

Western Renewable Energy Zones Workplan

Western Governors' Association

July 2008

Contacts:

Doug Larson (dlarson@westgov.org; 303.573.8910)

Rich Halvey (rhalvey@westgov.org; 303.623.9378)

**Work Plan to Identify Renewable Energy Zones and
Associated Transmission in the Western Interconnection
July 2008**

Table of Contents

	<u>Page</u>
I. Overview	3
A. Goal of the Project	
1. The Western REZ Initiative	
B. Four Phases of the Project	
C. Project Structure and Schedule	
II. Governance and Stakeholder Participation	8
A. Introduction	
B. Steering Committee	
C. Technical Committee	
D. Technical Committee Workgroups	
E. Transparency/Communication	
F. Formation of Work Groups	
G. Outreach Plan	
III. Technical Work Plan	12
A. Phase 1: Identification of REZs	
1. Process for Developing REZs	
2. Work Group Workplans	
3. Coordination Among Work Groups	
B. Phase 2: Conceptual Transmission Plans From REZs	
C. Phase 3: Coordinate Procurement to Support Commercial Transmission Projects and a Regional Market for Renewables	
D. Phase 4: Build Interstate Cooperation to Facilitate Transmission Facility Approvals, Allocate Costs, and Ensure Cost Recovery	
IV. Description of WREZ Project Budget Items	31
Glossary	32

I. Overview

A. Goal of the Project

The goal of the Western Renewable Energy Zone (WREZ) initiative is to develop a *consensus* proposal¹ among the 11 major states, the area of Mexico, and the two Canadian provinces in the Western Interconnection on how best to develop and deliver energy from renewable resource areas throughout the region to load centers. The initiative ultimately seeks to identify renewable megawatts in identified renewable energy zones (REZs), as well as the conceptual transmission plans needed to deliver the renewable energy to load centers. The initiative will accomplish this goal by first identifying all commercial renewable resource potential, aggregate the best potential for utility-scale renewable megawatts in identified REZs, and then help develop the conceptual transmission plans. Resource information will be compiled and made available for all commercial renewable resources, whether transmission is needed or is not to access those resources. The process itself will help provide the foundation for interstate collaboration on commercial delivery of renewable energy to meet growing demand throughout the Western Interconnection. Implementing the WREZ initiative will develop cost-effective renewable resources benefiting both suppliers and consumers of renewable resources.

The WREZ will finally identify key assumptions and methods in order to determine bus bar generation and related transmission costs to deliver resources from each REZ to specified load centers. Implementing the WREZ initiative will develop cost-effective renewable resources benefiting suppliers and consumers of renewable resources, and other decision-makers.

1. The Western REZ Initiative

A number of western states, including Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming are working to identify renewable resources in their states and to determine transmission needed to move generation to load centers². These state-by-state assessments provide valuable information on how to economically develop renewable resources within particular states for that state's own use and, in a few cases, for use in adjoining states. However, restricting renewable procurement and transmission development to in-state and adjoining state resources may lead to higher costs to consumers and less efficient use of resources available across the Western Interconnection.

A regional renewables market providing multi-state access to the most economic renewable resources across the Western Interconnection provides opportunities for economies of scale, pairing resources on a single transmission system to achieve optimal line loadings, more liquid markets, a more robust regional transmission system, potentially lower costs than state-by-state markets, and attention to environmental siting considerations at relevant eco-regional scale.

¹ *Consensus* indicates acceptance by all parties.

² States are also looking to develop local renewables not needing transmission.

By identifying concentrations of developable renewable resources within and outside of zones throughout the Western Interconnection, load-serving entities, transmission providers, renewable energy developers, and state regulators will be able to make more informed decisions about:

- Costs of renewable power;
- Optimum transmission needed to move renewable power to consumers;
- Tradeoffs between nearby local renewables and distant renewables needing transmission
- Potential partners in developing transmission to access renewable areas; and
- Where renewable energy developers can site their facilities to ensure access to the transmission system and minimize environmental impacts.

Policymakers will have the information they need to consider institutional options for facilitating interstate coordination of transmission permitting procedures and cost allocation proposals.

The WREZ initiative will engage stakeholders throughout the Western Interconnection in a commercial assessment of renewable resource potential and transmission development, thereby laying a foundation for interstate collaboration in the planning and regulatory review of interstate transmission facilities. As it evolves, the WREZ process will seek to build multi-state public and private sector cooperation on policy issues related to renewable development and permitting of related transmission facilities, addressing cost allocation, siting considerations, and need assessment issues, among others. The initiative will continue the work of the Western Governors' Association (WGA) Clean and Diversified Energy Advisory Committee (CDEAC) in creating broad support for clean energy and transmission development.

B. Four Phases of the Project

The WREZ initiative will be conducted using a collaborative public process to engage regional stakeholders to identify priority development areas. Key stakeholders include public service commissions and other state agencies, load-serving entities (LSE), transmission owners, renewable developers, environmental organizations, Indian tribes, federal land use agencies, and others. Stakeholders will help establish criteria to identify and evaluate REZs, and validate analytical work being performed by consultants to the initiative. The initiative will be stakeholder-driven, with decisions and reports reflecting consensus to the greatest extent possible.

The WREZ initiative will be implemented in phases:

Phase 1: Identify all commercial renewable resource potential in the Western Interconnection, aggregate the best potential into REZs, and identify key assumptions and methods in order to determine bus bar generation and related transmission costs to deliver resources from each REZ to specified load centers. This initial REZ analysis will be conceptualized by the WREZ Technical Committee and work groups. Work will be supported by a consultant who will start with existing studies and take engineering and environmental concerns into account to screen out sensitive or potentially undevelopable land in each REZ in order to arrive at estimations of commercial potential. REZ

identification will accommodate all technologies possible within a REZ, and will include a supply curve to indicate REZ potential at various cost levels.

Phase 2: Through existing Western Electricity Coordinating Council and sub-regional transmission planning groups, develop conceptual transmission plans to deliver energy from the highest ranking REZs to identified load centers. This will include transmission modeling to study the transmission needs to move power from REZs to load and the price of that delivered power. These stakeholder-driven planning processes will be open and transparent.

