



Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council

Environmental Science Division

About Argonne National Laboratory

Argonne is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC under contract DE-AC02-06CH11357. The Laboratory's main facility is outside Chicago, at 9700 South Cass Avenue, Argonne, Illinois 60439. For information about Argonne and its pioneering science and technology programs, see www.anl.gov.

DOCUMENT AVAILABILITY

Online Access: U.S. Department of Energy (DOE) reports produced after 1991 and a growing number of pre-1991 documents are available free via DOE's SciTech Connect (<http://www.osti.gov/scitech/>)

Reports not in digital format may be purchased by the public from the National Technical Information Service (NTIS):

U.S. Department of Commerce
National Technical Information Service
5301 Shawnee Rd
Alexandria, VA 22312
www.ntis.gov
Phone: (800) 553-NTIS (6847) or (703) 605-6000
Fax: (703) 605-6900
Email: **orders@ntis.gov**

Reports not in digital format are available to DOE and DOE contractors from the Office of Scientific and Technical Information (OSTI):

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
www.osti.gov
Phone: (865) 576-8401
Fax: (865) 576-5728
Email: **reports@osti.gov**

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor UChicago Argonne, LLC, nor any of their employees or officers, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of document authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, Argonne National Laboratory, or UChicago Argonne, LLC.

Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council

by

James A. Kuiper, Brian L. Cantwell, Kevin J. Hlava, H. Robert Moore,
Andrew B. Orr, and Emily A. Zvolanek
Environmental Science Division, Argonne National Laboratory

prepared by

Argonne National Laboratory for U.S. Department of Energy,
Office of Electricity Delivery and Energy Reliability, Washington, D.C.

March 4, 2014

Contents

Acknowledgements.....	1
Definitions.....	2
Executive Summary.....	3
1. Background and Introduction	7
2. Methods	13
3. Results	17
3.1 Federal Lands	17
3.2 Existing Section 368 Corridors	23
3.3 Existing Transmission Lines	30
3.4 Previously Studied Corridor Locations	38
3.4.1 Analyzed in Final PEIS but Agency Did Not Designate Corridors	38
3.4.2 Analyzed in Final PEIS but Omitted from Designation in BLM ROD.....	40
3.4.3 Analyzed in Draft PEIS but Omitted in Final PEIS	41
3.5 Protected Areas	43
4. Conclusions	61
5. References.....	67
Appendix A: Installing ArcReader and Navigating the Database	A-1
Appendix B: Land Jurisdictions Crossed by WECC Proposed Energy Corridors	B-1
Appendix C: BLM State, District, and Field Offices Crossed by WECC Proposed Energy Corridors ...	C-1
Appendix D: Non-BLM Federal Agency and Tribal Parcels Crossed by WECC Proposed Energy Corridors.....	D-1
Appendix E: Map Atlas.....	E-1

List of Figures

ES.1	WECC Proposed Energy Corridors with Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions	5
1.1	WECC Hubs, Draft Step 1 Corridors, and Proposed Energy Corridors	10
1.2	WECC Proposed Energy Corridors with Hub Locations, and Federal and Tribal Land Jurisdictions.....	12
2.1	Large-Scale View of WECC Potential Energy Corridors with an Example of Overlapping Centerlines and Areas	14
3.1.1	WECC Proposed Energy Corridor WREZ MTCT to Load NWPP in West Central Montana.....	20
3.2.1	WECC Proposed Energy Corridors with Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions	25
3.2.2	WECC Proposed Energy Corridors WREZ NVSO to WREZ CASO and WREZ AZCT to WREZ CASO in Southeastern California in the Vicinity of Mojave National Preserve and Twentynine Palms Marine Corps Base	28
3.2.3	WECC Proposed Energy Corridor WREZ NVSO to WREZ CASO in Southeastern California in the Vicinity of Mojave Desert Preserve	28
3.2.4	WECC Proposed Energy Corridor WREZ NVCT to WREZ NVSO in Southwestern Nevada in the Vicinity of the Nevada Test Site	29
3.2.5	WECC Proposed Energy Corridor WREZ UTCT to WREZ NVCT along the Central East Nevada/West Utah Border, in the Vicinity of Great Basin National Park.....	29
3.4.1	WECC Proposed Energy Corridor WREZ UTCT to Load RMPA with Designated and Undesignated Portions of Section 368 Corridors 132-136 and 132-276.	40
3.4.2	WECC Proposed Energy Corridor WREZ NMCT to Load DSW in the Vicinity of White Sands Missile Range and the Undesignated Portion of Section 368 Corridor 81-272	41
3.4.3	WECC Proposed Energy Corridor WREZ NVCT to WREZ NVSO in the Vicinity of Nellis Air Force Range, Death Valley National Park, and a Modified Portion of Section 368 Corridor 18-224	42
4.1	WECC Proposed Energy Corridors, Designated Section 368 Corridors, and Existing High-Capacity Transmission Lines	64
4.2	Conceptual Draft and Designated Section 368 Corridors	65

A.1 View of the Default Map Content in ArcReader Showing WECC Potential Energy Corridors and Hubs, with Surface Management Agency A-2

List of Tables

1.1 WECC Proposed Energy Corridors with Hub Names, Lengths, and Area of 3,500-foot Width Buffer 11

3.1 Total Length and 3,500-foot Buffer Area of the WECC Proposed Energy Corridors, by State 17

3.1.1 Centerline Lengths of WECC Potential Energy Corridors Tabulated by State and Management Jurisdiction..... 19

3.1.2 Area in Acres of WECC Potential Energy Corridors Tabulated by State and Management Jurisdiction, Assuming a 3,500-foot Total Corridor Width..... 19

3.1.3 Total BLM-Administered Length and 3,500-foot Buffer Area of the WECC Proposed Energy Corridors, by Bureau of Land Management State, District, and Field Office..... 21

3.2.1 Intersections of WECC Proposed Energy Corridor Centerlines and 3,500-foot Buffers with Designated Section 368 Corridors..... 26

3.2.2 Section 368 Corridors of Concern Having Intersections with WECC Proposed Energy Corridors..... 27

3.3.1 Centerline Lengths of WECC Potential Energy Corridors That Overlap with Platts Transmission Lines Tabulated by State and Management Jurisdiction 30

3.3.2 Area in Acres of WECC Potential Energy Corridors That Overlap with Platts Transmission Lines, Tabulated by State, and Management Jurisdiction, assuming a 3,500-foot Total Corridor Width 31

3.3.3 Area in Acres and Length in Miles of WECC Potential Energy Corridors That Overlap with Platts Transmission Lines, Tabulated by State, Management Jurisdiction, and Managing Unit, Assuming a 3,500-foot Total Corridor Width 32

3.4 Previously Studied Corridors That Overlap Portions of the WECC Proposed Energy Corridors..... 39

3.5.1 Lengths of WECC Proposed Energy Corridors Tabulated by WECC Risk Category..... 46

3.5.2 Centerline Lengths of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by Gap Status Code 47

3.5.3 Areas of 3,500-foot Buffers of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by Gap Status Code	50
3.5.4 Centerline Lengths of WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by IUCN Category	53
3.5.5 Areas of 3,500-foot Buffers of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by IUCN Category	56

Acknowledgements

The authors would like to thank the staff of the U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability for providing funding support for this project, and review of the draft report. The authors also offer special thanks to Ihor Hlohowskyj for his insightful review of the draft document, and to Carolyn Steele and Kerri Schroeder for editing and document processing assistance, respectively.

Definitions

Argonne	Argonne National Laboratory
BLM	U.S. Bureau of Land Management
BOR	U.S. Bureau of Reclamation
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
EPAct	Energy Policy Act of 2005
ESRI	Environmental Systems Research Institute
FWS	U.S. Fish and Wildlife Service
GAP	Gap Analysis Program
GSA	Government Services Administration
Hub	nodal representation of a renewable energy zone, load center, or generation center
IUCN	International Union for the Conservation of Nature
NPS	U.S. National Park Service
ROW	right-of-way
USFS	U.S. Department of Agriculture, Forest Service
WREZ	Western Renewable Energy Zone
WECC	Western Electricity Coordinating Council

Executive Summary

This report, *Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council* (WECC), was prepared by the Environmental Science Division of Argonne National Laboratory (Argonne). The intent of WECC's work was to identify planning-level energy corridors that the Department of Energy (DOE) and its affiliates could study in greater detail. Argonne was tasked by DOE to analyze the WECC Proposed Energy Corridors in five topic areas for use in reviewing and revising existing corridors, as well as designating additional energy corridors in the 11 western states.

In compliance with Section 368 of the Energy Policy Act of 2005 (EPAAct), the Secretaries of Energy, Agriculture, and the Interior (Secretaries) published a Programmatic Environmental Impact Statement in 2008 to address the proposed designation of energy transport corridors on federal lands in the 11 western states. Subsequently, Records of Decision designating the corridors were issued in 2009 by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS). The 2012 settlement of a lawsuit, brought by The Wilderness Society and others against the United States, which identified environmental concerns for many of the corridors requires, among other things, periodic reviews of the corridors to assess the need for revisions, deletions, or additions. A 2013 Presidential Memorandum requires the Secretaries to undertake a continuing effort to identify and designate energy corridors.

The WECC Proposed Energy Corridors and their analyses in this report provide key information for reviewing and revising existing corridors, as well as designating additional energy corridors in the 11 western states. Load centers and generation hubs identified in the WECC analysis, particularly as they reflect renewable energy development, would be useful in reviewing and potentially updating the designated Section 368 corridor network.

Argonne used Geographic Information System (GIS) technology to analyze the proposed energy corridors in the WECC report in five topic areas:

- Federal land jurisdiction,
- Existing Section 368 corridors,
- Existing transmission lines,
- Previously studied corridor locations, and
- Protected areas.

Analysis methods are explained and tables and maps are provided to describe the results of the analyses in all five topic areas.

WECC used a rational approach to connecting the hubs it identified, although there may be opportunities for adapting some of the proposed WECC routes to previously designated Section 368 corridors, for example:

- The WECC proposed energy corridors are in fact centerlines of proposed routes connecting hubs of various descriptions related to electric energy transmission. Although the centerlines were sited to avoid sensitive areas, infrastructure proposed within actual pathways or corridors

defined by the centerlines would sometimes affect lands where such development would not normally be allowed, such as National Parks and Monuments, National Wildlife Refuges, and Wilderness Areas.

- Many WECC proposed energy corridors are sited along centerlines of existing roads, including Interstate Highways, where in some cases additional width to accommodate energy transmission infrastructure may not be available. Examples include the WECC Proposed Corridor along Interstate 70 through Glenwood Canyon in Colorado, and along U.S. Highway 89 across Glen Canyon Dam in Arizona.
- Several WECC proposed energy corridors are parallel to designated Section 368 corridors that have already cleared the preliminary steps to right-of-way approval.

In many of these cases, the WECC hub connection objectives can be met more efficiently by routing on the designated Section 368 corridors. Figure ES.1 depicts the WECC Proposed Energy Corridors with Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions.

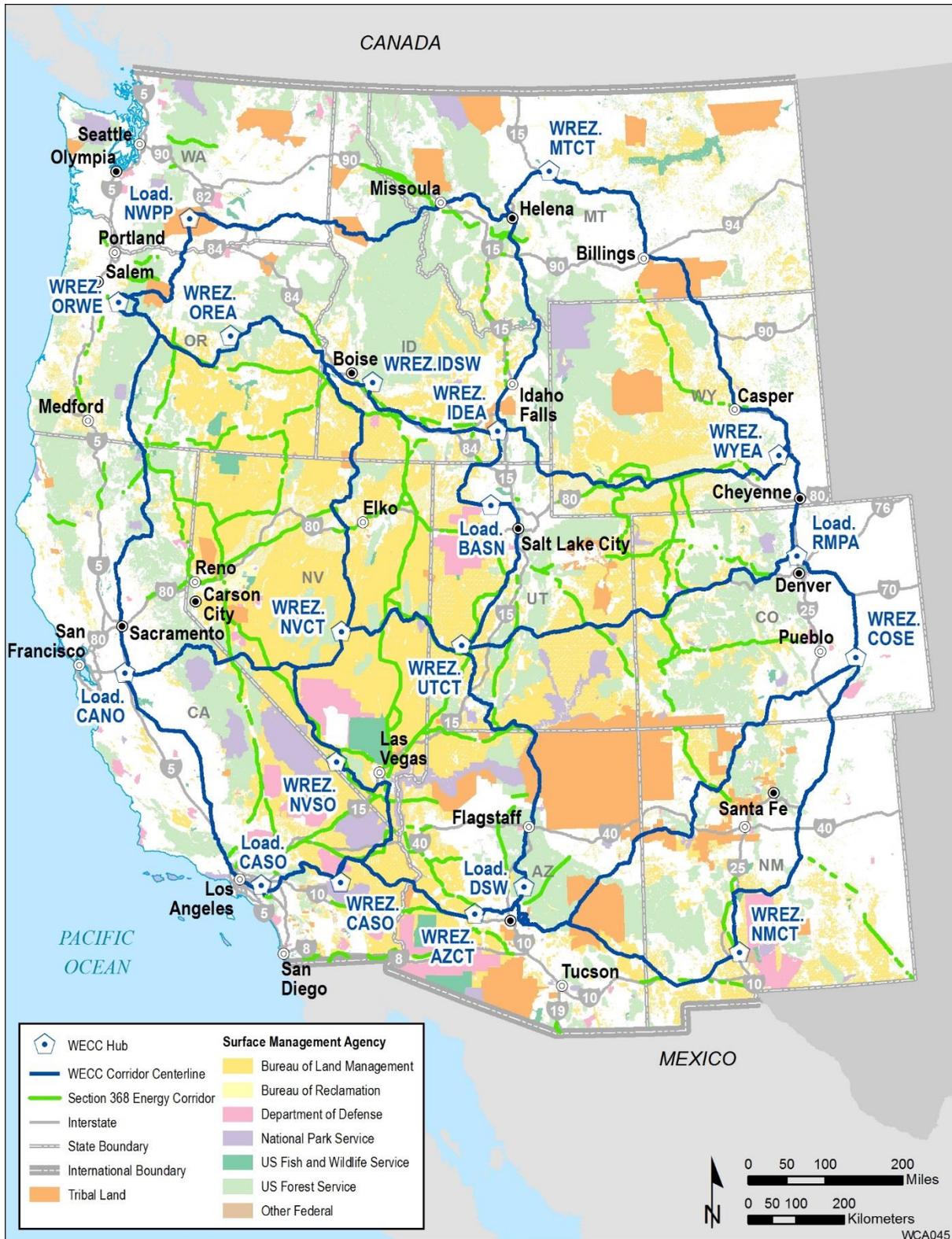


Figure ES.1 WECC Proposed Energy Corridors with Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions

This page intentionally left blank.

