

**FOA Project Narrative – Topic B  
Western Governors' Association  
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DE-FOA-0000068  
Recovery Act Resource Assessment and Interconnection  
Level Transmission Analysis and Planning**

**Topic B: Cooperation Among States on Electric  
Resource Planning and Priorities  
Western Interconnection**

## **FOA Response – Topic B**

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## **Project Narrative**

This proposal is being submitted by the Western Governors' Association (WGA), but incorporates recommendations from several entities throughout the Western Interconnection. They include public utility commissions, state and provincial energy agencies, the Western States Water Council, and members of the Western Governors' Wildlife Council. The interrelated work proposed in this application includes the following: complete Phases 3 and 4 of the Western Renewable Energy Zones (WREZ) Project; assist states in developing decision support systems related to wildlife; conduct additional carbon sequestration mapping; examine the water and energy nexus; and provide input for transmission planning under Topic A, including economic and environmental factors and integration of variable generation.

The proposed work will enhance the states' capacity to effectively participate in transmission planning and development and substantially improve the quality of information available to state and federal policy makers and regulators, as well as industry planners. The proposal builds upon the WGA Clean and Diversified Energy Initiative and WREZ processes. It addresses issues that have arisen in this earlier work and in the work of state energy planning and regulatory agencies, including:

- Identifying electricity supply futures to be studied by regional transmission planning bodies, such as the Western Electricity Coordinating Council (WECC);
- Examining the environmental implications of resource and transmission development, including a analysis of how water resources will affect the ability of the Western Interconnection to implement potential scenarios generated under Topic A of the FOA;
- Addressing wildlife sensitivities, which is a key issue in constructing energy generation and transmission facilities;
- Promoting effective use of the existing transmission system;
- Integrating variable generation; and
- Allocating the cost of new transmission.

## **Project Objectives**

The project will increase regional, interregional, and Interconnection-level coordination among states and electric industry organizations and key stakeholder groups. In addition, it will:

- Encourage load-serving entities (LSEs) that are interested in the same renewable energy zones to coordinate the timing of the procurement of renewable generation from such zones.
- Foster and facilitate interstate cooperation for renewable energy generation and transmission.
- Analyze potential carbon sequestration in renewable energy zones in order to evaluate the potential integration of near-zero emission fossil fuel resources into the renewable energy zones.
- Aid individual states in developing their own decision support systems that are capable of compiling all wildlife data relevant to the development of renewable and other generation capacity and associated transmission facilities.
- Provide a forum for Governors to communicate regularly with national, regional and local stakeholder groups on renewable energy transmission and policy development.
- Enhance state and provincial collaboration and participation in a broader Western Interconnection transmission analysis and planning process:
  - Facilitate dialogue and collaboration among the states and provinces of the Western Interconnection, thereby enabling more consistent and coordinated state and provincial input and guidance in the regional and Interconnection-level analyses and planning under Topic A.

- Ensure that state and federal policies to develop renewable energy, promote energy efficiency and demand response, and reduce greenhouse gas emissions are represented and evaluated in Topic A analyses and planning in a manner that informs and guides policy makers, regulators and industry.
- Provide insight into the economic and environmental implications of the alternative electricity supply futures and associated transmission requirements developed for the Western Interconnection under Topic A. This would include evaluation of how lands, natural resources and water issues will affect the location and distribution of renewable energy and transmission facilities.
- Promote the efficient development of a robust transmission system in the Western Interconnection that will support the development, integration and delivery of new renewable and other low-carbon resources, and the use of low-carbon electricity to displace petroleum-based fuels in the transportation sector well into the future.
- Engage state and provincial decision makers on issues and opportunities regarding resource adequacy and the integration of variable generation.

## **Merit Review Criteria**

### **Criterion 1: Impact and Technical Understanding**

WGA and its energy affiliate, the Western Interstate Energy Board (WIEB), have a thorough understanding of the need to facilitate dialogue among the states and provinces in the Western Interconnection and enable consistent and coordinated inputs into Interconnection-level analysis and planning under Topic A. For example:

- Western Governors have been leaders in shaping public policy that guides the analysis and planning of generation and transmission needs in the Western Interconnection. These efforts have involved the Provinces of Alberta and British Columbia. Governors, typically with the participation of Western Canadian Premiers, meet regularly to address common energy and transmission issues. Western Governors have adopted formal policy statements related to electric generation and transmission for the past 11 years. Under the leadership of Western Governors, the West is recognized as a leader in shaping regional public policy on clean energy, renewable energy zones and transmission planning.
- Since 1983, WIEB and the Western Conference of Public Service Commissioners have operated the Committee on Regional Electric Power Cooperation (CREPC), which has become an Interconnection-wide forum for state and provincial energy agencies and regulatory commissions to discuss regional power issues.
- In 2000-2001 Western Governors organized a regional response to the Western electricity crisis, including an interstate/intergovernmental agreement on transmission siting, a report on cost allocation for new transmission and the first Interconnection-wide conceptual transmission expansion plans, entitled “Conceptual Transmission Plans in the West,” August 2001.
- In 2004-2006, the Western Governors’ Association, with assistance from WIEB, executed the Western Clean and Diversified Energy Initiative that involved all states and provinces in the West and more than 200 stakeholders. The goals of the project were to: develop an additional 30,000 megawatts of clean energy; achieve a 20 percent increase in energy efficiency; and ensure a reliable and secure transmission grid. See “Clean Energy, a Strong Economy and a Healthy Environment,” June 2006.