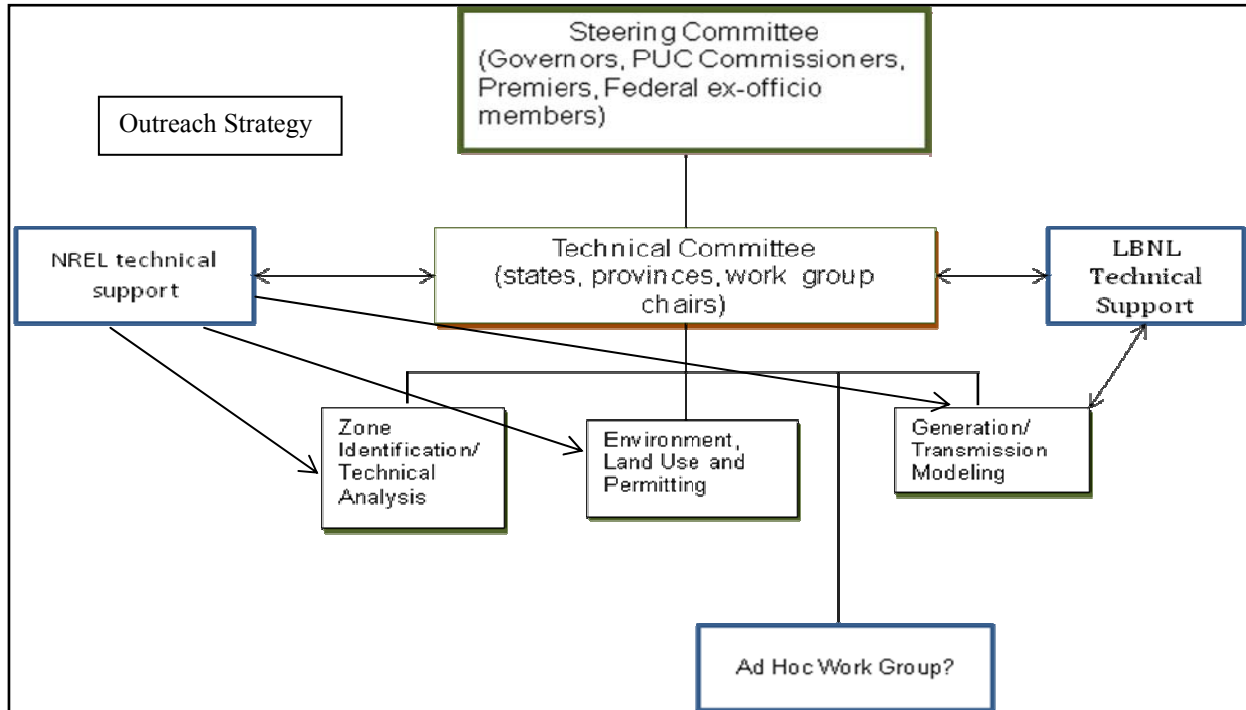
Phase 3: Stimulate the development of commercial generation-transmission projects, or modification of existing proposed projects, to deliver REZ power. Bring state utility commissions, LSEs, and generators together to develop mechanisms for coordinating both the timing and the regulatory approval of procurement across state jurisdictional lines. Coordinating procurement among utility power buyers provides a way to aggregate the renewables-supply needs of many LSEs together. This supports the consolidation of generation projects into large-scale developments that better match the transfer capacity of new high-voltage transmission facilities, thus reducing the risk of building transmission facilities that will not be fully utilized. Procurement coordination agreements also support development of a region-wide market for renewable power.

Phase 4: Engage political, industry and stakeholder leaders to build the interstate cooperation necessary to facilitate the permitting of multi-state generation-transmission projects and resolve cost allocation issues.

C. Project Structure and Schedule

The project will be driven by stakeholders. Stakeholder participation will be managed through two committees: a Steering Committee and a Technical Committee. The following figure summarizes the organizational structure of the project.

Organization of WREZ Project



The project schedule follows with more detailed information for Phases 1 and 2. Phase 1 will be completed in early-mid 2009. Phase 2 will be initiated in 2008. Activities for Phases 3 and beyond will be determined at the end of 2008.

	Calendar 2008				Calendar 2009				Calendar 2010			
	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th
Phase 1 – REZ identification												
A-1 Assemble information												
A-2 Technology characterization												
A-3 Resource assessment												
A-4 Supply curves												
A-5 Delineation of REZ boundaries												
B-1 Steering Committee												
B-2 Technical Committee												
B-3 Kick-off stakeholder plenary meeting												
B-4 2 nd stakeholder plenary meeting												
Phase 2 - Transmission												
Keep planning groups informed of WREZ project status												
WREZ input into sub-regional planning processes												
WREZ input into WECC TEPPC process												
WREZ input into specific project planning processes (e.g. High Plains Express)												
Development of model for LSEs, regulators, etc. to evaluate zones of interest to them												
Training of LSEs and others on model												
Phase 3 – Procurement coordination for renewables												
Phase 4 – Institutional options to facilitate interstate transmission for renewables												

II. Governance and Stakeholder Participation

A. Introduction

In order to reach consensus on meaningful and potentially controversial issues, it will be critical for representative stakeholders, including representatives of all types of renewable technologies, to validate the work at each stage of the WREZ initiative. This section outlines a plan for stakeholder involvement that offers opportunities for stakeholders to participate in development of the WREZ proposals and ultimately agree to the REZs. Stakeholders will work closely with the consultants hired to produce the resource assessment in order to confirm the accuracy of that assessment, including vetting assumptions and the data included in the assessment and agreeing upon the criteria used to identify and rank REZs. Upon completion of the resource assessment and identification of REZs, stakeholders will participate in the development and vetting of conceptual transmission plans to bring energy from certain REZs to load centers in the Western Interconnection. With conceptual transmission plans and a renewable resource assessment in place, stakeholders will then produce the consensus proposal on how best to develop and deliver renewables to load centers in the Western Interconnection. The process will give fair consideration to all renewable generation types and the stakeholders involved.

Stakeholder participation in the initiative will be managed through two committees: a Steering Committee and a Technical Committee. The WREZ stakeholder process will encourage a regional, rather than a state-centric, focus and will seek representation from interests in all states and provinces in the Western Interconnection.³

B. Steering Committee

The Steering Committee will be comprised of the Governors of the 11 states, one PUC commissioner from each of the 11 states, the Premiers of the two Canadian Provinces, and a representative from the area of Mexico in the Western Interconnection, as well as ex-officio members from the Department of Energy, Interior, and Agriculture. The Steering Committee will be the decision-making body of the initiative. The Chair and Vice Chair of the Western Governors' Association will lead the Steering Committee. A facilitator and technical expert will be made available to staff the committee upon request.

The Steering Committee will direct the initiative and establish work plans for each phase, from the designation of development zones (Phase 1) to development of coordinated regional procurement and interstate cooperation on permitting and cost allocation (Phases 3 and 4). The Steering Committee will use Phase 1 and 2 results to facilitate development of commercial transmission projects to make large-scale renewable energy generation available to load centers across the Western Interconnection.

³ Note that this regional focus does not preclude the use of data or stakeholder discussions on a state-by-state basis where appropriate.

C. Technical Committee

The Technical Committee will be appointed by the Steering Committee based on recommendations from the Western Governors' Association. It will be comprised of representatives from the states and provinces, and representatives from each of the working groups. The size of the Technical Committee may be limited to facilitate work on substantive tasks, but expanded as justified by the outreach goals of the initiative. Technical Committee membership will reflect geographic and interest group diversity.