1. Background and Introduction

On August 8, 2005, the President signed into law the Energy Policy Act of 2005 (EPAc) (42 USC §13201 et seq.). Section 368 of EPAc requires, among other things, the designation of energy corridors on federal lands in 11 western states and the establishment of procedures to ensure that additional corridors are identified and designated as necessary and to expedite applications to construct or modify oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities. Corridor designation and associated plan amendments were based on the following direction provided in Section 368:

The Secretary of Agriculture, the Secretary of Commerce, the Secretary of Defense, the Secretary of Energy, and the Secretary of the Interior (in this section referred to collectively as “the Secretaries”), in consultation with the Federal Energy Regulatory Commission, states, Tribal or local units of governments as appropriate, affected utility industries, and other interested persons, shall consult with each other and shall—

(1) designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land in the 11 western states (as defined in Section 103(o) of the Federal Land Policy and Management Act of 1976 (43 USC 1702(o));

(2) perform any environmental reviews that may be required to complete the designation of such corridors; and

(3) incorporate the designated corridors into the relevant agency land use and resource management plans or equivalent plans.

The Department of Energy (DOE) and the Department of the Interior (DOI), Bureau of Land Management (BLM), were the lead agencies that prepared a Programmatic Environmental Impact Statement (PEIS) related to the Section 368 Corridors (DOE 2008). This addressed item 2 listed above. Records of Decision designating the corridors were issued by the BLM (2009) and USFS (2009).

The designation of specific corridors was challenged in United States District Court by a group of plaintiffs led by The Wilderness Society, in part identifying a list of potential environmental concerns for many of the corridors. A settlement was reached in 2012 (USDC 2012). Exhibit A of the settlement lists specific Section 368 “Corridors of Concern” with a brief summary of the concerns. Other terms of the settlement include the following five provisions:

- “periodically review the section 368 corridors [...] to assess the need for corridor revisions, deletions, or additions,”
- “issue internal guidance to managers and staff regarding use and development of the section 368 corridors. As part of this guidance, the agencies will provide direction on using corridors of concern and will identify known conflicts within these corridors,”
- “incorporate environmental concerns into agency training regarding the processing of applications for pipeline and electricity transmission ROWs,”

- “study Section 368 corridors in order to assess their overall usefulness with regard to various factors, including their effectiveness in reducing the proliferation of dispersed ROWs crossing the landscape of federal lands,” and
- “delete a section, entitled “Environmental Review and Energy Corridors,” from [an] Instruction Memorandum.”

Federal attention to energy corridors was again emphasized in a 2013 Presidential Memorandum (U.S. President 2013). Excerpts from the presidential memo include the following:

“In order to ensure the growth of America’s clean energy economy and improve energy security, we must modernize and expand our electric transmission grid [...]

“An important avenue to improve these processes is the designation of energy right-of-way corridors (energy corridors) on Federal lands. Section 368 of the Energy Policy Act of 2005 (the “Act”) (42 U.S.C. 15926), requires the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior (Secretaries) to undertake a continued effort to identify and designate such energy corridors [...]

“the Secretary of Energy shall provide to the Steering Committee a Transmission Corridor Assessment Report.”

This report provides an initial analysis of Potential Energy Corridor data provided to Argonne by the Western Electricity Coordinating Council (WECC). In WECC’s report accompanying the corridor data, they described the reason for the effort, and the methodologies, and guiding principles they used to develop the corridors:

“The U.S. Department of Energy is leading a federal effort to re-evaluate previously established energy corridors in the West. The DOE asked the Western Electricity Coordinating Council to assist in this effort by identifying potential energy corridors, or potential preferred locations of future infrastructure (e.g., pipelines, electricity transmission lines, and associated infrastructure) by leveraging WECC’s GIS based environmental datasets and geospatial optimization tools” (WECC 2014).

At the highest level, WECC’s approach entailed: (1) identifying corridor endpoints (hubs); (2) optimally routing corridor alternatives between endpoints; and (3) identifying the final set of corridors from the alternatives. Figure 1.1 shows the WECC hubs, Draft Step 1 Corridors, and WECC Proposed Energy Corridors generated in steps 2 and 3 by a spatial modeling process that used multiple siting criteria encoded in a cost surface map.

The WECC report also emphasized the preliminary nature of the proposed energy corridors, particularly:

- “The potential energy corridors provided by WECC are intended as a starting point for [...] additional DOE analyzes that can be used to identify final energy corridors. WECC is providing this report to the DOE solely as an initial step in the overall process,” and
- “[T]he federal agencies are advised to take this technical input from WECC and make their own decisions” (WECC 2014).

Table 1.1 lists the 27 WECC proposed energy corridors and associated hubs. Figure 1.2 depicts the WECC Proposed Energy Corridors with federal and tribal land jurisdictions. The WECC report describes the hubs as follows:

“Hubs are nodal representations of regions or areas. Examples of hubs include [Western Renewable Energy Zone (WREZ)] hubs to represent renewable energy zones, load hubs to represent load centers, and generation hubs to represent generation centers. Load hubs are representations of load centers aggregated from existing balancing authority service territories. The load hub locations are centroids weighted by the loads at the various electricity load substations within the balancing authority service territory. WREZ hubs are graphical representations of regional renewable resource potential in the Western Interconnection, identified for purposes of evaluating needs for interregional transmission lines and interconnecting potential new sources of renewable energy” (WECC 2014).

Argonne National Laboratory (Argonne) was tasked by DOE to analyze the WECC proposed energy corridors in five topic areas:

- Federal land jurisdictions,
- Existing Section 368 corridors,
- Existing transmission lines,
- Previously studied corridor locations, and
- Protected areas.

The WECC Proposed Energy Corridors and their analyses in this report both provide key information for reviewing and revising existing corridors, as well as designating additional energy corridors in the western 11 states.



Figure 1.1 WECC Hubs, Draft Step 1 Corridors, and Proposed Energy Corridors

Table 1.1 WECC Proposed Energy Corridors with Hub Names, Lengths, and Area of 3,500-foot Width Buffer

Corridor Designation	From Hub	To Hub	Length (Miles)	Area¹ (Acres)
Load CANO to Load CASO	California North	California South	401	168,681
WREZ AZCT to Load DSW	Arizona Central	Desert Southwest	102	42,759
WREZ AZCT to WREZ CASO	Arizona Central	California South	260	109,048
WREZ CASO to Load CASO	California South	California South	155	64,904
WREZ COSE to Load DSW	Colorado Central	Desert Southwest	813	341,425
WREZ COSE to Load RMPA	Colorado Southeast	Rocky Mountain Region	199	83,874
WREZ COSE to WREZ NMCT	Colorado Southeast	New Mexico Central	524	220,353
WREZ IDEA to Load BASN	Idaho East	Interior Basin	120	50,597
WREZ IDEA to WREZ IDSW	Idaho East	Idaho Southwest	221	92,955
WREZ IDSW to WREZ OREA	Idaho Southwest	Oregon East	259	108,851
WREZ MTCT to Load NWPP	Montana Central	Northwest Power Pool	634	266,687
WREZ MTCT to WREZ IDEA	Montana Central	Idaho East	455	191,207
WREZ NMCT to Load DSW	New Mexico Central	Desert Southwest	426	179,220
WREZ NVCT to Load CANO	Nevada Central	California North	400	168,331
WREZ NVCT to WREZ NVSO	Nevada Central	Nevada South	262	110,564
WREZ NVSO to WREZ CASO	Nevada South	California South	291	122,374
WREZ OREA to WREZ NVCT	Oregon East	Nevada Central	637	267,855
WREZ OREA to WREZ ORWE	Oregon East	Oregon West	247	103,757
WREZ ORWE to Load CANO	Oregon West	California North	643	270,072
WREZ ORWE to Load NWPP	Oregon West	Northwest Power Pool	223	93,576
WREZ UTCT to Load BASN	Utah Central	Interior Basin	315	132,160
WREZ UTCT to Load DSW	Utah Central	Desert Southwest	479	200,989
WREZ UTCT to Load RMPA	Utah Central	Rocky Mountain Region	558	234,804
WREZ UTCT to WREZ NVCT	Utah Central	Nevada Central	231	97,241
WREZ WYEA to Load RMPA	Wyoming East	Rocky Mountain Region	167	70,150
WREZ WYEA to WREZ IDEA	Wyoming East	Idaho East	533	224,383
WREZ WYEA to WREZ MTCT	Wyoming East	Montana Central	628	264,142
Total			10,182	4,280,962

¹Area of 3,500-foot total width buffer around corridor centerlines.

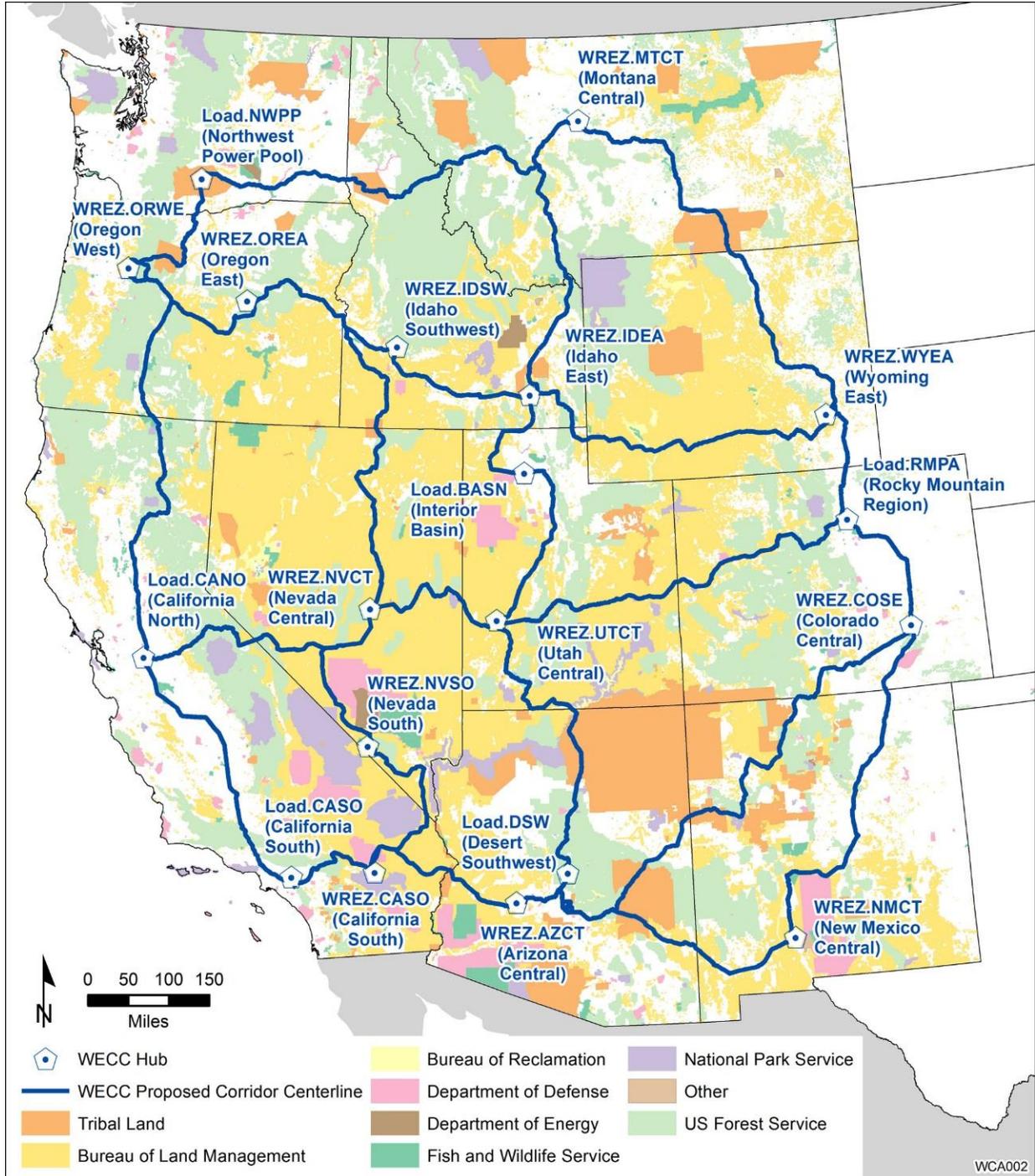


Figure 1.2 WECC Proposed Energy Corridors with Hub Locations, and Federal and Tribal Land Jurisdictions

2. Methods

The WECC results included Geographic Information System (GIS) data for 27 potential energy corridors connecting 19 hubs in the 11 western states (WECC 2014). GIS data for each corridor were provided in shapefile, comma-separated, and KML formats. Hubs used as corridor endpoints were provided as points with geographic coordinates. The corridor locations were specified as centerlines, using geographic coordinates. Corridor widths were not addressed in the WECC report or included in the data.