- In 2006, Western Governors created, and the Federal Energy Regulatory Commission approved, the Western Interconnection Regional Advisory Body under Section 215 of the Federal Power Act to address transmission grid reliability issues. All states and provinces in the Western Interconnection and Mexico participate in WIRAB, which is staffed by WIEB.
- In 2007, WIEB formulated on behalf of WIRAB a state/provincial request that WECC study transmission needs under a low carbon scenario.
- In 2008, Western Governors launched the Western Renewable Energy Zones (WREZ) project involving all the states and provinces in the Western Interconnection and approximately 250 diverse stakeholders. In January 2009, the WGA and WIEB successfully developed a consensus among the WREZ Steering Committee, comprising representatives of all the major states and provinces in the Western Interconnection, on four scenarios for WECC to study in 2009.
- WGA and WIEB have a thorough understanding of the need for analysis of policy issues related to the reliable integration of variable and non-variable generation in the Western Interconnection. The 2006 WGA Clean and Diversified Energy Initiative (CDEI) developed specific recommendations to foster the integration of variable renewable generation. WIEB helped scope the DOE/WestConnect Western Wind and Solar Integration Study, which is focused on the potential for integrating large amounts of wind and solar. WIEB holds regular meetings and webinars for Western state/provincial energy agencies and PUCs on wind and solar integration issues.
- WIEB and Western states and provinces have a thorough understanding of the need to develop policy inputs for Interconnection-wide analyses under Topic A. WIEB was a central player in the development of transmission studies under the Seams Steering Group-Western Interconnection in 2003 and 2005, which was the precursor to the WECC Transmission Expansion Planning Policy Committee (TEPPC). WIEB staff and several state representatives who are members of TEPPC, co-chair its Technical Advisory Committee and lead its work groups. In 2008 and 2009, WIEB helped TEPPC address WIRAB's requests for a low-carbon generation scenario and four renewable energy scenarios as called for in the 2009 WREZ report. WIEB staff also helped manage the Rocky Mountain Area Transmission Study (RMATS) that produced transmission plans.
- WGA and WIEB have unique insight into and the need for studies on the economic and environmental implications of an alternative electricity future and associated transmission needs. As part of the Clean and Diversified Energy Initiative work, WGA and WIEB evaluated the cost and environmental impacts related to energy efficiency, advanced coal, biomass, geothermal, solar, wind and advanced natural gas technologies; transmission expansion; and system integration. Earlier work done by WGA and WIEB for the WGA Western Regional Air Partnership addressed the cost and environmental impacts of various strategies aimed at reducing emissions that contribute to regional haze. As part of the WREZ project, an Environment and Lands work group assisted in identifying developable renewable resource areas.
- WGA and WIEB have a thorough understanding of the need to participate in the development and updates of long-term, Interconnection-wide plans under Topic A. Western Governors have successfully advocated expanded Interconnection-wide transmission planning, and WIEB has been integral to such studies in 2001, 2003, 2005, 2007 and 2008. WIEB staff provided research and data to WECC's Interconnection-wide scenarios that reflected compliance with

state renewable portfolio standards, energy efficiency scenarios and carbon reduction targets. CREPC provides a forum for state/provincial discussions of Interconnection-wide transmission plans.

- WGA and WIEB have a unique understanding of the WREZ project. WGA and WIEB managed Phases 1 and 2 of the project under Cooperative Agreement DE-FC08NT01788, and they prepared the description of WREZ Phase 3 as part of a submission by Western Governors to the Secretary of Energy in December 2007. WGA published a report on Phase 1 of the WREZ project in June 2009. WGA and WIEB thoroughly understand both the policy and technical aspects of the project developed by the various work groups. The applicant was instrumental in providing guidance in the development of the delivered-cost model and is currently holding webinars for load-serving entities (LSEs) and PUCs on ways to use the model to identify preferred REZs. While others may have some familiarity with different elements of the project, only WGA and WIEB have precise and intimate knowledge of all tasks and activities. Successful execution of WREZ Phase 3 will build upon the execution of Phase 2.
- In 2008 the Western Governors established the Western Governors' Wildlife Council (WGWC), a group of high-ranking state officials from each Western state, for the purpose of developing a compatible fish and wildlife Decision Support System (DSS) in each state. The WGWC is the only entity working with state agencies to develop coordinated and comparable maps of crucial habitats and wildlife corridors in the West. The WGWC has been working since late 2008 to establish common information among states that should be incorporated into DSSs, and has been making progress in gaining buy-in from the non-governmental organization (NGO) community and Federal agencies. To this end, Western Governors signed a Memorandum of Understanding with the Secretaries of Energy, Agriculture, and the Interior in June 2008 to formalize cooperation between the states and Federal agencies in developing and utilizing the DSSs.

## **Criterion 2: Technical Approach and Project Management**

- WGA and WIEB have a long history of operating stakeholder processes to achieve consensus recommendations on issues. WGA processes are highly inclusive of a diverse group of stakeholders. Through WGA, Governors and their staffs exchange information and ideas about problem solving for a wide range of practical management concerns. The exchange helps Governors manage their resources more efficiently, for example, when they procure services jointly and share development costs for new programs. The exchange also helps build support among Governors, cabinet officers and gubernatorial staffs in the region. WGA has been instrumental in identifying and convening key stakeholders for a wide array of energy initiatives, including: energy efficiency, bioenergy, transportation fuels, clean coal technology and the WREZ project. WGA and WIEB are able to build upon the experience of the first phases of the WREZ because they have firsthand knowledge of potential obstacles and can appropriately address them in future phases. WIEB has extensive experience in developing timely inputs into Interconnection-wide planning and analysis from participation in the development of five Interconnection-wide planning efforts. This experience also provided the WGA and WIEB staff with a sound understanding of the time necessary to address activities outlined in the proposal, so that endeavors outlined can be appropriately understood and reported on.

- The Statement of Project Objectives includes all the elements specified in the FOA, including the project objectives, a summary of the scope of work, a description of all the relevant tasks, and the specific deliverables that will result from the project.
- The project management plan fully describes all the tasks and activities that will be undertaken in response to this FOA. It clearly lays out the approach WGA and WIEB will take in completing the tasks and activities. It also documents the proposed expenditures and how they will lead to successful completion of the tasks and activities.
- The general risks that we have identified in the project management plan are inefficiency in input and communication and technological uncertainties. We have structured the internal and external processes to ensure that all staff working on the tasks and activities, and all stakeholders who are part of the processes, are regularly updated and consulted. We will also make sure we are considering current and potential future technological advances.
- WGA and WIEB have structured the internal and external processes to ensure that all documents and meeting notices will be widely distributed to diverse stakeholders. WGA and WIEB maintain an extensive listserv that includes stakeholders from current and past energy-related initiatives. The WGA Web site has a highly visible link on its front page that allows all interested parties to sign up to receive information about, but not limited to, upcoming meetings, meeting summaries, and documents available for public comment. All meetings will be open to the public, and the process will be structured to ensure that any stakeholder with relevant expertise or information will be included in discussions. As has been the custom with WGA, all items that will ultimately be part of the deliverable package will be posted for general public review. WGA and WIEB have extensive experience working with critical state and provincial agencies, including energy agencies, regulatory commissions, wildlife agencies and water agencies.

