From:	corridoreiswebmaster@anl.gov
To:	Corridoreisarchives;
CC:	
Subject:	Energy Corridor Programmatic EIS Comment 80111
Date:	Wednesday, November 30, 2005 4:22:28 AM
Attachments:	West_Wide_Energy_Corridor_Programmatic_EIS_80111.doc

---

Thank you for your comment, Ronald Lehr.

The comment tracking number that has been assigned to your comment is 80111. Please refer to the tracking number in all correspondence relating to this comment.

Comment Date: November 30, 2005 04:22:19AM CDT

Energy Corridor Programmatic EIS Scoping Comment: 80111

First Name: Ronald
Middle Initial: L
Last Name: Lehr
Organization: AWEA
Address: 4950 Sanford Circle West
City: Englewood
State: CO
Zip: 80113
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\Documents and Settings\Ronald Lehr\My Documents\Ron Files\AWEA \West Wide Energy Corridor Programmatic EIS.doc

Comment Submitted:
I sent the following comments to the web administrator, and to Julia Souter and other corridor EIS team members on Sunday, October 27. Out of an abundance of caution, I'm submitting them again here since I haven't had confirmation that they got recieved. There should be a set of written comments attached from AWEA and I will repeat the comment entry process to attach two maps of transmission corridors that I also sent with the comments on October 27. Please confirm receipt. Thanks.
Ron Lehr

AWEA

Questions about submitting comments over the Web? Contact us at: corridoreiswebmaster@anl.gov or call the Energy Corridor Programmatic EIS Webmaster at (630)252-6182.

From:	corridoreiswebmaster@anl.gov
To:	Corridoreisarchives;
CC:	
Subject:	Energy Corridor Programmatic EIS Comment 80112
Date:	Wednesday, November 30, 2005 4:22:28 AM
Attachments:	West_Wide_Energy_Corridor_Programmatic_EIS_80112.doc

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Thank you for your comment, Ronald Lehr.

The comment tracking number that has been assigned to your comment is 80112. Please refer to the tracking number in all correspondence relating to this comment.

Comment Date: November 30, 2005 04:22:23AM CDT

Energy Corridor Programmatic EIS Scoping Comment: 80112

First Name: Ronald
Middle Initial: L
Last Name: Lehr
Organization: AWEA
Address: 4950 Sanford Circle West
City: Englewood
State: CO
Zip: 80113
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\Documents and Settings\Ronald Lehr\My Documents\Ron Files\AWEA \West Wide Energy Corridor Programmatic EIS.doc

Comment Submitted:
I sent the following comments to the web administrator, and to Julia Souter and other corridor EIS team members on Sunday, October 27. Out of an abundance of caution, I'm submitting them again here since I haven't had confirmation that they got recieved. There should be a set of written comments attached from AWEA and I will repeat the comment entry process to attach two maps of transmission corridors that I also sent with the comments on October 27. Please confirm receipt. Thanks.
Ron Lehr

AWEA

Questions about submitting comments over the Web? Contact us at: corridoreiswebmaster@anl.gov or call the Energy Corridor Programmatic EIS Webmaster at (630)252-6182.

From:	corridoreiswebmaster@anl.gov
To:	Corridoreisarchives;
CC:	
Subject:	Energy Corridor Programmatic EIS Comment 80113
Date:	Wednesday, November 30, 2005 4:30:14 AM
Attachments:	Wind_Transmission_Corridors_03--DRAFT_80113.pdf

Thank you for your comment, Ronald Lehr.

The comment tracking number that has been assigned to your comment is 80113. Please refer to the tracking number in all correspondence relating to this comment.

Comment Date: November 30, 2005 04:30:11AM CDT

Energy Corridor Programmatic EIS Scoping Comment: 80113

First Name: Ronald
Middle Initial: L
Last Name: Lehr
Organization: AWEA
Address: 4950 Sanford Circle West
City: Englewood
State: CO
Zip: 80113
Country: USA
Email: rllehr@msn.com
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\Documents and Settings\Ronald Lehr\My Documents\Ron Files\AWEA \Wind_Transmission_Corridors_03--DRAFT.pdf

Comment Submitted:
Here is the first of two maps that accompany the AWEA comments.

Questions about submitting comments over the Web? Contact us at: corridoreiswebmaster@anl.gov or call the Energy Corridor Programmatic EIS Webmaster at (630)252-6182.

Richmond, Pamela

From: RON LEHR [rllehr@msn.com]
Sent: Wednesday, November 30, 2005 8:22 PM
To: Richmond, Pamela
Subject: FW: Energy Corridor Programmatic EIS Question about Web Commenting
Attachments: Wind_Transmission_Corridors_03--DRAFT.pdf; Wind Transmission Corridors -- Regional Results.pdf; West Wide Energy Corridor Programmatic EIS.doc

Pamela--

Here's a copy of the email I sent to the corridor team. I used the addresses on the handout they had at the Denver hearing at which I submitted oral and an early draft of the written comments attached.

Thanks for your confirmation of receipt of this material and for your patience.

We look forward to working with you on the PEIS.

Please let me know if you have any questions or comments about these comments and the maps.

Ron Lehr

From: Ronald L. Lehr [mailto:rllehr@msn.com]
Sent: Sunday, November 27, 2005 3:08 PM
To: 'corridoreiswebmaster@anl.gov'; 'julia.souder@hq.doe.gov'; 'rcunningham@fs.fed.us'; 'scott_powers@blm.gov'
Cc: Rob Gramlich (rgramlich@awea.org); 'Craig Cox'; Roger Hamilton (hamilton.roger@comcast.net); 'Milligan, Michael'; 'Dave Olsen <olsen@avenuecable.com'; 'Natalie McIntire'; 'J_Charters@msn.com'; 'Parsons, Brian'; 'jnielsen@westernresources.org'; 'Grant.Brummels@NAU.EDU'; 'tom.acker@NAU.EDU'
Subject: Energy Corridor Programmatic EIS Question about Web Commenting

Corridor EIS Team:

Here are AWEA and West Wind Wires comments on the corridor EIS, as promised in the Denver hearings.

There is a file attached that shows most of the source material from various subregional studies and a separate file that cumulates this information, and information from a few other sources, into a regional map. The final attachment contains written comments.

Please contact me if you have any questions or comments.

Julia, could you confirm receipt of the comments and maps?

Thanks to everyone who helped out on this submission.

Ron Lehr

West Wide Energy Corridor Programmatic EIS
American Wind Energy Association
Draft Comments Regarding Wind Transmission Corridors
Ron Lehr, AWEA Western Representative
November 18, 2005

Introduction

Since meltdown of electricity markets in California in 2001-2, the West has been focused on adding generation, transmission, and institutional responses to avoid price spikes, market manipulation, and reliability problems. Current electric market drivers are high natural gas prices, drought that deprives the region of low cost hydroelectric power, and potential that carbon emissions will be limited or taxed.

In response to each of these market drivers, natural gas prices, drought, or carbon limits or taxes, the West is turning toward increased use of its vast wind resources. Since wind resources are typically located remote from loads, wind requires transmission to bring it to market. And since many remote areas are federal land, wind transmission routes will require designated federal transmission corridors.

Thus, wind has an important stake in the development of this Programmatic Environmental Impact Statement. The American Wind Energy Association, West Wind Wires, and _____, are filing these comments to address scope of analysis of federal designation decisions for transmission corridors to serve wind energy.

1. Demand for Wind Energy in the West.

Wind energy will need transmission corridors to move power to markets. These corridors will involve federal lands. Wind energy is an increasingly economic generation choice in Western electricity markets, since when wind is available, highest cost fossil generators providing electricity at the time can be turned off or turned down. Given today's high natural gas prices, when generation that is curtailed when wind is available is gas fired, economics of wind are very much in demand. As coal fuel continues to exhibit spot market price increases, assumptions that coal prices will provide long term low costs are beginning to be questioned. Wind responds to these trends. Free wind fuel replaces expensive fossil fuel.
Wind diversifies and helps to manage risks of drought and higher prices for electricity in the West that follow when water is not available for hydro electric production. The wind blows even when snow packs are below normal.

Since wind creates no air emissions and does not require combustion of any fuel, no carbon is added to the atmosphere when wind power is produced.

Wind acts to offset carbon and pollution emissions whenever it is available. Wind diversifies Western generation portfolios and helps to hedge long term costs, risks, and liabilities that accompany fossil fueled generation resources.

Wind resources are typically located in remote areas that are, generally, unserved or underserved by transmission. Load centers are typically in cities, where wind resources are typically less attractive for investment in wind farms. Wind resources are also found on federal lands across the West, and additional transmission corridors are needed to serve development of remotely located wind resources.

