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And Energy and Mineral Resources

April 15, 2008 Hearing:      The West-wide Energy Corridor Process:  
State and Community Impacts

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**Introduction: Energy Corridors and the New Energy Economy**

Western Resources Advocates (WRA) appreciates the opportunity to testify regarding the designation of West-wide energy transmission corridors. In February 2008, joined by fourteen local, regional and national environmental and clean energy groups, we submitted extensive comments and supporting materials on the proposed corridor draft programmatic environmental impact statement (draft PEIS). Our objective is to promote corridor designations that will help the West advance to a renewable energy future while protecting lands and wildlife resources. We ask that our written testimony here be considered in conjunction with our more detailed draft PEIS comments: [www.westernresourceadvocates.org/energy/pdf/WRA\\_DPEIS\\_comments\\_FINAL.pdf](http://www.westernresourceadvocates.org/energy/pdf/WRA_DPEIS_comments_FINAL.pdf)

Founded in 1989, Western Resource Advocates is a non-profit environmental law and policy organization dedicated to restoring and protecting the land, air, water and wildlife resources of the interior Western United States. Our team of lawyers, scientists and economists works to: (a) promote a clean energy future for the Interior West that reduces pollution and the threat of global climate change; (b) restore degraded river systems and encourage efficient use of water; and (c) protect public lands and wildlife throughout the region. WRA is actively engaged in promoting sound electric transmission and energy corridor policies in the western United States to ensure that: (1) power lines and associated rights-of-way/corridors are sited and constructed properly to protect sensitive land, water and wildlife resources; and (2) new and upgraded transmission lines connect clean and renewable energy sources, such as wind, solar and geothermal, so that the region can achieve a balanced and sustainable energy mix.

Concerns about climate change, air pollution, public health, energy independence, national security and low-cost energy resources are driving a new and exciting energy economy in the American West. Presently, eight of the eleven western states studied in the corridor analysis have renewable portfolio standards that require 15 to 25% of future energy supplies to come from clean, renewable sources of energy. In addition, many population centers facing high growth rates are considering efficiency and related demand-side measures to help meet future energy demands. This new energy economy means cleaner and more sustainable energy resources to help combat air pollution and climate change. It also means economic benefits for electricity consumers, job creation, wealth for rural communities, and an influx of high-tech companies into the region.

WRA is concerned that the present corridor designation process runs counter to these exciting energy trends in the West. The corridors tend to facilitate proposed coal plants, while

overlooking some of the best locations for renewable energy resources. The lead agencies and the draft PEIS failed to take a comprehensive approach to transmission planning that offers the following benefits: (a) opportunities to focus corridors on generation types (e.g., renewable sources); (b) lessening the overall need for new or upgraded transmission by first reducing energy demand at population centers through efficiency and related measures; (c) minimizing new environmental impacts through upgrading current grid assets to carry more power; and (d) in some instances, avoiding the need for a corridor altogether.

To help improve the designation process, Western Resource Advocates developed a set of principles for comprehensive and regional transmission planning. WRA's transmission planning platform is attached as Exhibit 1. We also provided the agencies with the expert statement of the engineering firm of Utility Systems Efficiencies, Inc. that speaks to the benefits of comprehensive and regional transmission planning. This statement is attached as Exhibit 2.

WRA is optimistic that new transmission corridors will gain widespread public acceptance if they complement state efforts by connecting clean, renewable energy resources to the power grid in an efficient manner that protects the region's treasured landscapes and wildlife resources. Unfortunately, the federal agencies are missing out on an historic opportunity to ensure that western energy transmission corridors help facilitate the move towards a new and prosperous energy economy based on significantly higher percentages of renewable energy sources.

### **Designating Smart Corridors**

WRA has developed a four step "Smart Corridor" designation process. A corridor is "smart" when it: (a) addresses corridor need by looking at demand-reducing principles such as efficiency, distributed generation, smart grid technologies, conservation and similar measures; (b) maximizes current grid assets before turning to new power lines and impacts in new corridors; (c) focuses on facilitating the development of clean, renewable energy resources; and (d) protects sensitive public lands and wildlife habitat by avoiding these key areas and adopting Best Management Practices on lands where corridors will be located.