### **Criterion 3: Relevant Experience, Capabilities, and Organization of Project Team**

- WGA addresses important policy and governance issues in the West, advances the role of the Western states in the federal system, and strengthens the social and economic fabric of the region. WGA acts as a center of innovation and has promoted shared development of solutions to regional problems for more than 30 years. WGA has a long and documented history of producing high quality reports and analyses on a variety of issues. The staff assigned to this project is well versed on regional energy issues and has been in the forefront of developing energy policy for the West. Staff is well known to stakeholders and government officials, as well as the United States Congress. The staff of the Western Interstate Energy Board is recognized as experts in Western transmission issues. In 1983, WIEB was instrumental in forming the Committee on Regional Electric Power Cooperation (CREPC) and has provided staff support for over 25 years. CREPC is composed of the public utility commissions and state and provincial energy offices in the Western states. CREPC meets two times a year to provide discussions with federal officials, such as DOE and FERC, and with Western utility representatives.
- The staff assigned to this project has been involved with a number of successful stakeholder projects, most significantly the Clean and Diversified Energy Initiative and the WREZ Phases 1 and 2. The staff is also familiar with federal regulations and accountability standards based on years of work under federal grants. The Western Governors' Association has an established federally approved accounting system that undergoes federal audits on a yearly basis. There

- The WGA and WIEB have clearly identified the project structure under Topic B. We believe we have demonstrated through the successful completion of other projects the efficacy and effectiveness of our internal and external approach. The WGA and WIEB will tap the existing expertise of the staff, states, provinces and stakeholders to deal with the universe of energy, wildlife and natural resources issues. Over the years, WGA has demonstrated its unique ability to assemble the gamut of stakeholders on projects, including those from the highest levels of government.
- WGA and WIEB staff is committed to meeting the objectives of the ARRA of 2009. A letter from WGA's chairman, Gov. Brian Schweitzer, elucidating this commitment is included in the FOA response.

### ***Other Factors To Be Considered***

WGA and WIEB will leverage existing initiatives to support the Transmission Planning and Analysis project. Currently underway are initiatives to support Wildlife Corridors, water use and carbon sequestration. WGA will use research and information gathered under these projects to feed into the transmission planning project. This will shorten the learning curve for the tasks outlined and provide specialized insight into the overall project. As stated previously, WGA has expertise in convening large stakeholder groups, which will help leverage the organizations' resources. Under the CDEAC and WREZ initiatives, WGA was successful in convening industry experts to offer their time and expertise to the project at no cost to the government or WGA. While the cost share is not easily quantified, the time and travel expended by the stakeholders represents a substantial addition of resources, as well as a strengthening the project approach.

## **Project Management and Planning**

The project management plan responds directly to the requirements listed in the FOA. In this plan we explain how we will complete the request work under Topic B, including:

- WREZ Phase 3 completion
- WREZ Phase 4 completion
- Wildlife Pilot Projects
- Carbon sequestration mapping related to variability of renewable energy
- Providing input into Topic A of the FOA
- Analyzing impacts of water availability on the ability of the West to meet future energy demand.

The goal of this project is to provide the Western Governors and PUC Commissioners with information that will allow them to fully understand how the Western Interconnection can achieve a clean, secure, reliable and reasonably priced electricity generation and transmission system, while facilitating state participation in the transmission planning process. This will be accomplished by identifying various demand scenarios, including, but not limited to, high energy efficiency, RPS requirements, and demand response, the essential characteristics of the future generation and transmission system, including transmission efficiency enhancements, and by developing generation/transmission scenarios that will meet demand and achieve those characteristics. This will provide the governors and the PUC commissioners with the ability to understand the advantages and disadvantages of any respective



scenario, and the impacts that scenario will have on the economies, natural resources, and landscapes of the West. This will allow the governors, PUCs and other Western stakeholders to develop comprehensive, integrated, and effective plans for achieving Western energy goals. The process will facilitate participation by Western state and provincial public utility commissions and energy officials in the Western Interconnection in both the scenario analysis and transmission planning activities pursued in Topic A. The encompassing stakeholder process will greatly improve the quality of information available and lead to increased interconnection-level coordination on all levels. We will rely heavily on the diverse stakeholders who are part of the energy picture, including PUCs and utilities; NGOs and other citizen organizations; elected officials at all levels of government; and state, local and federal agencies.

In our response we have laid out the specific process and activities that will allow us to complete the work. At the end of this process, we will have an unprecedented level of regional information and analysis that can be used by stakeholders and decision-makers to influence future policy on energy development.

Finally, we have clearly listed all the specific reports and analyses that will be associated with the project and the dates for their completion.

## **Relevance and Outcomes/Impacts**

This project meets the FOA objective to facilitate and strengthen the capabilities of the Western Interconnection to prepare analyses of transmission requirements under a broad range of alternative futures and develop long-term, Interconnection-wide transmission expansion plans. The project promotes Western state and provincial public policy input into transmission planning, analysis and integration of variable generation. This input will ensure that the analyses consider alternative futures, including scenarios of high energy efficiency and demand response, future renewable portfolio targets, and carbon reduction targets. The process will inform decision makers of the need for transmission expansion identified by Interconnection-wide transmission planning, options for improving transmission siting and cost allocation decisions by states and provinces, and policy steps to facilitate the integration of higher levels of variable generation.

The project will supplement Interconnection-wide transmission planning studies with information on factors important in shaping the electricity future of the Western Interconnection, including:

- The identification of preferred renewable resource areas and coordinated utility procurement schedules for generation from those areas;
- Processes to address the siting of interstate transmission lines and the allocation of the cost of such lines;
- Wildlife values that affect the location of generation and transmission; and
- Water availability that will be critical in shaping electricity generation options.

The outcome from this project will be a transmission expansion planning process that is fully informed of public policy requirements and values. Transmission planning in the absence of adequate input on public policy values will not contribute to the construction of needed transmission. For instance, the development of integrated fish and wildlife decision support systems (DSSs) will jump-start the ground data collection and mapping, focusing on issues that will be encountered during multi-state coordination, to maximize the value that pilot efforts will bring to fast-track development of a DSS in each Western state. Speedy development of state DSSs will benefit input into Topic A as well as the work during WREZ Phase 4, as it will provide mapped locations for crucial habitats and wildlife corridors, those areas that states may prioritize for protection against development. DSS development will assist states in responding to proposals for renewable energy and transmission development in the

Western Interconnection in a proactive way. Crucial information relating to water needs relating to renewable energy development and generation will guide energy development in a realistic and pragmatic manner.

Transmission planning informed by public policy requirements will ensure that critical issues are addressed at the planning stage rather than at the project stage where disagreements can delay projects, increase costs to consumers and potentially undermine the ability to meet the demand for an adequate and reliable electric power system in the Western Interconnection. The beneficiaries of this project include: state and provincial policy makers including Governors, Premiers and legislatures; state and provincial agencies responsible for regulation, energy planning, facility siting, water and wildlife; the federal government; generation and transmission developers; load-serving entities; and the public, including non-governmental organizations.