Wind hedges natural gas price risks. (see:http://eetd.lbl.gov/ea/ems/reports) by offering stable priced electric energy that offsets higher cost fossil production. (For example, see: http://abcnews.go.com/US/wireStory?id=1278363, and see: www.awea.org) Wind helps to diversify generation resources. Diversity is needed to help stabilize customer electric prices, manage pollution and climate change risks, and bring economic development to dying rural areas, where wind investment can bring needed tax base, income, and jobs. (www.windpoweringamerica.org) In addition, wind uses no water to produce electricity which is a prime benefit in the arid West. Wind produces no pollution. Finally, understanding of integration costs and development of operational reforms to include wind among current electric generation resources is developing rapidly. Integration costs are modest. www.uwig.org. For all these reasons, wind will play a greater role in electric generation in the West in the future and since it is often remote from loads, electric transmission corridors will be needed to serve wind.

To determine how many corridors to designate and where, the PEIS must account for market and public policy drivers and both the benefits and limitations of all resources that require transmission corridors, including wind. By careful analysis of comparative economics, portfolio costs and benefits, and policy drivers that impact demand for each generation option, the PEIS can make an informed response to future roles to be played by different generation options in serving Western loads. To ignore these drivers, benefits, costs, and limitations would be to fail to adequately characterize needs for corridors and to misguide the process for determining where and when they will be needed.

Fuel diversity and wind energy increase generation and grid reliability because wind is a domestic resource that is widely available in the West. By adding wind to generation portfolios, increased geographic diversity of supply is achieved. In addition, wind adds security to generation portfolios because wind turbines are not likely to be high value target for terrorism or disruption, since they are usually widely disbursed and eliminating them one at a time would be a hard job. Wind adds diversity of supply to generation portfolios dependant on highly concentrated fossil fuel or nuclear facilities.

2. AWEA will help identify specific corridors based on the planning studies led by the Western Governors Association and the Western Electric Coordinating Council.

AWEA and West Wind Wires will help to identify information that is currently available so that corridors to serve wind can be identified to the extent possible. Several recent West wide and sub regional studies have included wind and its transmission needs. In general, this work characterizes the role that wind can play meeting regional generation needs, reports on the relative economics of wind's contribution to regional generation diversity, and indicates where new transmission to bring wind to market might be needed. However, in most cases specific information about precise transmission corridors for wind is not yet available.

Map of Wind Transmission Corridors

Nevada Report:
http://www.energy.state.nv.us/T4Wind/StatusReportMarch26.htm
Click on 'Final Report', see p 7 for map.

RMATS link: http://psc.state.wy.us/htdocs/subregional/FinalReport/Chapter3.pdf
Page 3-8, Fig 3-6 for transmission expansion beyond RMATS. Page 3-2 for map of expansion within RMATS.

SSG-WI:
http://www.ssg-wi.com/documents/316-FERC_Filing___103103___FINAL_TransmissionReport.pdf
Figure 2 page 9

SWAT
http://www.azpower.org/swat/meetings/pdf/aug2005/maps.ppt
Shows maps of CO proposed expansion: Lamar/Pueblo/Daniels Park areas – 2 scenarios and both are hard to read.

SSG-WI/SWAT presentation by Rob K. for the SSG-WI Work Group Meeting, Feb 3 2005. Shows map of Central AZ and has the NM map. (attachment)

(NOTE: TBD We attach a map to these comments. It cumulates knowledge about needed wind transmission corridors from various sources. These include current subregional studies, work within various states, knowledge from NREL, and wind industry information and review, and
information from other sources about wind resource areas and loads that they can serve. As the WGA CDEAC and SSG-WI modeling currently uderway produce results in late 2005 and early 2006, and as WECC transmission

planning starts up in 2006, these corridors will be refined. The PEIS should keep abreast of these developments and include them in its draft and final PEIS. The final PEIS should keep open the potential for flexibility for corridors to be added to or subtracted from those designated as market, policy, portfolio diversification, and economic shifts continue to define where transmission will be needed in the West.

3. Regional and Subregional Transmission Studies

The best current information about wind transmission needs is found in work by SSG-WI, RMATS, NTAC, SWAT, the CAISO, and the CCPG. For the RMATS Phase I report, see: http://psc.state.wy.us/htdocs/subregional/home.htm

The draft wind report for the WGA CDEAC contains the best current information about the role of wind in the West, making better use of existing transmission, and the needs for new transmission corridors.
http://www.westgov.org/wga/initiatives/cdeac/comments.htm.

The regional and subregional transmission studies have used the best-available information from state renewable portfolio standards (RPS) and utility integrated resource plans (IRP). A discussion of western IRP and RPS requirements for wind is contained in the draft CDEAC report. Some states have modified their RPS requirements and these will be reflected in the final CDEAC document.

The Northwest Transmission Assessment Committee (NTAC) is currently working on plans in the NW part of the US that may include high voltage transmission that would link parts of Canada with the NW area. There are at present several potential paths that are under evaluation, and it is not clear whether there would be an impact on BLM lands or whether these paths would be a part of the DOE National Corridor project.

The Western Resource Advocates “Balanced Energy Plan for the West” (www.westernresourceadvocates.org) contains state by state wind development goals to meet a 20% contribution toward generation totals by the year 2020.

4. Western Markets for Wind Power

Wind power can make its contribution in various markets for power. Not all of these will require transmission or designation of transmission corridors. For example, local loads can be served on distribution levels by distributed, community and locally owned wind projects that generally will not require transmission level services, since distributed and smaller scale wind resources will be both produced and consumed on distribution level electrical facilities. Where these distribution facilities need to cross federal land, designation of them would be appropriate as a result of this PEIS.

The West is the most urbanized region of the United States, with more people living in metropolitan areas than in other parts of the country. These urban areas and their electric loads are generally growing rapidly. Since many Western states have policies requiring renewable energy as a percent of total generation, these regional population centers and their large and growing electric loads will be served by wind projects that require additional transmission services, upgrades of existing transmission routes, and new corridors in some cases.

States that lack large urban population centers in the West often have outstanding wind resources. For these resources to serve adjacent state or West coast energy markets, merchant wind plants will be built that will require additional investment in interstate transmission and designation of corridors to carry this power to market. These corridors should be a central concern of this PEIS. Likewise, state policies that require climate change performance criteria for various kinds of generators will determine how much of what kind of generation is acceptable in large Western state markets. There will be aggressive competition between and among both various fossil generation options and wind, and between local and distant wind to serve loads. The outcomes are likely to involve extensive wind development in all three wind market segments. The tradeoffs, distinctions, and characteristics of these markets should be analyzed in the PEIS.

5. Wind resources requiring transmission service have been mapped.

Wind resources in Western states have been extensively mapped by NREL. www.nrel.gov. In addition, the "Renewable Energy Atlas of the West estimates the renewable energy resources of the West by state, including wind. www.energyatlas.org. Scenarios that describe how wind development will occur are available from SSG-WI (www.ssg-wi.org). As SSG-WI's transmission planning efforts are being transferred to WECC, we expect that more work will be added that characterizes wind and its transmission needs. Integrated supply and demand scenarios for all resources, including wind, should result as WECC's newly committed planning functions start up.

The WGA CDEAC study has provided estimates of wind development that could plausibly occur in the next several years. The Transmission Task Force will work with SSG-WI to develop transmission modeling scenarios to refine transmission corridor assessments, not only for wind, but for other generation that is planned in the west.

<Ron – do you want to put in the specific map references in SSG-WI/RMATS if we don't get the actual map?>

6. Timing for wind development and transmission development.

There are “chicken and egg” and timing mismatch problems for wind and transmission. Wind resources in the West are so large, and so well distributed, that wind developers may be able develop in many places once transmission is available, since transmission can be more of a limiting factor than availability of wind resources. Where federal land transmission corridors are needed for wind to develop in favorable wind resources areas, designation of corridors will spur wind development in the area to be served by the corridor.

Wind farms can be developed in two years. Transmission can take five or ten years or more to develop. The wind industry can probably develop hundreds, possibly thousands of megawatts of capacity using existing transmission capacity, or existing capacity that can be upgraded quickly and economically. But at some level of future development, new transmission corridors and transmission capability will be required for wind development to continue. The PEIS should take into account both the “chicken and egg” issue for wind as well as the timing needed to serve both near and longer term wind development scenarios by paying close attention to the scenarios that are adopted by the WGA CDEAC, WECC, and other entities providing study and reports on these issues, and by maintaining flexibility to respond to markets as they develop.

7. State actions will largely determine how much wind and wind transmission are developed.

In addition to passage and implementation of renewables standards, states in the West will be following the lead of Texas and Minnesota, considering state legislation to require their commissions and utilities to identify wind development areas, to plan and invest in transmission to serve them, and offering utilities current cost recovery and prudence findings insurance to provide incentives and certainty to get the job done. These state actions will help to determine the scale and timing of needs for federal transmission corridors. The PEIS should carefully analyze the actions that states are taking, and are likely to take, that encourage the need for federal corridors to be designated and used.