Technical Committee members will be expected to objectively represent a class of stakeholder interests, to report on Committee meetings to those stakeholders, and to share stakeholder concerns objectively with the Technical Committee. In this manner, the Technical Committee will be responsible for both administrative/communication functions of the process and technical oversight. The Technical Committee will communicate with stakeholders, consolidate information from stakeholder groups, and ensure timely completion of the work of each phase. Committee Members are expected to ensure that all significant issues and concerns are fully and clearly articulated during the Committee meetings, and that the agreement developed by the Committee is acceptable to the constituency that the Committee Member represents.

The Technical Committee will actively recruit stakeholder participation in the WREZ initiative and will be actively supported by WREZ facilitators and project staff in this effort. Initial stakeholder recruitment efforts will, at a minimum, include outreach to established communities of stakeholders, including presentations on the WREZ initiative at already scheduled meetings.⁴

The Technical Committee will be responsible for the day to day technical management of the project and all coordination between the workgroups. The Technical Committee will develop a report to the Steering Committee that identifies all commercial renewable resource potential, whether at the bulk power level or those not suitable for REZs, in the Western Interconnection, then aggregates the best potential for bulk power-level renewables into REZs, and finally identifies key assumptions and methods in order to determine bus bar generation and related transmission costs to deliver resources from each REZ to specific load centers.

The Technical Committee will report to the Steering Committee. A facilitator and technical advisor will be made available to assist the Technical Committee upon request.

⁴ Examples of such meetings in the March-September 2008 time frame are: the Committee on Regional Electric Power Cooperation on April 3-4; the Western Conference of Public Service Commissioners on June 15-18; TEPPC in-person meeting in February, and others.

D. Technical Committee Work Groups

The Technical Committee will organize work groups as needed to support data collection, consolidate stakeholder input, and produce the work needed for the initiative. Work groups will generally be organized to facilitate stakeholder participation. Work groups will report to the Technical Committee and will seek to make consensus recommendations where possible, articulating diverging opinions so that all stakeholder concerns are shared with the Technical Committee. Stakeholders who wish to monitor a work group but not contribute directly to the work effort may request “observer” status in the work group and thereby receive all communications among the work group members.

Work groups will be tasked with specific assignments and reporting timelines.

E. Transparency/Communication

All WREZ meetings will be open to the public. WREZ committee work and meetings will be structured to facilitate participation by the full range of interested stakeholders in every sub-region of the Western Interconnection.

Communication between and among the Committees and work groups will be carried out via conference calls, webcasts, and, when needed, in-person meetings, at the request of the members. Electronic web-based support will be provided to provide easy access by Steering Committee, Technical Committee, and work group participants to each activity, meeting, conference call, and materials. This platform will be utilized to reduce the need for travel and enhance efficiency and effectiveness of conference calls.

The Steering Committee will meet by conference call and in-person to review progress and resolve issues necessary to ensure that the initiative remains on track. The Technical Committee will meet as often as necessary by conference call or in-person during Phase 1 and as needed thereafter.

Each work group will be staffed by a participant volunteer or project staff.

F. Formation of Work Groups

Initially, three work groups have been identified for Phase 1. These work groups will handle the majority of the Phase 1 work, preparing products for the Technical Committee to review and approve. Work groups will consult with the Technical Committee on difficult issues and can defer decision-making to the Technical Committee on unresolvable issues.

Zone Identification and Technical Analysis (ZITA) Work Group Description

The ZITA work group will identify geographically concentrated priority renewable resources in the Western Interconnect. The identified resource areas will serve as a base upon which restrictions relating to land use, regulatory mandates (or limitations) and environmental sensitivity will be layered. Through consensus of the stakeholders, including close coordination with the E&L work group, these

restrictions will be identified and characterized as areas for potential mitigation or for exclusion.

Once the candidate study areas for REZs and their restrictions have been identified, the work group will assess resources to provide cost and operational characteristics for similar groupings of resources within the area, for ultimate use in the model. The group will be responsible for identifying all renewable resource potential, even that which is not included in candidate study areas or proposed REZs.

Environment & Lands (E&L) Work Group Description

The E&L work group will be responsible for categorizing the development potential of candidate study areas based on environmental, land use, and wildlife criteria. This group will also identify policies and best practices to facilitate development in sensitive areas and recommend criteria for siting generation and routing transmission to the zones. The E&L work group will work closely with the Western Wildlife Habitat Council (WWHC) WREZ State Wildlife Task Group, a group of state fish and wildlife agency representatives responsible for leading the regional mapping effort to identify important wildlife habitat and sensitive ecosystems.

Generation and Transmission Modeling (GTM) Work Group Description

The GTM work group has two primary tasks; to work with a technical contractor to develop a flexible and user-friendly model to evaluate the delivered price of power coming from various REZs, and to engage in the WECC and sub-regional transmission planning processes to study transmission needed to move power from REZs to load. The majority of the GTM work groups work will fall into Phase 2 of the WREZ project; however model development and coordination with the ZITA group's cost analysis will take place in Phase 1.

G. Outreach Plan

WGA and DOE will lead the effort to develop an outreach plan for the WREZ project. Project members will be consulted for input on the strategy and assistance in implementation. Each of the work groups will include, in their workplans, outreach benchmarks and strategies.

III. Technical Work Plan

A. Phase 1: Identification of REZs

The objective of this phase is to identify high concentrations of developable renewable energy resources. All renewables that are commercially developable in the timeframe of the CDEAC goals will be identified, however only those that are suitable for aggregation into utility-scale development will be included in REZs. Each REZ will be (a) an area with a specific boundary, and (b) an economic profile of the renewable resource potential contained within the area. The boundaries should follow nature rather than politics; a REZ may be the size of a county, but will not necessarily follow county boundaries or be limited by state lines. In transmission terms, the size of a REZ will be comparable to a major substation surrounded by an area defined by the length of a radial line connecting an economically feasible project to the substation (although the REZ ultimately may be part of a network solution). A REZ's economic profile will include a theoretical development timeframe for projects within the zone, based on current and projected development costs. The identification of REZs will not disadvantage the development of renewable resources outside of a REZ.

A REZ identified in this phase has no legal or regulatory status, nor is there any certainty that transmission will be built to interconnect it. No aspect of the WREZ initiative impinges on the legal authority or replaces the regulatory role of any state or federal agency. Rather, the WGA's intent is to produce a well-researched body of fact and informed consensus that will weigh authoritatively in all subsequent proceedings that address the regional development of renewable energy resources.

Identification of a REZ requires whether the resources in a location are developable. Whether a resource is developable depends on the quality of the resource at a given site, availability of the land for development based on environmental considerations, the cost of the technology to capture resource potential, the cost of the transmission to connect it, and the total cost relative to other alternatives. The first three of these characteristics will be evaluated in this phase.

1. Process for developing REZs

1. NREL will provide base maps including available screens for areas with development limitations.
 - This should include federally protected lands, such as national parks and wilderness areas⁵.
2. NREL base resource maps will subsequently be refined to focus on areas with appropriate development potential as established by the ZITA and E&L work groups.
 - Based on work done in individual states there may be information in addition to NREL data where consensus can be reached on areas of

⁵ We expect that development is legally prohibited in these areas and that there should be no controversy or discussion over their exclusion.

development or exclusion from development. Areas not appropriate for development could include state wilderness areas or even federal roadless areas. If there is not rapid and universal agreement on exclusion areas in this step, discussion for that area would be deferred to step 4.

