, any implementing contract/order may also be cancelled. If the IA is terminated, the agencies shall agree on the terms of the termination, including costs attributable to each party and the disposition of awarded and pending actions.

If the Servicing Agency incurs costs due to the Requesting Agency's failure to give the requisite notice of its intent to terminate the IA, the Requesting Agency shall pay any actual costs incurred by the Servicing Agency as a result of the delay in notification, provided such costs are directly attributable to the failure to give notice

A.13. Interpretation of IA

If the Servicing Agency and Requesting Agency are unable to agree about a material aspect of either Part A or Part B of the IA, the parties agree to engage in an effort to reach mutual agreement in the proper interpretation of this IA, including amendment of this IA, as necessary, by escalating the dispute within their respective organizations.

If a dispute related to funding remains unresolved for more than sixty (60) calendar days after the parties have engaged in an escalation of the dispute, the parties agree to refer the matter to their respective Agency Chief Financial Officers with a recommendation that the parties submit the dispute to the CFO Council Intragovernmental Dispute Resolution Committee for review in accordance with Section VII of Attachment 1 to the Treasury Financial Manual, Volume 1, Bulletin No. 2007-03, Intragovernmental Transactions, Subject: Intragovernmental Business Rules, or subsequent guidance.

A.13. Signatures

Requesting Agency Official:

Signature: Beverly K Nelson Date: JUL 22 2011

Name: Beverly K. Nelson
Title: Contracting Officer
Agency: Bureau of Reclamation, Lower Colorado Region
Address: P.O. Box 61470, Boulder City, NV 89006-1470
Telephone: 702-293-8524
Fax: 702-293-8499
E-mail: BNelson@usbr.gov

Servicing Agency Official:

Signature: Jean M Siekerka Date: 7/22/2011

Name: Jean M. Siekerka
Title: Contracting Officer
Agency: Department of Energy, Golden Field Office
Address: 1617 Cole Blvd, Golden, CO, 80401-3305
Telephone: 303-275-4924
Fax: 303-275-4790
E-mail: jean.siekerka@go.doe.gov

Interagency Agreement No. R11PG30024
PART B – Requirements & Funding Information

B.1. Purpose

This Part of the IA (hereinafter "Part B") serves as the funding document. It provides specific information on the requirements of the **Bureau of Reclamation**, hereinafter "the Requesting Agency" sufficient to demonstrate a bona fide need and identifies funds associated with the requirement to allow the **Department of Energy Golden Field Energy**, hereinafter "the Servicing Agency," to provide acquisition assistance and conduct an interagency acquisition.

B.2. Authority

The parties' authority to enter into this interagency agreement is (check applicable box):

[X] The Economy Act (31 U.S.C. 1535)

B.3. Part B Identifier

a. Agreement No. Requesting Agency: R11PG30024
Agreement No. Servicing Agency: IAG-11-1823

c. Requisition No. 11301000002

d. Cost Authority: A10-0344-6100-BOR-00-0-1-3205000-253H

B.4. General Terms & Conditions

Activities undertaken pursuant to this document are subject to the general terms and conditions set forth in Part A, Interagency Agreement No. R11PG30024 Part A located prior to this section.

B.5. Project Title

Navajo Generating Station Options Study – Phase I

B.6. Description of Products or Services / Bona Fide Need

The Department of the Interior (DOI) through the U.S. Bureau of Reclamation (Reclamation) desires to conduct a comprehensive study that investigates the many interrelated and complex impacts associated with protecting visibility in relation to the Navajo Generation Station (NGS). The study will be broken into two phases.

The first phase of this study will develop additional information and analysis pertinent to the determination by the Environmental Protection Agency (EPA) of what type of control technology constitutes the Best Available Retrofit Technology (BART) in the long term in a Federal Implementation Plan (FIP) for NGS. The study focuses primarily on the compilation of additional detailed information and completion of a comprehensive analysis consistent with the five statutorily prescribed BART factors.