8. Wind and Wildlife Issues.

There are wildlife issues that arise with large scale wind development. Wind can impact wildlife. While wind farms at the Altamont Pass in California stand for the proposition that wind turbines can kill birds, the experience there also raised consciousness among wind developers. It led to focused attention on ways to avoid such situations in the wind development process. Currently, bird studies that precede construction of wind farms are the industry norm. These studies can identify areas that are, and are not, heavily used by birds. Development can be avoided in the former and can proceed in the later. Similarly, corridors can be designated to serve wind plants that are not likely to be involved in wildlife problems and designation can be avoided for wind plants that are not likely to be developed where wildlife concerns have been identified. The PEIS should

analyze this information and provide a framework that addresses the wildlife impacts of both wind plants and transmission corridors that serve them.

The National Wind Coordinating Committee has identified the best science on the topic and has recommended standards to addressing the issues (www.nationalwind.org). The NWCC continues to develop information on wind impacts on wildlife, and together with its participants from federal and state wildlife agencies, non-governmental organizations, and university and consulting researchers is publishing state of the art methods for minimizing wind impacts on wildlife.

9. Western transmission policy frameworks are in transition.

Current Western bilateral electric wholesale markets, where most long distance buying and selling of electricity is done between two utilities, are moving slowly toward more integrated regional market and grid operation structures, where posted offers to buy and sell open the regional market to more wholesale transactions and prices tend to converge. The state of progress in this transition will impact needs for corridors for scenarios that involve large scale exports of wind from the interior West to West Coast energy markets. Again, the PEIS should provide an analysis of the likelihood that transparent market structures could emerge in the West which would increase needs for more transmission to move low cost power, such as wind, to high cost areas, such as markets in California, and for federal designation of transmission corridors to carry these transactions to markets.

Policies that impact private landowners could determine federal corridor needs.

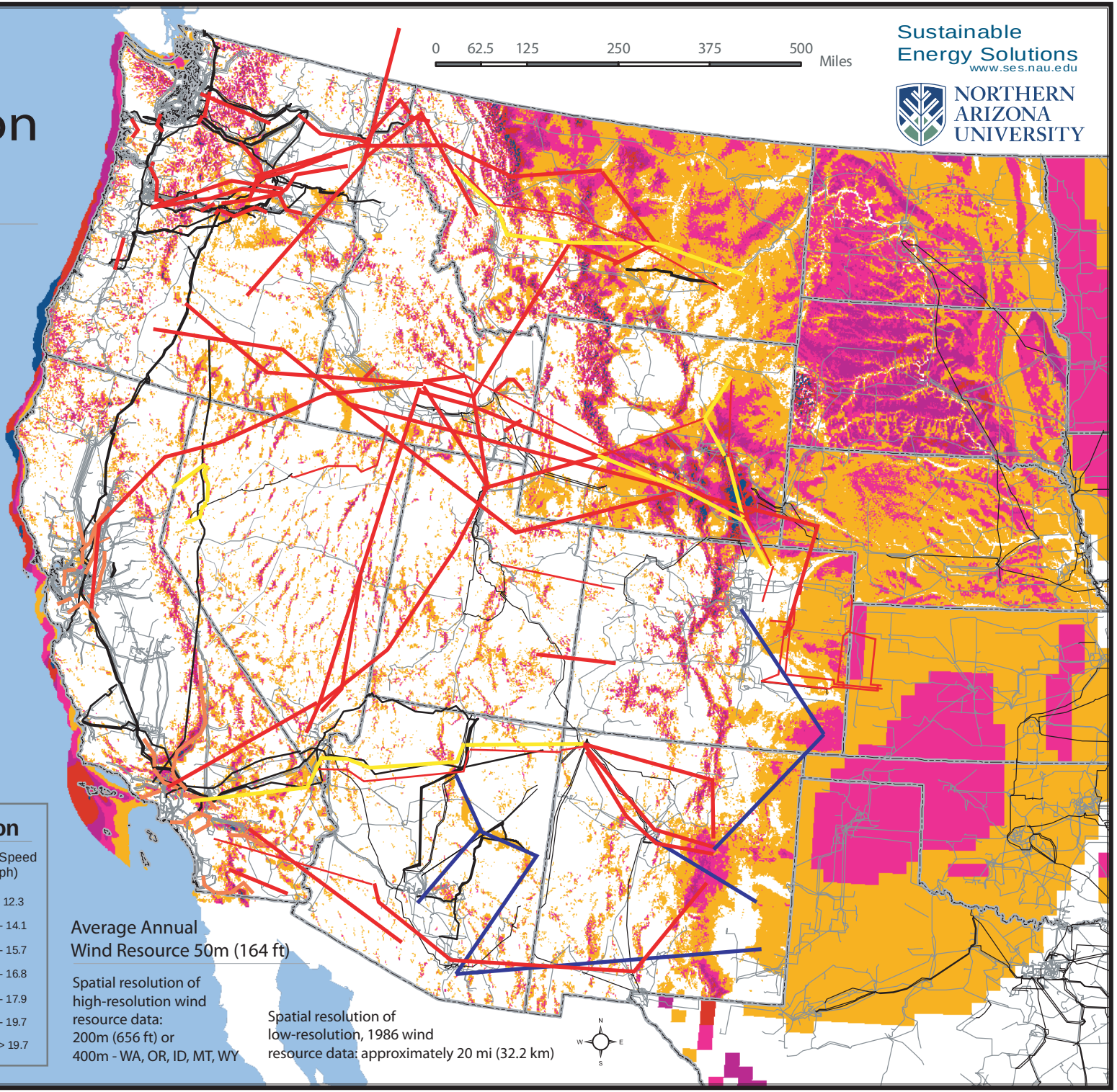
Where corridors must cross both public and private lands, how private landowners are treated can impact the likelihood that a federal corridor will be required. Where private landowners resist eminent domain proceedings and NIMBY reactions are allowed full expression, private easements will be harder to get and more expensive, reducing the likelihood that corridors on adjacent federal lands will be used. By contrast, where effective methods of acquiring private land easements for corridors that link up with federal corridors are employed, the likelihood of development of the federal corridors would be enhanced. Thus, the PEIS should develop an analysis of the methods for private land acquisitions and determine if changes to business as usual are likely to impact on the need for federally designated corridors.

Work is underway in Minnesota, under a new state statute. It could change dynamics of private landowner compensation for transmission corridors. Feasibility of corridors on federal lands, where transmission also involves private lands could be impacted by this work.

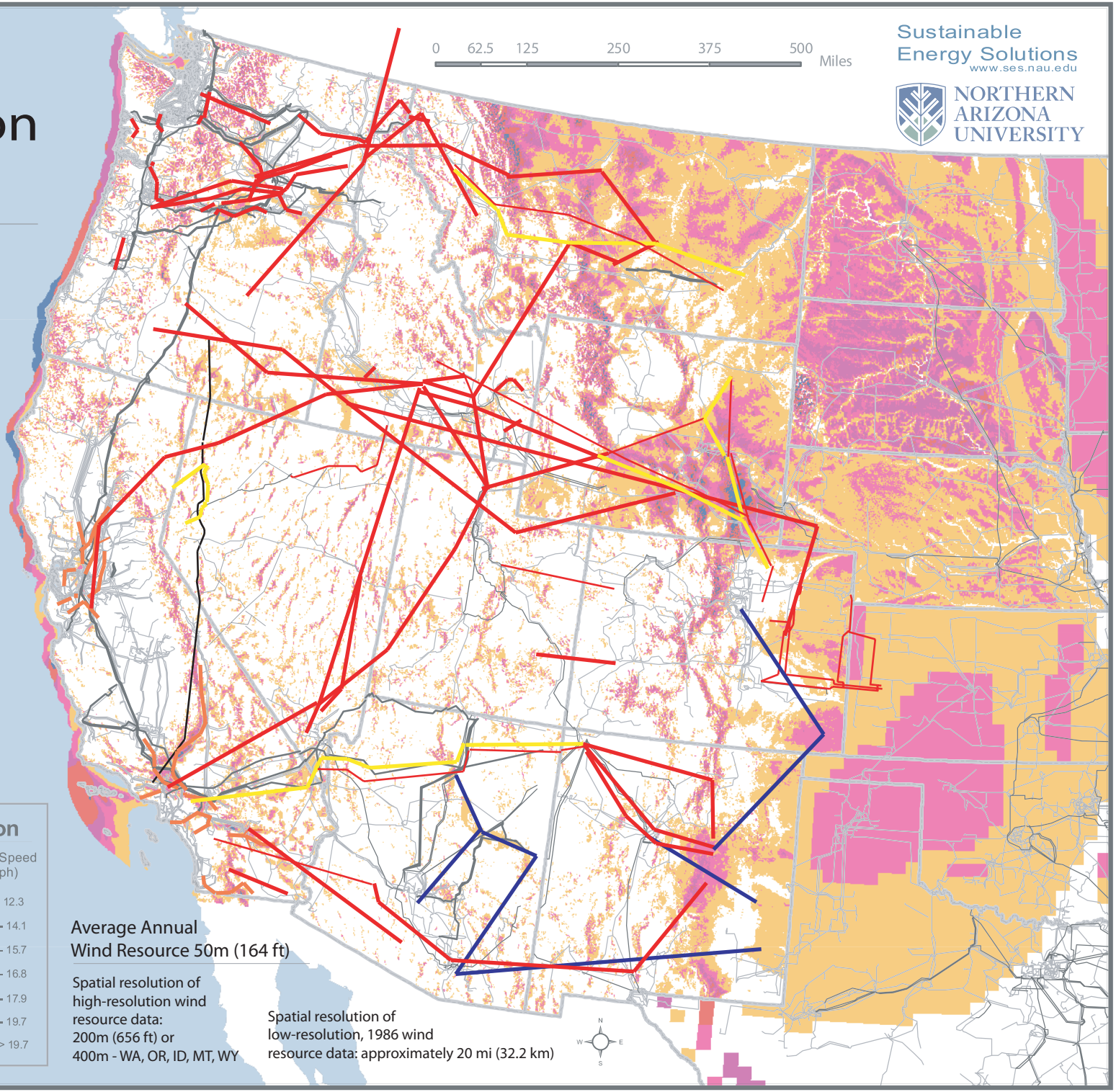
10. Use of these comments in the scoping process.