3. Identification of candidate study areas based on the subsequent application of resource and basic economic criteria. The ZITA work group will be responsible for identifying the resource and economically qualified candidate study areas. There has been discussion regarding using measures based on total developable resource or ability to support a certain size transmission line.
 - This could be something like ability to sustain a “X” KV transmission line, or a minimum of “X”,000 MW of renewable energy, or a certain level of resource.
 - Any area that does not qualify as a candidate study area will still be identified based on resource potential but will not be analyzed with regard to natural resource, wildlife, lands or cost characteristics.
4. Once the candidate study areas are defined, the ZITA and E&L work groups will continue to analyze the areas based on environmental and lands criteria, identifying where development should be avoided, minimized or mitigated.
 - This could lead to the identification of areas where development impacts should be avoided, minimized and/or mitigated. We would propose to divide the task here between the ZITA and the E&L groups. The ZITA would deal with known filters from obvious sources, including local land use regulations, military air space and topographically limited areas. The E&L group would handle all wildlife issues, water issues, and lands issues not assigned to the ZITA group.
5. Application of cost curve analysis.
 - The ZITA group would be responsible for reviewing the generation and interconnection transmission assumptions that would go into the modeling and reviewing the work of the contractor.
 - Cost analysis will not include possible long distance transmission costs, as those are to be addressed in Phase 2.
 - Cost information regarding mitigation may come from any of the work groups.
6. Identification of proposed REZs.
 - This would be done by the Technical Committee.
7. Agreement on Final REZs.
 - This would be the job of the Steering Committee.

The Technical Committee will rely on work groups to produce proposed REZs, including applied criteria and economic analysis. The following outlines Phase I workplans for each of the work groups to identify proposed REZs.

2. Work Group Workplans

Zone Identification and Technical Analysis Work Group Workplan

I. Overview

The ZITA work group will identify all renewable resource potential in the Western Interconnection, and from that pool of resources will determine geographically concentrated priority renewable resources. This will be accomplished by building upon state renewable resource assessments while incorporating new and existing region-wide resource specific studies, particularly NREL's wind/solar integration study. The identified resource areas will serve as a base upon which restrictions relating to land use, regulatory mandates (or limitations) and environmental sensitivity would be layered. Through consensus of the stakeholders, including close coordination with the E&L work group, these restrictions will be identified and characterized as areas for potential mitigation or for exclusion.

Once the REZs and their restrictions have been identified, the work group will assess resources to provide cost and operational characteristics for similar groupings of resources within the zone, for ultimate use in the model. This will include identifying costs of inputs into the model, including, but not limited to: net capacity factor of the resource (hourly, seasonal, and annual), operating characteristics, transmission interconnection/collection costs, development costs (including capital cost), local factors relating to inputs for resource (i.e. water for solar, transportation to resource, etc.), mitigation costs for environmentally sensitive lands and other local factors. The work group will coordinate with consultants Black and Veatch to incorporate and ground truth input assumptions for the supply curve models.

II. Goals and Objectives of ZITA Work Group

A. Western REZ Goals

- Identify all commercial renewable resource potential and characterize the most economically competitive renewable energy resources in the Western U.S.
- Identify land use, environmental and developmental constraints
- Identify where development should be avoided
- Provide a listing and characterization of REZs and potential transmission corridors
- Identify suitable renewable parameters (MW, portfolio mix, seasonal performance, operational impact on reliability) for input into modeling detailed conceptual transmission development options.

B. Short-term tasks (by January 2009, end of Phase 1)

- Identify resource criteria for initial study areas using NREL Base Resource maps and other resource information for other sources.
- Develop additional criteria, in conjunction with the Environment & Lands work group, to further narrow the study areas. These criteria will be based on classification areas that are off limits by law or policy.
- Receive information from states as to state sensitive areas

- Receive input from renewable developers as to area of interest, which may validate and/or enhance NREL Base Resource maps and other resource information as needed.
- Produce maps showing all renewable resources, with screens resulting in candidate study areas. Further screens will be applied to the candidate areas based on land use and environmental screening from E&L.
- Coordinate activities with other WREZ work groups.
- Apply economics to the selected areas and develop cost components for modeling.
- **At every step**, document the development of the criteria and assumptions. Make information available for public review and comment.
- Produce and release a product (e.g. a report or presentation) summarizing the work done by the group and outlining next steps.
- Develop an informational tool that can be enhanced and adjusted over time.
- Provide data inputs to the GTMWG.

C. Work Group Meetings

- The ZITA work group will meet on a regular basis facilitated by conference calls, webinars, and on-site meetings. ZITA co-chairs will work with the WGA representative to coordinate and notify all members of upcoming meetings. It is expected that the group will schedule twice monthly calls and only meet when necessary. It is also anticipated that specific tasks may be identified and require a subgroup of participants to address the task outlined. These findings will be presented to the larger group and included on the website.

III. Next Steps and Timeline

A. Expertise of Work Group (June)

1. Seek representation by all 11 states, Canada and Mexico
2. Resource Planners from LSE's in GTMWG to provide insights on the areas that are being represented
3. Seek tribal representation
4. Establish contact for each state on providing GIS layer data for their sensitive areas
5. Seek balanced and diverse stakeholder representation

B. Finalize 2008 Work Plan (by June 23, 2008)

1. Draft workplan to group by June 16
2. Schedule Webinar
3. Present workplan to Technical Committee

C. Gather Base Resource Data to Identify Initial Study Areas (June – August)

1. Work with NREL to consolidate/gather resource maps and to provide layering and GIS.
2. Coordinate with states which have already assessed their renewable resources, particularly Colorado, California, Arizona, and Nevada.

3. Determine how to fill in the gaps for those states without resource assessments and treat the differing basic assumptions and methodologies of the existing resource assessments.
4. Work with NREL to identify initial filters.
5. Test and select screening criteria to identify initial study areas.
6. Document and update website with selection criteria for review. Conduct regular conference calls and webinars to inform stakeholders on the process.

D. Define Technology Threshold

1. Define renewable technology threshold criteria for inclusion into study areas, taking into account states/countries and NREL's definition of 'developable' resources which include but are not limited to:
 - a. Resource generation potential (i.e. resource class, hub height)
 - b. resource availability and electricity generation characteristics (i.e. seasonality, temporal variations, nominal size for plant)
 - c. resource generation interdependencies (i.e. proximity to available raw materials, water use, land-use footprint in area/MW, transportation logistics)
 - d. required topography and geographic location
2. Provide Resource Threshold criteria to the Generation and Transmission Modeling Work Group as to the assumptions and inputs that should be modeled for different renewable resources.
3. Host regular conference calls with resource experts and all interested stakeholders. Stakeholders will reach out to any outside associations to pass along upcoming calls and relevant decisions made by the group.