This study makes no presumption about what the appropriate BART determination should be. Rather, its purpose is to provide NGS owners, EPA, policy makers and other interested stakeholders with additional information and analysis, especially with respect to electric generation technologies and other issues outside the expertise of EPA or NGS stakeholders.

Tasks and Deliverables: See Attached Statement of Work

COST BREAKDOWN: The estimated amounts for the costs associated with this project for the next two fiscal years are as follows: (See attached detailed cost breakdown)

	FY 2011	FY 2012	TOTAL EFFORT
Labor	$253,000	$ 99,000	$352,000
Travel	$ 25,000	$ 3,000	$ 28,000
Subcontracts			
NETL	$ 20,000	$ 60,000	$ 80,000
HDR Eng'ring	$ 35,000	$ 65,000	$100,000
TOTALS by FY	$333,000	$227,000	$560,000

B.7. Projected Milestones

Milestone	Target Draft Completion Date	Final Completion Date
Award of IA	July 20, 2011	July 20, 2011
Task 1	September 1, 2011 and ongoing through Phase1	December 31, 2011
Task 2	October 1, 2011	November 15, 2011
Task 3	October 1, 2011	November 15, 2011
Task 4	October 1, 2011	November 15, 2011
Task 5	November 1, 2011	December 31, 2011
Task 6	November 1, 2011	December 31, 2011
Task 7	December 1, 2011	December 31, 2011
Task 8	Draft report completed by December 1, 2011. The draft will be provided to the executive Committee, Stakeholders, the EPA and other interested users. Comments on the Draft Report will be considered for inclusion in the final report.	December 31, 2011

See Attachment 1 – Deliverables & Schedule for more detail on the milestones.

B.8. Billing and Payment

The Servicing Agency will pay contractor invoices from amounts identified in section 13 on a reimbursable basis. The Servicing Agency will present an itemized statement to the Requesting Agency for reimbursement of incurred contract costs and assisted services support costs. The Requesting Agency will pay reimbursable billings to the Servicing Agency from funds identified in section B.12. See section 7 of Part A for additional terms and conditions addressing billing and payment.

B.9. Description of Acquisition Assistance

The Servicing Agency will provide the following services to the Requesting Agency:

1. Committing and procuring the services of NREL to perform the SOW;
2. Receiving and managing the funding provided by Reclamation;
3. Monitoring NREL performance and expenditures associated with the SOW; and
4. Ensuring proper close-out of the IA at the completion of all work

B.10. Fees

The will be no services charge/fees applied by the Servicing Agency to the Requesting Agency. The Servicing Agency will bill the Requesting Agency for cost incurred, including applicable overhead costs, for the services provided.

B.11. Obligation Information

The Servicing Agency will notify Reclamation as soon as practicable if it appears that additional funding may be needed to perform the work, or due to claims, disputes, modifications, or any other cause arising from contracts, under this agreement. If additional funding is needed, Reclamation may provide it or agree to adjust the work to fit within available funding, as appropriate. The Servicing Agency will not provide funding to perform the work, or satisfy claims, disputes, modifications, or any other cause arising from contracts, under this agreement.

Servicing Agency and Requesting Agency shall complete the table below:

Common Agreement Number	**Requirement**	**Type of Requirement** (SeverableService /Non-severable service)
Requesting Agency: R11PG30024 Servicing Agency: IAG-11-1823	Navajo Generating Station Options Study – Phase I	Non-Severable Service

B.12. Requesting Agency Funding Information

The Requesting Agency's certifying Official shall complete the table & certification

Basic appropriation symbol (Treasury account symbol)	**14X0680**
Amount obligated (contract costs plus assisting agency's service fee)	**$333,000.00**
Incremental Funding Anticipation:	**Additional funds in the amount of $227,000 for work anticipated to begin in FY 2012 will be made available for obligation as it is received from cost share partners.**
Fund citation (line of accounting)	**A10-0344-6100-BOR-00-0-1**
Appropriation expiration date	**No Year Funds**
Unique restrictions on funding (if any)	**None**
Business event type code	**DISB**
Agency location code (8-digit) for IPAC	**14-06-0905**
DUNS/BPN number (Business Partner Network or BPN #)	**969794551**
Funding agency code (FIPS)	**1425**
Funding office code (cost center)	**3205000**