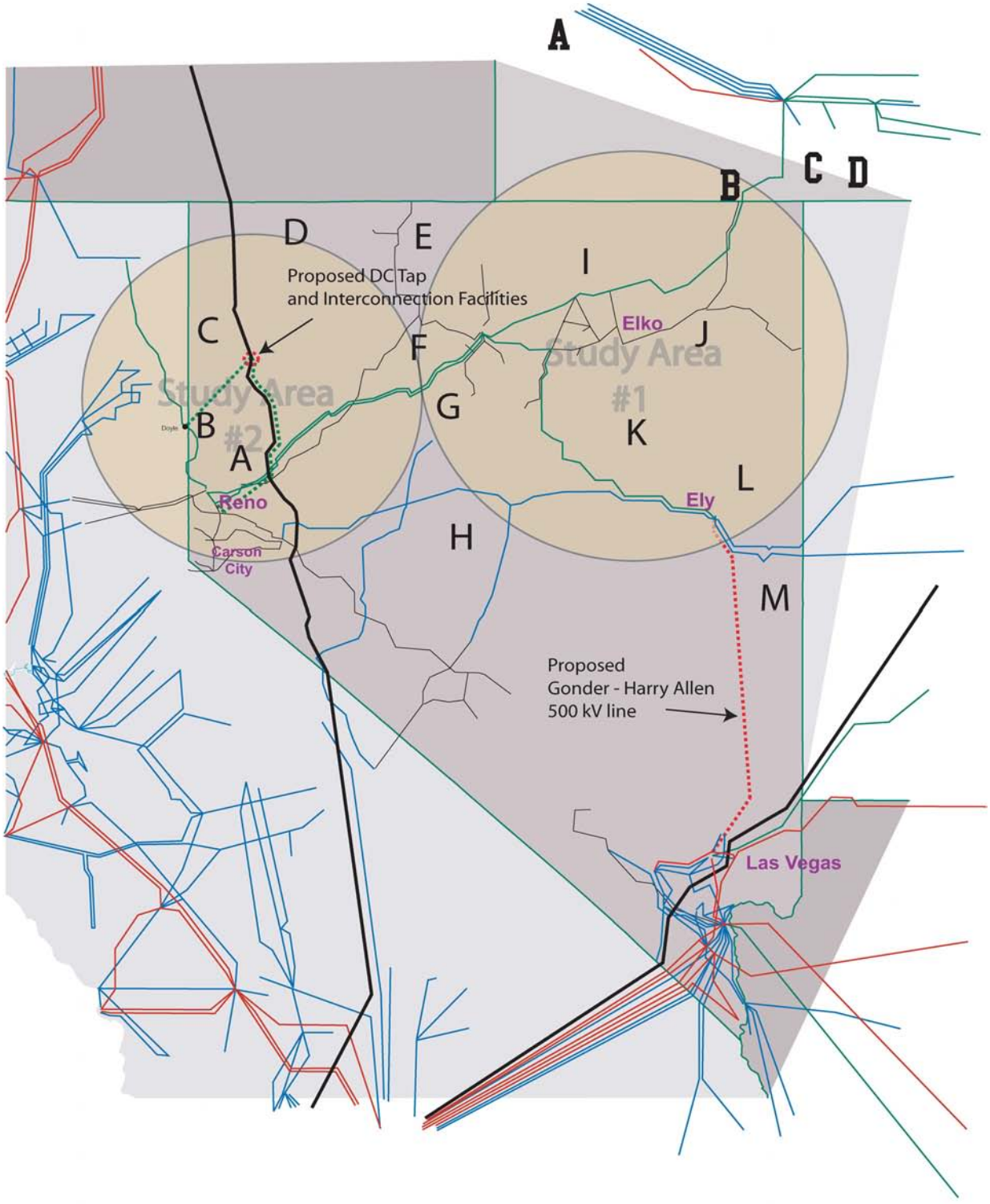
These comments point out market, reliability and diversity, economic, energy policy, and environmental issues that should be analyzed in the PEIS to inform the need for designation of transmission corridors that are required to deliver wind power to loads. They provide information that is required to determine ". . .a set of criteria and strategies that incorporate environmental concerns, projected supply and demand, network efficiencies, landscape features, the availability of new technologies, and costs" as set forth in the Notice. (See 70 FR 187, page 56648.) The more complete the programmatic analysis, the better the PEIS will serve the need for environmental analysis at the level local decisions.

Wind Transmission Corridors



Wind Transmission Corridors




A
B
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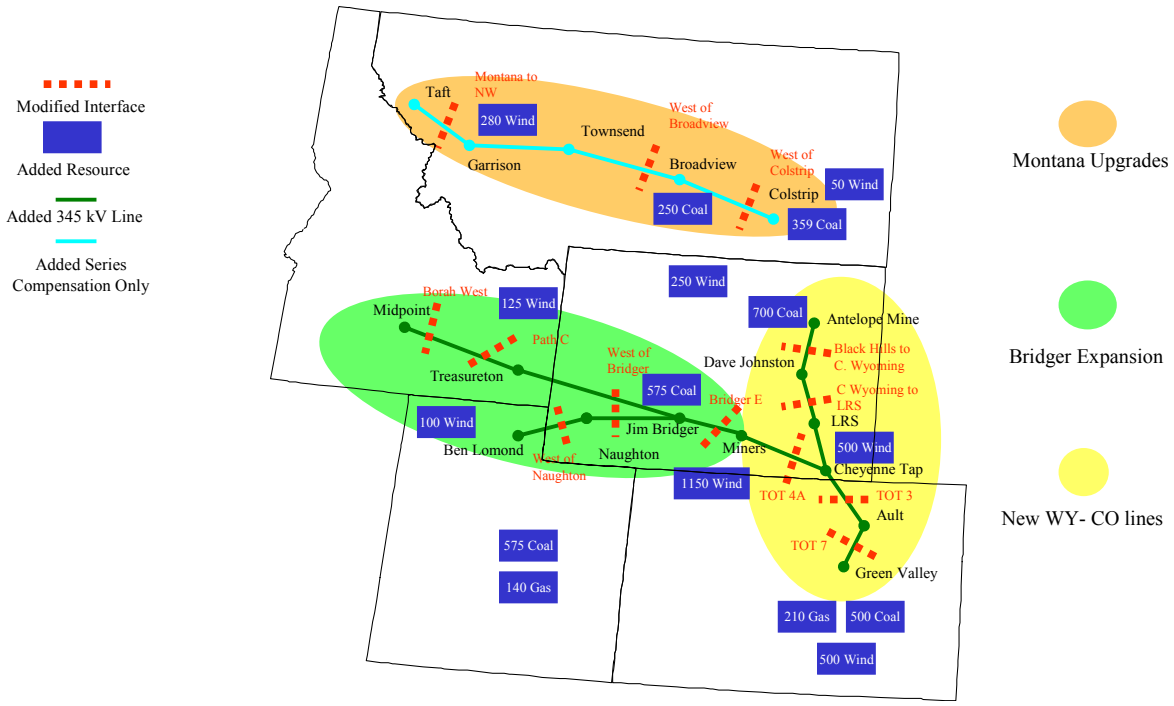
Proposed DC Tap
and Interconnection Facilities
Study Area
#2
Study Area
#1
Doyle
Reno
Carson
City
Elko
Ely
Proposed
Gonder - Harry Allen
500 kV line
Las Vegas

Figure I-1

- Wyoming to Colorado Project (yellow oval).

