



Governor Jim Gibbons’
Nevada Renewable Energy Transmission
Access Advisory Committee
Phase I Report

December 31, 2007

Table of Contents

Introduction	1
Chairman’s Comments	2
Appointed Committee Members	2
Non-Committee Sub-Group Participants	2
Map Contributors	3
Administrative Assistants	3
Video Conferencing Coordinators	3
Executive Order by the Governor.....	4
Executive Summary.....	6
Methodology.....	7
Generation of Resource Maps	7
Identification of Renewable Energy Zones	8
Transmission Needs Analysis –Access to the Grid.....	8
Table 1 - Transmission Links Detail.....	9
...9	
Constraints and Stakeholder Analysis	10
Environmental and Right of Way	10
Land Stakeholders.....	12
Military	13
Recommendations	14

Separate Associated Files

RETAAC Phase I Appendix I.pdf
RETAAC Phase I Appendix II.pdf
RETAAC Phase I Appendix III.pdf

RETAAC Phase I Figure 1.pdf
RETAAC Phase I Figure 2.pdf
RETAAC Phase I Figure 3.pdf

Introduction

Nevada is extremely fortunate to possess abundant renewable energy resources that can accommodate the development of technologies that include wind, geothermal, solar and biomass. The great development potential positions Nevada as one of the top states for pursuing alternative energy. However, the locations for renewable energy development can be in remote regions that do not possess access to the transmission system grid that would enable transfer of that energy across the State. Governor Jim Gibbons recognized this challenge and issued an Executive Order forming the Renewable Energy Transmission Access Advisory Committee.

In a May 9, 2007 press release, Nevada Governor Jim Gibbons stated “Renewable energy development is good for Nevada and good for the nation. Much of Nevada’s renewable energy resources are located away from the grid. In order for companies to locate in Nevada and develop our renewable energy resources, we need to ensure they have access to the transmission infrastructure that will allow them to bring their energy to the marketplace.”

The mission statement in the Governor’s Executive Order states “The Committee will propose recommendations for improved access to the grid system by which renewable energy industries can set up and have market access in Nevada and neighboring states.”

The purpose of the Committee is to:

1. Identify commercially developable locations for renewable energy, ranking them based on size and viability and comparing them to Nevada’s energy needs and demand.
2. Assess existing and planned transmission access to these resources.
3. Make recommendations for additional transmission lines.

At the Committee’s initial meeting on June 15, 2007 the Governor expanded on the need to develop the state’s renewable energy resources and to deliver the power to the grid. He explained that every year Nevada spends as much as \$6 billion importing energy. He encouraged the committee to take up this “\$6 billion opportunity” to change the energy face of Nevada. He indicated that renewable energy could help reduce dependence on imported energy and Nevada’s renewable resources could be exported to supply the clean energy needs of neighboring states. He stated that this committee could make meaningful recommendations to the leadership of Nevada. He continued by saying that this group would review all of the electricity needs and the demands in this state. Together, this committee and Nevada’s leaders could bring our state into the 21st century and into energy independence.

Chairman’s Comments

As Chairman of Governor Jim Gibbons’ Renewable Energy Transmission Access Advisory Committee I want to thank the members of the Committee, Hatice Geçol, the Governor’s Energy Advisor and the many others who participated in the meetings, the Technology sub-groups, the Report Preparation sub-

group and the preparation of the maps. These maps, as well as this report, represent the very significant work product of this group of dedicated and talented professionals. I especially want to thank Governor Gibbons for his vision of a renewable energy future for Nevada, our State's investor owned utilities Nevada Power Company and Sierra Pacific Power Company and the numerous state and federal agencies for their full cooperation.