Requesting Agency Funds Certifying Official
I certify that the funds cited above are properly chargeable for the purposes set forth in paragraphs B.4. and B.11. of this IA
Please refer to PR #11301000002 for official's signature certifying Agency Funds
Printed Name: Fredrick Leavitt
Title: Financial Management Officer
Office: Bureau of Reclamation, Lower Colorado Regional Office, Boulder City, NV

B.13. Servicing Agency Funding Information

The Servicing Agency shall complete the table below.

Basic appropriation symbol (Treasury account symbol)	**89X0321**
Fund citation (line of accounting)	**NA**
Business event type code	**COLL**
Agency location code (8-digit) for IPAC	**89000001**
DUNS/BPN number (Business Partner Network of BPN #)	**013155325**

B.14. Description of Requesting Agency Specific Restrictions

This section identifies unique restrictions applicable to the Requesting Agency regarding acquisition, other than funding. NONE

B.15. Small Business Credit

This is not applicable to this IA.

B.16. Amendments

Any amendments to the terms and conditions in Part B shall be made in writing and signed by both the Servicing Agency and the Requesting Agency.

B.17. Contact Information

Servicing Agency Contracting POC	**Requesting Agency Contracting POC**
Name: Jean M. Siekerka	**Name** Paula Cerda
Address: U.S. Department of Energy, Golden Field Office 1617 Cole Blvd Golden, CO 80401-3305	**Address:** Bureau of Reclamation, Lower Colorado Region P.O. Box 61470 Boulder City, NV
Email: jean.siekerka@go.doe.gov	**Email**: PCerda@usbr.gov
Phone/Fax: 303-275-4924/303-275-4790	**Phone/Fax**: 702-293-8527/702-293-8332

Servicing Agency Technical Representative	Requesting Agency Technical Representative
Name: Scott Haase	**Name** Sandra Eto
Address: National Renewable Energy Laboratory (NREL) 1617 Cole Blvd, Mailstop RSF-402 Golden, CO 80401	**Address** Bureau of Reclamation, Environmental Resource Management Division Phoenix Area Office, Reclamation 6150 W. Thunderbird Road Glendale AZ 85306-4001
Email Scott.haase@nrel.gov	**Email**: seto@usbr.gov
Phone/Fax: 303-275-3057	**Phone/Fax**: 623-773-6254/623-773-6485

Servicing Agency Financial POC	Requesting Agency Financial POC
Name: Jennifer Ochs	**Name** Melodie Casper
Address U.S. Department of Energy, Golden Field Office 1617 Cole Blvd Golden, CO 80401-3305	**Address** Bureau of Reclamation, Denver Finance Office Attention: 84-27734, Finance & Acctg Services P.O. Box 25508 Denver Federal Center Denver, CO 80225-00508
Email: Jennifer.ochs@go.doe.gov	**Email** mcasper@usbr.gov
Phone/Fax: 303-275-3057	**Phone/Fax** 303-445-3459

B.18. Signatures

By signing this document, the Requesting Agency confirms that a bona fide need exists and that funds are for the designated purpose, meet time limitations, and are legally available for the acquisition described in this document; that all unique funding and procurement requirements, including all statutory and regulatory requirements applicable to the funding being provided, have been disclosed to Servicing Agency; and all internal reviews and approvals required prior to transferring funds to the Servicing Agency have been completed. The Servicing Agency's acceptance of this document creates an obligation on the part of the Requesting Agency.*