## **Roles of Participants**

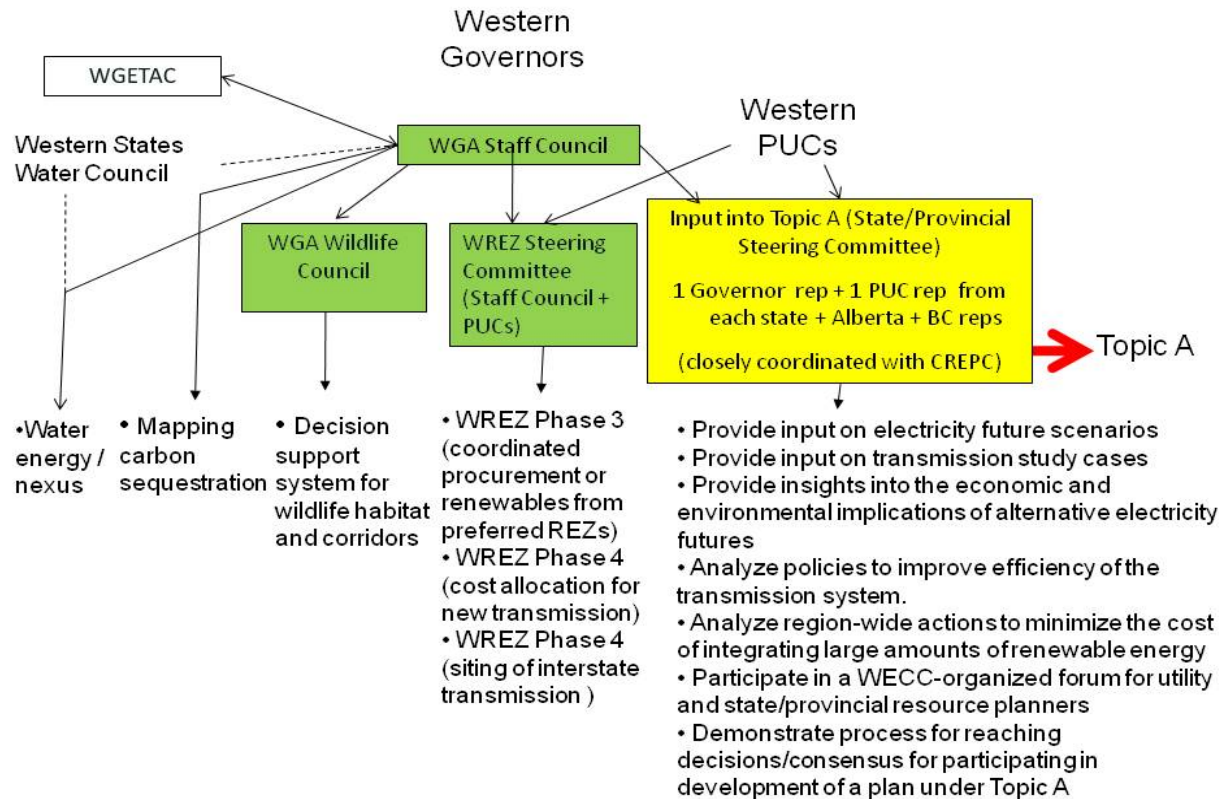
WGA and WIEB are responsible for incorporating into the process a variety of Western organizations that have been instrumental to the WREZ project, as well as other organizations that can provide specialized expertise. Requirements related to the completion of WREZ Phases 3 and 4 would be overseen by the WREZ Steering Committee and the WGA Staff Advisory Council (representatives of the individual Western Governors). WIEB staff would be primarily responsible for managing the implementation of Phase 3, and WGA staff would manage the implementation of Phase 4. Requirements related to wildlife decision support systems would be overseen by the WGA Wildlife Council with approval from the WGA Staff Council. Requirements related to input into Topic A would be overseen by a new steering committee consisting of appointees of the Governors and PUCs in each state. This new steering committee would include representatives from Alberta and British Columbia. Implementation of tasks related to input into Topic A, including integration of variable generation, would be managed by WIEB staff. Prior to any work being initiated under Topic A or B, the WGA and WIEB will meet with the awardee under Topic A to update activities under the required revised Project Management Plans. This will entail coordinating work plan roles and implementation.

Furthermore, the execution of Topic B requirements related to carbon sequestration would be overseen by the WGA Staff Council. To assist in fulfilling the requirement that the states provide insights into the environmental implications of alternative electricity futures, WGA Staff Council would oversee the task on water and energy. The Western States Water Council will offer insight into the energy water needs under Task 7. WGA will engage the Council of State Governments –West (CSG-West) in all phases of the project to ensure all aspects of state governments are briefed on recommendations and project outcomes.

The Western Governors' Electricity Transmission Advisory Council (WGETAC) would be created to ensure that WGA maintains and strengthens the regional partnerships that have been established and coordinates with existing efforts to address transmission expansion barriers. Through WGETAC, WGA would regularly convene senior level executives, non-profit leaders and locally elected officials to advise the Governors on pertinent policy issues. Membership of the WGETAC would be limited to approximately 30 individuals selected by the Governors to ensure geographic, sectoral and representative diversity. Following is a depiction of the organizational structure for activities under the FOA.

We are requesting assistance from multiple national laboratories in the execution of specific tasks under Topic B. As with all work under Topic B, the execution of assistance from the laboratories will be guided by the following organizational chart.

## Organization of Tasks Under Topic B



## Multiple Principal Investigators

WGA will be the Principal Investigator handling all administrative and financial reporting. WIEB will be a subcontractor to WGA and will handle all tasks outlined in the application. WGA's responsibilities will include: administering and tracking subcontractor activities and maintaining financial management systems to identify all costs associated with the project. WGA has in place contract policies to handle and resolve potential conflicts.

## Facilities and Other Resources

WGA and WIEB will utilize existing office space in downtown Denver for this project. The project is designed to host numerous meetings and workshops that will be located throughout the Western states. Each meeting location will be selected based on cost effectiveness and proximity to attendees.

## Equipment

There are no special equipment needs for this project.

## Bibliography

- Western Governors' Association, *Conceptual Transmission Plans in the West*, August 2001.
- Western Governors' Association, *Clean Energy, a Strong Economy and a Healthy Environment*, June 2006.
- Western Governors' Association, *Clean Energy, a Strong Economy and a Healthy Environment: 2007 Progress Report*, June 2007.
- Western Governors' Association, *Wildlife Corridors Initiative*, June 2008.
- Western Governors' Association, *Western Renewable Energy Zones Phase 1 Report*, June 2009.