Appointed Committee Members

Daniel (Dan) Schochet, Vice President, Ormat (chair)
Carolyn Barbash, Transmission Executive, Sierra Pacific and Nevada Power (vice chair)
Christy Morris, Oil, Gas and Geothermal Program Manager, Nevada Division of Minerals (vice chair)
Ellen Allman, Terra-Gen Power
Jeneane Harter, President, HiTech Communications
Marion Barritt, Director, American Solar Energy Society
Tim Carlson, President/CEO, Powered by Renewables
Gilbert Cohen, Senior Vice President, Acciona Solar Power
Thomas Fair, Renewable Energy Executive, Nevada Power and Sierra Pacific
Gary Wood, Renewable Energy Program Manager, Southern Nevada Water Authority
Raj Mehta, Deputy Director, Nevada State Office of Energy
Rebecca Wagner, Commissioner, Public Utilities Commission of Nevada
Gary Wayne, Director of Strategic Projects, SunPower Corporation
Brian Whalen, Transmission Planning Manager, Nevada Power and Sierra Pacific

Non-Committee Sub-Group Participants

Eileen Wynkoop, Nevada Power Company
Paul Aguirre, Nevada Power Company
Charles Benjamin, Western Resource Advocates
Vladimir Chadliev, Nevada Power Company
Kyle Davis, Nevada Conservation League
Newton DeBardeleben, Sierra Pacific Power Company
Todd Eagleston, Nevada Power Company
Shawn Espinosa, Nevada Department of Wildlife
Joseph Greco, Terra-Gen Power
Pete Konesky, Nevada State Office of Energy
Russ Mason, Nevada Division of Wildlife
Harriet Moyer, Ausra, Inc.
Elwood Miller, Nevada Fire Safe Council
John O'Donnell, Ausra, Inc.
Steve Ponder, Nevada Power Company
Dave Pulliam, Nevada Department of Wildlife
Fred Schmidt, Hale Lane Attorneys

Map Contributors

Great Basin Center for Geothermal Energy (GBCGE)
National Renewable Energy Laboratory (NREL)
National Geospatial-Intelligence Agency (NGA)
Naval Air Systems Command (NAVAIR)

US Forest Service, Toiyabe-Humboldt National Forest
Steven Arenson, AFCEE/CCR-S Western Regional Office, San Francisco CA
Kimball Goddard, USGS Nevada Water Science Center (NWSC), Carson City, NV
Donna Heimiller, National Renewable Energy Laboratory, Golden, CO
Jordan Hastings, Nevada Bureau of Mines and Geology, Cartography, Reno, NV
Ron Hess, Nevada Bureau of Mines and Geology, Reno, NV
Amy Mathie, USGS Geography Discipline Representative to NWSC, Carson City, NV
Jennifer Mauldin, Nevada Bureau of Mines and Geology, Cartography, Reno, NV
Doug McLemore, Nevada Power Company, Las Vegas, NV
Christy Morris, Nevada Division of Minerals, Carson City, NV
Mark O'Brian, BLM Nevada State Office, Reno, NV
Brian Schmidt, Mountain Home Air Force Base, Mountain Home, ID
Lisa Shevenell, GBCGE, Reno, NV
Brian Whalen, Sierra Pacific Power, Reno, NV
Richard Zehner, GBCGE, Reno, NV

Administrative Assistants

Jan Brase, Legislative Assistant, Office of Governor Jim Gibbons
Kristy Wahl, Utility Analyst, Public Utilities Commission of Nevada
Lorayn Walser, Grant & Projects Analyst, Nevada State Office of Energy
Annalyn Bo Carrillo, S NV Director of Constituent Services, Office of Governor Jim Gibbons
Michael N. Mendenhall, Administrative Assistant, Office of Governor Jim Gibbons

Video Conferencing Coordinators

Richard Foreman, Information System Specialist, Office of the Nevada State Treasurer
Larry Warren, Management Analyst, Office of the Nevada State Treasurer

Daniel N. Schochet, Chairman
December 31, 2007



EXECUTIVE ORDER BY THE GOVERNOR

**ESTABLISHING THE NEVADA RENEWABLE ENERGY TRANSMISSION ACCESS
ADVISORY COMMITTEE**

WHEREAS, Nevada is a leader in renewable energy resources and is blessed with an abundance of these resources; and