Requesting Agency Official	Servicing Agency Official
Signature Beverly K Nelson **Date** JUL 22 2011	**Signature** Jean M Siekerka **Date** 7/22/2011
Beverly K. Nelson **Printed Name**	Jean M. Siekerka **Printed Name**
Contracting Officer **Title**	Contracting Officer **Title**
Bureau of Reclamation, Lower Colorado Region **Agency**	Department of Energy, Golden Field Office **Agency**

STATEMENT OF WORK

NAVAJO GENERATING STATION OPTIONS STUDY – PHASE I

I. BACKGROUND

The Department of the Interior (DOI) through the U.S. Bureau of Reclamation (Reclamation) desires to conduct a comprehensive study that investigates the many interrelated and complex issues related to the Navajo Generation Station (NGS). The study will be broken into two phases.

The first phase of this study will develop additional factual and objective information and analysis pertinent to the determination by the U.S. Environmental Protection Agency (EPA) of Best Available Retrofit Technology (BART) in a Federal Implementation Plan (FIP) for NGS. Phase I of the study focuses primarily on the compilation of additional detailed information and completion of a comprehensive analysis consistent with the five statutorily prescribed BART factors.[1]

This study makes no presumption about what the appropriate BART determination should be. Rather, its purpose is to provide NGS owners, EPA, policy makers and other interested stakeholders with additional information and analyses pertinent to the statutory BART factors, especially with respect to electric generation technologies and other issues outside the expertise of EPA or NGS stakeholders.

II. PHASE I STUDY GOAL AND OBJECTIVES

The goal of the overall study is to provide NGS stakeholders, including EPA, with additional data and input regarding the technical and economic feasibility of options for compliance with the Clean Air Act's (CAA) BART and reasonable progress requirements at NGS.

Specific objectives of Phase I of the study are to:

- Compile and provide to EPA additional and updated data addressing the five statutorily-specified BART factors as they apply to NGS in the overall context of a long-term plan for users of NGS power;
- Identify the economic and social benefits provided by NGS, the needs being met by the plant, and the plant's operational impacts;
- Compile and provide to EPA information regarding NGS as compared to other coal-fired generating facilities – existing emission controls and emission rates (including emissions per megawatt hour), operations (capacity factor, dispatch, etc), role in owner resource portfolios and similar issues;

[1] Cost of compliance; energy and non-air-quality environmental impacts of compliance; existing pollution control technology in use at the source; remaining useful life of the source; and the degree of improvement in visibility which may reasonably be anticipated to result from the use of the technology.

- Assess the risks and costs of NGS shutdown under various BART determination alternatives in light of existing and anticipated uncertainties (e.g., lease and rights-of-way extension, disposition of Los Angeles Department of Water and Power's (LADWP) interest in NGS, completion of National Environmental Policy Act (NEPA) reviews, other regulatory issues);

- Evaluate impacts of potential BART emission control alternatives; and

- Identify Generation Alternatives to be more fully evaluated in Phase II and identify screening criteria to be used to evaluate such Generation Alternatives.

Under Phase I, NREL will finalize the project team, create a project management structure, compile relevant background materials, obtain detailed stakeholder input, gather relevant data and studies, and design the final approach and methodology for Phase II. Because the issues are so complex, careful scoping is needed at the beginning to ensure that the results of the study are useful.

III. SCOPE OF WORK

The NREL team shall provide technical support to the DOI through the following Phase I Tasks:

Task 1. Obtain Stakeholder Input

The purpose of this task is to obtain stakeholder input during Phase I, and to develop a process to be undertaken to ensure long-term stakeholder engagement throughout Phase II.

Executive Committee. As part of this task, NREL anticipates that DOI (and applicable Bureaus and Agencies including Bureau of Indian Affairs; National Park Service; Fish and Wildlife Service; Office of Surface Mining, Reclamation and Enforcement; and Reclamation) and DOE will establish an Executive Committee. The DOI/DOE Executive Committee will provide relevant data, background studies, and overall direction and guidance to the study during both Phase I and Phase II, including the formation of Stakeholder Work Groups as described below. The Executive Committee will determine the dates, venues and modalities (in-person, teleconference, etc.) of its meetings. The Executive Committee will determine the format of its meetings, time allocated for stakeholder comment, and timeframe for posting of meeting minutes.