Adopting these smart corridor principles would greatly improve the current designation process. In this respect, WRA has been working with the lead agencies as they designate corridors to incorporate these principles and methodologies – which are well recognized within the regional transmission planning and engineering community – in order to arrive at the optimum number, locations, and overall length and width of energy transmission corridors.

### **Step One: Analyze the Need for Corridors**

The smartest power line is the one we do not need to build. This is the first principle of smart and comprehensive corridor planning. The draft PEIS provides the public with a glimpse of the possible future for – and impacts from – the proposed corridors. Averaging 3,500 feet in width, one such corridor may potentially contain as many as nine individual 500-kV transmission lines, each with a right-of-way clear zone of 400 feet. The present corridor analysis could be greatly improved by a rigorous examination of need, as this may result in the elimination of some corridors, fewer overall miles of corridors, less overall width, and different preferred locations.

When planning for energy transmission corridors that are predominantly intended for new power lines, it is important to understand the well-recognized principle that reducing future energy demands in major population centers can dramatically lessen the overall need (both miles and width) of power line rights-of-way to be eventually housed within designated corridors. In 2006, the Western Governors' Association completed its Clean and Diversified Energy Initiative that included a task force report focused on transmission issues. See [www.westgov.org/wga/initiatives/cdeac/TransmissionReport-final.pdf](http://www.westgov.org/wga/initiatives/cdeac/TransmissionReport-final.pdf). Importantly, the report concludes: if high, but achievable, levels of efficiency are reached in the region, this could result in eliminating 1,150 miles of a projected need for 4,000 miles – approximately 30% – of new power lines.

In addition, the Southwest Energy Efficiency Project (SWEET) has prepared a report entitled “The New Mother Lode” (see [www.swenergy.org/nml/New\\_Mother\\_Lode-Highlights.pdf](http://www.swenergy.org/nml/New_Mother_Lode-Highlights.pdf)), which concludes that the following savings can be realized in 2020 by implementing a high efficiency program in the Southwest:

- 99,039 GW-hrs of energy can be saved,
- Construction of thirty-four 500 MW coal plants can be avoided,
- Households and businesses can save \$28 billion in energy expenses, and
- Greenhouse gas and conventional pollutant emissions can be cut.

Importantly, therefore, examining the energy demand reductions to be gained from energy efficiency has immediate implications for the current designation process. If efficiency can wipe out the need for dozens of coal plants, it will eliminate the need for new power lines and corridors for future rights-of-way as well. Mr. Larson's expert opinion concurs with this conclusion. “Reducing load through efficiency gains, as well as the application of distributed power sources, can result in reductions in the amount of generation needed to meet future load growth, which may in turn affect and possibly lessen overall transmission and corridor needs.” Exhibit 2 at 3.

While efficiency is receiving a lot of the attention in the energy sector, the Western Governors' Association recognizes that demand-side management (DSM) and distributed generation efforts may achieve the same type of results, noting a Department of Energy report with a target of having distributed generation sources like rooftop solar move up to a 20% share of new electrical capacity by 2010. Smart grid technologies, such as demand response and advance metering, have been proven effective in reducing energy demand by 4 to 6%, with a direct correlation to fewer power plants needed. Indeed, the Federal Energy Regulatory Commission has concluded that, “As a substitute for transmission and distribution infrastructure, demand response *can reduce the need for new transmission* or distribution expansion to bring generation to a local area.” See FERC, “Assessment of Demand Response and Advanced Metering Staff Report” (Aug. 2006) at x (emphasis added). In combination, efficiency, distributed generation and other demand-reducing efforts may result in a significant decrease in generation sources that need transmission, thereby possibly reducing the need for – and the lands and wildlife impacts from – many of the proposed corridors presently under study. Consequently, the proposed corridor designations can be greatly informed and improved by first addressing demand-reducing opportunities.