Argonne imported the shapefile data into a GIS layer in Environmental Systems Research Institute (ESRI) Personal Geodatabase format. The input corridor data were coded with category, value, and label fields. Using information in the WECC report, Argonne added corridor endpoint names to the lines, and lengths in meters and miles. The hubs were imported into a comma-separated file and converted to a GIS layer.

Previously designated Section 368 corridors had different widths in some cases; a default width of 3,500 feet was used during the PEIS process. The WECC potential energy corridor centerlines were buffered to a similar 3,500-foot total width, combined into one layer, and coded with the same information as the centerlines. A field for the corridor area in acres was added. The input WECC corridor centerlines sometimes cross or follow parallel paths. Accordingly, the corridor buffers overlap each other in these locations. Figure 2.1 depicts an example where several WECC corridors come together and overlap. Due to these overlaps, the combined area for the 27 corridor buffers is less than the sum of the area of each individual corridor.

For our analysis, the WECC Potential Energy Corridors were first compared to federal surface management agency data (Reitsma 2009) to tabulate the federal management agency, jurisdictional unit, corridor centerline length, and corridor area (assuming a 3,500-foot total corridor width) for each corridor. The BLM surface management agency data do not contain complete information for state and private land. Lengths and areas for these categories were combined in the results as “other non-federal” and were computed by subtracting all other categories from the total corridor areas. Results of this analysis are provided in Section 3.1.

In the second analysis, the WECC Potential Energy Corridors were compared to Section 368 Energy Corridors designated on BLM and USFS administered lands through agency-specific Records of Decision (Reitsma 2009; USFS 2009). GIS data for the designated corridors on BLM and USFS jurisdictions were created by Argonne, but were not publicly distributed (Argonne 2009). Section 368 energy corridors described as “Corridors of Concern” in the settlement agreement (USDC 2012) were also coded in a GIS layer (Argonne 2014) and are noted in the results of this analysis in Section 3.2.

Existing transmission lines were addressed in the third analysis to identify where the WECC Proposed Energy Corridors align with existing infrastructure. In many cases, it may be advantageous to site new projects parallel to existing rights of way to reduce greenfield development and leverage previous siting analyses. Platts (2014) transmission line data were buffered to a total 3,500-foot width, then intersected with WECC Proposed Energy Corridor centerlines to identify extents following an existing electrical

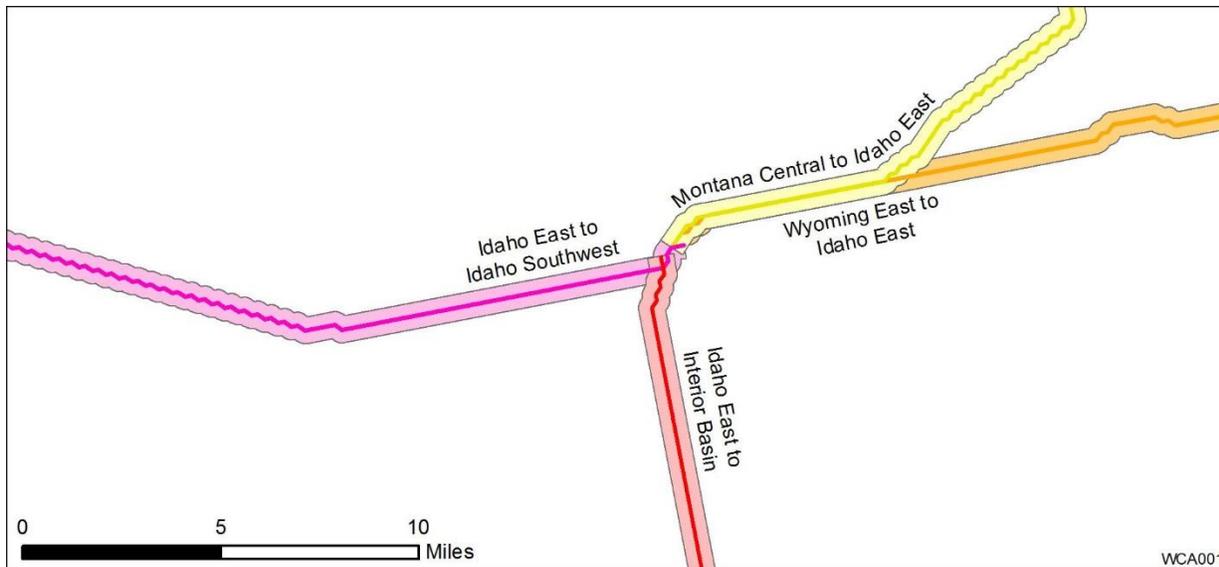


Figure 2.1 Large-Scale View of WECC Potential Energy Corridors with an Example of Overlapping Centerlines and Areas

transmission ROW. Results from this analysis are provided in Section 3.3. It is acknowledged that this analysis does not include ROWs that have been permitted, but that do not have existing infrastructure. Following other ROWs, such as roads, railroads, and pipelines could also be beneficial.

During the development of the agency-specific Records of Decision from the Energy Corridor PEIS, some potential corridors were identified and analyzed, but ultimately were not designated. In the fourth analysis, these undesignated corridors were compared to the WECC Proposed Energy Corridors to help assess whether the prior work includes helpful insights related to the new corridors. Several data sources were used in this analysis:

- Portions of corridors that were studied in the Final PEIS but were within the jurisdictions of federal agencies that did not issue a Record of Decision to designate them. These agencies include the Bureau of Reclamation, Department of Defense, Fish and Wildlife Service, National Park Service, Department of Energy, and Department of Agriculture. These areas were isolated as a subset of the “sec368zone_atts” layer in WVEC.gdb (Argonne 2008).
- Portions of corridors that were studied in the Final PEIS and were on Bureau of Land Management jurisdictions, but were omitted in the BLM Record of Decision (Reitsma 2009). These areas were taken from the “sec368zone_atts” layer in WVEC.gdb (Argonne 2008).
- Portions of corridors that were studied in the Draft PEIS, but removed from consideration in the Final PEIS. These areas were isolated as a subset of the “sec368zone_070715_080905_changes” layer in WVEC.gdb (Argonne 2008).

The three sets of areas were intersected with the 3,500-foot buffers of the WECC Proposed Energy Corridor centerlines to determine areas of overlap. Results from this analysis are provided in Section 3.4. While agencies other than BLM and USFS did not designate Section 368 corridors, some corridors previously designated by the National Park Service (NPS) and other agencies were included as proposed Section 368 corridors in the Final Corridor PEIS, such as corridor 47-231 in Lake Mead National

Recreation Area (designated by NPS) and corridor 136-277 in Curecanti National Recreation Area (designated by NPS). Previously designated corridors such as these were not compared to the WECC Proposed Energy Corridors in this report.

Finally, an initial screening of the WECC Proposed Energy Corridors was performed by comparing the centerlines and 3,500-foot buffers with the Protected Areas Database of the United States (PAD-US) from the U.S Geological Survey (USGS 2012). Both the centerlines and the 3,500-foot width buffers were intersected with the protected areas database areas, and the overlaps were tabulated. The PAD-US lists the administrative agency and jurisdiction name for each parcel, along with two systems of conservation measure:

- Gap Analysis Program (GAP) Status Code, a conservation measure of each parcel based on protection level categories that provide a measure of management intent for the long-term protection of biodiversity, and
- International Union for the Conservation of Nature (IUCN) Category, a globally interoperable conservation measure required for a protected area's inclusion into the World Database for Protected Areas from the United Nations Environment Program, World Conservation Monitoring Centre.

WECC used an environmental risk classification in their cost surface maps used to generate corridor route alternatives. The WECC approach included sensitive habitat and other data beyond the scope of the PAD-US; therefore the PAD-US analysis presented in this report is only a first step in screening for potential environmental concerns along the proposed WECC routes.

To facilitate continued analysis of the corridors, the GIS data provided by WECC and processed by Argonne for this study were compiled in a new database, and a GIS project to view these data was prepared. The files were provided as an addendum to this report, with the exception of the Platts (2014) transmission line data, which cannot be redistributed. The GIS projects were provided in ESRI ArcGIS and ESRI ArcReader formats. ESRI ArcGIS is a commercially licensed GIS application, and ESRI ArcReader can be downloaded from <http://www.esri.com/software/arcgis/arcreader/download> and installed without cost. Appendix A describes how to install and use ArcReader with the provided files.

This page intentionally left blank.

3. Results

The following sections describe the results of the five analyses. Table 3.1 provides the total centerline length of the WECC Proposed Energy Corridors, and total area of the 3,500-foot buffer, by state. Due to overlaps between different WECC corridor buffers, the areas in this table are less than the sum of the individual corridor areas. Additional tables are provided in Appendices B through D, and the map atlas in Appendix E provides results in a geographic context.

Table 3.1 Total Length and 3,500-foot Buffer Area of the WECC Proposed Energy Corridors, by State

State Name	Centerline Length (Miles)	Area ¹ of 3,500-foot Width Buffer (Acres)
Arizona	1,051	388,434
California	1,404	570,422
Colorado	854	356,281
Idaho	980	405,084
Montana	847	317,534
Nevada	1,076	411,695
New Mexico	884	371,578
Oregon	1,040	334,105
Utah	977	409,587
Washington	261	109,817
Wyoming	806	332,556
Total	10,182	4,007,093
¹ Due to overlaps between different WECC corridor buffers, the areas in this table are less than the sum of the individual corridor areas.		

3.1 Federal Lands

The WECC Potential Energy Corridors are listed below with the centerline length (Table 3.1.1), and area (Table 3.1.2) overlapping federal and non-federal jurisdictions. The corridor centerlines cross:

- 6,952 miles in non-federal land (including tribal land),
- 2,023 miles in land administered by the Bureau of Land Management (BLM),
- 7 miles in land administered by the Bureau of Reclamation (BOR),
- 70 miles in land administered by the Department of Defense (DOD),
- 12 miles in land administered by the U.S. Fish and Wildlife Service (FWS),
- 22 miles in land administered by the National Park Service (NPS),
- Less than 1 mile in land administered by the General Services Administration (GSA), and
- 1086 miles in land administered by the U.S. Forest Service (USFS).

When a 3,500-foot buffer around the centerlines is assumed, the total area covered by the WECC Proposed Energy Corridors is just over 4,007,093 acres. Approximately 68% of the corridor buffers fall on non-federal land, 20% on BLM, 10% on USFS, and less than 2% on other federal land. Section 368 corridors were only designated by BLM and USFS, with 90% of the designated Section 368 corridor being on BLM-administered land, and 10% on USFS-administered land. In comparison, the ratio of BLM- to USFS-administered land associated with the WECC Proposed Energy Corridors (2:1) is considerably less than the designated Section 368 corridors (9:1). Appendix B provides a listing of the information in Tables 3.1.1 and 3.1.2 in greater detail by adding subcategories of WECC Proposed Energy Corridor and State.

Figure 3.1.1 shows the portion of Montana where WECC Proposed Energy Corridor WREZ MTCT to Load NWPP intersects Blackfoot Valley Wildlife Management Area, administered by the FWS. This area is designated as a GAP Status 2 (Permanent Protection, Disturbance Events Suppressed), and IUCN Category IV (Habitat/Species Management Area) in the PAD-US. The FWS did not designate Section 368 corridors, and the few corridors proposed in the Corridor PEIS on FWS-administered lands were problematic due to the stronger land protection requirements in this agency's mission. The nearest Section 368 corridor is 229-254, designated as a 1000-foot width electric-only corridor predominantly on USFS-administered land, and following an existing Bonneville Power Administration 500-kV transmission line.

See Appendix E for state maps showing the full extent of the WECC Proposed Energy Corridors with federal lands, and the PAD-US. In Section 3.2, Figure 3.2.1 shows an example of a DOD-administered area crossed by two WECC Proposed Energy Corridors, and Section 3.5 provides further details about protected land intersections from the perspective of protection designation rather than federal agency.

Table 3.1.3 provides length and area statistics for the WECC Proposed Energy Corridors for three levels of BLM administrative units. Appendix C provides a more detailed listing of the BLM jurisdiction information for each WECC Proposed Energy Corridor. These boundaries encompass both BLM and non-BLM-administered lands, and are therefore listed separately for this agency. The table contains only the BLM-administered portions of the lands within the jurisdictional units. Cases where a WECC Proposed Energy Corridor falls within a BLM district or field office boundary, but does not intersect BLM-administered land, are omitted from the table. Nevada and Utah have the greatest amount of intersected BLM-administered land, consistent with the large proportion of BLM-administered lands in those states. BLM District and Field offices with over 50 miles of WECC Proposed Energy Corridors include the following:

- Battle Mountain District Office, Nevada (377 miles),
- Southern Nevada District Office, Nevada (166 miles),
- Needles Field Office, California (145 miles),
- Ely District Office, Nevada (138 miles),
- Fillmore Field Office, Utah (93 miles),
- Cedar City Field Office, Utah (89 miles),
- Las Cruces District Office, New Mexico (72 miles),
- Deschutes Field Office, Oregon (71 miles),

- Elko District Office, Nevada (62 miles), and
- Price Field Office, Utah (54 miles).

Appendix D provides a listing of the lengths and 3,500-foot buffer areas of the WECC Proposed Energy Corridors by corridor, state, federal or tribal organization, and parcel name. BLM lands are omitted due to the difference in naming systems for that agency.