Stakeholder Work Groups. During Phase I, NREL will work with the Executive Committee to form several Stakeholder Work Groups that will serve three purposes: to gather information on specific technical issues related to the BART determination; suggest appropriate uses of the data and information; and to provide a means for stakeholders to provide input consistent with their respective areas of expertise. NREL proposes to hold initial face-to-face meetings (either in person or by phone) with the following stakeholders: Navajo Nation Tribal Government, Hopi Tribal Government, City of Page and Coconino County, Arizona, Gila River Indian Community and other Tribes which utilize CAP water, Salt River Project as NGS operator, NGS owners, tribal non-governmental organizations, Central Arizona Water Conservation District (CAWCD), and environmental groups including Environmental Defense Fund, Sierra Club, and Western Resources Advocates. NREL will meet separately with each stakeholder group so that the groups will feel free to express their thoughts without influence of other stakeholders. Work

Groups will then be formed after the initial meetings based on topical areas to be addressed in the study. The input from the stakeholders will be invaluable in framing the overall study, as well as gathering baseline data in support of this Scope of Work. Work Groups will provide input and feedback for consideration, but threshold decisions about study direction and assumptions will rest with the Executive Committee.

Task 2. Develop Baseline Data

The purpose of this task is to thoroughly document the current benefits, operations and regional impacts of the NGS. NREL will review and document all studies, data and information related to the NGS and its operations. Specific information to be gathered under this task includes, but is not limited to, the following topic areas:

Plant operations. Historic, current and planned operation of the NGS, including generation profiles (hourly output); historic, current and planned coal and water use; operational efficiency; estimated busbar power costs and revenue requirements; life remaining prior to decommissioning; emissions and current pollution control technologies; coal supply and leasing issues; and any other relevant information.

Plant emissions. Document historic, current and anticipated future NGS emissions profile and costs of various emissions control options on both an average and incremental basis. Related to emissions, estimate the impact of NGS as compared to other emission sources (mobile sources, fires, dust, etc.) on regional visibility, including but not limited to review of Western Regional Air Partnership (WRAP) data and reports and IMPROVE (Interagency Monitoring of Protected Visual Environments) data.

Plant operational impacts. Document any studies related to impacts of NGS and related coal mining operations on local health, visibility, groundwater use, and other factors. The inventory of studies will note those that were peer reviewed.

Regulatory overview. Review current and expected future environmental compliance requirements of NGS; overview of applicable legal requirements associated with the water use at the plant and obligations for delivery of Central Arizona Project (CAP) water;

NGS benefits. Document the benefits provided by NGS' operation and related coal mine operations to local and tribal (especially Navajo Nation and Hopi Tribe) economies (including employment, taxes, mineral royalties, community support, etc.), and electricity customers.

Local/Tribal economic impacts. Develop a baseline of local tribal economic impacts (direct and indirect) including but not limited to: jobs; revenues to the Navajo Nation and Hopi Tribe; local health impacts; local economic impacts to Page, Arizona, and surrounding areas.

Relationship to the CAP. Analyze the relationship of NGS to the CAP and CAWCD operations including: water supply obligations and costs; energy use and demand profiles associated with pumping CAP water; current water costs and rate structures; demand requirements of Indian and non-Indian CAP water users; relationship between NGS excess power revenues and the Lower Colorado River Basin Development Fund; delivery obligations under the Arizona Water

Settlements Act of 2004 (PL 108451) (AWSA); and effects of changes to power costs on CAP agricultural uses, especially as they relate to tribal and non-tribal water portfolios.

Task 3. Develop Background on Regional Utility Planning and Markets

NREL will conduct a thorough assessment of regional utility planning efforts and current power markets. The purpose of this task is to allow the project team to thoroughly understand how NGS fits into the current owners' resource plans and power and transmission systems. NREL will also assess the impacts of NGS on regional power and regulatory markets, and on the regional transmission system.