WHEREAS, the upper six miles of the earth's crust has geothermal resources that far exceed the combined energy of all the oil and gas resources in the world and Nevada ranks first in the nation in geothermal resources and currently less than 10% of Nevada's geothermal power potential is being utilized; and

WHEREAS, solar energy is both an abundant and natural form of energy and can be utilized to reduce energy consumption and Nevada anticipates leading the nation in the production of solar energy; and

WHEREAS, wind is the fastest growing energy resource in the world, is emission free and requires no water to produce electricity and Nevada ranks third in the western U.S. in wind resource potential; and

WHEREAS, the use of biomass for energy helps reduce threats from wildfire while simultaneously improving the health of our range and woodlands; and

WHEREAS, currently Nevada is a net importer of energy and development of our renewable energy resources will help reverse Nevada's dependence on imported energy; and

WHEREAS, Nevada's renewable portfolio standard (RPS) requires electric service providers to sell 20% of their sales from renewable energy and energy efficiency measures by 2015; and

WHEREAS, renewable energy has the potential to supply a significant portion of Nevada's energy needs, provide economic development opportunities for Nevada's rural communities, diversify the state's economy, create high-paying jobs and create many other public benefits for the citizens of Nevada; and

WHEREAS, Nevada should encourage renewable energy development and renewable energy policies within our State; and

WHEREAS, encouraging the development of renewable energy industries can reduce greenhouse gas emissions; and

WHEREAS, encouraging renewable energy policies will help reduce cost of energy in the future; and

WHEREAS, renewable energy is in many instances located in areas without developed transmission infrastructure; and

WHEREAS, renewable energy development requires reliable transmission access; and

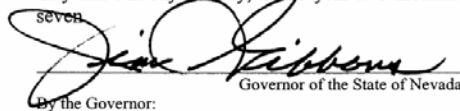
WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby order and create the Nevada Renewable Energy Transmission Access Advisory Committee. The Committee will propose recommendations for improved access to the grid system by which renewable energy industries can set up and have market access in Nevada and neighboring states. The Committee shall follow the open meeting law. The Committee shall consist of 14 voting members appointed by the Governor and who serve at the pleasure of the Governor. The Committee shall submit a final report and recommendation to the Governor by December 31, 2007.

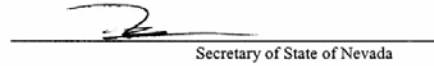


IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 9th day of May, in the year two thousand

seven


Governor of the State of Nevada

By the Governor:


Secretary of State of Nevada

Deputy

Executive Summary

Nevada was one of the first states to adopt a Renewable Portfolio Standard. The Portfolio Energy Standard is commonly referred to as the “RPS,” or simply the “Portfolio Standard.” Since its inception in 1997 the RPS has been modified by the Legislature several times. Currently Nevada’s RPS encompasses both renewable energy and energy efficiency. The RPS requires the state’s investor owned electric utilities (Sierra Pacific Power and Nevada Power Companies) to generate, acquire, or save electricity from renewable energy systems or energy efficiency measures of not less than 20 percent (20%) by 2015. For more detail about the RPS please see Appendix I.

Renewable energy development has accelerated with the implementation of the RPS. To facilitate delivering this new energy to users it is recognized that transmission adequacy must be assessed, limitations identified and new electrical interconnects proposed. The Renewable Energy Transmission Access Advisory Committee (“RETAAC” or “the Committee”) initiated this process of review. Wind, solar, geothermal and biomass potential was examined using the best available databases and models. Available transmission access was compared to these renewable energy zones and areas of constraint were overlaid on the resulting maps. Three recommendations were made by the committee:

#1 The Governor’s Office support the construction of transmission lines and collector systems to enable access for renewable energy development in each of the identified Renewable Energy Zones (See Figures 1, 2 and 3)

#2 The Governor’s Office support the construction of a transmission line to connect the state’s northern and southern electric grids of sufficient capacity to provide Nevada Power with their non solar renewable energy requirements from the abundant geothermal and wind resources in northern Nevada and provide Sierra Pacific Power access to the abundant solar resources in southern Nevada.