Table 3.1.1 Centerline Lengths of WECC Potential Energy Corridors Tabulated by State and Management Jurisdiction

State	Total Length (Miles)	Other Non-Federal	Tribal	BLM	BOR	DOD	FWS	NPS	GSA	USFS
Arizona	1,051	513	225	67	1			10		236
California	1,404	961	4	195		57	5	1		180
Colorado	854	735		47	1	<1	<1			71
Idaho	980	609	98	155	2		<1		<1	116
Montana	847	741	60	24			6			16
Nevada	1,076	217	14	774						71
New Mexico	884	663	58	136		1		7		20
Oregon	1,040	559	39	120		12	<1			310
Utah	977	522	1	377		6		4		66
Washington	261	203	57	1						
Wyoming	806	673	<1	128	4	2				
Total	10,182	6,395	557	2,023	7	79	12	22	<1	1,086

Table 3.1.2 Area in Acres of WECC Potential Energy Corridors Tabulated by State and Management Jurisdiction, Assuming a 3,500-foot Total Corridor Width

State	Total Area ¹ (Acres)	Other Non-Federal	Tribal	BLM*	BOR	DOD	FWS	NPS	GSA	USFS
Arizona	388,434	181,613	94,354	29,429	377			4,087		78,574
California	570,422	389,368	1,846	78,567		22,206	2,938	290		75,206
Colorado	356,281	302,310		22,580	516	797	43	136		29,899
Idaho	405,084	250,256	41,115	64,997	528		300		40	47,848
Montana	317,534	272,713	24,990	9,235			2,614			7,982
Nevada	411,695	84,237	5,885	296,404	27	9				25,134
New Mexico	371,578	277,568	24,530	56,734	105	643		2,822		9,175
Oregon	334,105	168,558	16,477	48,343		2,346	322			98,059
Utah	409,587	215,096	616	160,141		2,816		1,720		29,198
Washington	109,817	84,776	24,320	582			138			1
Wyoming	332,556	275,291	10	54,374	1,744	959		154		23
Total	4,007,093	2,501,788	234,143	821,387	3,296	29,776	6,355	9,211	40	401,097

¹Due to overlaps between different WECC corridor buffers, the areas in this table are less than the sum of the individual corridor areas.

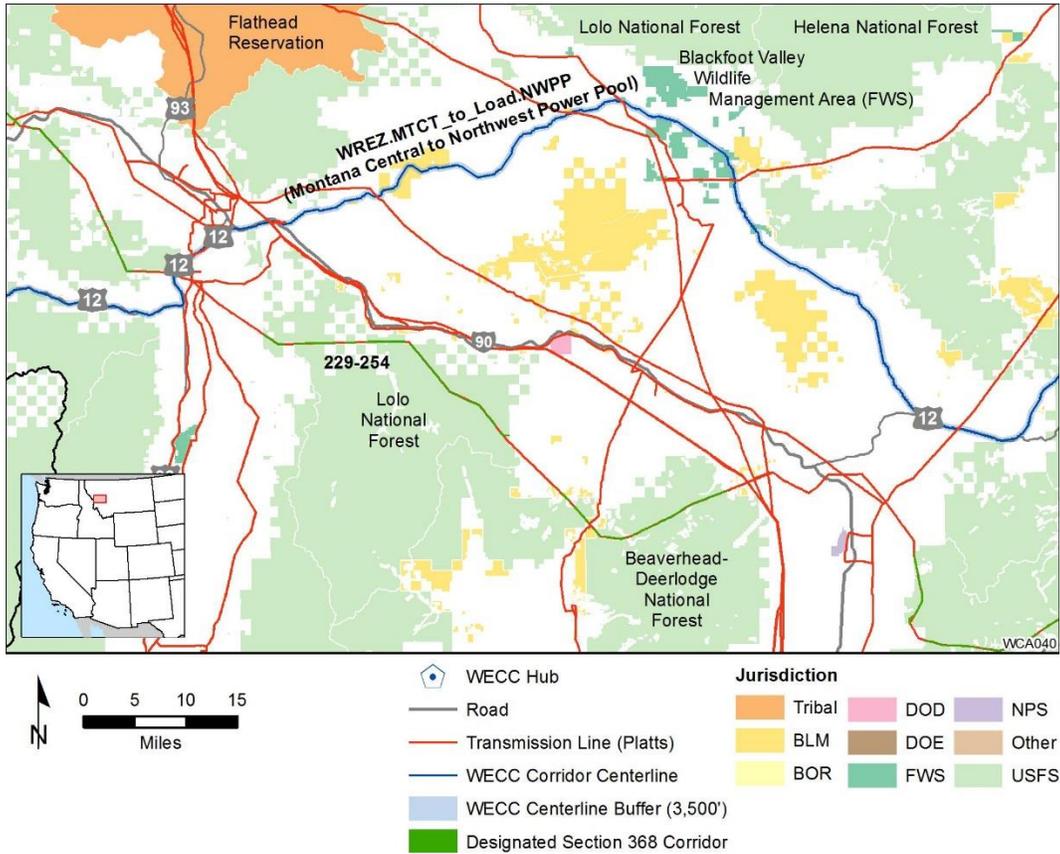


Figure 3.1.1 WECC Proposed Energy Corridor WREZ MTCT to Load NWPP in West Central Montana

Table 3.1.3 Total BLM-Administered Length and 3,500-foot Buffer Area of the WECC Proposed Energy Corridors, by Bureau of Land Management State, District, and Field Office

BLM State Office	BLM District Office	BLM Field Office	Centerline Length on BLM Land ¹ (Miles)	Area of 3,500-foot Width Buffer on BLM Land (Acres)
Arizona	Colorado River	Lake Havasu	34	15,001
		Yuma	N/A	113
	Gila	Safford	28	12,205
	Phoenix	Hassayampa	2	1,272
		Lower Sonoran	3	845
	Total			67
California	California Desert	Barstow	19	8,852
		Needles	145	55,655
		Palm Springs-South Coast	N/A	33
	Central California	Bishop	20	8,999
		Mother Lode	2	687
	Northern California	Alturas	9	3,996
		Eagle Lake	<1	48
		Redding	1	296
Total			195	78,565
Colorado	Front Range	San Luis Valley	4	1,602
		Royal Gorge	1	512
	Northwest	Colorado River Valley	16	9,652
		Grand Junction	21	8,847
		Kremmling	5	1,984
Total			47	22,598
Idaho	Boise	Bruneau	45	18,655
		Four Rivers	47	20,208
		Owyhee	13	5,592
	Idaho Falls	Pocatello	26	10,154
		Upper Snake	4	1,716
	Twin Falls	Burley	7	3,036
		Jarbidge	1	584
	Shoshone	11	5,053	
Total			155	64,997
Montana	Billings	Billings	N/A	2
	Western Montana	Butte	12	3,997
		Dillon	4	1,566
		Missoula	7	3,029
	Central Montana	Lewistown	2	641
Total			24	9,235

Table 3.1.3 (Cont.)

BLM State Office	BLM District Office	BLM Field Office	Centerline Length on BLM Land¹ (Miles)	Area of 3,500-foot Width Buffer on BLM Land (Acres)
Nevada	Battle Mountain	Mount Lewis, Tonopah	377	126,415
	Carson City	Stillwater	30	12,528
	Elko	Tuscarora, Wells	62	28,245
	Ely	Caliente, Egan, Schell	138	58,313
	Southern Nevada	Las Vegas, Pahrump, Red Rocks/Sloan	166	70,903
Total			774	296,404
New Mexico	Albuquerque	Rio Puerco	17	7,147
		Socorro	34	14,559
	Farmington	Farmington	6	2,841
		Taos	5	1,904
	Las Cruces	N/A	72	29,667
	Pecos	Roswell	2	617
Total			136	56,735
Oregon/ Washington	Burns	Three Rivers	12	4,876
	Lakeview	Klamath Falls	N/A	2
	Prineville	Central Oregon	22	8,206
		Deschutes	71	29,794
	Salem	Cascades	11	4,445
	Spokane	Border	1	465
		Wenatchee	<1	117
	Vale	Baker	4	882
Malheur		N/A	138	
Total			121	48,926
Utah	Canyon Country	Moab	48	20,846
		Cedar City	89	37,360
	Color Country	Kanab	14	6,420
		Richfield	6	2,575
	Green River	Price	54	22,495
	N/A	Grand Staircase-Escalante NM	28	12,028
	West Desert	Fillmore	93	39,233
		Salt Lake	45	19,158
Total			377	160,116

Table 3.1.3 (Cont.)

BLM State Office	BLM District Office	BLM Field Office	Centerline Length on BLM Land ¹ (Miles)	Area of 3,500-foot Width Buffer on BLM Land (Acres)
Wyoming	High Desert	Kemmerer	17	8,882
		Rawlins	48	20,951
		Rock Springs	31	13,952
	High Plains	Buffalo	2	1,024
		Casper	29	9,567
		Total	128	54,376
¹ N/A for centerline length indicates locations where the previously studied corridor does not overlap the centerline, but does overlap a portion of the 3,500-foot corridor buffer.				

3.2 Existing Section 368 Corridors

The WECC Potential Energy Corridors were compared to the Section 368 Energy Corridors designated on BLM and USFS administered lands through agency-specific Records of Decision (Reitsma 2009; USFS 2009). Figure 3.2.1 shows the WECC Proposed Energy Corridors, Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions. Table 3.2.1 lists the locations where WECC Proposed Energy Corridor centerlines and 3,500-foot buffers intersect the designated Section 368 corridors. In many cases the intersections are insignificant, such as perpendicular crossings, but in other cases, portions of the Section 368 corridors corresponded closely to portions of the WECC Potential Energy Corridors. The designation of specific corridors was challenged in United States District Court by a group of plaintiffs led by The Wilderness Society, in part identifying a list of potential environmental concerns for many of the corridors. A settlement was reached in 2012 (USDC 2012). Exhibit A of the settlement lists specific Section 368 “Corridors of Concern” with a brief summary of the concerns. These corridors of concern are noted in Table 3.2.1, footnote 2. The concerns listed in the settlement agreement for the Section 368 Corridors that intersect WECC Proposed Energy Corridors are listed in Table 3.2.2.

WECC Proposed Energy Corridors WREZ NVSO to WREZ CASO and WREZ AZCT to WREZ CASO overlap Section 368 Corridor 27-41 in southern California, north of Twentynine Palms Marine Corps Base (DOD). The two WECC corridors then turn to the south through the Marine Corps base. Based on DOD participation during the Corridor PEIS project, there may be considerable resistance to having a corridor cross the base due to security and mission requirements. Figure 3.2.2 shows this portion of the corridors, with land jurisdictions, electrical transmission lines, and major roads. Nearby, to the northeast, another portion of WECC Proposed Energy Corridor WREZ NVSO to WREZ CASO follows a path somewhat similar to Section 368 Corridor 27-41 south of Mojave Desert Preserve (NPS), crossing in three locations and following a similar path over short distances. Figure 3.2.3 shows this region.

The southern end of WECC Proposed Energy Corridor WREZ NVCT to WREZ NVSO has a very small centerline overlap of 2 miles with Section 368 Corridor 18-224 but a larger overlap of 6,469 acres with the 3,500-foot buffer. In this area the WECC Proposed Energy Corridor is parallel to the Section 368

corridor, but the centerline is north of I-95 in most places; the Section 368 corridor follows the south side of I-95 and part of a Sierra Pacific Power Company 345-kV transmission line. (The Platts [2014] data indicate the location of this transmission line is not verified to be within 1 mile of its mapped location.) To the northeast, the Section 368 corridor turns due north, while the WECC Proposed Energy Corridor continues follows the path of the transmission line. Figure 3.2.4 shows this location.

As a final example of correlation between the WECC and Section 368 corridors, Figure 3.2.5 shows WECC Proposed Energy Corridor WREZ UTCT to WREZ NVCT and Section 368 Corridor 110-114. The corridors follow a similar path in western Utah, but diverge near the Nevada border. The Section 368 corridor angles north, then turns west along an Intermountain Power Agency 230-kV transmission line, while the WECC corridor angles northeast, then follows US-6. This Section 368 corridor was also flagged as a corridor of concern, with the identified issues being much undisturbed area, a National Historic Place, a BLM Wilderness Study Area, and Utah-proposed Wilderness.

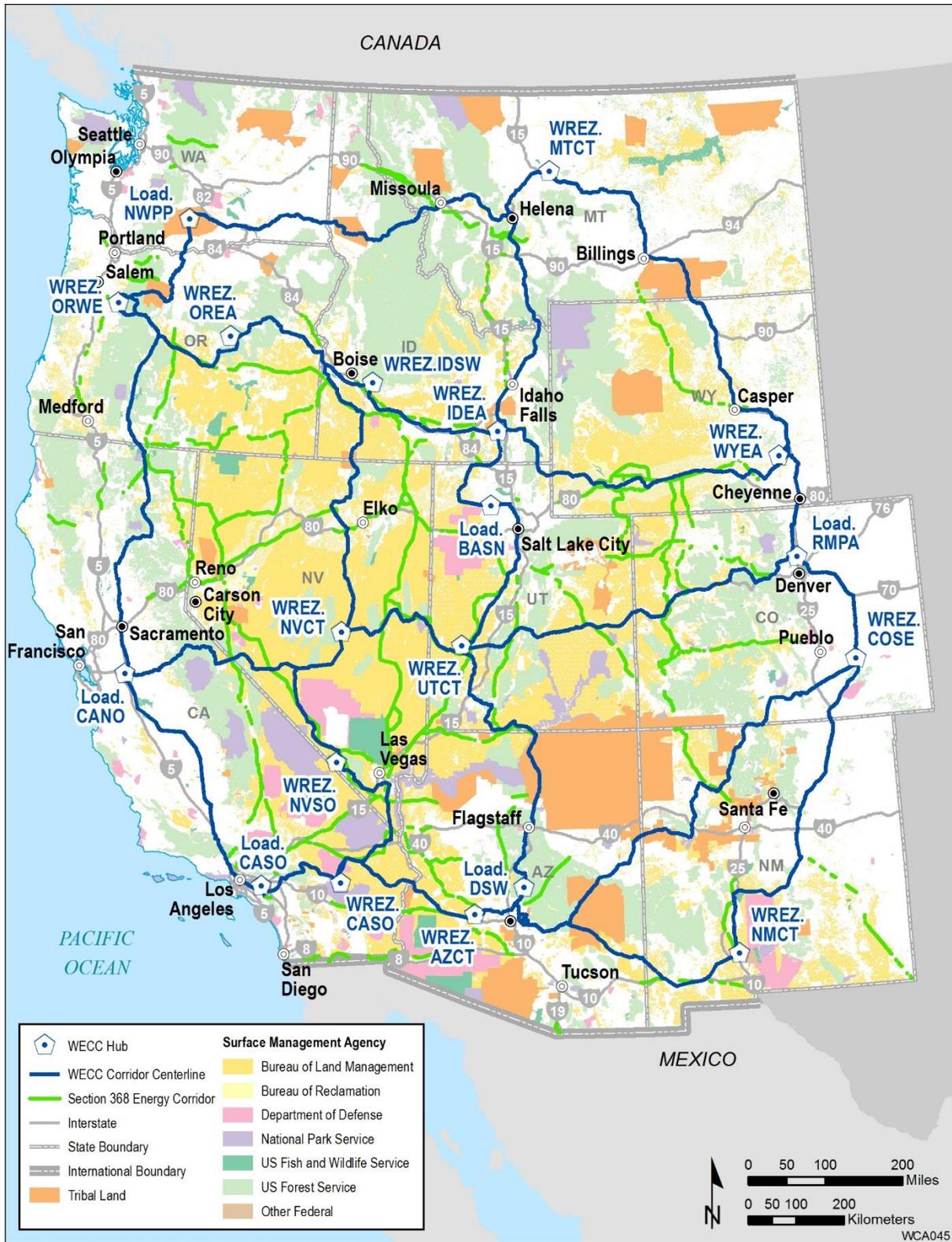


Figure 3.2.1 WECC Proposed Energy Corridors with Designated Section 368 Energy Corridors, and Federal Agency Land Jurisdictions