Task 4. Assess visibility science

As part of the data compilation regarding the impact of NGS and other sources on regional visibility, conduct an objective assessment of visibility science and modeling on the Colorado Plateau, including:

- An assessment of visibility changes in the Grand Canyon since the shutdown of the Mohave Generating Station in Laughlin, Nevada;
- Evaluation and analysis of existing regional emission inventories (including the most current WRAP data) and assessment of implications for regional transport, with the goal of putting NGS nitrogen oxides (NOx) emissions/reductions in context with the emissions transported into the region from California and neighboring states.
- Compilation and assessment of IMPROVE monitoring data and visibility studies performed by WRAP.
- Because the regional haze rules are intended to address visibility, an appraisal of whether any of the emission control options being evaluated for NGS will improve visibility at each of the individual Class 1 areas near NGS and, if so, to what degree visibility will be improved.
- If any visibility modeling is to be performed, such modeling will consider alternative models to CALPUFF,[2] including the recent upgrades to the CALPUFF model to incorporate more accurate nitrate chemistry.

Task 5. Evaluate impacts of emission control alternatives

Under this Task, NREL will document the expected impacts of the cost and timing of implementing various emissions control alternatives on the following:

- plant operations and regional power markets,

[2] CALPUFF is an advanced non-steady-state meteorological and air quality modeling system developed by Atmospheric Studies Group scientists. The model has been adopted by EPA in its Guideline on Air Quality Models as the preferred model for assessing long range transport of pollutants and their impacts on Federal Class I areas, and for other applications.

- existing legal settlements, including CAWCD's repayment obligation, and the AWSA and its associated agreements,
- jobs (short-term and long-term), and tribal and regional economic development,
- Indian and non-Indian CAP water users, especially agricultural,
- U.S. trust obligation to the Indian tribes, and
- visibility in the region.

Task 6. Identify Generation Alternatives and Screening Criteria to be used in Phase II
NREL will identify generation alternatives that have the potential (either alone or in combination) to achieve an overall similar level of benefits provided by NGS, as identified in Task 1.

The objective will be to identify long-term, technically feasible and commercially available Generation Alternatives that will provide comparable economic and other benefits to the Navajo Nation, Hopi Tribe and NGS owners, provide adequate power supplies at a reasonable cost to ensure affordable CAP water to Indian tribes and other water users, provide comparable support for existing and future Indian water settlements, support continued funding of the Lower Colorado River Basin Development Fund or provide an equivalent funding system, and support the continued ability to comply with anticipated reasonable environmental and regulatory requirements. Consideration will be given to the impacts of each Generation Alternative on (i) the price of CAP water and its impact on CAP water users, (ii) tribal revenues, (iii) revenues of other local communities, and (iv) electricity customers.

The analyses of Generation Alternatives to be considered will be benchmarked against continued operation of NGS with and without additional emission controls.

The initial list of options developed will be subjected to high-level analysis (screening) in Phase I to frame discussions and narrow the list of options to those that are most realistic, and to provide focus to the more detailed analyses to be conducted during Phase II. A final list of screened options will be selected for detailed study in Phase II. Factors to be considered will include but are not limited to economic, cultural, institutional and environmental benefits and impacts.

Task 7. High level comparison of screened Generation Alternatives
NREL will assess the likely potential for the screened Generation Alternatives to achieve humanly perceptible visibility improvements (measured in deciviews) in amounts equal to or better than the improvements expected from the LNB/SOFA already installed at NGS. The assessment of potential to achieve visibility improvement under this task will be qualitative, and options will be ranked in terms of low, medium and high potential. Additionally, a first order assessment will be conducted of the impacts that the use of such technologies would have on affected interests (including, but not limited to tribal and local economies, Indian and non-Indian CAP water users, parties to water rights settlements, NGS power users, and other identified interests). "First-order assessment" means a non-detailed assessment based on the generic

attributes of each alternative; detailed impact analysis based on site-specific factors will be reserved for Phase II of the study.