## **Step 2: Maximize the Existing Grid First**

The second step in designating smart corridors is to maximize the current grid and the power it can carry before turning to new power lines and the impacts associated with new corridors. The expert opinion from USE Consulting, Inc. focuses on this point and emphasizes that engineering solutions are an integral part of comprehensive transmission planning. In simple terms, the more that the existing grid infrastructure can be upgraded to have additional power transfer capacity, the less need there will be for power lines and – importantly for the designation process – corridors in which to house them. USE’s Ty Larson, with 15 years of transmission planning and engineering experience, explains the possible benefits associated with grid maximization: “Employing these methodologies and applying technological engineering solutions in this fashion is a widely recognized industry practice as one component of transmission planning that in some instances may reduce or eliminate the need for new power lines and the impacts associated with associated rights-of-way and/or corridors.” Exhibit 2 at 1.

Key technological solutions recommended for consideration in addressing need by maximizing current grid assets include: (1) re-rating current grid equipment; (2) re-conductoring an existing circuit with a higher capacity conductor; (3) adding an addition circuit to existing towers; (4) upgrading the voltage of an existing transmission line; and (5) employing new technologies such as high capacity conductors, reactors/capacitors and phase shifters to increase power transfer capacity. Exhibit 2 at 4-7. Indeed, the WGA 2006 Clean and Diversified Energy Initiative report recognized that these technologies can “increase the transfer capability of existing lines, enable more power to be delivered in existing rights-of-way, provide greater flexibility to site lines underground and in water, and improve overall power system utilization.” Importantly, all of these solutions would utilize current infrastructure and existing rights-of-way and would be “more environmentally friendly,” in the words of a transmission planning engineer, than embarking on the construction of a new line. Mr. Larson’s conclusion is as powerful as it is informative to improving the current West-wide corridor designation process: “employing these comprehensive transmission planning principles might obviate the need for [a] proposed corridor altogether and keep future impacts in already-impacted areas and outside of potential environmental constraints.” Exhibit 2 at 8.

## **Step 3: Connect Clean and Renewable Energy Resources**

The third principle of smart corridor designation is to connect renewable resources to potential customers. Western Resource Advocates performed an analysis of how the draft PEIS corridors line up against existing and proposed coal plants in the region. The results were revealing. Every single proposed coal plant in the western United States directly lines up with the proposed corridors and/or their likely continuation onto non-federal lands. The coal plants that western utilities intend to hook up to power lines within these corridors will have demonstrable negative impacts to air quality (ozone, nitrous oxides, sulfur oxides, mercury, particulate matter and other emissions) as well as to climate change (CO<sub>2</sub> emissions).

WRA’s maps that compare the relationship of the West-wide corridors to proposed coal plants and renewable energy resources are attached as Group Exhibit 3. These maps make it clear that the current suite of corridors proposed for the western United States primarily serve the interests of the coal industry and utilities seeking this power. A recent report by WRA and the Environmental Defense Fund is illuminating about the amount of air pollution and greenhouse

gases that are attributable to existing coal-fired power plants in the southwestern region, as well as how new proposals for coal-fired plants will contribute to air pollution and climate change. For example, in Arizona, Colorado, New Mexico, Nevada and Utah, existing coal-fired power plants produced 60 million megawatt hours (MWh) of electricity in 2004, and 176 million tons of carbon dioxide. In addition, at least 14 new coal-fired power plants, totaling more than 9,000 megawatts (MW) of new capacity, are now in various stages of planning, permitting or construction in the five-state southwestern region. These proposed power plants would collectively emit nearly 70 million tons per year of global warming pollution, more than a 40% increase over the region’s current burden from the same sector. See Western Resource Advocates and Environmental Defense, *Climate Alert: Cleaner Energy for the Southwest* (2007) ([www.westernresourceadvocates.org/media/pdf/ClimateAlertReport.pdf](http://www.westernresourceadvocates.org/media/pdf/ClimateAlertReport.pdf)).