## Statement of Project Objectives

### A. Objectives

- Inventory the currently proposed transmission projects in the interconnection and determine how these projects can be incorporated into an integrated, Interconnection-wide transmission plan.
- Encourage load-serving entities (LSEs) that are interested in the same renewable energy zones to coordinate the timing of the procurement of renewable generation from such zones.
- Foster and facilitate interstate cooperation for renewable energy generation and transmission.
- Analyze potential carbon sequestration opportunities in order to evaluate the use of resources to firm renewable energy.
- Aid the development by each Western state of its own decision support system that is capable of compiling all data on wildlife relevant to the development of renewable and other generation capacity and associated transmission facilities.
- Provide a forum for regular and consistent communication between Governors and regional stakeholders on renewable energy transmission and policy development.
- Enhance state and provincial collaboration and participation in a broader Western Interconnection transmission analysis and planning process:
  - Facilitate dialogue and collaboration among the states and provinces of the Western Interconnection, thereby enabling more consistent and coordinated state and provincial input and guidance in the regional and Interconnection-level analyses and planning under Topic A.
  - Ensure state and federal policies to develop renewable energy, promote energy efficiency and demand response, and reduce GHG emissions are represented and evaluated in Topic A analyses and planning in a way that informs and guides policy makers, regulators and industry.
  - Provide insight into the economic and environmental implications of alternative electricity supply futures and associated transmission requirements developed for the Western Interconnection under Topic A of the FOA. This would include an evaluation of how issues related to lands and natural resources, including water, will affect the location and distribution of renewable energy and transmission facilities.
  - Promote the efficient, long-run development of a robust transmission system in the Western Interconnection that will support the development, integration and delivery of new renewable and other low-carbon resources, and the use of low-carbon electricity to displace petroleum-based fuels in the transportation sector.
  - Engage state and provincial decision makers on issues and opportunities regarding resource adequacy and the integration of variable generation.

### B. Scope of Work

This proposal is being submitted by the Western Governors' Association. It incorporates input from the public utility commissions and state energy agencies within the Western Interconnection. This application describes interrelated work in the following areas: completion of the Western Renewable Energy Zones Project Phases 3 and 4; support for the development of state wildlife decision support systems; carbon sequestration mapping; and input into transmission planning under Topic A including economic and environmental factors and integration of variable generation.

The proposed work in these areas will enhance the capacity of the states to effectively participate in transmission planning and development. The proposal builds upon the WGA Clean and Diversified

Energy Initiative and WREZ processes. It also addresses issues that arose in this earlier work and in the work of Western state energy planning and regulatory agencies, such as:

- Identifying electricity supply futures to be studied by regional transmission planning bodies, such as the Western Electricity Coordinating Council (WECC);
- Examining the environmental implications of resource and transmission development, including the analysis of how water resources will affect the ability of the Western Interconnection to implement any of the potential scenarios generated under Topic A of the FOA;
- Accounting for wildlife sensitivities, which have been identified as a key hurdle for the development of renewable and transmission facilities;
- Promoting effective use of the existing transmission system;
- Integrating variable generation; and
- Allocating the cost of new transmission.

## C. Tasks

### 1. Completion of WREZ Phase 3 and Phase 4 activities

#### *WREZ Phase 3 – Coordinating energy purchases from WREZs*

Three major tasks will be undertaken: (1) identification of load-serving entities' (LSEs) preferred renewable energy zones, (2) review of resource plans and procurement schedules and identification of any obstacles to coordinated procurement among LSEs interested in renewable energy from the same zones and options to overcome such barriers; and (3) discussions among LSEs (and their regulators) that have interest in the same zones in order to foster the development of coordinated generation procurement schedules.

#### Tasks to be performed:

- Identification of preferred zones – LSEs will be asked to identify preferred renewable energy zones. Where such preferences are not specified, Lawrence Berkeley National Laboratory (LBNL) and WIEB will apply the WREZ delivered cost model and other renewable resource assessments of similar or greater detail and credibility to indicate likely preferred zones. LSEs will then be asked if the zones identified by the model comport with company resource plans. A draft list of renewable resource areas of interest will be posted on the WGA Web site.
- Review IRPs and interview LSEs – With support from the consultant, Western LSE resource plans will be reviewed by WIEB and LBNL to identify the likely location of desired renewable generation. LSEs and the PUC staff will be interviewed to determine current procurement schedules.
- Identify procurement schedules – Information will be developed by WIEB, LBNL and the consultant from the IRPs and interviews will be assembled to provide a picture of current procurement schedules across the Interconnection.
- Identify any barriers to coordinated procurement and approaches to overcome such barriers – In the process of interviewing LSEs, barriers and potential solutions to coordinated procurement schedules will be identified. The consultant will interview public utility commission staff to identify regulatory barriers and potential solutions. The results will be documented in a draft paper prepared by the consultant and reviewed by LSEs and PUCs. The paper will also identify potential ways such barriers can be overcome. The findings in the paper will be a starting point for discussions among LSEs and their regulators which have interest in the same zones.

- Discussions among LSEs and their regulators interested in the same zones – WIEB, LBNL and the consultant will draft a list of potential discussion groups organized around renewable resource areas of common interest. The list will be posted for comment and modification. A consultant experienced in multi-state discussions among PUCs and companies will organize and execute approximately four specific renewable energy zone discussion groups of interested LSEs and PUCs focusing on zones that involve LSEs in multiple states. The goal of the discussions is to reach agreements on addressing barriers to joint procurement and to develop common schedules for procuring resources from the preferred zone. Information in addition to that developed in WREZ Phases 1 and 2 can be used to inform these discussions. Any agreements will be reported as part of the final report. These agreements do not require approval of any parties other than the participants in the discussion.
- Monitor procurement schedules – LSE procurement schedules will be monitored by project staff throughout the project in order to identify future opportunities for collaboration.

#### ***WREZ Phase 4 – Fostering interstate cooperation for renewable energy generation and transmission***

Phase 4 of the WREZ process is divided into two areas. The first is concerned with transmission siting, specifically the facilitation of interstate and intergovernmental coordination in the review of transmission siting permit applications for electrical transmission. The second is concerned with the development of cost allocation options related to high voltage transmission lines from geographically constrained renewable resource areas to load centers. An important outcome will be to identify ways to inventory and facilitate the currently proposed transmission projects throughout the Interconnection.