#3 Initiate Phase II of the RETAAC to define the environmental and physical feasibility issues, costs and potential financing mechanisms associated with the recommended transmission routes beginning in first quarter 2008 with a completion date of December 31, 2008.

Methodology

Generation of Resource Maps

The first step in identifying where transmission lines are needed to access renewable energy is to identify where the renewable energy resources are in relation to the existing grid infrastructure. The Committee was very fortunate to have a great amount of effort already spent in the development of maps that eased the analysis of renewable energy resource locations and existing transmission facilities.

In 2006, the Nevada Commission on Mineral Resources sponsored the compilation of a series of maps representing potential mineral and energy development in Nevada. The maps were designed to assist in factoring mineral and energy resource potential into decisions regarding land use and future economic development. Mineral and energy assessments made by the U.S. Geological Survey (USGS), the Nevada Bureau of Mines and Geology (NBMG), and others were utilized to define potential resources. These maps served as base maps for an initiative to expedite development of renewable energy resources. In February 2007, Senator Reid, with Senator Ensign, convened a meeting with Federal agencies having significant operations in the State, several State agencies, members of the Task Force on Renewable Energy and Conservation, Assembly Speaker Barbara Buckley, Senator Randolph Townsend, the Governor's Energy Advisor Dr. Hatice Gecol, and many other stakeholders. Out of that meeting came an agreement to develop the set of maps of Nevada's developable renewable energy resources. Information for the various technology resource potentials came from the Great Basin Center for Geothermal Energy, the National Renewable Energy Laboratory, and many others. The resulting set of four maps showed where in the state geothermal, wind, solar, and biomass potential resources are located and to what degree (high, medium and low).

Particularly useful to the Committee, areas of restricted land use are represented on this series of maps. Military, environmental and wildlife considerations, among others, can pose constraints for renewable energy development in Nevada. (Detailed discussions of these will follow later in the report.) The compilation was coordinated by Christy Morris of the Nevada Division of Minerals and vice chair of the Committee. Significant contributions to the existing maps were made by the US Geological Survey, the Bureau of Land Management, the US Forest Service, Naval Air Systems Command, the National Geospatial Intelligence Agency, and the Air Force.

Finally, existing transmission information was provided by the two investor-owned utilities who are also the transmission service providers in the State: Sierra Pacific Power Company and Nevada Power Company ("Sierra").

The original four renewable resource maps can be viewed at <http://www.unr.edu/Geothermal/Renewables.htm>. Please note these maps will continue to be updated as additional information becomes available. The maps, augmented with information compiled for this report will be presented in interactive form on the Great Basin Center for Geothermal Energy website <http://www.unr.edu/Geothermal> early in 2008.

Identification of Renewable Energy Zones

The next step in the process was for the Committee to form four technology sub-groups. Each of the wind, geothermal, solar and biomass sub-groups met to review and analyze the resource maps for the purpose of identifying renewable energy zones. Focusing on areas that contain a number of locations of medium to high potential, boundaries were drawn encompassing a region deemed to have enough resource potential to warrant access to the grid. The exact megawatt potential of these zones is not identified in this report due to lack of sufficient information. However, industry experts were members of each technology sub-group and so the zones can be assumed worthy of additional analysis in the transmission needs analysis stage. Using map information and opinion and experience, the zones were prioritized from highest to lowest probable potential.

The work product from the technology sub-groups identifies and prioritizes twelve wind zones, four solar zones, six geothermal zones, and four biomass zones¹. The zones can be seen in Figure 1, Renewable Energy Zones and Transmission Interconnects Map.