There is a better way. Smart corridors can connect to and facilitate the development of clean and renewable energy resources in order to move the West to a balanced energy policy and away from carbon-heavy resources. Fortunately, the region is blessed with rich supplies of clean and renewable energy resources. In 2006, the WGA’s Clean and Diversified Energy Initiative verified the West’s abundant —and achievable— renewable energy resource base:

- Wind: 9,175 MW
- Solar: 8,000 MW
- Biomass: 10,000 MW
- Geothermal: 5,600 – 13,000 MW

More recently, a Colorado task force determined that there are over 96,000 MW and 26,000 MW of developable wind and solar resources in Colorado, respectively. See “Connecting Colorado’s Renewable Energy Resources to the Markets” ([www.colorado.gov/energy/resources/publications.asp](http://www.colorado.gov/energy/resources/publications.asp)). The following summary table produced by the National Renewable Energy Laboratory indicates the substantial and readily-developable wind resources available as the region transforms to a new and renewable energy economy:

<b>Developable Nameplate Wind Power Production by Class (in Megawatts)</b> <b>(Source: National Renewable Energy Laboratory 2007)</b>				
State	Class 4	Class 5	Class 6 & 7	Total Developable Power – Class 4-7
AZ	1,670	440	200	2,310
CA	11,900	4,830	4,300	21,030
CO	65,560	3,510	4,060	73,130
ID	2,380	635	395	3,410
MT	237,030	38,860	15,620	291,510
NV	3,700	1,140	720	5,560
NM	62,260	8,980	1,800	73,040
OR	7,130	1,540	850	9,520

UT	2,310	770	410	3,490
WA	7,140	1,590	790	9,520
WY	140,980	59,630	57,040	257,650
Total	542,060	121,925	86,185	750,170

Recognizing the economic and environmental benefits of utilizing these home-grown and clean energy resources, eight of eleven western states have enacted renewable portfolio standards that require electricity providers to obtain a minimum percentage of their power from renewable energy resources:

<u>State</u>	<u>Renewable Resource Requirement</u>	<u>Date for achieving</u>
Arizona	15%	2025
California	20%	2010
Colorado	20%	2020
Montana	15%	2015
Nevada	20%	2015
New Mexico	20%	2020
Oregon	25%	2025
Washington	15%	2020

See [http://www.eere.energy.gov/states/maps/renewable\\_portfolio\\_states.cfm](http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm).

The transmission planning circles of the Western Electricity Coordinating Council estimate that more than 20,000 MW of installed renewable energy capacity by 2017 will be required to meet bare minimum RPS requirements in the West. WRA created maps (Group Exhibit 3) to show the relationship between the corridors and the best locations for geothermal, wind, and solar (concentrating and photovoltaic) resources. As stated, the maps reveal that the proposed corridor designations will facilitate nearly every existing and planned coal power in the western U.S. In contrast, the renewable energy maps highlight that some of the best solar resources in the southwest and most of the geothermal facilities planned in Nevada, as two examples, will not benefit from the corridor locations as presently proposed. Importantly, the Departments of Interior and Energy can change this by designating corridors that prioritize renewable energy development and partner with the western states in order to achieve these important goals.

Focusing energy transmission corridors on renewable energy sources would be consistent with federal and state policy initiatives. Federal agencies have enacted policies and made commitments to encourage the use of public lands to support development and transmission of renewable energy. See, e.g., “BLM Launches Effort to Facilitate Renewable Energy Development on Public Lands, available at [www.blm.gov/wo/st/en/info/newsroom/2007/june/NR\\_0706\\_1.html](http://www.blm.gov/wo/st/en/info/newsroom/2007/june/NR_0706_1.html). (“Enhancing our nation’s energy needs through safe and clean energy is an important focus of the Department of Agriculture and a proper use of our public lands.”). In June 2005, BLM completed its programmatic EIS for a Wind Energy Development Program in the western U.S., including public lands within Arizona, Nevada and California. See <http://windeis.anl.gov/>. Indeed, “[i]t is the BLM general policy, consistent with the National Energy Policy of 2001 and the Energy Policy Act of 2005, to encourage development of wind

energy in acceptable areas.” See Instruction Memorandum No. 2006-216 ([www.blm.gov/nhp/efoia/wo/fy06/im2006-216.htm](http://www.blm.gov/nhp/efoia/wo/fy06/im2006-216.htm)).