##### Tasks to be performed:

- Transmission Siting - The Western Governors will play a key role in the implementation of initiatives related to regional transmission siting and in promoting a regional viewpoint on how to improve permitting processes. The Governors intend to engage regional stakeholders throughout these efforts in order to be inclusive of their concerns and as a means of achieving their support. The essential elements in the transmission siting part of Phase 4 of the WREZ are as follows:
  - Document and analyze case studies of recent permitting successes and failures from across the region. For successful processes, describe the approaches that led to success. This will be done through the use of a consultant. Applicants, permitting agencies and stakeholders will be engaged to review and respond to a request for information in compiling the case studies and best practices.
  - Coordinate and communicate a regional response to implementing any new federal transmission laws or procedures and regional views on implementation. WGA will design and run a facilitated 150 – 200 person workshop for key stakeholders to coordinate their views on federal law and provide recommendations on implementation needs. The report will be provided to the participating stakeholders, including permitting entities for review and comment. The workshop report will be forwarded to the Governors for review and approval.
  - Coordinate and communicate a regional response to any transmission corridor reviews or designations. WGA will host Webcasts to brief stakeholders and solicit feedback on any

transmission corridor reviews or designations. This feedback will help inform any response or actions by the Governors.

- Organize a series of public forums for state, local, tribal and federal permitting entities to identify actions to improve coordination of permit reviews and to respond to federal legislation. The Western Governors' Wildlife Council will provide information on how the state Decision Support Systems (DSS) can inform transmission permit reviews. WGA would conduct two or three day-long public forums in different locations and produce a report highlighting permitting challenges and solutions, including recommendations on the implementation of any federal legislation. The report will be provided to the participating stakeholders, including permitting entities for review and comment.
- Work with Western Governors to implement recommendations from the forums.

The work on siting will be informed by work products under task 3 (wildlife decision support system) and the results of transmission studies conducted under Topic A.

- Cost Allocation Options - Allocation of the cost of new transmission is an issue that has been regularly flagged by the Western Governors. Given the potential expansion of the transmission system related to adding new facilities to meet renewable portfolio standards, cost allocation has become a highly debated topic. The lack of acceptable cost allocation standards impedes the spending of capital for new transmission projects; thus resulting in little or no large-scale transmission projects in the planning stages. The following are the essential elements in the cost allocation part of Phase 4 of the WREZ:
  - Determine the cost allocation options related to high voltage interstate transmission lines from geographically constrained areas to load centers. Utilizing work under Phase 3 of the WREZ identifying preferred zones and synchronized procurement schedules and WECC transmission planning work, communicate cost allocation options to PUCs and Governors, including asking for comments or feedback.
  - Evaluate and seek input regarding what constitutes right sizing of transmission additions and determine cost allocation options for right sizing new transmission lines. WGA would use a technical consultant to perform a study on how right sizing could impact cost allocation.
  - Develop a stakeholder process that leads to an Interconnection-wide policy on cost allocation. This would include states, PUCs and other key stakeholders. Hold two to three stakeholder meetings to coordinate a recommendation for PUCs and Governors.
  - Encourage interstate negotiations on cost allocation for specific projects.

This would include completion of a stakeholder-driven study that outlines the methodologies for determining the beneficiaries of new transmission and appropriate cost allocation schemes.

## **2. Integration of variable and non-variable generation and CCS mapping**

### ***Integration of variable and non-variable renewable***

The analysis of issues related to the reliable integration of variable and non-variable renewables in the Western Interconnection will be completed as part of the activities conducted pursuant to Tasks 4 through 6, which address input into work conducted under FOA Topic A.



### ***Carbon sequestration resource mapping***

In 2008, the Department of Energy's Office of Fossil Energy National Energy Technology Laboratory (NETL) released the second edition of the *Carbon Sequestration Atlas of the United States and Canada (Atlas II)*. Of the seven Regional Carbon Sequestration Partnerships, four include Western Interconnection states and provinces that have assisted in identifying and mapping the carbon storage potential within the Western Interconnection. The Western Governors' Association has assisted the partnerships with outreach efforts and convened stakeholders to examine the region's potential for storing carbon, as well as the related policies and regulations.

Because the variability of many renewable resources does not allow them to supply energy on a 24/7 basis, the Interconnection will inevitably have to rely on power generated from dispatchable resources, some of which may be non-renewable. One of the ways the use of available renewable energy can be maximized while simultaneously maintaining grid reliability is by using dispatchable resources to firm the variability of renewable resources. This project will produce two deliverables: a map that identifies carbon storage potential that exists in areas that would be useful for locating non-variable sources that can be used to firm variable renewable energy, and a report that outlines how such a symbiosis could be accomplished. The WGA will consult with the four carbon sequestration partnerships in evaluating those sites. The WGA intends to use the Idaho National Laboratory, in conjunction with NREL, to complete the mapping and reporting.

### **3. Wildlife decision support system**

Consistent with the *Memorandum of Understanding on coordination among federal agencies and states in identification and uniform mapping of wildlife corridors and crucial habitat* agreed to on June 15, 2009 by the Western Governors and the Secretaries of Energy, Interior and Agriculture the Funding Opportunity Announcement includes a requirement that the applicant propose and perform studies in coordination with state and federal wildlife officials on the identification and uniform mapping of crucial wildlife habitats and wildlife corridors to assist the development of a decision support structure for wildlife data.

Based on this requirement, along with a separate recommendation from a WGWC subcommittee to undertake pilot efforts, the Council approved the development of pilot studies at their July 2009 meeting. The DOE resources available in this FOA will be used to fund these pilot efforts. Over 90 percent of the funding requested under this task will be used by states and WGA to hire or retain wildlife and GIS expertise to implement and support the pilot projects.

Council members have considered how best to partner with their colleagues and others to maximize the value that pilot efforts will bring to the future development of a DSS in their states and within the region. Examples of pilots being discussed are: a project between Colorado and New Mexico to study wildlife data across their shared border with consideration of energy development issues; and a pilot project between Idaho and Montana to develop consistent definitions and data consistency for cross-border species and to map multi-jurisdictional data for consideration in energy transmission planning projects and renewable energy development. A full list of the preliminary pilot projects being considered by the states is available to the U.S. Department of Energy upon request.