Transmission Needs Analysis –Access to the Grid

The mission of Phase I of the Governor's directive is to identify necessary transmission lines that will give renewable resources access to the grid. Sierra provided the Committee with detailed existing transmission system information. Network or distribution upgrades were not addressed. Additionally, state public power utilities, rural cooperatives, General Improvement Districts and other agencies' transmission systems information was not readily available to this Committee and were not considered in this report. This is particularly important since a portion of the state's renewable resources do not lie within Sierra's service territories. Depending on the capacity developed in each zone and where the energy is consumed, there may be additional transmission reinforcements necessary.

A transmission sub-group was formed to analyze the maps from the resource technology sub-groups and decide which zones needed transmission access to the grid. The sub-group identified zones approximately 25 miles or further from existing transmission lines at a voltage of 230 kV or higher. Renewable energy projects can interconnect to transmission lines at lower voltages, but the subgroup used the assumption that as a rule, the minimum voltage for effective transmission of renewable energy is 230 kV. A typical renewable project generation capacity of 30 MW or greater was assumed and a transmission line of 25 miles or less would be cost justified. As can be seen from the resulting Renewable Energy Zones and Transmission Interconnects Map (see Figure 1), several zones were eliminated from consideration in this report because access to the grid already existed.

¹ The Geothermal, Solar, Wind and Biomass Subgroup presentations are contained in the September and October minutes.

The Renewable Energy Zones and Transmission Interconnects Map, Figure 1, is a simplified map depicting the Sierra transmission infrastructure, identified resource zones and proposed needed transmission. The sub-group identified thirteen possible transmission links in addition to Sierra’s proposed North-South Inter-tie (EN-ti) 500kV transmission line which would be necessary to connect the renewable energy zones to Sierra’s transmission grid². In some cases, more than one option for transmission is shown for individual zones. The three proposed transmission lines trending north-south from three resource zones south of Ely could alternatively run east-west and connect to the EN-ti when that line is completed. The proposed transmission links depicted on Figure 1 show possible electrical interconnections, not specific geographic corridors. Deliverability, line capacity, cost, siting and other considerations were not investigated as part of this analysis.

Table 1

Transmission Links Detail

Line #	Zone(s) Covered	Starting Point Zone	Ending Point City (substation)
1	Wind 8, Geothermal 2	Geothermal 2, Wind 8	Alturas, CA (Hilltop)
2	Wind 8, Geothermal 2	Geothermal 2, Wind 8	Lovelock, NV (Oreana)
3	Wind 7	Wind 7	Doyle, CA (Ft. Sage)
4	Wind 7	Wind 7	Wadsworth, NV (Tracy)
5	Wind 6, Biomass 1	Wind 6, Biomass 1	Carson City, NV (Blackhawk)
6	Geothermal 1	Geothermal 1	Lovelock, NV (Oreana)
7	Geothermal 1	Geothermal 1	Yerington, NV (Ft. Churchill)
8	Geothermal 3, Wind 12, Solar 1	Yerington (Ft. Churchill)	Las Vegas, NV (Northwest)
9	Wind 2, Wind 3, Biomass 3	Wind 3	Ely, NV (Robinson Summit)
10	Solar 3, Wind 2, Biomass 3	Solar 3	Ely, NV (Robinson Summit)
11	Solar 4, Geothermal 5	Solar 4, Geothermal 5	Ely, NV (Robinson Summit)
12	Wind 1, Geothermal 6	Wind 1, Geothermal 6	Ely, NV (Robinson Summit)
13	Wind 5	Wind 5	Cortez, NV (Cortez)

² The Transmission Subgroup’s report is contained in the October meeting minutes.

A more complete description of the State's transmission system is described in Appendix II under Nevada's Transmission Infrastructure. Detailed descriptions of the federal energy corridor initiatives which may or may not affect Nevada's transmission plans are included in Appendix II under Federal Initiatives- Energy Transportation Corridors.