This recommendation is predicated on the new wind capacity and coal-fired generation additions as shown in Figure 3-1. The new capacity will meet expected load growth in the Rocky Mountain region.

Figure 3- 1: Recommendation 1: Transmission Expansion in the Rocky Mountain Area



The capital cost for Recommendation I is estimated to be $970 million for the three transmission expansion projects and $6.604 billion for generating resources. Using reasonable assumptions, an economic comparison of Recommendation 1 with the two reference cases indicates these three projects are economic, producing annual net savings of between $61 million and $531 million. While each project is discrete, the three projects together provide the greatest benefit to the region.

Montana System Upgrade Project

This project upgrades the existing Montana 500 kV transmission system to enable exports from the Rocky Mountain region to the Pacific Northwest. This project does not include new transmission lines. By installing series compensation in the 500 kV lines from Colstrip to Taft, adding a 500/230 kV autotransformer at Colstrip, and adding two new substations on the 500 kV transmission system near Ringling and Missoula, transfer capacity on this path will increase by 500 MW. The capital costs for the Montana System Upgrade project are estimated to be $72 million.

These transmission additions efficiently reduced the congestion created by the assumed generating resource additions, which include 330 MW of nameplate capacity wind generation and 609 MW of coal-fired generation in Montana. Several transmission options were considered to expand capacity to move this additional generation, including transmission from Ringling, Montana, to Borah, Idaho,

Recommendation 2: Export Projects Beyond the RMATS Footprint

RMATS also recommends transmission expansions that extend beyond the Rocky Mountain states to enable exports of generation. This is a longer-term export proposal that: (1) includes the generating resources assumed for the projects in Recommendation 1; (2) assumes construction of an additional 3,900 MW of coal generation and remote wind resources; and, (3) builds two export paths to the West Coast, Nevada and Arizona markets. The viability of Recommendation 2 depends on the fuel preferences of load-serving entities (LSEs) outside the Rocky Mountain region.

Recommendation 2 includes two of five optional 500 kV paths shown in the colored ovals in Figure 3-2. Additional transmission upgrades in the Rocky Mountain region beyond those identified in Recommendation 1 are also part of Recommendation 2, including:

- Upgrading the Bridger Expansion project from 345 kV to 500 kV west of Bridger. Specifically, new 500 kV lines would be added between Bridger and Ben Lomond, Ben Lomond and Mid Point, Ben Lomond and Kinport; Borah and Midpoint, Borah and Ringling (including a phase shifter), and Ringling and Broadview.

- Adding new 345 kV lines between Grand Junction and Emery, Antelope and Laramie River Station, and Dave Johnston to Bridger.

The capital cost for the Recommendation 2 transmission expansion is estimated to be $4.265 billion and $ 10.05 billion for generating resources.

Figure 3- 2: Transmission Expansion Extending Beyond the Rocky Mountain Region Recommended for Further Development

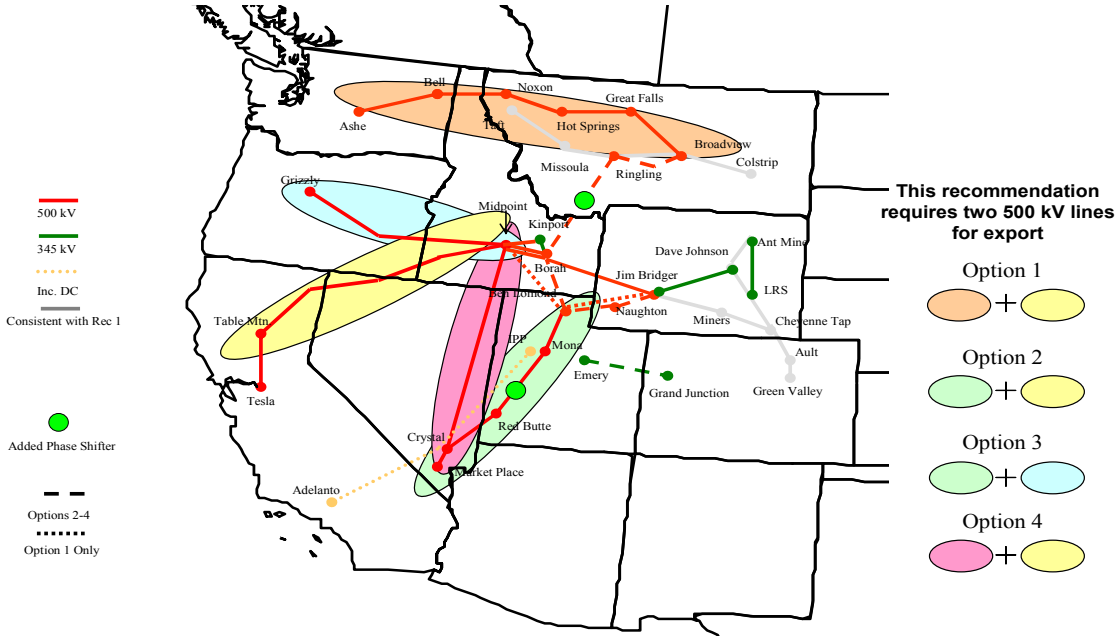
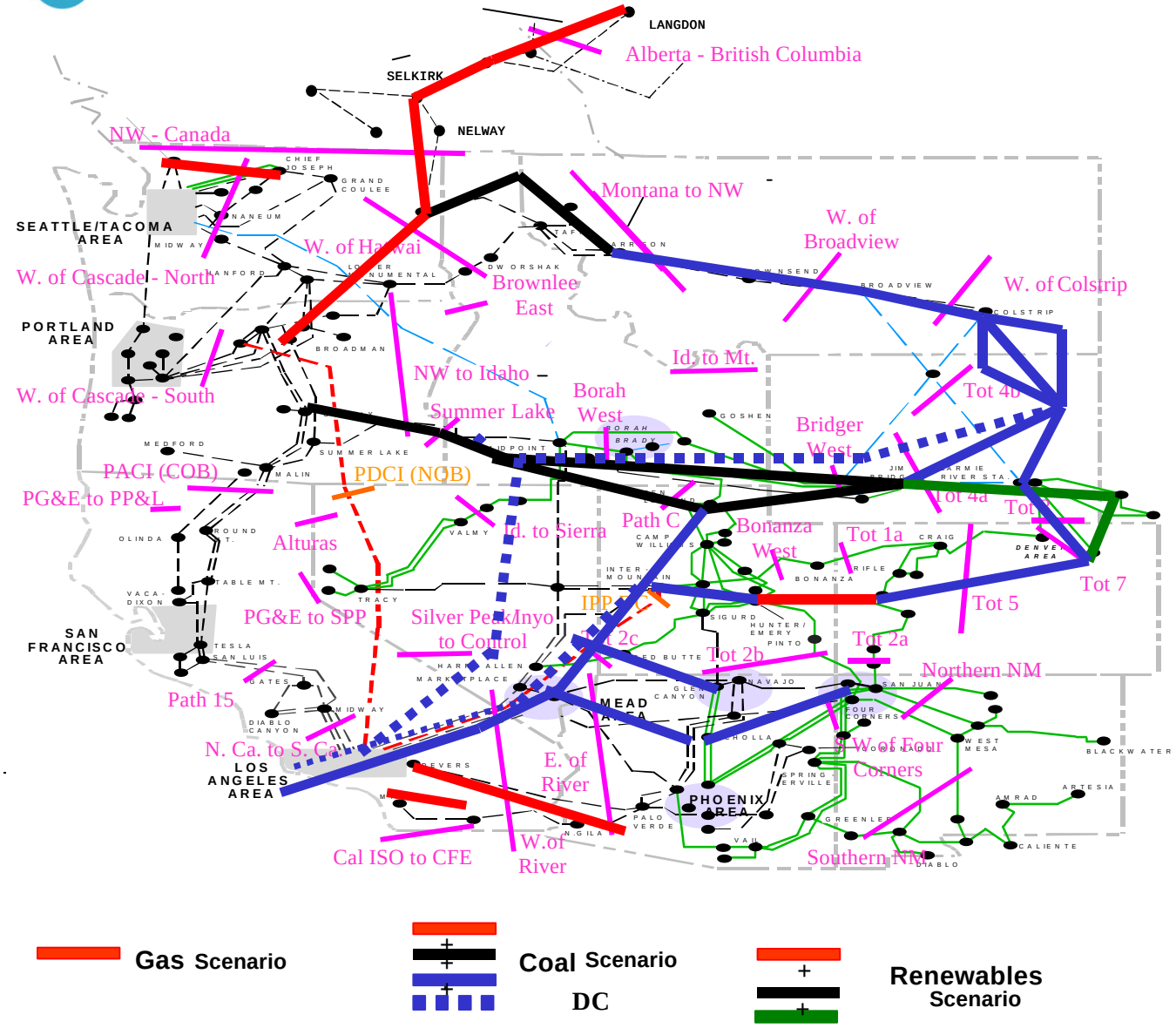