#### **Tasks to be performed:**

- WGA and the WGWC will establish criteria for selecting appropriate pilot projects. A number of criteria and other factors are currently being considered by the WGWC to develop pilot proposals. These include the following criteria:

- Pilots should be multi-state or multi-jurisdictional.
  - Pilots should utilize or help develop the best available science in a GIS format.
  - Pilot areas should be geographically located so that an energy nexus linkage can be made. This nexus could be focused on renewable energy, fossil fuels, transmission of energy, carbon sequestration or related activities.
  - Pilots should be designed to invite and integrate federal government and non-governmental participation. Formal partnerships with these entities are also encouraged.
  - Pilots should build from known multi-jurisdictional issues already identified in the Wildlife Corridors Initiative report (WGA, June 2008) and the Western Renewable Energy Zones Phase 1 report (WGA, June 2009). States should focus their efforts to address issues that include the following:
    - a) Develop a site-specific suite of consistent protocols (e.g., standards for defining and collecting data for shared use) that help guide future state- and regional-level investments in DSS by highlighting areas that are important for wildlife habitat and connectivity conservation;
    - b) Develop site-specific standards and desired future condition of wildlife habitat or corridors on the ground;
    - c) Help demonstrate how each state's DSS could ultimately compile information, assure data quality, and make the data, models and analyses available at useful scales to analyze proposed energy, transportation and other land use projects in terms of on-site impacts, regional context and a changing climate; and
    - d) Advance planning efforts to map site-specific wildlife corridor adaptation to climate change.
  - Pilots must be able to be completed within 6-12 months of WGA's award of a contract for resources to states.
  - All interested Western states must have the opportunity to develop a pilot. WGA staff will work with Council members in a transparent fashion to determine substantively diverse and region-wide pilots.
- WGA and the WGWC will select final pilots after public input is received on October 5 – 6, in Helena, Montana and once a DOE grant is awarded. Contracts between WGA and the states will be issued during the first quarter of 2010.
  - Each state will provide periodic updates of pilot progress to WGA and the Council and a final public report of findings. These updates and findings should include the following:
    - Discussion on the state's view of the DSS framework and major components that would require multi-state coordination;
    - Identification of major costs/obstacles for development of the state's DSS; and
    - Explanation of the state's process for developing and coordinating its DSS.
  - A technical contractor will be retained to ensure compatible platforms and consistent data protocols are used within individual pilot studies and that these efforts are then consistent among all of the pilot studies being conducted by WGA states. This "Circuit Rider" will help ensure future state-level investments in DSS will lead to a regionally compatible network of systems that will provide information related to sensitive wildlife habitat early in the energy generation and transmission-siting processes.

#### **4. Input into Topic A (Tasks 4 – 6)**

##### ***Establish and Operate the State and Province Steering Committee***

Western states and provinces will establish the State/Provincial Steering Committee to oversee the implementation of Topic B activities to provide input into Topic A work. The State/Provincial Steering Committee (Steering Committee) will have 24 members consisting of a Governor's representative for each major state in the Interconnection, a public utility commission representative from each state, and representatives from Alberta and British Columbia. The Steering Committee will perform the following organizational tasks: (i) adopt operating procedures and select the state members of the Multi-Constituency Steering Group established under Topic A, in accordance with the requirements established under Topic A; (ii) coordinate and develop a consensus-based strategy on input to transmission analysis and the planning process of Topic A; (iii) conduct outreach to state and provincial authorities regarding updates and developments in the Topic A transmission planning and analysis process; (iv) form work groups to refine inputs into Topic A, such as energy efficiency and demand response scenarios; and (v) oversee the work of contractors.

##### ***State Input to Topic A***

The identified tasks below may change based on the work undertaken pursuant to Topic A and the ongoing work of the State/Provincial Steering Committee and its work groups. In the execution of its work, at a minimum, the Committee will take into consideration: future demand, including potential demand from plug-in vehicles; demand reduction options; currently proposed transmission projects; economic and environmental implications, including greenhouse gas impacts from the electricity sector and related sectors, such as transportation; water and wildlife constraints; reliability and security needs; state and consumer interests; and effective integration of variable generation. The Committee's deliberations will be open to all supply- and demand-side technology and policy options and reflect individual state/provincial energy policies.

##### **Tasks to be performed:**

- Input to scenario development -- States and provinces will provide input to the scenario development process in Topic A and identify emerging policy drivers that impact the electric system. States and provinces will have two primary tasks as input to Topic A: (i) identify relevant policy-based input to be incorporated into the scenarios to be studied, such as future carbon policies, high energy efficiency and demand-response policies, and future technological innovations; and (ii) inform the Topic A process about the economic and environmental implications of alternative electricity supply futures and their associated transmission needs. These insights will include water impacts identified under Task 7 and wildlife impacts identified under Task 3.
- Participation in Topic A technical work -- States and provinces will participate in the technical work performed in Topic A's transmission planning process and the integration of variable generation. The participation task applies to: (i) the multi-constituency steering group established under Topic A; (ii) WECC's Transmission Expansion Planning Policy Committee (TEPPC), (iii) TEPPC's Technical Analysis Subcommittee (TAS) and TAS work groups, including the Data Work Group, Modeling Work Group, Historical Analysis Work Group and Studies Work Group; and (iv) other existing and future planning processes.
- Review of study results and development of transmission plans -- The State/Provincial Steering Committee will have two feedback tasks in the Topic A process: (i) review initial study results

that emerge from the Topic A transmission analysis and modeling, and make recommendations on whether the initial results are sufficiently complete or additional analysis is required to resolve outstanding issues or new problems; and (ii) review final studies and consider recommendations for transmission plans.

- Participation in subregional planning groups -- State and provincial representatives will participate and provide public policy input to subregional planning groups including: (i) Southwest Area Transmission Group; (ii) Colorado Coordinating Planning Group; (iii) Northern Tier Transmission Group; (iv) Columbia Grid; (v) California subregional planning groups; and (vi) future groups.
- Integration of variable generation -- State and provincial representatives will participate and provide public policy input to: (i) WECC's Variable Generation Subcommittee; (ii) subregional and regional wind and solar integration projects; (iii) forums on wind integration issues; and (iv) processes developing market innovations to integrate variable generation. These tasks address item 2 of Topic B in the FOA regarding the integration of variable and non-variable renewables into the Western Interconnection.
- Efficient use of the existing transmission -- State and provincial input into Topic A planning will monitor and promote the efficient use of the transmission system. States and provinces will participate in: (i) the WECC's Historical Work Group analyses of historical transmission flows, schedules and Available Transfer Capacity; (ii) the Market Interface Committee's discussions of new approaches to addressing transmission congestion; and (iii) subregional planning group discussions of reforms to improve the efficiency of the existing transmission system.
- Resource planner forum -- Participate in a continuation of the discussions among load serving entities and state and provincial resource planners, which began at an ad hoc meeting sponsored by the WGA, CREPC and WECC on February 24-25, 2009. States and provinces will participate in twice yearly meetings of resource planners. States and provinces will: (i) provide input to agenda topics for meetings; (ii) assist in the organization, execution and follow-up of such meetings; and (iii) inform the State/Provincial Steering Committee and state/provincial agencies of findings from such meetings of resource planners.