The appropriate use of western public lands to advance the region towards an energy policy based on efficiency and renewable energy resources is a fair and acceptable proposition for the American public. One way to advance this important public policy goal is to have the designated corridors link up wind, solar and geothermal sources instead of new coal plants. WRA understands, however, that in some cases, it might be easier said than done to have new transmission corridors focus solely on hooking up renewable energy resources. A perfect example is any corridor going into central Wyoming: it may facilitate a future wind project or a coal plant, or both.

In this regard, WRA developed the concept of performance-based standards for power line rights-of-way that could condition future uses within all or some of the designated corridors. The programmatic EIS is the place to develop policy guidelines for proper conditions on the use of federal public lands, given the likely flood of applications for rights-of-way in designated corridors over the next decade that will be handled one-at-a-time by a multitude of BLM and FS field offices across the West. In an improved corridor designation study, the agencies should consider conditioning future power line right-of-way approvals within corridors so that each new connecting power source does not exceed the CO<sub>2</sub> and other emissions of a combined-cycle natural gas plant (roughly 1,100 lbs. of CO<sub>2</sub> per megawatt-hour of produced energy). This standard is derived from the California Public Utilities Commission 2007 decision that set a green house gas performance standard for base-load energy generation sources serving California consumers.

Emissions-based corridors will go a long way toward ensuring that America’s public lands are used to support a forward-thinking energy policy and climate change solutions. The Federal Land and Policy Management Act allows the agencies to condition right-of-way permits in order to protect the public health by considering air quality and environmental concerns such as global warming. In addition, there is judicial precedent for conditioning public land rights-of-way on the connecting power sources meeting appropriate emissions levels. See Border Power Plant v. Dept. of Energy, 260 F.Supp.2d 997 (S.D. Cal. 2003) (as more fully discussed in our February 2008 comments on the draft PEIS).

#### **Step 4: Ensure Long-lasting Protection for Public Lands and Wildlife Resources**

This is the fourth and final principle behind smart corridors. Analyses performed by The Wilderness Society, and confirmed by the agencies in the draft PEIS, demonstrate that too many of the proposed corridors would impact spectacular western public lands, including national parks, monuments, wildlife refuges and wild places. It is not acceptable for corridors to impact and bisect treasured western lands including Arches National Park, Grand Staircase-Escalante National Monument and the Sevilletta and Desert National Wildlife Refuges, to name just a few. The lead agencies need to smarten corridor designations by avoiding lands that are icons of the American West. Second, when new power lines and corridors are needed to link renewable energy resources to the power grid, we recommend that the agencies adopt Best Management Practices, such as burying lines to protect visitor experiences or limiting use to the upgrade of existing infrastructure, in order to limit impacts of corridors to lands and wildlife resources.

## Conclusion

Western Resource Advocates thanks the National Parks, Forests and Public Lands and Energy and Mineral Resources Subcommittees of the House Natural Resources Committee for the opportunity to share our views on the West-wide energy corridor designation process. We have been actively meeting with the lead agencies in an effort to achieve corridor designations that will work best for the American public. As the process moves forward, we look forward to continuing this collaborative effort with the lead agencies, transmission planners, the renewable energy industry, electric utilities and the environmental community. By approaching the designation process with a comprehensive and regional perspective, we are convinced that we will achieve smart corridors – corridors that are needed, focused on renewable energy resources, and ensure long-lasting protection for lands and wildlife resources in the western United States.

Sincerely,

/s/

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