E. Work with Environment and Lands group as they identify filters that take into account environmentally sensitive and other developmentally constrained areas (August - November)

1. Lead discussion on hydropower and biomass but allow E&L to participate.
2. Lead discussions on specifically identified land issues:
 - Military lands
 - Slope/Topography
 - Land cover
 - Urban areas, airports, wetlands and water bodies
 - Tribal lands – ZITA will conduct outreach to tribal communities to see if they would like to identify any specific lands within REZs as developable.
3. Discussions with E&L on additional criteria to apply and gain understanding of additional filters for the candidate study areas. This information will be considered in conjunction with technical information on developable resources.
4. Consolidate filters from all facets of the study into a GIS layer (?) management tool to demonstrate impacts of various criteria on the study areas.
 - Electronic consolidation of information.

5. Host joint meeting open to all interested stakeholders that will inform the public of the process and decisions made.

F. Generate a list of Areas of Interest utilizing information and filters developed in previous steps

G. Work with the Generation and Transmission Modeling Work Group

(September – December)

1. Provide locations and generation and interconnection characteristics of candidate priority areas to the Generation and Transmission Modeling Work Group
2. ZITA will work with Black & Veatch to validate cost and performance information.

H. Supply Curve Analysis (November- December)

1. Review cost assumptions with Black & Veatch for use in modeling.
2. Address Black & Veatch's request for data as necessary.
3. Ensure that the data that is provided meets the modeling working groups needs.
4. Document areas of uncertainties and note sensitivities to assumptions.

I. Non-REZ resources

1. All information during the study will be retained and made available for public review.
2. Non-REZ renewable resources will have maps that will be used in publicly-released report(s) by the Steering Committee, as part of the overall WGA WREZ project.
3. The ZITA work group will develop a format to present this information (i.e. Similar to the Colorado SB 07-91 process).

J. Post Proposed Zones for Public Comment (December – January)

1. Produce and release a product (e.g. a report or presentation) summarizing the work done by the group and outlining next steps.

WREZ Environment and Lands Work Group Work Plan

I. Overview

The E&L work group will be responsible for categorizing the development potential of candidate study areas based on environmental, land use, and wildlife criteria. This group will also identify policies and best practices to facilitate development in sensitive areas and recommend criteria for siting generation and routing transmission to the zones.

II. Goals and Objectives

- Reduce impact from renewable energy development and transmission on important wildlife habitat, sensitive ecosystems and other sensitive lands.
- Facilitate the development of renewable energy in the Western Interconnection by providing timely information about sensitive lands and options for avoiding, minimizing and mitigating impacts from development in these areas.
- Working with the state fish and wildlife agencies, assist in developing overlay maps of crucial wildlife habitat relevant to the areas that have been identified as WREZ candidate study areas. Within these maps, identify priority levels of concern, e.g., avoid/minimize/mitigate/monitor.
- Identify and develop overlay maps for other areas of concern (relevant to the WREZ candidate study areas) to land use not currently excluded from development of transmission or renewable energy and that may require additional studies, monitoring and/or mitigation.
- Recommend best practices and policies for avoidance, minimization, mitigation, and/or monitoring of impacts to wildlife and other land use impacts for areas associated with priority levels and transmission, renewable energy, or both.

III. Phase One Tasks

A. Western Wildlife Habitat Council (WWHC)

- Coordinate the relevant state fish and wildlife agencies for the purpose of compiling state and regional wildlife maps relevant to the WREZ candidate study areas.
- Develop protocols and definitions for collecting State data (including species being impacted by renewable generation and format of information).
- Coordinate with the E&LWG and integrate into state wildlife maps, as appropriate, other relevant information identified and collected by the E&LWG.
- Develop and submit state overlay maps of wildlife to inform where WREZ candidate study areas should avoid development, minimize impacts to wildlife, or mitigate impacts, and coordinate this state data across the Western Interconnection region. The WWHC should consider and incorporate as appropriate information from the E&LWG in determining the level of sensitivity, i.e., avoid, minimize, or mitigate.
- In coordination with the E&LWG, recommend and implement policies and best practices for avoiding, minimizing and mitigating impacts to wildlife in the WREZ zones and corresponding transmission.

B. E&L Work Group

- Develop Operating Procedures for Work Group
- Develop Draft Work Plan
- Identify screens for initial exclusion areas for use in identification of WREZ candidate study areas. Outcome would be that we agree on and map areas currently excluded by law, policy or other agreed to criteria associated with renewable energy generation, e.g., state and national parks. (Some areas excluded for screening of generation areas might be suitable for appropriately sited transmission.)
- Wildlife and Lands Issues that the E&LWG will consider are:
 - Wildlife habitat and sensitive ecosystems including:
 - Wildlife habitats
 - a. Crucial wildlife habitats and wildlife corridors - state fish and game agencies
 - b. Federal and state listed species occurrences - State natural heritage programs
 - c. State and global imperiled species occurrences - NatureServe and state natural heritage programs
 - d. Important bird areas - Audubon Society
 - Threatened ecosystems - native ecosystems that, due to severe alteration or outright conversion by humans, have decreased in extent by more than 50% since ca. 1500.
 - Fragile ecosystems - native ecosystems characteristic of locations where environmental extremes constrain biotic composition, rates of succession are very slow, recovery from human disturbance is very slow, and environments are documented as being particularly susceptible to invasion by non-native species when disturbed by humans (e.g., alpine tundra, wetlands, some desert systems) - defined in national vegetation classification.
 - Unique ecosystems - native ecosystems that, either due to natural rarity or due to intensive land use and conversion, are known from fewer than 25 locations worldwide - tracked by state Natural Heritage Programs
 - High conservation value areas - areas identified through systematic conservation assessment and planning as being high probability for meeting stated conservation goals, including:
 - e. State wildlife action plan priority areas - state fish and game agencies
 - f. Ecoregional portfolio areas – TNC
 - g. Potential conservation areas - State natural heritage programs

- Regulatory or statutorily-protected lands that may or may not preclude development, as well as other sensitive lands⁶
- Provide input to the WWHC regarding wildlife data protocols and definitions.
- Identify and compile non-state data on wildlife corridors and crucial habitat in the candidate study areas. The data should be consistent with the WWHC protocols. Possible sources for this data include federal agencies, conservation groups, research institutions, and industry. Data from this effort will be submitted to the WWHC for their consideration and possible integration into state and regional wildlife maps.
- Identify additional environmental and land constraints for application within candidate study areas.
- In coordination with WWHC, develop decision rules for how non-exclusive constraints apply within candidate study areas.
- In coordination with the WWHC, recommend policies and best practices for avoiding, minimizing and mitigating impacts to wildlife in the WREZ zones and corresponding transmission.