**Table 3.2.1 Intersections of WECC Proposed Energy Corridor Centerlines and
3,500-foot Buffers with Designated Section 368 Corridors**

WECC Proposed Energy Corridor	Designated Section 368 Corridor	Intersecting Centerline Length ¹ (Miles)	Intersecting Area (Acres)
WREZ AZCT to WREZ CASO	27-41	10	2,703
	30-52	<1	962
WREZ COSE to Load DSW	80-273	<1	150
WREZ COSE to WREZ NMCT	81-272 ²	N/A	34
WREZ IDEA to WREZ IDSW	29-36	<1	47
	112-226	N/A	97
WREZ IDSW to WREZ OREA	29-36	N/A	13
WREZ MTCT to WREZ IDEA	51-204	1	494
WREZ NVCT to Load CANO	18-23 ²	1	311
	18-224	1	379
WREZ NVCT to WREZ NVSO	18-224	2	6,469
	224-225	N/A	60
WREZ NVSO to WREZ CASO	27-41	10	6,220
	39-231 ²	<1	55
	47-231 ²	<1	171
	224-225	1	421
WREZ OREA to WREZ NVCT	17-35 ²	1	669
	36-228	<1	1,389
WREZ OREA to WREZ ORWE	7-11	1	204
	11-228	2	1027
WREZ ORWE to Load CANO	3-8	1	496
WREZ UTCT to Load BASN	114-241	1	480
WREZ UTCT to Load DSW	110-114 ²	<1	1,311
	114-241	1	163
WREZ UTCT to Load RMPA	114-241	1	219
WREZ UTCT to Load RMPA	66-212 ²	2	954
	132-136	<1	333
	132-276	N/A	0
WREZ UTCT to WREZ NVCT	110-114 ²	4	4,305
	110-233 ²	1	236

Table 3.2.1 (Cont.)

WECC Proposed Energy Corridor	Designated Section 368 Corridor	Intersecting Centerline Length¹ (Miles)	Intersecting Area (Acres)
WREZ WYEA to WREZ IDEA	73-129	N/A	260
	121-240	<1	237
	129-218	1	1,336
¹ N/A for centerline length indicates locations where the previously studied corridor does not overlap the centerline, but it does overlap a portion of the 3,500-foot corridor buffer. ² Listed as a corridor of concern in settlement agreement (USDC 2012).			

Table 3.2.2 Section 368 Corridors of Concern Having Intersections with WECC Proposed Energy Corridors (USDC 2012)

State	Designated Section 368 Corridor	Concern Listed in Settlement Agreement
Arizona	47-231	Desert tortoise and bonytail critical habitat, Area of Critical Environmental Concern (ACEC), Lake Mead National Recreation Area
California	18-23	Areas of Critical Environmental Concern, Inventoried Roadless Areas, BLM Wilderness Study Areas, California Boxer Wilderness, California-proposed Wilderness, Nevada-proposed Wilderness, sage-grouse habitat, redundant to 18-224
Nevada	17-35	Access to coal plant, impacts to sage-grouse habitat
	39-231	Pahranagat National Wildlife Refuge, Rainbow Gardens ACEC, near proposed Gold Butte National Conservation Area, Black Mountain tortoise habitat
	110-114	Sage-grouse habitat, undisturbed, USFS Inventoried Roadless Area
	110-233	Sage-grouse habitat
New Mexico	81-272	Sevilleta National Wildlife Refuge, National Conservation Areas
Utah	66-212	Access to coal plant, impacts to National Historic Places, America's Byways, Old Spanish Trail, BLM Wilderness Study Area, Utah-proposed Wilderness, critical habitat, adjacent to Arches National Park
	110-114	Much undisturbed, National Historic Place, BLM Wilderness Study Area, Utah-proposed Wilderness

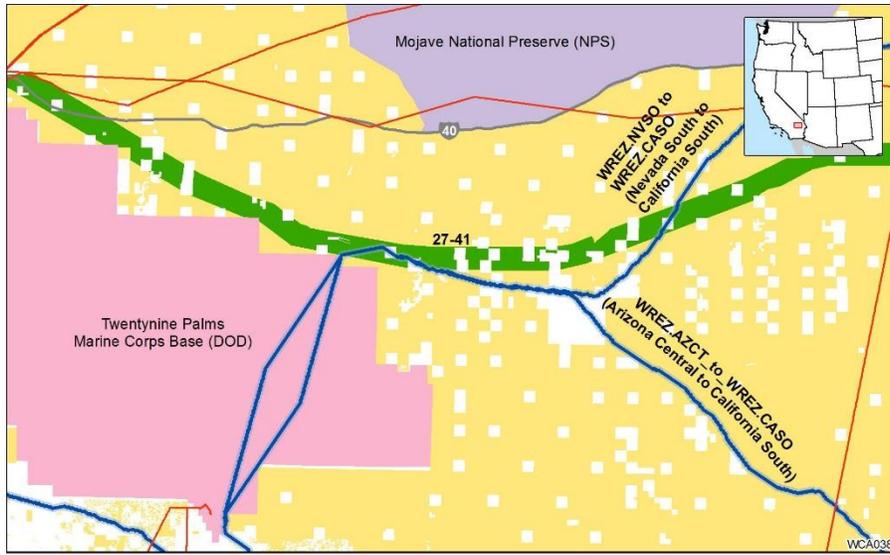


Figure 3.2.2 WECC Proposed Energy Corridors WREZ NVSO to WREZ CASO and WREZ AZCT to WREZ CASO in Southeastern California in the Vicinity of Mojave National Preserve and Twenty-nine Palms Marine Corps Base

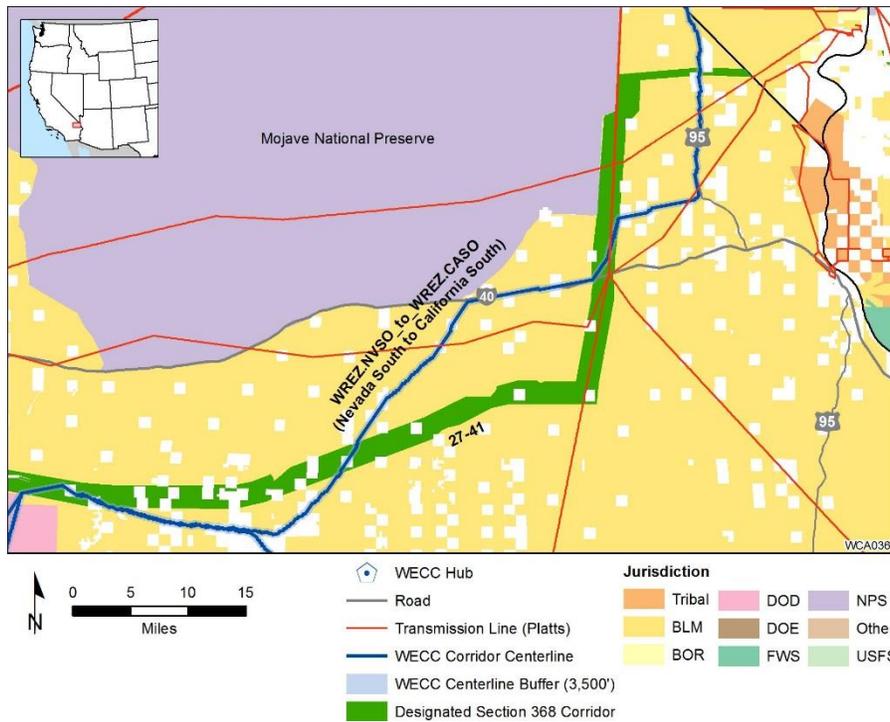


Figure 3.2.3 WECC Proposed Energy Corridor WREZ NVSO to WREZ CASO in Southeastern California in the Vicinity of Mojave Desert Preserve



Figure 3.2.4 WECC Proposed Energy Corridor WREZ NVCT to WREZ NVSO in Southwestern Nevada in the Vicinity of the Nevada Test Site

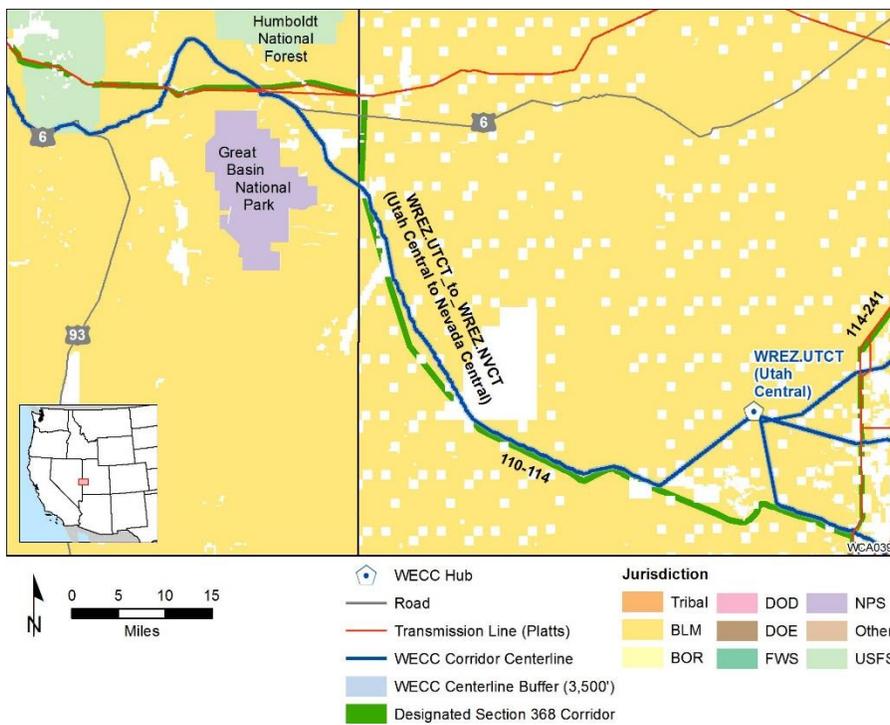


Figure 3.2.5 WECC Proposed Energy Corridor WREZ UTCT to WREZ NVCT along the Central East Nevada/West Utah Border, in the Vicinity of Great Basin National Park

3.3 Existing Transmission Lines

Analysis in this section investigates the portions of WECC Proposed Energy Corridors that coincide with existing transmission lines on federal land. In these cases, there would be an existing electric transmission ROW. Designating a corridor in these locations would be likely to facilitate collocating additional projects, to potentially reduce the complexity of the planning process, and to reduce the number of new ROW paths on the landscape. The state and management jurisdiction cross-tabulations in Tables 3.3.1 and 3.3.2 are similar to those in Tables 3.1.1 and 3.1.2, except that the tables in this section list only the subset of WECC Potential Energy Corridors that intersect existing electrical transmission lines.

For the WECC Proposed Energy Corridors as a whole, 4% of the centerline length and 4% of the 3,500-foot buffer area intersects existing transmission lines on federal jurisdictions. In comparison, approximately 66% of the corridor centerlines in the Final Corridor PEIS were associated with electrical transmission lines.

Figure 3.1.1 in the Federal Land Section provides a good example of correlating the corridors to electrical transmission lines. The Section 368 corridor in the figure is 229-254, designated as a 1000-foot-wide electric-only corridor predominantly on USFS-administered land, following an existing Bonneville Power Administration 500-kV transmission line. In this area, a small fraction of the WECC Proposed Energy Corridor follows existing transmission lines.

Table 3.3.3 provides additional detail about the WECC Proposed Energy Corridor centerlines and 3,500-foot buffer area intersected by transmission lines, with information on each WECC Proposed Energy Corridor, State, Agency, and Management Unit having these intersections. Appendix E provides state maps of the WECC Proposed Energy Corridors with existing transmission lines.