Task 8. Draft Report, Final Report and Briefing

NREL will compile the results of Tasks 1-7 into a Draft Report. NREL, in consultation with the Executive Committee, shall establish an independent, peer review panel (Panel) to provide an unbiased review of the methodology used for the study and the Draft Report. The Executive Committee shall decide protocols for review and dissemination of the Draft Final Report after the peer review has been completed. The Executive Committee will establish procedures for inclusion of comments received from stakeholders and the public into the Final Report. After the review process, NREL will then compile the results of Tasks 1-7 into a Final Report. The report will include a list of the screened Generation Alternatives to be included in the Phase II analysis. A briefing of the study results will be presented.

IV. PROJECT SCHEDULE

The schedule for Phase I is as follows. This schedule assumes that NREL is able to start work on the analysis no later than August 1, 2011. If the start date slips beyond this, dates will be adjusted accordingly.

Task	Target Draft Completion Date	Final Completion Date
Task 1	September 1, 2011 and ongoing throughout Phase 1	December 31, 2011
Task 2	October 1, 2011	November 15, 2011
Task 3	October 1, 2011	November 15, 2011
Task 4	October 1, 2011	November 15, 2011
Task 5	November 1, 2011	December 31, 2011
Task 6	November 1, 2011	December 31, 2011
Task 7	December 1, 2011	December 31, 2011
Task 8	Draft report completed by December 1, 2011. The draft will be provided to the Executive Committee, an independent review panel, Stakeholders, and other interested users. Comments on the Draft Report will be considered for inclusion in the final report.	December 31, 2011

V. PROJECT ORGANIZATION AND STRUCTURE

NREL will coordinate and lead Phase I of the effort, with input coming from DOI and DOE. NREL will assemble an interdisciplinary team to implement and manage the study. NREL will seek to subcontract with the National Energy Technology Laboratory (NETL) and/or other potential partners to provide analysis on clean coal options and other non-renewable generation alternatives. Due to the immediacy of the project schedule, NREL will work through its existing agreement with HDR Engineering to provide expertise on emissions control technologies and impacts on visibility.

A mechanism will be provided for stakeholders to provide input on the study, especially with respect to ground-truthing analytical assumptions.

VI. DELIVERABLES

The deliverable for Phase I will be a detailed report documenting the results of Tasks 1-7 above, including the detailed study design for Phase II.

VII. INITIAL OUTLINE FOR PHASE II – DETAILED TECHNICAL AND IMPACT ANALYSIS

Phase II will conduct the detailed technical, economic, environmental, social, regulatory and policy analyses required to thoroughly understand the impacts of each Generation Alternative that passed the analytical screening in Phase I. The following tasks are for informational purposes and do not reflect the actual Phase II tasks.

Development of Metrics for Each Technical Option

For each of the Generation Alternatives selected for detailed analysis, the first step will be to develop a uniform set of technical and economic criteria which can be applied in a scientifically rigorous manner to allow for detailed comparison across the various options under consideration. Potential metrics include generator capacity, energy output, profile (hourly plant output simulation), match to owner load profiles, levelized cost of energy (LCOE), need for storage/firming/integration, transmission needs, water usage, air emissions, investment costs, operation and maintenance costs, labor, decommissioning, direct and indirect economic benefits, and other criteria to be determined.

Analysis of the Expected Impacts, Timeframes and Implementation Challenges of Each Generation Alternative

This will include local economic impacts, technical and financial risk, general economic impacts, utility system impacts, surface and ground water impacts (including impacts on Indian water settlements), clean air and visibility impacts, planning needs, project siting constraints, and any other significant impacts. This task will seek to provide data on the complete lifecycle "triple bottom line" impacts of each of the Generation Alternatives selected in Phase I.

Final Report and Briefings

The results of the entire effort will be documented in a detailed technical report, and a final briefing will be provided to a variety of stakeholders throughout the region.