IV. Draft Timeline

Timeframe	Who	Activity
July 15 – Sept 15	E&LWG	<ul style="list-style-type: none"> Develop and apply initial criteria for excluding lands based on regulatory designations.
Sept - Oct	E&LWG	<ul style="list-style-type: none"> Provide input to the WWHC regarding list of key impacted species for each renewable energy resource, e.g., wind, solar, and geothermal, and consideration of designations of multi-species/communities, e.g., TNC's ecoregional assessments. Provide input to the WWHC on protocols and definitions for purposes of soliciting relevant wildlife data from states (and other sources), including desired format for the data. Identify other potential sources of data, e.g., federal agencies, conservation groups, universities, industry, etc.
Sept 15 – Nov 1	E&LWG	<ul style="list-style-type: none"> Continue developing criteria for excluding lands based on regulatory designations (those areas that were not identified in the initial criteria).
Oct 6 - 13	E&LWG	<ul style="list-style-type: none"> Comment on wildlife data request and provide other sources for data collection.
Nov 10 – Nov 14	E&LWG	<ul style="list-style-type: none"> Provide input to the WWHC on draft “avoidance” criteria based on wildlife considerations.
Dec 15 – 22	E&LWG & WWHC	<ul style="list-style-type: none"> Review and comment on draft wildlife overlay maps characterizing wildlife “avoidance” areas.
Dec 31	E&LWG & WWHC	<ul style="list-style-type: none"> Submit initial wildlife overlay maps that characterize the wildlife values in the candidate study areas, including areas to avoid.
Jan 1 – Mar 15	E&LWG	<ul style="list-style-type: none"> Develop criteria for determining further characterization of the REZs based on lands considerations, namely, areas to “avoid”, areas to “minimize” impacts and areas to “mitigate” impacts. Develop recommendations for best practices and other tools for “minimizing” and “mitigating” impacts. These recommendations should also include estimates for the associated costs of applying the best practices and tools, for

⁶ Ultimately, the list of all statutory and regulatory protected areas will be reviewed and enhanced, as necessary, by state and federal agencies.

		purposes of determining the bus-bar costs of the energy.
Jan 1 – Mar15	E&LWG & WWHC	<ul style="list-style-type: none"> • Develop criteria for determining further characterization of the REZs based on wildlife considerations, namely, areas to “minimize” impacts and areas to “mitigate” impacts. • Develop recommendations for best practices and other tools for “minimizing” and “mitigating” impacts. These recommendations should also include estimates for the associated costs of applying the best practices and tools, for purposes of determining the bus-bar costs of the energy.
Mar 15 to June 1	E&LWG	<ul style="list-style-type: none"> • Provide input to the WWHC in the application of the “minimization” and “mitigation” criteria to further characterize the renewable energy zones and inform the bus-bar cost estimates.

V. Outreach

The Environment and Lands Work Group has two main outreach objectives: 1) solicit relevant wildlife data from targeted groups as appropriate; 2) make the process public and transparent for identifying exclusion areas and avoidance criteria. This will be accomplished by:

- Outreach to groups with data for data request including state wildlife agencies, federal agencies, conservation groups, research institutions, and industry.
 - Provide contact information and summaries of data received during data request on WREZ website.
- Hold bi-weekly conference calls open to the public, and send out call notices and materials to all interested parties. Post on WREZ website call and meeting summaries and draft documents for review.
 - Make exclusion areas publically available on WREZ website as they are identified during the process.
 - Hold briefing webcast on wildlife overlays once they have been identified.
 - Solicit comments on minimization and mitigation criteria.
- Provide work group members and interested parties with the necessary tools to communicate work group activities and decision items with their broader stakeholder group.

The work group will work within the broader WREZ project public comment structure to allow detailed input on E&L work products. After public comment the work group will assess whether any changes are necessary.

Generation and Transmission Modeling Work Group Workplan

I. Overview

WGA has generally defined the scope of the GTM WG in terms of purposes, background, tasks, and timeline. These have been incorporated into the GTMWG work plan which has two primary tasks to accomplish:

Task 1 – Model Development: Provide guidance to LBNL to develop a flexible and user-friendly model that can be used by LSEs, regulators, public policymakers, and others to evaluate the delivered price of power delivered from various priority Renewable Energy Zones.

Task 2 – WECC Transmission Planning: Provide guidance to WREZ project staff to engage in the WECC transmission planning process, including sub-regional venues, to study transmission needed to move power from priority Renewable Energy Zones to load.

1. Work Group Composition: Members of the GTM WG represent a diverse spectrum of stakeholder interests and expertise. Additional outreach to add members with resource planning, modeling, and WECC transmission planning experience is underway.
2. Work Group Meetings: The GTM WG will meet on a regular basis facilitated by conference calls, webinars, and on-site meetings. The GTM WG co-chairs will coordinate on a weekly basis, with notification of meetings distributed to all GTM WG members. It is anticipated conference calls for all GTM WG members will be convened on a monthly basis, and that on-site and/or webcast meetings will occur at critical junctures possibly as often as every other month through the duration of the GTM WG's tenure. WGA and WREZ staff will participate in all meetings.
3. Interface with Other WREZ Work Groups: Since many of the model inputs will come from information compiled by the other WREZ Work Groups, the GTMWG will interface with those parties in the development of the WREZ model. The WTMWG will identify liaisons to the other work groups
4. The Zone Identification and Technical Analysis Work Group will provide model input for the REZs and the cost and performance assumptions of the renewable resources within each zone.
5. Key input to be provided by the Environment & Lands Work Group will be used to identify conceptual transmission projects needed to deliver energy from the REZs to load centers.
6. Schedule: The schedule for Tasks 1 and 2 are shown in Figure 1 on the following page. This schedule is dependent upon timely input from within the GTM WG and the other WREZ Work Groups, and of course, the successful development and validation of the WREZ Model.

Figure 1: Tentative Schedule for Generation and Transmission Modeling Work Group Activities

	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09
<u>Task 1: Model Development</u>								
Existing Models Assessment								
Features for Model								
Model Development								
Validation of Model								
Application of Model								
Model Documentation & Training								
<u>Task 2: WECC Transmission Planning</u>								
Sub-Regional Venues								
WECC Transmission Planning								
<u>GTMWG Meeting Schedule</u>								
Co-Chair Coordination Calls	Weekly							
Conference Calls	Monthly and at Critical Junctures							
On-Site Meetings/Webcasts	Bi-Monthly and at Critical Junctures							

II. Tasks

1. WREZ Model Development – Task 1 (May – January 2009)

The WREZ Model would address incremental additions to the existing resource stack within the Western Interconnection, as opposed to a production modeling approach in which both existing and incremental additions are considered. The model would be suited to evaluate source-sink pairs that incorporate intermediate on-ramp/off-ramp points including the capability to evaluate multiple REZs to single and multiple sinks. The sequence of WREZ Model development activities is expected to be as follows:

i. Existing Models (May – July)