Constraints and Stakeholder Analysis

Environmental and Right of Way

An environmental and right-of-way sub-group was formed to identify potential environmental and right-of-way constraints to the construction and operation of transmission lines connecting areas of potential renewable energy zones with the existing transmission grid system. The zones that do not have access to the transmission grid and the thirteen identified transmission links were transferred to a Renewable Energy and Transmission Constraints Map (See Figure 2).

The constraint levels shown were compiled from secondary data layers which include special designations of land management agencies in Nevada. In addition to the special designations, the Nevada Division of Wildlife (NDOW) provided information on biological species and habitat within Nevada. As described below, the data layers were assigned constraint levels based on recommendations from this sub group.

The maps produced for this report show constraint levels within the state, the locations of renewable energy zones and the existing transmission grid. From these maps, developers can investigate transmission line routes through areas of less constraint to bring power from the renewable energy zones to the existing transmission grid. These routes should then be studied further to determine potential fatal flaws or reasonable alternatives.

Due to the relative size and shapes of the renewable energy zones, detailed transmission line routes were not identified as part of this report, as no specific generation sources have been mapped. When specific generation sources are planned and designed, this report should be used as a tool to begin identifying potential transmission line routes which would connect these sources to the existing electric grid. Once preliminary routes are identified, further studies will be required to analyze potential impacts of transmission lines on other environmental resources, such as land use, visual impacts, and cultural resource areas.

Resource maps were made available to the sub-group which depicts "Restricted Areas" based on information provided by land management agencies. The agency special designations and resources were reviewed by the sub group to determine a constraint level which relates to the siting of transmission lines. These constraint levels included the following:

Level 1 (Fatal Flaw) – This represents the highest constraint and would occur where legal status or designation would prohibit or most likely prohibit the construction and operation of transmission lines. Level 1 includes Wilderness, Wilderness Study Areas, BLM Instant Study Areas, Forest Service Recreation Areas, Forest Service Research Natural Areas, and Forest Service Roadless Areas.

Management agencies prohibit the construction of transmission facilities in the areas listed above. Clarification for Forest Service Recreation Areas and Forest Service Research Natural Areas was received through phone conversations with the Forest Service. It should be noted that existing transmission lines may be located in some of the designated areas listed above. Typically this occurs when an area is designated after transmission facilities have been constructed. This does not typically lower the constraints associated with siting additional transmission facilities through these areas.

Level 2 (High Constraint) – These areas are determined to be less suitable for transmission lines because of unique, highly valued, or protected resources, ownership, and significant potential conflicts with the construction and operation of transmission lines. This level includes Native American Properties (Bureau of Indian Affairs) and BLM National Conservation Areas (NCA).

Routing and siting transmission lines across tribal lands, Indian Trust Assets or near sensitive Native American resources can be a lengthy process subject to complicated and costly negotiations between various parties with interest to these lands. These lands were therefore assigned a high constraint. A high constraint was also assigned to the NCAs however these areas should be evaluated on an individual basis to determine specific restrictions.

Level 3 (Moderate Constraint) – These are areas with potential effects to valued resources, resources assigned special status; or conflict with use. This level includes privately owned land, Areas of Critical Environmental Concern (ACEC), Military Managed Lands, and National Trails.

Privately owned land was assigned a moderate constraint due to the potential for difficulties with obtaining easements. ACECs were assigned a moderate constraint due to the wide range of sensitive resources for which ACECs can be designated. These resources (i.e. desert tortoise, geologic significance) may not preclude the authorization of rights-of-way for the construction and operation of transmission lines, but may require negotiation of additional mitigation measures. These areas should be evaluated on an individual basis with the appropriate land manager to determine specific restrictions. Military managed lands were assigned a moderate constraint due to existing plans to build renewable projects and associated transmission on military lands. National Trails can typically be mitigated when siting transmission lines.

Level 4 (Low Constraint) – These are areas of minimal resource conflicts. , This level includes state and federally managed lands where specific constraints were not identified.

Level 5 (Unresolved) – These areas are designated as “administrative restriction” by land management agencies. Site specific review of these should be conducted to determine constraints associated with transmission lines.