Table 3.3.1 Centerline Lengths of WECC Potential Energy Corridors That Overlap with Platts Transmission Lines Tabulated by State and Management Jurisdiction

State	Length (Miles)	BLM	BOR	DOD	FWS	NPS	GSA	USFS
Arizona	47	7				3		37
California	33	9		1	<1	<1		22
Colorado	19	14		<1	<1			5
Idaho	26	13	1				<1	12
Montana	9	3			1			5
Nevada	146	117	<1					29
New Mexico	24	24						
Oregon	75	14		6				55
Utah	30	24		3				3
Washington	<1	<1						
Wyoming	23	23						
Total	431	249	1	10	1	3	<1	167

**Table 3.3.2 Area in Acres of WECC Potential Energy Corridors That Overlap with
Platts Transmission Lines, Tabulated by State, and Management Jurisdiction,
assuming a 3,500-foot Total Corridor Width**

State	Total Area (Acres)	BLM	BOR	DOD	FWS	NPS	GSA	USFS
Arizona	17,142	2,226	47			636		14,233
California	11,627	2,967		385	229	106		7,940
Colorado	7,193	5,246	9	102	32			1,804
Idaho	8,702	4,726	177		26		13	3,760
Montana	3,160	1,018			289			1,853
Nevada	47,420	38,616	27					8,777
New Mexico	4,985	4,971	14					<1
Oregon	19,461	4,336		862				14,263
Utah	11,223	8,490		1,001				1,732
Washington	97	72			24			1
Wyoming	7,466	7,464				2		
Total	138,475	80,132	273	2,351	600	744	13	54,362

Table 3.3.3 Area in Acres and Length in Miles of WECC Potential Energy Corridors That Overlap with Platts Transmission Lines, Tabulated by State, Management Jurisdiction, and Managing Unit, Assuming a 3,500-foot Total Corridor Width

Label	State	Federal Agency or Tribal	Management Unit	Length	Area
				(Miles)	(Acres) ¹
Load CANO to Load CASO	California	NPS	Santa Monica Mountains National Recreation Area	1	106
		USFS	Angeles National Forest	4	882
			Cleveland National Forest	N/A	640
			Los Padres National Forest	<1	61
			Total	5	1,689
WREZ AZCT to Load DSW	Arizona	BLM	Arizona State Office, Phoenix District Office, Hassayampa Field Office	N/A	1
		USFS	Tonto National Forest	8	3,206
			Total	8	3,207
WREZ AZCT to WREZ CASO	Arizona	BLM	Arizona State Office, Colorado River District Office, Lake Havasu Field Office	1	140
		Tribal	Colorado River Reservation	2	259
	California	BLM	California State Office, Desert District Office, Needles Field Office	1	511
		Tribal	Colorado River Reservation	1	362
			Total	5	1,272
WREZ CASO to Load CASO	California	BLM	California State Office, Desert District Office, Barstow Field Office	<1	211
		DOD	Twentynine Palms Marine Corps Base	1	385
		USFS	Cleveland National Forest	N/A	677
		USFS	San Bernardino National Forest	<1	60
			Total	1	1,122
WREZ COSE to Load DSW	Arizona	BLM	Arizona State Office, Gila District Office, Safford Field Office	N/A	57
			Arizona State Office, Phoenix District Office, Lower Sonoran Field Office	<1	195
		Tribal	Navajo Reservation	N/A	169
			Salt River Reservation	3	602
		USFS	Tonto National Forest	12	5,039
	Colorado	BLM	Colorado State Office, Front Range District Office, Royal George Field Office	<1	228
		FWS	Alamosa National Wildlife Refuge	<1	32
		USFS	Rio Grande National Forest	N/A	5
	New Mexico	BLM	New Mexico State Office, Albuquerque District Office, Rio Puerco Field Office	1	462
			New Mexico State Office, Farmington District Office, Farmington Field Office	1	458
		BOR	El Vado Reservoir	N/A	14
		Tribal	Jicarilla Apache Reservation	N/A	18
			Navajo Reservation	N/A	3
			Navajo Reservation (Ramah)	<1	116
USFS	Zuni Reservation	11	3,876		
USFS	Santa Fe National Forest	N/A	-		
			Total	30	13,729

Table 3.3.3 (Cont.)

Label	State	Agency	Management Unit	Length	Area
				(Miles)	(Acres) ¹
WREZ COSE to WREZ NMCT	Colorado	DOD	Fort Carson Military Reservation	<1	100
	New Mexico	BLM	New Mexico State Office, Albuquerque District Office, Socorro Field Office	1	308
			New Mexico State Office, Las Cruces District Office	N/A	36
Total				1	444
WREZ IDEA to WREZ IDSW	Idaho	BLM	Idaho State Office, Boise District Office, Four Rivers Field Office	5	1,600
			Idaho State Office, Twin Falls District Office, Jarbidge Field Office	1	160
			Idaho State Office, Twin Falls District Office, Shoshone Field Office	3	799
		Other	General Services Administration GSA	<1	13
	BOR	Minidoka Project	1	177	
Total				10	2,749
WREZ IDSW to WREZ OREA	Idaho	BLM	Idaho State Office, Boise District Office, Four Rivers Field Office	<1	365
		FWS	Deer Flat National Wildlife Refuge	N/A	19
	Oregon	BLM	Oregon State Office, Prineville District Office, Central Oregon Field Office	N/A	73
			Oregon State Office, Vale District Office, Baker Field Office	1	536
			Oregon State Office, Vale District Office, Malheur Field Office	<1	53
	USFS	Malheur National Forest	5	3,214	
		Wallowa-Whitman National Forest	2	9	
Total				8	4,269
WREZ MTCT to Load NWPP	Idaho	Tribal	Nez Perce Reservation	11	3,607
	Montana	BLM	Montana State Office, Western Montana District Office, Butte Field Office	1	383
			Montana State Office, Western Montana District Office, Missoula Field Office	1	271
		FWS	Blackfoot Valley Wildlife Management Area	1	289
	Washington	BLM	Oregon State Office, Spokane District Office, Border Field Office	<1	31
			Oregon State Office, Spokane District Office, Wenatchee Field Office	N/A	41
		FWS	McNary National Wildlife Refuge	N/A	24
		Tribal	Yakama Reservation	6	2,229
		USFS	Umatilla National Forest	N/A	1
	Total				20

Table 3.3.3 (Cont.)

Label	State	Agency	Management Unit	Length	Area
				(Miles)	(Acres) ¹
WREZ MTCT to WREZ IDEA	Idaho	BLM	Idaho State Office, Idaho Falls District Office, Pocatello Field Office	2	742
			Idaho State Office, Idaho Falls District Office, Upper Snake Field Office	<1	26
		Tribal	Fort Hall Reservation	4	1,611
		USFS	Caribou-Targhee National Forest	10	3,389
	Montana	BLM	Montana State Office, Western Montana District Office, Butte Field Office	2	747
		USFS	Beaverhead-Deerlodge National Forest	<1	13
Total				18	6,528
WREZ NMCT to Load DSW	Arizona	BLM	Arizona State Office, Gila District Office, Safford Field Office	5	1,710
			Arizona State Office, Phoenix District Office, Lower Sonoran Field Office	1	319
		Tribal	Fort McDowell Reservation	N/A	2
			Salt River Reservation	7	2,600
	USFS	Tonto National Forest	14	5,166	
	New Mexico	BLM	New Mexico State Office, Las Cruces District Office	22	3,707
Total				49	13,504
WREZ NVCT to Load CANO	California	BLM	California State Office, Central California District Office, Bishop Field Office	N/A	39
		USFS	Stanislaus National Forest	<1	127
	Nevada	BLM	Nevada State Office, Battle Mountain District Office, Tonopah Field Office	120	41,701
			Nevada State Office, Carson City District Office, Stillwater Field Office	4	655
			Nevada State Office, Southern Nevada District Office, Pahrump Field Office	29	6,329
		USFS	Toiyabe National Forest	49	13,492
Total				202	62,343
WREZ NVSO to WREZ CASO	California	BLM	California State Office, Desert District Office, Needles Field Office	8	2,159
	Nevada	BLM	Nevada State Office, Southern Nevada District Office, Las Vegas Field Office	28	6,723
			Nevada State Office, Southern Nevada District Office, Red Rocks/Sloan Field Office	2	161
		BOR	Lake Mead	<1	27
Total				38	9,070
WREZ OREA to WREZ NVCT	Idaho	BLM	Idaho State Office, Boise District Office, Bruneau Field Office	N/A	128
			Idaho State Office, Boise District Office, Four Rivers Field Office	1	2
			Idaho State Office, Boise District Office, Owyhee Field Office	1	246

Table 3.3.3 (Cont.)

Label	State	Agency	Management Unit	Length	Area	
				(Miles)	(Acres) ¹	
	Nevada	FWS	Deer Flat National Wildlife Refuge	N/A	26	
		BLM	Nevada State Office, Battle Mountain District Office, Mount Lewis Field Office	2	549	
			Nevada State Office, Elko District Office, Tuscarora Field Office	2	762	
	Oregon	BLM	Oregon State Office, Prineville District Office, Central Oregon Field Office	N/A	73	
			Oregon State Office, Vale District Office, Baker Field Office	1	536	
			Oregon State Office, Vale District Office, Malheur Field Office	<1	53	
		USFS	Malheur National Forest	5	2,359	
	Wallowa-Whitman National Forest		2	865		
				Total	14	5,599
WREZ OREA to WREZ ORWE	Oregon	BLM	Oregon State Office, Burns District Office, Three Rivers Field Office	2	894	
			Oregon State Office, Prineville District Office, Central Oregon Field Office	N/A	2	
			Oregon State Office, Prineville District Office, Deschutes Field Office	2	336	
					Total	4
WREZ ORWE to Load CANO	California	BLM	California State Office, Central California District Office, Folsom Field Office	N/A	48	
			FWS	Stone Lakes National Wildlife Refuge	<1	168
		Tule Lake National Wildlife Refuge		N/A	61	
		USFS	Lassen National Forest	14	5,101	
			Modoc National Forest	3	1,027	
			Oregon	BLM	Oregon State Office, Prineville District Office, Deschutes Field Office	6
		Oregon State Office, Salem District Office, Cascades Field Office			N/A	12
	DOD	Detroit Lake, ACE		6	668	
		Kingsley Field Air National Guard Base	1	154		
	Tribal	Klamath Reservation	N/A	22		
		USFS	Deschutes National Forest	1	1,027	
			Fremont-Winema National Forests	1	619	
			Willamette National Forest	4	918	
			Total	36	11,706	
WREZ ORWE to Load NWPP	Oregon	BLM	Oregon State Office, Prineville District Office, Deschutes Field Office	4	549	
			Oregon State Office, Salem District Office, Cascades Field Office	N/A	12	
		DOD	Detroit Lake, ACE	6	708	
		Tribal	Warm Springs Reservation	12	3,433	
		USFS	Mt. Hood National Forest	12	2,482	
			Willamette National Forest	35	6,779	
			Total	69	13,963	

Table 3.3.3 (Cont.)

Label	State	Agency	Management Unit	Length	Area
				(Miles)	(Acres) ¹
WREZ UTCT to Load BASN	Utah	BLM	Utah State Office, West Desert District Office, Fillmore Field Office	13	3,959
			Utah State Office, West Desert District Office, Salt Lake Field Office	1	467
		DOD	Camp Williams	1	316
			Hill Air Force Base	1	359
			Little Mountain Test Annex	1	208
		Total	17	5,309	
WREZ UTCT to Load DSW	Arizona	NPS	Glen Canyon National Recreation Area	2	270
			Wupatki National Monument	1	366
		BOR	Lake Powell	N/A	47
		Tribal	Navajo Reservation	24	7,772
		USFS	Coconino National Forest	11	4,268
	Tonto National Forest		10	4,191	
	Utah	BLM	Utah State Office, Color Country District Office, Cedar City Field Office	1	468
			Utah State Office, Grand Staircase-Escalante NM Field Office	1	673
		Total	50	18,055	
WREZ UTCT to Load RMPA	Colorado	BLM	Colorado State Office, Northwest District Office, Colorado River Valley Field Office	5	2,177
			Colorado State Office, Northwest District Office, Grand Junction Field Office	7	2,664
			Colorado State Office, Northwest District Office, Kremmling Field Office	1	177
		BOR	Green Mountain Reservoir	N/A	9
		USFS	Arapaho and Roosevelt National Forest	1	285
	White River National Forest		4	1,507	
	Utah	BLM	Utah State Office, Canyon Country District Office, Moab Field Office	5	1,850
			Utah State Office, Color County District Office, Cedar City Field Office	2	478
			Utah State Office, Color County District Office, Richfield Field Office	<1	68
			Utah State Office, Green River District Office, Price Field Office	1	508
		DOD	Utah Launch Complex White Sands Missile	N/A	119
Tribal	Kanosh Reservation	1	240		
USFS	Fishlake National Forest	3	1,732		
		Total	30	11,814	
WREZ UTCT to WREZ NVCT	Nevada	BLM	Nevada State Office, Ely District Office, Schell Field Office	3	965
		Total	3	965	

Table 3.3.3 (Cont.)

Label	State	Agency	Management Unit	Length	Area
				(Miles)	(Acres) ¹
WREZ WYEA to Load RMPA	Colorado	USFS	Arapaho and Roosevelt National Forest	N/A	6
	Wyoming	BLM	Wyoming State Office, Wyoming High Plains District Office, Casper Field Office	<1	39
			Total	<1	45
WREZ WYEA to WREZ IDEA	Idaho	BLM	Idaho State Office, Idaho Falls District Office, Pocatello Field Office	3	909
		USFS	Caribou-Targhee National Forest	1	371
	Utah	BLM	Utah State Office, West Desert District Office, Salt Lake Field Office	0	19
	Wyoming	BLM	Wyoming State Office, High Desert District Office, Kemmerer Field Office	8	2,641
			Wyoming State Office, High Desert District Office, Rawlins Field Office	7	2,508
			Wyoming State Office, High Desert District Office, Rock Springs Field Office	3	953
			Wyoming State Office, High Plains District Office, Casper Field Office	4	1,002
		NPS	Fossil Butte National Monument	N/A	2
		Total	26	8,405	
WREZ WYEA to WREZ MTCT	Montana	Tribal	Crow Reservation	4	831
		USFS	USFS Other Montana	5	1,840
	Wyoming	BLM	Wyoming State Office, Wyoming High Plains District Office, Buffalo Field Office	N/A	17
			Wyoming State Office, Wyoming High Plains District Office, Casper Field Office	2	304
		Total	11	2,992	
		Grand Total	166,224	655	

¹ N/A for centerline length indicates locations where the previously studied corridor does not overlap the centerline, but does overlap a portion of the 3,500-foot corridor buffer.