A number of incremental spreadsheet models are available in the public domain⁷. LBNL and its consultant, Black & Veatch, will review the features of available models for consideration by the GTM WG. LBNL and B&V will write-up of the objectives of the modeling effort, desired model capabilities, a review of existing models and their capability to achieve the modeling objectives, and make recommendations to the GTM WG. The GTM WG will then determine if an existing model is suited for WREZ use, if modifications of an existing model should be developed, or if an entirely new model should be developed.

ii. Model Features (July – September)

The GTM WG, in collaboration with the other WREZ work groups, will provide guidance as to the features that the WREZ Model should incorporate. These are likely to include (1) specific cost and operational (e.g., diurnal/seasonal metrics) inputs for select renewable resources, (2) cost and operational inputs for select conceptual transmission projects needed to deliver energy from REZs to load centers, (3) sensitivity analyses features that allow the assessment of externalities such as carbon penalties and emissions, tax subsidies, water consumption, and natural gas prices, and (4) provision for inputting time-sensitive factors such as inflation and technology/performance/cost changes. Additionally, the GTM WG will provide direction as to the types of scenarios to be modeled (i.e. wind vs. gas, a mix of renewable resources vs. gas, wind “firmed” with gas vs. gas, wind/solar vs. gas).

iii. Model Development (August – October)

LBNL and its consultant, Black & Veatch will develop the WREZ Model based on the direction and input from the GTM WG and other WREZ Work Groups to accommodate the desired capabilities of the model. This activity is expected to occur simultaneous with items 2 and 4.

iv. Validation (October – December)

The GTM WG will periodically review the results of model runs for generic scenarios in order to validate and perfect the model. This will include vetting with GTM WG members that represent the ultimate users for the model: utility resource planners, regulators, and public policymakers.

v. Application (November – January 2009)

⁷ These include models used in the Frontier Line (FEAST) and by NTAC, E3, CREZ, and RETI

Once Western REZs have been identified and characterized, the modeling of renewable resource scenarios and associated scenario analysis will be conducted for a wide number of situations and geographic locations – selected on the basis of input from LSE resource planners, the Technical Committee, the Coordination Group, and the other WREZ Work Groups. Such evaluations will be the basis for identifying priority REZ transmission plans to be submitted to WECC in Task 2 of the process. It is anticipated that the results will be documented in a slide deck and possibly an overview report that would be prepared by LBNL with the oversight and direction of the GTM WG.

vi. Model Documentation and Training (February - June 2009)

LBNL will be responsible for providing documentation and training for the model for use by independent parties with the oversight and direction of the GTM WG.

1. WECC Transmission Planning – Task 2 (October – June 2009)

The GTM WG, via the WREZ project staff, is charged with ensuring that the results of its efforts are ultimately considered in the two types of regional transmission planning venues. The facilitation of this effort will be simplified by participation of members of these venues in GTM WG's activities.

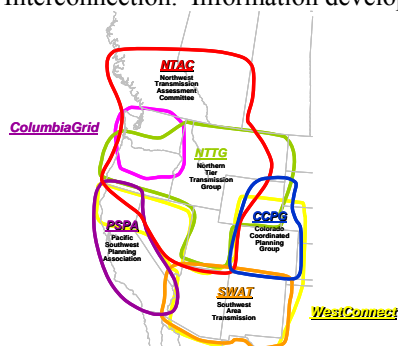
i. WECC Transmission Expansion Planning Policy Committee (TEPPC)

(January 31, 2009 deadline)

TEPPC and its Transmission Advisory Sub-Committee (TAS) annually consider stakeholder requests for the modeling of regional transmission projects. Such requests need to be submitted by January 31 of each year for evaluation during that particular annual WECC planning cycle. The GTM WG will submit a TC/SC approved case for TEPPC consideration by January 31 regardless whether or not the final report is completed. Details of such a study case can be worked out with TEPPC in the following months. WECC, TEPPC and TAS committee members are represented in the GTM WG.

ii. Sub-Regional Transmission Planning Venues⁸ (October – January 2009)

⁸ The map below shows the sub-regional planning processes and Western Electricity Coordinating Council interconnection-wide transmission planning process that are incorporated into FERC Order 890 compliance filings made by western transmission owners and operators on December 7, 2007. These open, transparent planning process will be used to develop conceptual transmission plans to move generation from REZs. In addition, there are an unprecedented number of significant transmission expansion proposals in the Western Interconnection. Information developed for these projects will be useful in evaluating transmission needs.



Transmission projects under consideration within various sub-regions within WECC are reviewed within each of the sub-regional transmission planning venues (Figure 2). These stakeholder venues generally meet three or four times per year and are facilitated by designated parties. GTM WG will seek representation of members for each of these venues in its membership.

III. GTM WG Outreach

The GTMWG has three distinct outreach objectives. During the development of the model for LSEs, regulators, and others, the key outreach audience includes (1) LSE resource planners and regulators who need to define the outputs they desire from the model and (2) experts who can contribute to the design of the model and provide technical inputs to the model. This will be accomplished by:

- Regular webinars during development the model; and
- The formation of three technical sub-groups on model development, transmission distances from REZs to loads for input to the model, and transmission costs for input to the model.

The second outreach objective is to engage all LSE resource planners and PUCs in the interconnection to (1) provide them training on the use of the model and (2) solicit their identification of REZs of greatest interest which will become input into transmission planning work. This will be accomplished by:

- Outreach to all LSE resource planners and PUCs through direct communication and in collaboration with other organizations such as WECC and the Committee on Regional Electric Power Cooperation (CREPC);
- Web-based and in-person training on the use of the model; and
- A request to LSE resource planners to identify REZs that are potentially of interest to them, and to provide that information to the WREZ project and regional transmission planning processes.

The third outreach objective is to engage the Western Electricity Coordinating Council transmission expansion planners and sub-regional transmission planning groups in the detailed evaluation of transmission needed to allow LSEs to access generation from REZs of greatest interest. This will be accomplished by:

- Regular briefings of WECC's Transmission Expansion Planning Policy Committee and all sub-regional planning groups (SWAT, CCPG, SWPG, Sierra, Columbia Grid, NTAC, NTTG) on the WREZ project and soliciting suggestions on how the output of the WREZ project can complement on-going transmission expansion planning efforts and the schedule for such planning; and
- A formal request from the WREZ Steering Committee to WECC to study, as part of the WECC's 2009 study plan, optimized transmission needs associated with the preferred REZs identified by LSEs.

3. Coordination Among Work Groups

There will be many overlapping issues for the ZITA and E&L work groups to coordinate on. The groups are sharing responsibilities on many issues that are considered “lands” issues, and the decisions of each group will impact the work of the other. For example, ZITA is responsible for defining the renewable resources and E&L will have to assess environmental impacts of those resources based on the ZITA definitions. ZITA is taking the lead on non-environmental lands issues, types of lands that may be incompatible with resource development, while E&L will be focused on identifying types of lands that are sensitive to resource development.

The following list is not all inclusive but identifies which broad land categories each work group will take the lead on discussing.