## **7. Energy and Water Nexus**

Energy use accounts for 40 percent of water withdrawals in the U.S. and 3 to 4 percent of the total consumptive use of water. Water managers in the West are preparing for increased conflicts over and competition for the region's limited and geographically variable water supplies, due to the region's rapid growth, a dearth of new supplies, and the looming impacts of climate change. The siting and transmission of new and mixed energy supplies will be influenced, and sometimes dictated, by the availability of water. At the same time, the siting of new energy supplies will influence the ability of agricultural, municipal, environmental and recreational users of water to meet their needs. In its 2007 report to Congress, Sandia National Laboratory stated that:

*Consumption by the electric sector alone could equal the entire country's 1995 domestic water consumption. Consumption of water for extraction and production of transportation fuels from domestic sources also has the potential to grow substantially. Meanwhile, climate concerns and declines in groundwater levels suggest that less freshwater, not more, may be available in the future.*

These conflicts are expected to become more prevalent as the competition for water increases over time, and we need to make sure that our resources are not double counted as policy decisions on future sources of energy are made. Even where energy developers are able to pay top dollar to secure water supplies, the impacts to other water users, including agriculture, cities and recreation, will be of keen interest to water managers, Governors and premiers in the Western Interconnection. In addition, water use for energy development could exacerbate endangered species problems in Western rivers, increasing water management challenges for all water users in a basin.

WGA proposes to work with state and provincial water managers and other agencies or regional authorities with responsibility for water supply management to evaluate water resource issues associated with the siting, transmission and mix of energy supplies in the Western Interconnection. The goal will be to anticipate challenges associated with water supply and energy development utilizing a lifecycle framework. The information generated by this task will be important in the development and evaluation of scenarios generated under Topic A to ensure that the energy development scenarios can be accommodated within the existing and future water resource constraints of the West.

Tasks to be performed:

- **Water Availability Assessment:** Compile existing assessments from Western states and provinces regarding water supply availability, current water use, and projected water demands for municipal/industrial, agricultural, and recreational/environmental uses. Assess the current and projected degree of water scarcity by large river basin or aquifer systems in the West. Consider drought and the potential implications of climate change and how they may affect river flows and water supply availability for energy development.
- **Energy-Water Model:** Update the existing decision support framework for integrated energy-water planning developed by Sandia National Lab. This model includes data on the lifecycle water requirements of various energy resources and technologies and allows stakeholders to interactively investigate alternative energy development scenarios and their impacts on water supply. The model will need to be updated with the most recent and geographically specific data from the states on water supply, as developed in Task 1.
- **Scenario Analysis:** Support state and province input into Topic A by evaluating electricity generation scenarios for the Western Interconnection and their implications for water supply. We would accomplish this by:
  - Overlaying the water supply data and the energy-water model with the mix and siting of electricity generation facilities generated under the Topic A scenarios.
  - Identifying areas where water supply availability may constrain electric generation options and basins where water supplies will be adequate to meet electricity generation scenarios.
  - Identifying electricity generation scenarios that may be more practicable given water availability constraints.
  - Holding up to three workshops to engage water resource managers, electricity generators, policy makers, and/or regulators to review the projected electricity generation scenarios and their implications on water management and allocation, including other sectors, such as agriculture, municipal, recreational and environmental.
- **Policy Development:** Given the water supply impacts of proposed electricity scenarios, this task will seek to develop policies and/or programs to facilitate sustainable energy development by:

- Identifying policies to promote water-efficient energy technologies such as dry cooling, and incentives to direct energy development toward places with a sustainable supply of water.
- Considering likely impacts to other water users and ways to mitigate those impacts.
- Convening water managers and electricity generators and regulators to make recommendations to the Governors and premiers for how energy and water providers can better coordinate to ensure compatible development of these important resources.

## D. Deliverables

| <i>Periodic and Topical Reports by Quarter</i> |   |   |
|--|---|---|
| Task 1 (WREZ 3)                                | Draft list of REZs preferred by major LSEs in the Interconnect  | 2 <sup>nd</sup> 2010                        |
|  | Summary of current LSE procurement schedules and locations of preferred resources   | 4 <sup>th</sup> 2011                        |
|  | Final paper on barriers to coordinated procurement and options to overcome such barriers  | 4 <sup>th</sup> 2010                        |
|  | Draft and final reports on four specific REZs discussions   | 3 <sup>rd</sup> & 4 <sup>th</sup> 2011      |
| Task 1 (WREZ 4)                                | Siting case study analysis and workshop presentation  | 4 <sup>th</sup> 2010                        |
|  | Cost allocation study and recommendations   | 2 <sup>nd</sup> 2012                        |
| Task 2 (CCS)                                   | Final map and report  | 1 <sup>st</sup> 2012                        |
| Task 3 (DSS)                                   | List of DSS pilot projects, with public input states will be undertaking  | 1 <sup>st</sup> 2010                        |
|  | Final report on pilot findings  | 2 <sup>nd</sup> 2011                        |
| Tasks 4-6 (Input into Topic A)                 | Steering Committee operating procedures   | 1 <sup>st</sup> 2010                        |
|  | Appoint state representatives to Topic A multi-constituency steering group  | 1 <sup>st</sup> 2010                        |
|  | Steering Committee briefings of meetings of states and provinces  | 2 <sup>nd</sup> & 4 <sup>th</sup> Annually  |
|  | Report on input to scenario development   | 3 <sup>rd</sup> 2010 & 1 <sup>st</sup> 2012 |
|  | Steering Committee recommendations on preliminary and final study results   | Annually                                    |
|  | Briefings of the State/Provincial Steering Committee on planning and variable generation activities   | At least Biannually                         |
|  | Report to states/provinces on sub-regional planning group activities, work on integration of renewable generation and activities to promote the efficient use of transmission system                                    | At least Annually                           |
|  | Recommended agenda topics for resource planner meetings   | Biannually                                  |
| Task 7   | Energy and Water Nexus  |   |
|  | Updated geographically explicit assessment of state water supply availability by basin and drainages in the Western states  | 4 <sup>th</sup> 2010                        |
|  | Refine energy-water model, incorporate latest water supply projections  | 2 <sup>nd</sup> 2011                        |
|  | Complete workshops on water resource impacts of electricity generation scenarios. To the extent possible, devise scenarios or approaches to reduce conflict over water resources. Complete report on scenario analysis. | 2 <sup>nd</sup> 2012                        |

|                            |  |                      |
|----------------------------|--|----------------------|
|                            | Complete report with policy recommendations and best practices on the energy-water nexus to the Western Governors and Premiers, DOE, and state PUCs. | 4 <sup>th</sup> 2012 |
| <b><i>Final Report</i></b> |  |                      |