3.4 Previously Studied Corridor Locations

Results in this section compare the WECC Proposed Energy Corridors with corridors that were studied in some phase of the West-wide Energy Corridor Programmatic Environmental Impact Statement (Corridor PEIS; DOE 2008). The issues identified in the prior Corridor PEIS analyses may shed light on the WECC Proposed Energy Corridors where they intersect previously studied corridors. Table 3.4 lists centerline lengths and areas of the WECC Proposed Energy Corridors with three phases of work in the Section 368 Corridor development process. The three areas are summarized in the following subsections.

3.4.1 Analyzed in Final PEIS but Agency Did Not Designate Corridors

This category includes portions of corridors that were studied in the Final PEIS but were within the jurisdictions of federal agencies that did not issue a Record of Decision to designate them. These agencies include the Bureau of Reclamation, Department of Defense, Fish and Wildlife Service, National Park Service, Department of Energy, and Department of Agriculture.

Although agencies other than BLM and USFS did not designate Section 368 corridors, some corridors previously designated by NPS and other agencies were included as proposed Section 368 corridors in the Final Corridor PEIS, such as corridor 47-231 in Lake Mead National Recreation Area (NPS) and corridor 136-277 in Curecanti National Recreation Area (NPS). Previously designated corridors such as these were not compared to the WECC Proposed Energy Corridors in this report.

In the west central Colorado portion of WECC Proposed Energy Corridor WREZ UTCT to Load RMPA, portions of designated Section 368 corridors 132-136 and 132-276 are interspersed with parcels administered by the FWS as the Colorado River Wildlife Management Area as it follows a Public Service Company of Colorado 230-kV transmission line. These areas are highlighted with yellow borders in Figure 3.4.1. Since the FWS did not designate corridors, these portions of corridors 132-136 and 132-276 are absent from the designated Section 368 corridors. A total of three WECC Proposed Energy Corridor centerline miles, and 1,320 acres of the 3,500-foot buffer, overlap the undesignated FWS portions of the Section 368 corridors proposed in the Final PEIS. For the full set of WECC Proposed Energy Corridors, this is one of the three areas with this type of overlap having any significant extent. It is unlikely that these portions of WECC Proposed Energy Corridor WREZ UTCT to Load RMPA will be viable as Section 368 corridors for the same reasons the original corridors were not designated. Even so, it is evident from the multiple existing transmission lines in this area that viable routes for transmission lines can be determined in this vicinity.

Table 3.4 Previously Studied Corridors That Overlap Portions of the WECC Proposed Energy Corridors

WECC Proposed Energy Corridor	Section 368 Corridor Name	Analyzed in Final PEIS but Agency did not Designate Corridors		Analyzed in Final PEIS but Omitted from Designation in BLM ROD		Analyzed in Draft PEIS but Omitted in Final PEIS	
		Centerline Length ¹ (Miles)	Area (Acres)	Centerline Length ¹ (Miles)	Area (Acres)	Centerline Length ¹ (Miles)	Area (Acres)
WREZ AZCT to WREZ CASO	30-52					6	2,313
	27-41	N/A	<1				
WREZ COSE to Load DSW	80-273					<1	34
WREZ IDEA to WREZ IDSW	29-36					2	783
WREZ IDSW to WREZ OREA	29-36					<1	29
WREZ MTCT to Load NWPP	229-254					N/A	24
WREZ NMCT to Load DSW	81-272			N/A	38		
WREZ NVCT to Load CANO	18-224					N/A	401
	18-23					N/A	24
WREZ NVCT to WREZ NVSO	18-224					18	6,612
WREZ NVSO to WREZ CASO	27-41 ²	N/A	<1			11	3,692
	39-231	N/A	27			<1	123
WREZ OREA to WREZ NVCT	36-228					5	1,887
WREZ ORWE to Load NWPP	11-103					<1	111
WREZ UTCT to Load BASN	114-241					5	5,201
WREZ UTCT to WREZ NVCT	110-114					<1	39
WREZ UTCT to Load RMPA	66-212	3	1,206				
	114-241					<1	13
	132-136	2	1,258				
	132-276	N/A	62				
WREZ WYEA to WREZ MTCT	79-216	1	399				

¹ N/A for centerline length indicates locations where the previously studied corridor does not overlap the centerline, but it does overlap a portion of the 3,500-foot corridor width.
² Studied as an underground-only corridor in the Draft PEIS.

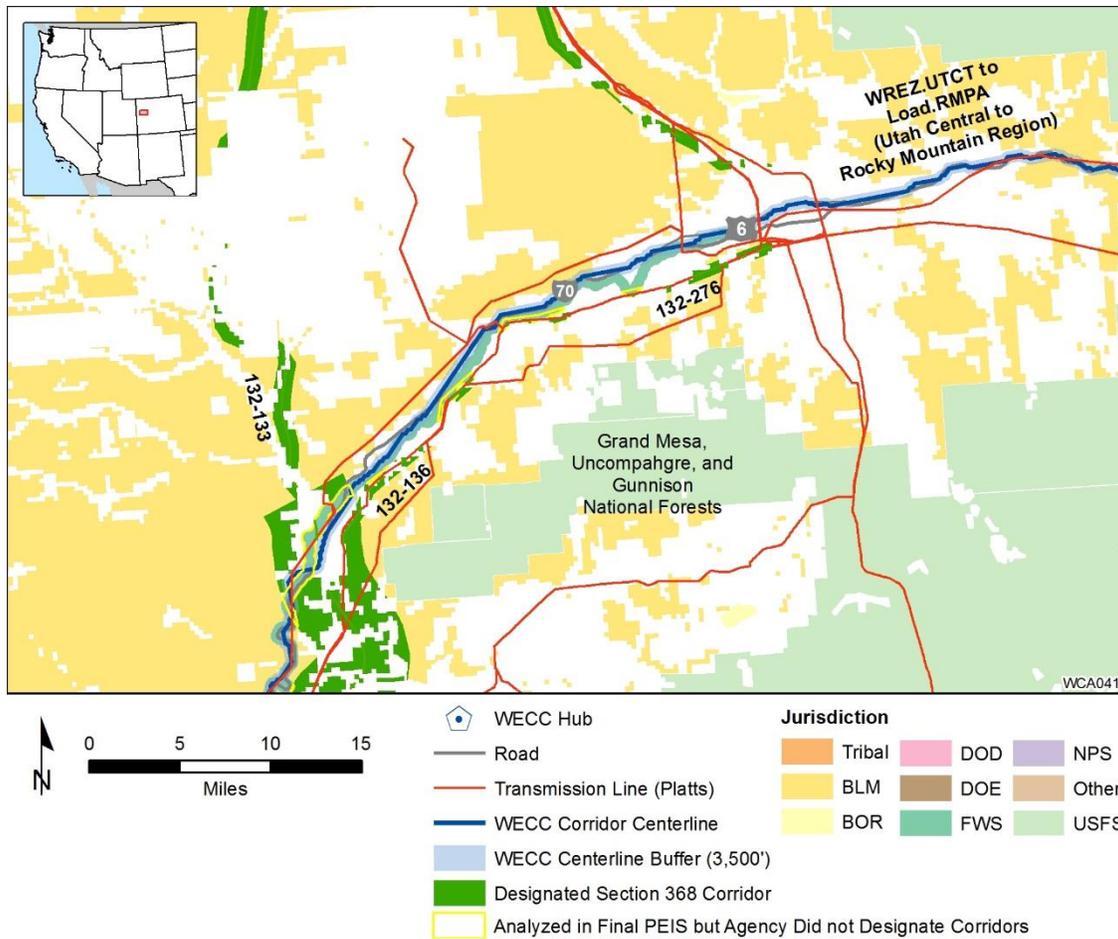


Figure 3.4.1 WECC Proposed Energy Corridor WREZ UTCT to Load RMPA with Designated and Undesignated Portions of Section 368 Corridors 132-136 and 132-276

3.4.2 Analyzed in Final PEIS but Omitted from Designation in BLM ROD

Of the proposed Section 368 corridors on BLM-administered land in the Final Corridor PEIS, the southern section of corridor 81-272 was not designated by the BLM in its Record of Decision. Figure 3.4.2 depicts this area, which is in southern New Mexico to the west of White Sands Missile Range. A small portion of this undesignated corridor is crossed by the 3,500-foot buffer of the WECC Proposed Energy Corridor WREZ NMCT to Load DSW, totaling 38 acres. The centerline itself does not intersect. Several issues led to this section of corridor 81-272 not being designated, including proximity to a national historic trail, Organ/Franklin Mountains Area of Critical Environmental Concern (ACEC), Dona Ana Mountains ACEC, and a Citizen’s Proposed Dona Ana County National Conservation Area that was being studied in the same timeframe as the corridor designations. With the exception of the national historic trail, these issues occur to the south of the WECC Proposed Energy Corridors In this vicinity.

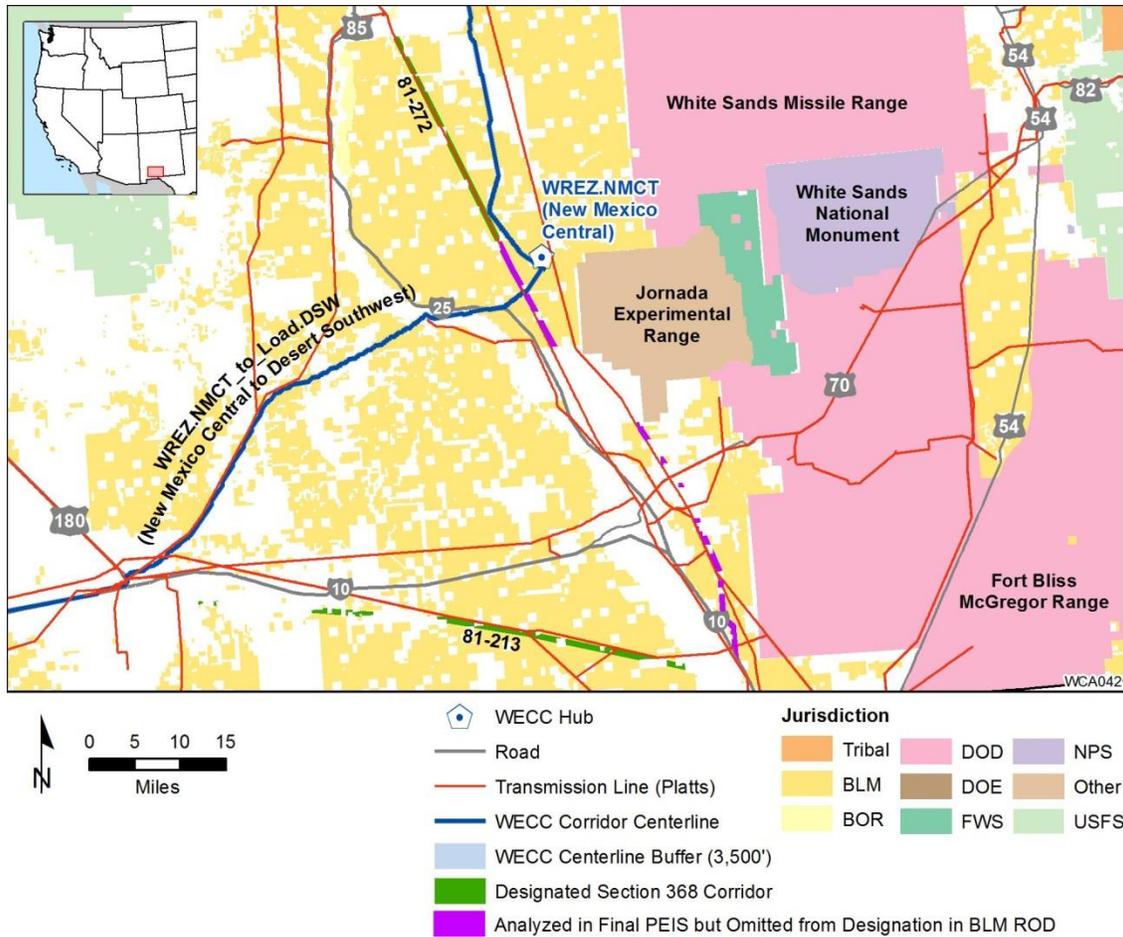


Figure 3.4.2 WECC Proposed Energy Corridor WREZ NMCT to Load DSW in the Vicinity of White Sands Missile Range and the Undesignated Portion of Section 368 Corridor 81-272

3.4.3 Analyzed in Draft PEIS but Omitted in Final PEIS

A substantial amount of corridor area was studied in the Draft PEIS, but removed from consideration in the Final PEIS. Often, the changes resulted from public comment about potential impacts in the draft corridor locations, causing the corridor to be removed from consideration or causing adjustments to be made to the route to better avoid the potential issues.