E&L Work Group (potentially sensitive lands)

- Wildlife habitat and sensitive ecosystems
- Regulatory or statutorily-protected lands that may or may not preclude development⁹

ZITA Work Group (potentially incompatible lands)

- Military lands
- Slope/Topography
- Urban areas, airports, wetlands and water bodies
- Tribal lands – ZITA will conduct outreach to tribal communities to see if they would like to identify any specific lands within REZs as developable.

Land types that will not be reviewed for exclusion from REZs

- Ag lands

Agriculture will not be used as a criterion for excluding lands. First, WGA does not have any policy that would guide us on how to keep certain agriculture lands in production. Second, certain agriculture lands may be able to accommodate both agricultural development and renewable energy development. Thirdly, as agricultural lands are private property, we would be very reluctant to limit use of these private properties without some guiding principles and policies in place. And finally, because the WREZ will only identify potentially developable lands, but development projects will still require extensive permitting, staff believes consideration of alternative values for these lands, such as "agriculture", should be considered on a case by case basis through the permitting process.

The ZITA and E&L work groups will have a joint workshop in September 2008 to review each group's work on developing initial criteria for REZs. At this time ZITA will identify the candidate study areas and E&L will provide initial exclusion criteria. These combined areas will be mapped and included in the supply curve analysis.

⁹ Ultimately, the list of all statutorily protected areas will be reviewed and enhanced, as necessary, by State and Federal agencies.

The ZITA and GTM work groups will coordinate on the model development task. Specific model input needed from ZITA will be identified.

WGA has prepared a timeline of work group activities in Phase 1. This timeline highlights work group tasks each month and the interaction between the groups. The work group timeline can be viewed on the WREZ website through www.westgov.org.

B. Phase 2: Conceptual Transmission Plans from REZs

The objective of Phase 2 is to use existing industry regional transmission planning processes develop conceptual transmission plans and/or support existing transmission plans to encourage transmission from REZs to load centers. Except for the California ISO and Alberta Electric System Operator, there is no institution in the Western Interconnection that can spread the cost of new transmission to parties unwilling to participate in a transmission project. To successfully develop transmission in this institutional environment, it is necessary to propose projects that encourage voluntary participation.

In most of the West, for any major transmission project to move forward LSEs must be willing to purchase the power the line will carry. Therefore, to move from the identification of REZs to the construction of transmission requires close coordination between resource planners at each LSE and transmission providers, sub-regional and interconnection-wide transmission planners, and transmission developers.

To achieve the necessary coordination between LSE resource planners and transmission planners and developers, individual LSEs and their regulators need a simple tool to evaluate the delivered price of renewable energy from different REZs. Because transmission investment is “lumpy” and has significant economies of scale, an LSE’s initial choice of priority REZs needs to be coordinated with choices by other LSEs in order to develop transmission plans that will deliver the lowest cost power from REZs.

Most of the Phase 2 activities are described in the work plan for the GTM work group (see above).

C. Phase 3: Coordinate Procurement to Support Commercial Transmission Projects and a Regional Market for Renewables

Development of a regional market for renewables, and interstate transmission projects to support such a market are major goals of the REZ initiative.

Transmission project sponsors need generator and/or LSE commitments to use the proposed facilities to justify building them; however, many renewable generating projects are small in relation to high-voltage transmission facilities. Coordinating procurement among utility power buyers provides a way to aggregate the renewables-supply needs of many LSEs together. This supports the consolidation of generation projects into large-scale developments that better match the transfer capacity of new high-voltage transmission facilities, thus reducing the risk of building transmission facilities that won't be fully utilized.

Proposals to synchronize RFP cycles of regulated entities are already under discussion in parts of the west. Many municipal, cooperative and federal and state electric systems also have renewable energy procurement goals; mechanisms to integrate their renewables targets into state or region-wide procurement remain to be developed.

Phase 3 will bring state utility commissions, LSEs, and generators together to develop mechanisms for coordinating both the timing and the regulatory approval of procurement across state jurisdictional lines. Procurement coordination agreements support development of a region-wide market for renewable power.

D. Phase 4: Build Interstate Cooperation to Facilitate Transmission Facility Approvals, Allocate Costs, and Ensure Cost Recovery

Renewable Energy Zones and the transmission to access them are likely to cross state lines, thus requiring approvals from multiple states. How the benefits of proposed generation-transmission projects will be evaluated, and how costs are allocated across affected states are always difficult issues. The viability of large-scale projects may hinge on developing ways to resolve these issues, and to coordinate or facilitate permit approvals. If Phase 1 results establish REZs as cost-effective sources of renewables supply, and generators and transmission providers subsequently propose specific projects, states will have cause to cooperate closely on these issues.

Phase 4 will focus on building the interstate cooperation necessary to expedite development of generation-transmission projects on a regional scale, engaging political, industry, and stakeholder leaders in affected states to this end. Because building cooperation across jurisdictional lines takes time, Phase 4 work will begin immediately after cost-effective development zones are identified, at the end of Phase 1. Phase 4 will thus run concurrently with the development of conceptual transmission plans in Phase 2 and with the development of procurement coordination in Phase 3.

IV. WREZ Consolidated Project Budget

The complete budget is attached to the grant application. This section makes transparent primary budget items for Phase 1 of the WREZ project.

WREZ Consolidated Budget (Phase 1)		
WGA Personnel		245,628.56
Fringe		80,938.00
Overhead		185,000.00
Contractual		
Facilitation	159,000.00	
WIEB	100,000.00	259,000.00
Conference Calls		12,000.00
Printing (Reports)		8,220.00
IT Support - Web Tools		40,000.00
Travel		80,750.00
Meetings		69,680.00
Total Budget for Phase I		\$ 981,216.56

Glossary

Busbar cost: The per megawatt-hour revenue that a project would have to earn in order to break even on all levelized development and operating costs other than network transmission. Busbar cost includes any collector lines bringing power from dispersed generators to a central interconnection point on the transmission system (“busbar”). The busbar is the point at which the aggregate output of multiple units is metered, and is the point at which the units become subject to power control area dispatch instructions.

Candidate study area: An initial modification of NREL base resource maps including any criteria identified by ZITA and E&L. Identifying candidate study areas is an interim step the work groups will take in the process of developing proposed REZs.

Renewable Energy Zones (REZ): Areas with high concentrations of developable renewable energy resources.

Supply curve: A representation of the amount of capacity in a zone that is economically developable, and the cost at which increments of the total can be developed. The curve depicts projects and potential projects in ascending order according to their busbar costs. A REZ supply curve includes and identifies all economically developable renewable energy technology categories contained in the REZ.

Western Interconnection: The areas of Alberta, British Columbia, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. This also includes an area in Mexico in the state of Baja California. Small parts of TX, NE, and SD are within the Western Interconnection; each state will be approached to determine interest in participation.

Western Wildlife Habitat Council (WWHC): A group of state fish and wildlife agency representatives linked to the WWHC. This group is responsible for leading the regional mapping effort to identify critical wildlife habitat and sensitive ecosystems.