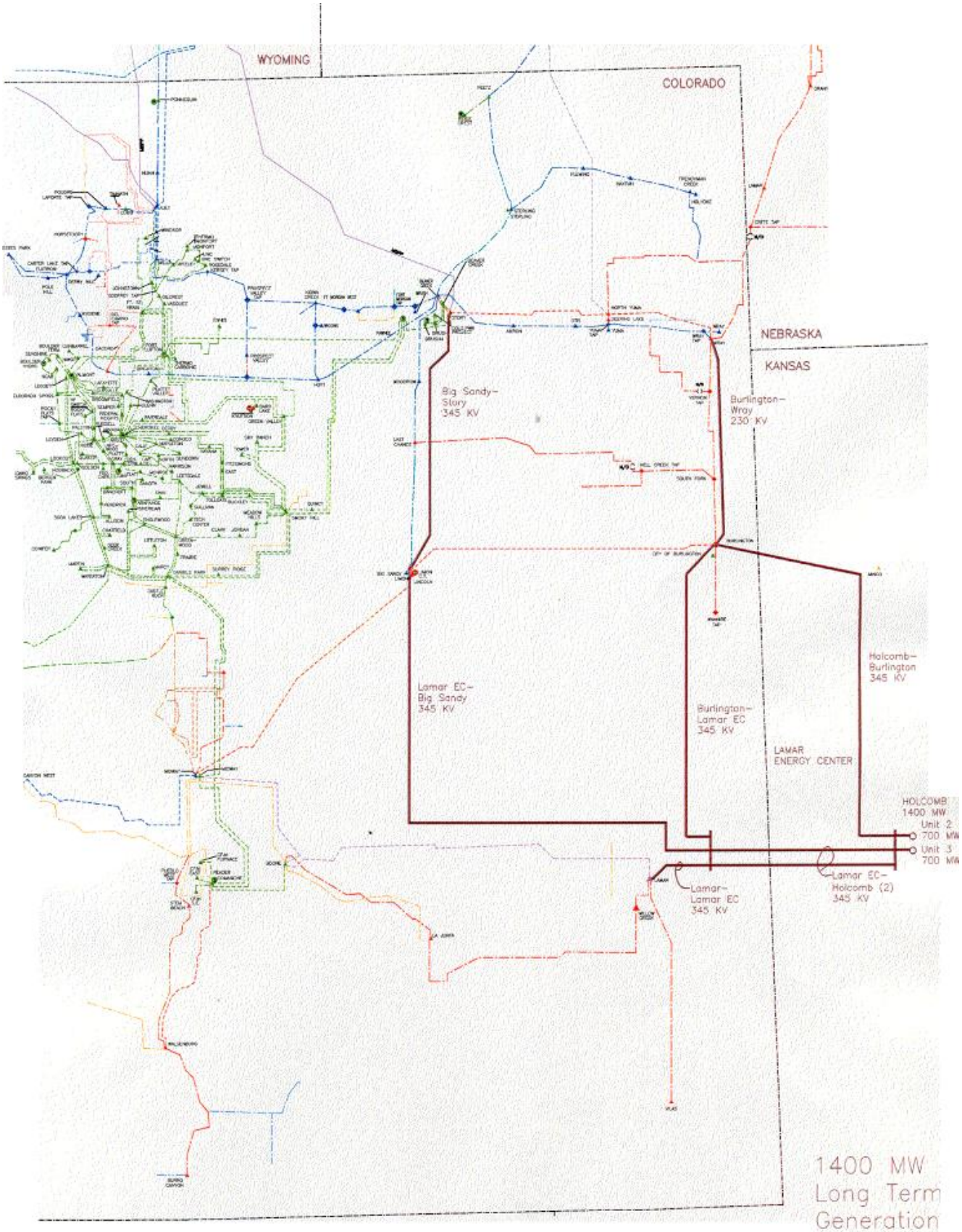
Figure E-2 Western Interconnection Transmission Additions

Seams Steering Group of the Western Interconnection

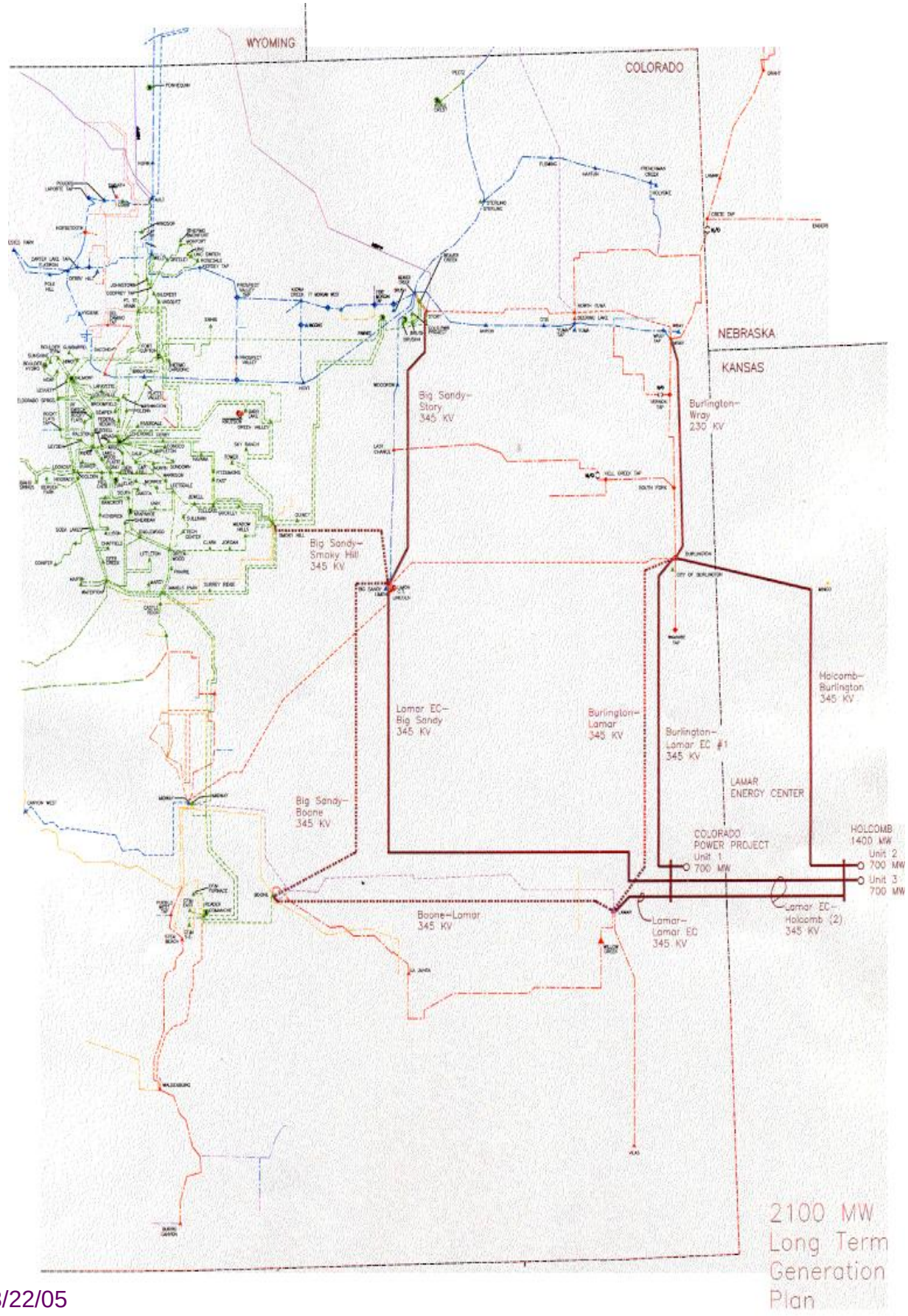
Western Interconnect Transmission Paths



1	Alberta-BC
2	Alberta – Saskatchewan
3	Northwest – Canada
4	West of Cascades – North
5	West of Cascades – South
6	West of Hatwai
7	Blank
8	Montana to Northwest
9	West of Broadview
10	West of Colstrip
11	West of Crossover
12-13	Blank
14	Idaho to Northwest
15	Midway – Los Banos
16	Idaho – Sierra
17	Borah West
18	Idaho – Montana
19	Bridger West
20	Path C
21	Arizona to Calif
23	Four Corners 345/500
24	PG&E – SPP
25	PacifiCorp/PG&E 115 Intercon.
26	Northern – Southern Calif
27	Intermountain Power Project
28	Intermountain – Mona 345 kv
29	Intermountain – Gonder 230 kv
30	TOT 1A
31	TOT 2A
32	Pavant/Intermtn Gonder
33	Bonanza West
34	see paths 78 & 79
35	TOT 2C
36	TOT3
37	TOT 4A
38	TOT 4B
39	TOT 5
40	TOT 7
41	Sylmar to SCE
42	IID – SCE
43	North of San Onofre
44	South of San Onofre
45	SDG&E Comision Fed. de Elect.
46	West of Colorado River (WOR)
47	Southern New Mexico (NM1)
48	Northern New Mexico (NM2)
49	East of the Colrado River
50	Cholla – Pinnacle Peak
51	Southern Navajo
52	Silver Peak – Control 55 kv
53	Billings – Yellowtail
54	Coronado West
55	Brownlee East
56-57	Blank
58	Eldorado – Mead 230 kv Lines
59	WALC Blythe – SCE Blythe