Areas designated “Administrative Restriction” were found to include lands managed by the following agencies:

- U.S. Fish & Wildlife Service
- Department of Defense
- National Park Service

- BLM
- State of Nevada

While not all lands managed by the agencies listed above are included in “Administrative Restriction”, these areas should be evaluated on an individual basis with the appropriate land manager to determine specific restrictions.

Each resource was assigned one of the constraint levels described above and GIS was used to create the composite constraint map for the report. The map serves to identify potential overall environmental and right-of-way constraint for the construction and operation of transmission lines.

NDOW provided information on sage grouse lekking, nesting, and brood rearing habitat, bighorn sheep lambing habitat, raptor nest locations, and other wildlife and habitats. These areas were not assigned specific constraint levels. Depending on site-specific context, level 2, 3, or 4 constraints may apply. The sub group recognized the importance of avoiding important areas whenever possible and mitigating actions in situations where impacts could not be avoided. Sage grouse are a Nevada species of concern, and there is growing likelihood that additional petitions to list sage grouse under the Endangered Species Act will be entertained by the U.S. Fish and Wildlife Service. General distribution of this species habitat is depicted on Figure 2. Detailed maps for this species, as well as for raptors and bighorn sheep are available on the NDOW website www.ndow.org. Further discussion offered by NDOW is available in Appendix III in the public comments section of the November 16, 2007 Meeting Minutes.

In conducting the constraint mapping, it is important to note that existing secondary data were used and no additional data gathering was conducted, with the exception of biological data provided by NDOW. Other secondary environmental resource data exists which would likely affect constraints associated with siting transmission lines. This mapping and report should be used as a general guide to identify constraints associated with land management agency special designations. A more detailed constraint study should be conducted to identify transmission line fatal flaws and further define feasible transmission line routes.

Land Stakeholders

The State of Nevada has a greater percentage of federally owned land than any other state in the continental United States. Renewable energy developers and transmission planners must obtain approvals from various agencies before constructing projects on federally managed land. The land stakeholder overlays in the Resource Maps identify no less than eleven stakeholders, most of them federal agencies³. Depending on the land management agency, different levels of scrutiny may be applied to proposed projects. While most federal agencies require projects be reviewed through the National Environmental Policy Act (NEPA) process, this process can vary slightly depending on the lead agency and the amount of time for approvals to be granted varies by agency and the scope of the project.

³ Christy Morris’ presentation of the original land stakeholder maps is contained in the August meeting minutes.

When developing projects on federal land, the necessary approvals can require more time and costs than would be required if the land were privately owned, potentially putting Nevada's renewable energy at a competitive disadvantage to other states with less federal land.

Governor Jim Gibbons recognized this when he issued the February 16, 2007 Executive Order "Encouraging the Development of Renewable Energy Resources in Nevada". This order was a great step in the right direction. A similar mandate on a federal level, followed by the creation of a state/federal partnership would go a long way to solving the problem of multiple, diverse stakeholders. The West-Wide Energy Corridor Program created by Section 368 of the 2005 Energy Policy Act (see Appendix II) may provide an opportunity to reduce the amount of time required to permit projects proposed in utility corridors identified in the study.

The land stakeholders identified in the overlay include:

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- Fish and Wildlife Service
- Forest Service
- National Park Service
- State of Nevada
- Private Land
- Regional Parks

Military

Military airspace training restrictions were provided to the sub group for identification of constraints associated with transmission facilities. Due to the large area covered by the three military training airspace restrictions, the group determined that assigning these areas a constraint level and mapping them with the other constraints would result in the map becoming unreadable. In addition, many of the areas which are covered by the airspace restrictions contain existing transmission lines and utility corridors. Information concerning renewable energy restrictions in areas which could interfere with military radar operations was also obtained. The areas of interference are rated in terms of risk to ground radar missions and the extent of study needed to document specific impacts and alternatives. A separate Military Airspace and Radar Interference Constraints Map (see Figure 3) is included as part of this report depicting

the area of military restrictions associated with transmission lines. While not included as part of the Renewable Energy and Transmission Constraints Map, this military restriction information was provided to illustrate possible risk of interference to military operations and the need for project coordination and should be studied further to understand specific transmission line constraints associated with these areas. Constraint levels as defined by the contributing military facilities in Nevada and Idaho are:

Airspace Restricted Areas – Military training airspace zones represent areas of potential impact for development of structures greater than 100 feet. Subdivisions of interference at 100 ft, 200 ft, and 500 ft above ground level were provided but are not represented on Figure 3 to keep the map readable. These subdivisions can be viewed on the original wind resource map at <http://www.unr.edu/Geothermal/Renewables.htm>. Military airspace restrictions affect approximately 56% of the state.

Radar Interference Zones (Stoplight Chart)

Red: High Risk – Areas that are considered high risk to ground radar missions. Development within red zones requires extensive study to document specific impacts to military readiness and to develop cost and schedule alternatives for reconstituting lost capabilities. Mitigations may result in loss of mission capability. Consultation Crucial.

Yellow: Medium Risk – Areas that are considered medium risk to ground radar missions. Developments in yellow regions require case-by-case analysis. Consultation Necessary.

Green: Low Risk – Areas that are considered low risk to ground radar missions with impacts mitigated through procedures or radar placement restrictions. Each development in a green region requires a review to validate chart assumptions. Consultation Recommended.

The military restriction areas described above are identified by the contributing military facilities; particularly Nellis Air Force Base, Fallon Naval Air Station, Creech Air Force Base, and Mt. Home Air Force Base. These restrictions will have to be further explored to determine how they will apply to transmission and renewable projects and the affect on project timing.

For further information go to <https://oeaaa.faa.gov/oeaaa/external/portal.jsp> or contact AFCEE/CCR-S Western Regional Office, Environmental Planner, steven.arenson@brooks.af.mil or Byron.Schmidt@mountainhome.af.mil.

Recommendations

#1 The Governor’s Office support the construction of transmission lines and collector systems to enable access for renewable energy development in each of the identified Renewable Energy Zones

There are renewable energy zones that have enough resource density to require transmission lines and collector systems. The collector system located, where feasible, within 25 miles of the sites within the zone so that developers can build their own radial line to the collector system. Electrical transmission needed to access the grid is depicted on Figures 1 through 3.

#2 The Governor's Office support the construction of a transmission line to connect the state's northern and southern electric grids of sufficient capacity to provide Nevada Power with their non solar renewable energy requirements from the abundant geothermal and wind resources in northern Nevada and provide Sierra Pacific Power access to the abundant solar resources in southern Nevada.

Given that the northern and southern grids are not electrically interconnected and the location of certain resources are unique to either the north or south of the state, a connection between the two grids would allow for greater use of the renewable energy potential.

Please note there is a planned transmission line that would interconnect the north and the south already in the two utilities' respective resource plans called the Eastern Nevada Transmission Interconnection (EN-ti). For a description of this please refer to Public Utilities Commission of Nevada (PUC) website, which can be found at <http://pucweb1.state.nv.us/PUCN/electrichomepage.aspx>.

#3 Initiate Phase II of the RETAAC to define the environmental and physical feasibility issues, costs and potential financing mechanisms associated with the recommended transmission routes beginning in first quarter 2008 with a completion date of December 31, 2008.

As can be seen from the section of the report on constraints, challenges are introduced when new rights-of-way are sought for new construction. Further analysis must be done to investigate the constraints and routes that can accommodate construction of transmission lines while avoiding constraint areas.

Also, further study of the cost to build the proposed transmission lines and the potential of the renewable energy zones must be performed to arrive at a cost benefit that would ultimately rank the lines and perhaps identify ones that are not feasible.

Finally, Phase II must address the means of financing the building of the transmission lines and collector systems contemplated here in this Phase I report.