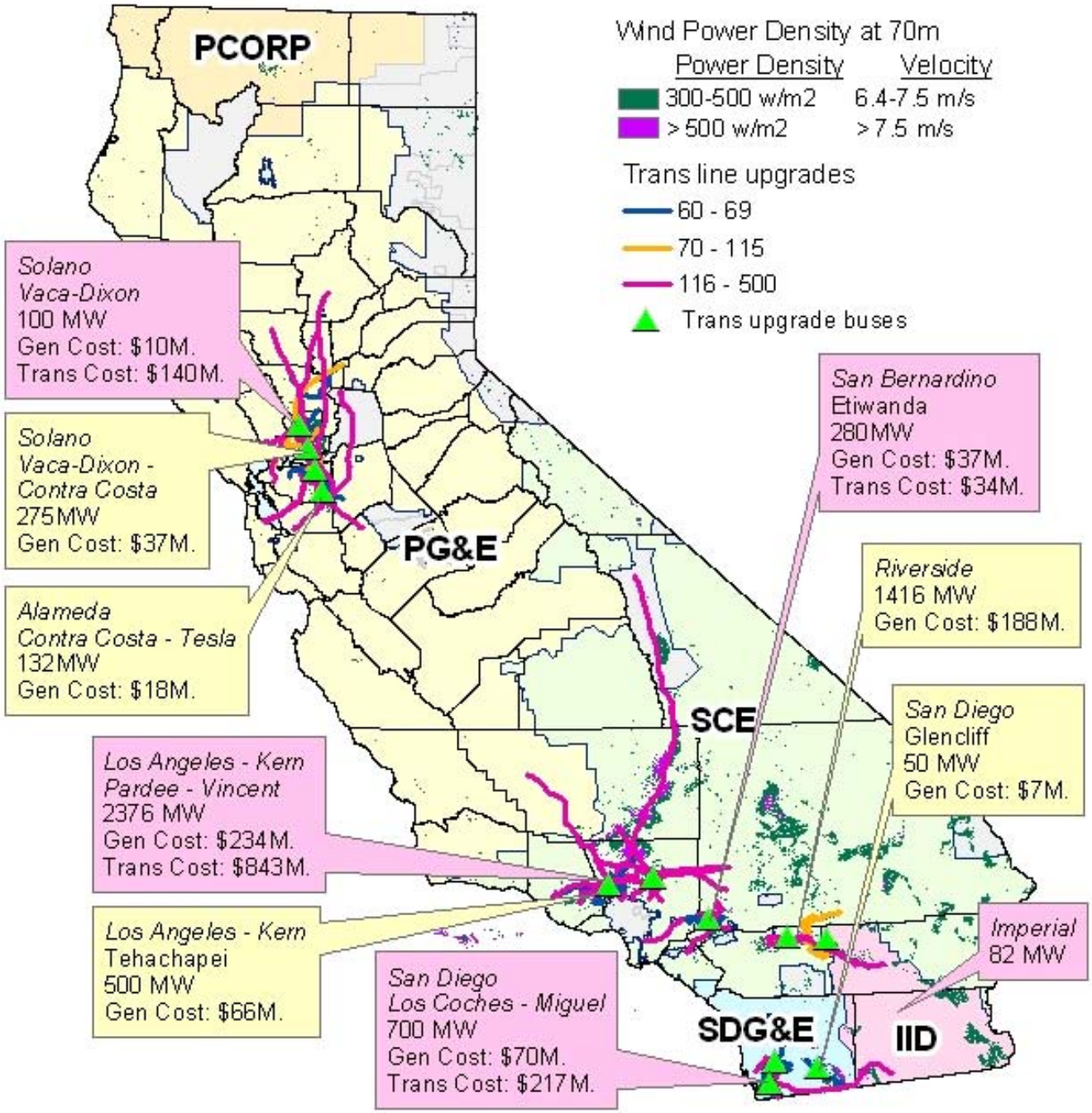

WYOMING
COLORADO
NEBRASKA
KANSAS
Big Sandy–
Story
345 KV
Burlington–
Wray
230 KV
Lamar EC–
Big Sandy
345 KV
Burlington–
Lamar EC
345 KV
Holcomb–
Burlington
345 KV
LAMAR
ENERGY CENTER
HOLCOMB
1400 MW
Unit 2
700 MW
Unit 3
700 MW
Lamar–
Lamar EC
345 KV
Lamar EC–
Holcomb (2)
345 KV
1400 MW
Long Term
Generation
Plan

08/19/05


WYOMING
COLORADO
NEBRASKA
KANSAS
Big Sandy–
Story
345 KV
Burlington–
Wray
230 KV
Big Sandy–
Smoky Hill
345 KV
Lamar EC–
Big Sandy
345 KV
Burlington–
Lamar
345 KV
Burlington–
Lamar EC #1
345 KV
Holcomb–
Burlington
345 KV
LAMAR
ENERGY CENTER
COLORADO
POWER PROJECT
Unit 1
700 MW
HOLCOMB
1400 MW
Unit 2
700 MW
Unit 3
700 MW
Big Sandy–
Boone
345 KV
Boone–Lamar
345 KV
Lamar–
Lamar EC
345 KV
Lamar EC–
Holcomb (2)
345 KV
2100 MW
Long Term
Generation
Plan

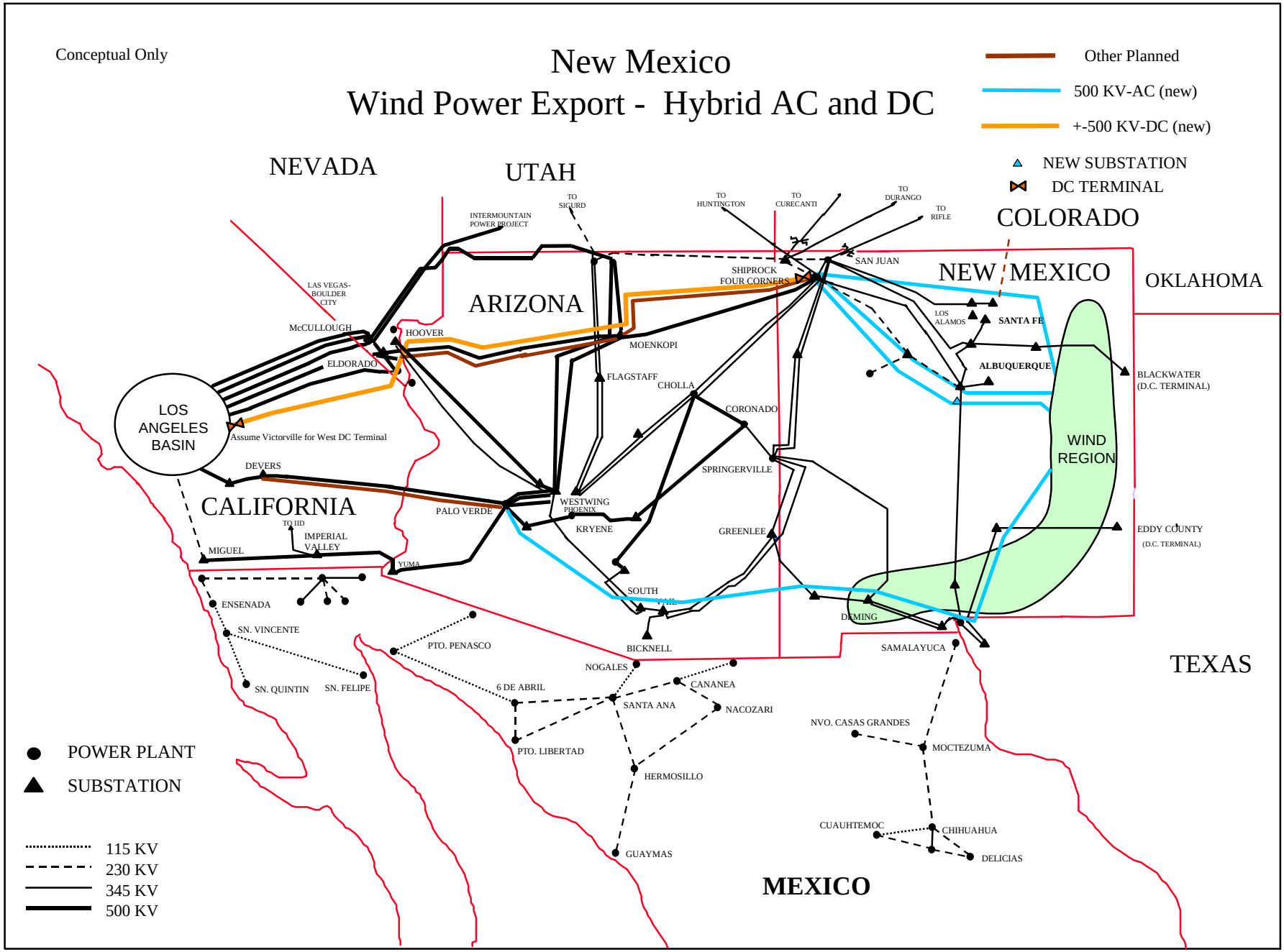
08/22/05

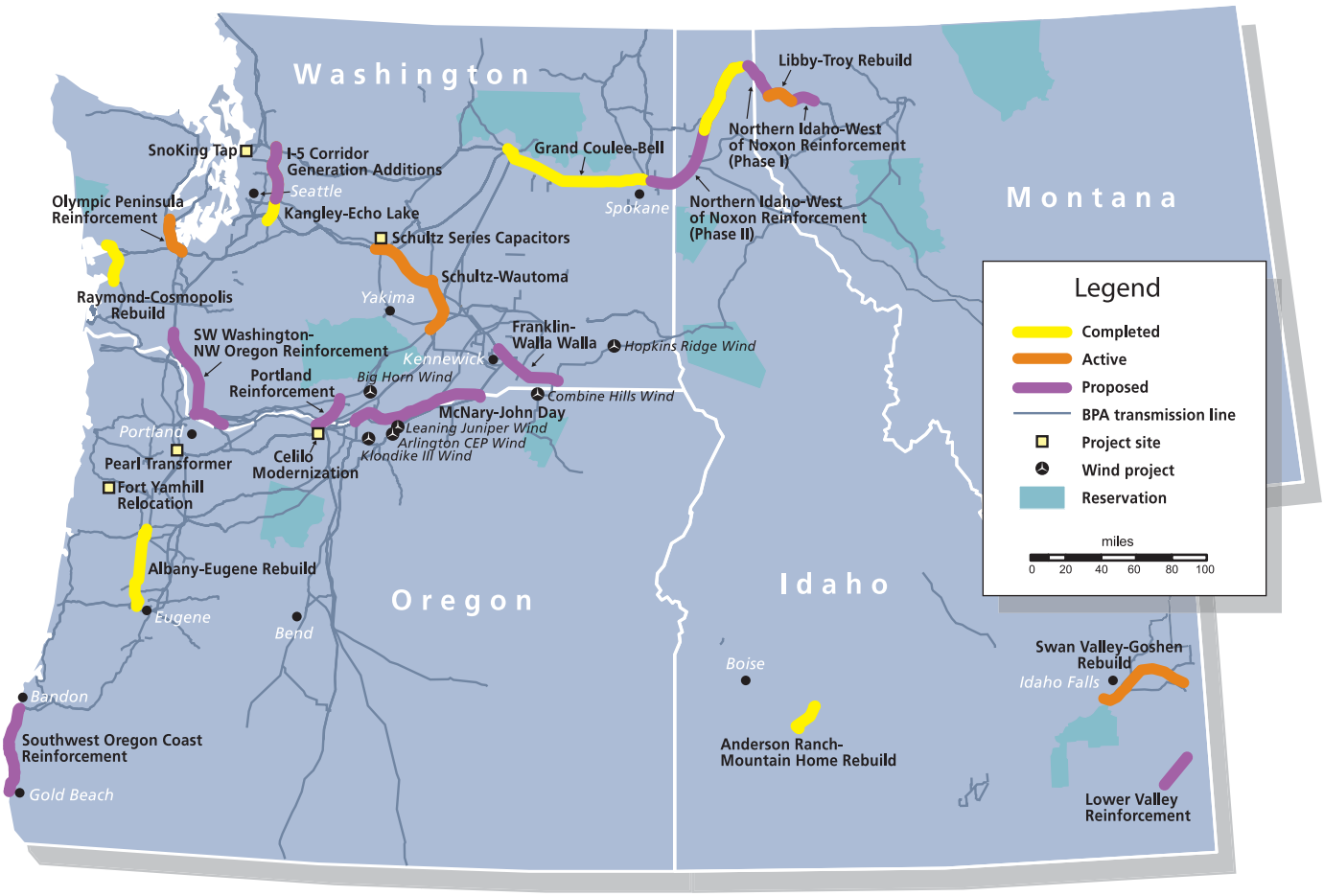
2010 & 2017 Wind Results



2010 potential

2017 potential


Conceptual Only
New Mexico
Wind Power Export - Hybrid AC and DC
Other Planned
500 KV-AC (new)
+-500 KV-DC (new)
NEW SUBSTATION
DC TERMINAL
NEVADA
UTAH
COLORADO
NEW MEXICO
OKLAHOMA
ARIZONA
CALIFORNIA
TEXAS
MEXICO
TO SIGURD
INTERMOUNTAIN POWER PROJECT
TO HUNTINGTON
TO CURECANTI
TO DURANGO
TO RIFLE
SAN JUAN
SHIPROCK
FOUR CORNERS
LAS VEGAS-BOULDER CITY
McCULLOUGH
HOOVER
ELDORADO
MOENKOPI
FLAGSTAFF
CHOLLA
CORONADO
LOS ANGELES BASIN
Assume Victorville for West DC Terminal
DEVERS
PALO VERDE
WESTWING PHOENIX
KRYENE
SPRINGERVILLE
GREENLEE
LOS ALAMOS
SANTA FE
ALBUQUERQUE
BLACKWATER (D.C. TERMINAL)
WIND REGION
EDDY COUNTY (D.C. TERMINAL)
TO IID
IMPERIAL VALLEY
MIGUEL
YUMA
SOUTH
DEMING
BICKNELL
SAMALAYUCA
ENSENADA
SN. VINCENTE
SN. QUINTIN
SN. FELIPE
PTO. PENASCO
NOGALES
6 DE ABRIL
CANANEA
SANTA ANA
NACOZARI
PTO. LIBERTAD
HERMOSILLO
NVO. CASAS GRANDES
MOCTEZUMA
CUAUHTEMOC
CHIHUAHUA
DELICIAS
GUAYMAS
POWER PLANT
SUBSTATION
115 KV
230 KV
345 KV
500 KV



$700 million in 2003, allowing BPA to move forward to make infrastructure investments.

In addition, non-federal financing has allowed BPA to construct the Schultz-Wautoma 500-kV transmission line, a project needed to improve system reliability and availability. Portions of the project are financed under a lease-purchase agreement with a private financier, and other parts of the project are owned and financed by BPA using traditional U.S. Treasury borrowing. BPA will pay back $119 million in taxable bonds that were issued in March 2004. BPA will lease the assets for 30 years but will manage construction of and exclusively operate the line. At the end of the lease, after the bonds are repaid, BPA has the option to purchase the line. Leasing conserves BPA's use of scarce U.S. Treasury borrowing, which otherwise is expected to be exhausted in 2008.

The following is a state-by-state status report on several critical infrastructure and wind projects completed and currently under way to enhance transmission system reliability and availability throughout the Northwest.

Washington Projects

Franklin-Walla Walla

This 18.5-mile transmission line project is located in Walla Walla, Wash. The new line is needed to interconnect the Franklin-Walla Walla 115-kV transmission line to Nine Mile Tap. New conductor will also be strung to increase capacity and maintain system reliability. Construction could start in July 2005 and be completed by fall 2005, pending environmental review. The project is estimated to cost $5.6 million.

Grand Coulee-Bell

This 84-mile transmission line project is located in eastern Washington and replaced the old 115-kV wood pole transmission line with a new higher capacity 500-kV steel lattice line. It relieves congestion on the West of Hatwai flow gate, maintains system reliability and increases capacity across this key path from 2,800 to about 4,300 MW. The line was energized on Dec. 1, 2004, and it, along with associated substation projects, cost $159 million.