Of the areas in this category listed in Table 3.4, the longest WECC Proposed Energy Corridor centerline intersection, and largest 3,500-foot buffer overlap, occurs for WREZ NVCT to WREZ NVSO. This location is depicted in Figure 3.4.3 with removed Draft Corridor PEIS corridor shown in orange. Both the removed Draft Corridor PEIS corridor and the WECC Proposed Energy Corridor follow US-95 and a Sierra Pacific Power Company 345-kV transmission line in this area. The overlap comprises 18 centerline miles and 6,612 acres of 3,500-foot buffer area. The BLM Battle Mountain Field Office and Tonopah Field Station provided comments about this location and recommended the revised route in the Final Corridor PEIS, ultimately designated as a Section 368 Corridor. They indicated that the recommended change

conformed to their Resource Management Plan, and avoided Amargosa toad habitat. (In Oasis Valley, the route shown in the Draft Corridor PEIS passed through the entire length of the Amargosa toad’s habitat.) The new route around Silver Peak also avoided visual impacts to Clayton Dunes, a ROW avoidance area for a large set of dunes that has increasing recreational use as other areas throughout the state were being closed or restricted. They indicated the change would help prevent a listing of the Amargosa toad under the Endangered Species Act by the FWS. Finally, they noted that BLM has a conservation agreement with five Nevada state agencies, the FWS, and The Nature Conservancy that calls for them to protect the Amargosa toads and their habitat on public lands through implementation of land-use controls that minimize adverse effects to the Amargosa toad.

Table 3.4 lists several other locations where WECC Proposed Energy Corridors coincide with Draft Section 368 corridors removed from consideration. Rationale for the changes was recorded during corridor editing and can be consulted if the WECC Proposed Energy Corridors continue to be investigated.

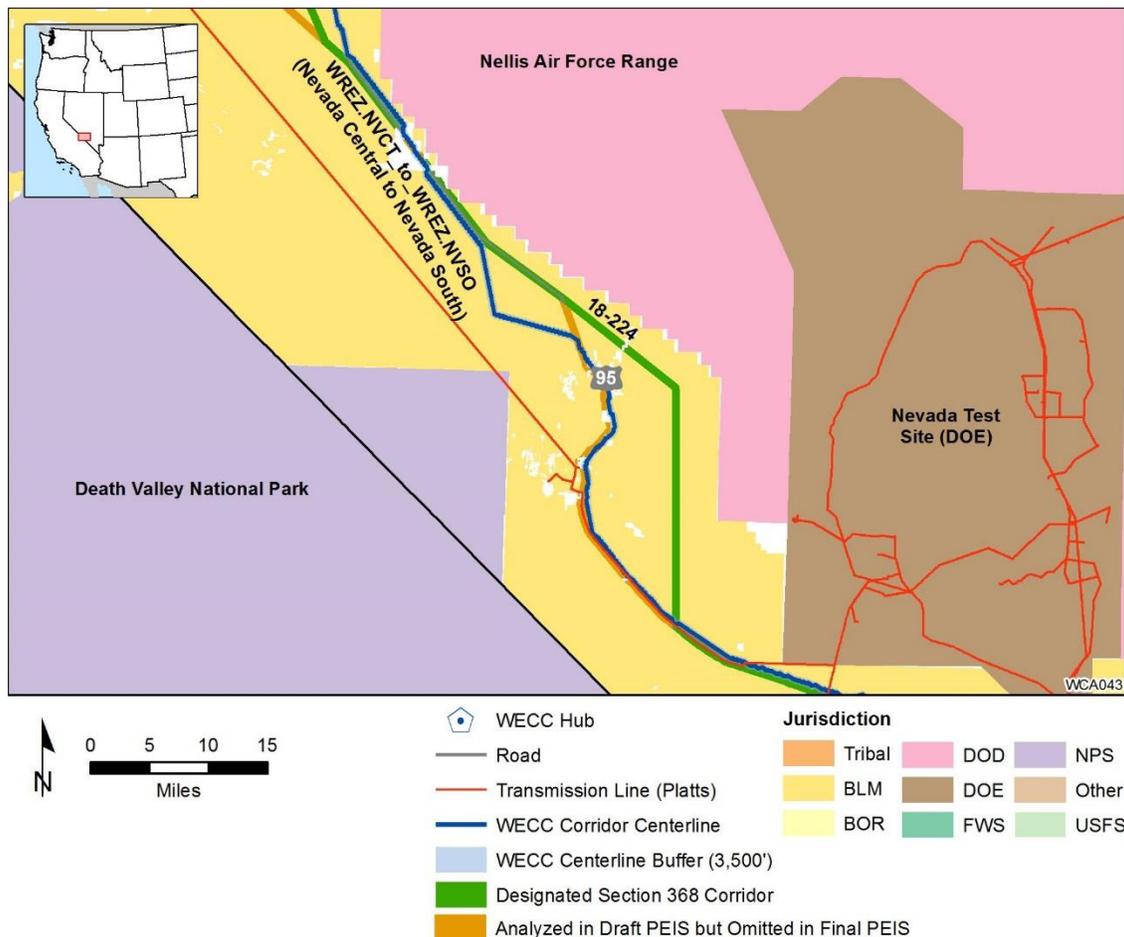


Figure 3.4.3 WECC Proposed Energy Corridor WREZ NVCT to WREZ NVSO in the Vicinity of Nellis Air Force Range, Death Valley National Park, and a Modified Portion of Section 368 Corridor 18-224

3.5 Protected Areas

The process used by WECC to generate corridor alternatives was based on least-cost route analysis using cost surfaces based on many criteria, including environmental factors. The WECC report describes the risk categories used in the cost surfaces as follows:

WECC adopted, a four-tiered scale for representing the environmental and/or cultural resource risks that a proposed transmission project might encounter. A new category was specifically created for use in this study for the DOE, represented below as Risk Class 5. The risk classifications are:

- *Risk Class 1: Least risk of environmental or cultural resource sensitivities and constraints (e.g., Designated energy corridors),*
- *Risk Class 2: Low to moderate risk of environmental or cultural resource sensitivities and constraints (e.g., other public lands),*
- *Risk Class 3: High risk of environmental or cultural resource sensitivities and constraints (e.g., national monuments),*
- *Risk Class 4: Areas presently precluded by law or regulation (e.g., wilderness areas),*
- *Risk Class 5: Existing energy corridors are parsed out from Risk Class 1 into their own class to provide a better understanding of when existing corridors may need to be utilized in part by a new energy corridor. This risk class has not been vetted with EDTF [WECC Environmental Data Task Force] or WECC stakeholders as it simply draws upon information created via the other risk classes. (WECC 2014)*

The content in Table 3.5.1 appears in the WECC report, but corrected information was provided by e-mail (Bailey 2014). The table lists lengths of the WECC Proposed Energy Corridors associated with each WECC Risk Category.

In this analysis, the WECC Potential Energy Corridor centerlines and 3,500-foot buffers were compared to Version 1.3 of the Protected Areas Database (PAD-US) from the USGS Gap Analysis Program (USGS 2012). PAD-US metadata includes the following description:

“The PAD-US geodatabase is required to organize and assess the management status (i.e. apply GAP Status Codes) of elements of biodiversity protection. The goal of GAP is to keep common species common by identifying species and plant communities not adequately represented in existing conservation lands. Common species are those not currently threatened with extinction. By identifying their habitats, Gap Analysis gives land managers and policy makers the information they need to make better-informed decisions when identifying priority areas for conservation. In cooperation with UNEP-World Conservation Monitoring Centre, GAP ensures PAD-US also supports global analyses and policy decisions by maintaining World Database for Protected Areas (WDPA) Site Codes and data for International Union for the Conservation of Nature (IUCN) categorized protected areas in the United States” (USGS 2012).

The PAD-US includes two categorizations:

- GAP Status Code, a conservation measure of each parcel based on protection level categories that provide a measure of management intent for the long-term protection of biodiversity. Definitions for the gap status codes are listed below. Table 3.5.2 lists centerline lengths of the WECC Proposed Energy Corridors that intersect parcels in the PAD-US, by gap status code. Table 3.5.3 lists the same information, except with the area in acres intersecting a 3,500-foot buffer of the WECC Proposed Energy Corridors. Note that parcels with gap status code 4 are listed in the results but have no known mandate for protection. Definitions of the gap status codes are as follows:
 - 1: Permanent Protection, Disturbance Events Permitted
 - 2: Permanent Protection, Disturbance Events Suppressed
 - 3: Permanent Protection, Extractive of Multiple Uses Permitted
 - 4: No Known Mandate for Protection

- IUCN Category, a globally interoperable conservation measure required for a protected area's inclusion into the World Database for Protected Areas from the United Nations Environment Program, World Conservation Monitoring Centre. IUCN protected areas are defined as, "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (USGS 2012). Table 3.5.4 lists centerline lengths of the WECC Proposed Energy Corridors that intersect parcels in the PAD-US, by IUCN code. Table 3.5.5 lists the same information, except with the area in acres intersecting a 3,500-foot buffer of the WECC Proposed Energy Corridors. Definitions for the IUCN categories are as follows:
 - Ia: Strict Nature Reserve
 - Ib: Wilderness Area
 - II: National Park
 - III: National Monument or Feature
 - IV: Habitat/species Management Area
 - V: Protected landscape/seascape
 - IV: Protected area with sustainable use of natural resources

Corridor WREZ NVCT to WREZ NVSO, extending from central to southern Nevada, includes 1 mile in WECC Risk Class 4. This appears to be Park Range Wilderness Study Area, administered by BLM within the BLM Ely Field Office area. There is no Section 368 corridor near the northern part of this route, but the southern half has a Section 368 corridor providing a similar route.

Corridor WREZ OREA to WREZ ORWE has the most distance (27 miles) within WECC Risk Class 3. Protected areas intersected by this corridor centerline include the Quartzville Creek Wild and Scenic River (BLM), and the Menagerie Wilderness (USFS). The 3,500-foot buffer also intersects Oregon Badlands Wilderness (BLM), Metolius Preserve (Private Conservation Land), and Mount Jefferson Wilderness (USFS).

Nineteen of the 27 WECC Proposed Energy Corridors (70%) include some distance in WECC Risk Category 3 or 4. Challenges like these were frequent in the work leading to the designated Section 368 corridors, and were typically addressed by web-enabled meetings that included planning professionals familiar with the local issues and potential alternatives. Typically, adjustments to the centerline would be made, or corridor widths were adjusted to help mitigate the potential issues.

GAP status codes of 1 and 2 are the most restrictive for that categorization system. In that analysis, 8 of the WECC Proposed Energy Corridor centerlines (30%) avoided lands with GAP status codes of 1 or 2. No 3,500-foot corridor buffer completely avoided areas with GAP status codes of 1 and 2, and the intersections would be locations to inspect to determine what corridor width adjustments might be needed to reduce potential impacts.

IUCN Categories from Ia to VI provide the most specific land protection categorization in the analysis, with Ia to III usually being prohibitive to development. Sixteen of the 27 WECC Proposed Energy Corridor centerlines (59%) avoid IUCN Categories Ia to III, and 8 of the 3,500-foot buffers (30%) avoid these categories.

WECC Proposed Energy Corridor WREZ UTCT to Load DSW, extending from central Utah to central Arizona has the greatest 3,500-foot corridor buffer intersection area, 2,846 acres, falling in IUCN Categories Ia to III.

Sensitive habitat, cultural and archaeological resources, conservation easements, and other potential environmental impacts were not assessed in this analysis, but were addressed to some degree in the WECC methodology. More study is needed to characterize potential issues in these categories.

Concerns about visual impacts are often associated with protected areas, but can extend well beyond the boundaries of protection. Studying the proximity of the WECC Proposed Energy Corridors to the most sensitive visual resources would also be worthwhile.

Table 3.5.1 Lengths of WECC Proposed Energy Corridors Tabulated by WECC Risk Category (Bailey 2014)

Corridor	WECC Risk Category ¹ (Miles)					Total Length (Miles)
	1	2	3	4	5	
Load CANO to Load CASO	377	7	1	0	16	401
WREZ AZCT to Load DSW	57	32	4	0	9	102
WREZ AZCT to WREZ CASO	191	59	2	0	8	260
WREZ CASO to Load CASO	114	28	2	0	12	155
WREZ COSE to Load DSW	762	33	4	0	15	813
WREZ COSE to Load RMPA	191	5	0	0	3	199
WREZ COSE to WREZ NMCT	468	54	0	0	3	524
WREZ IDEA to Load BASN	33	86	0	0	1	120
WREZ IDEA to WREZ IDSW	157	55	1	0	9	221
WREZ IDSW to WREZ OREA	201	51	4	0	4	259
WREZ MTCT to Load NWPP	589	33	2	0	9	634
WREZ MTCT to WREZ IDEA	421	26	0	0	8	455
WREZ NMCT to Load DSW	367	41	3	0	14	426
WREZ NVCT to Load CANO	343	48	0	0	8	400
WREZ NVCT to WREZ NVSO	188	63	5	1	5	262
WREZ NVSO to WREZ CASO	161	92	8	0	29	291
WREZ OREA to WREZ NVCT	521	109	4	0	3	637
WREZ OREA to WREZ ORWE	143	73	27	0	5	247
WREZ ORWE to Load CANO	603	12	10	0	18	643
WREZ ORWE to Load NWPP	125	51	11	0	36	223
WREZ UTCT to Load BASN	274	37	0	0	4	315
WREZ UTCT to Load DSW	408	52	5	0	15	479
WREZ UTCT to Load RMPA	478	66	0	0	14	558
WREZ UTCT to WREZ NVCT	183	48	0	0	1	231
WREZ WYEA to Load RMPA	146	13	4	0	4	167
WREZ WYEA to WREZ IDEA	476	47	3	0	7	533
WREZ WYEA to WREZ MTCT	581	38	3	0	6	628

¹ WECC Risk Categories are defined as follows: 1—Least risk of environmental or cultural resource sensitivities and constraints (e.g., Designated energy corridors); 2—Low to moderate risk of environmental or cultural resource sensitivities and constraints (e.g., other public lands); 3—High risk of environmental or cultural resource sensitivities and constraints (e.g., national monuments); 4—Areas presently precluded by law or regulation (e.g., wilderness areas); and 5—Existing energy corridors are parsed out from Risk Class 1 into their own class to provide a better understanding of when existing corridors may need to be utilized in part by a new energy corridor (this risk class has not been vetted with EDTF [WECC Environmental Data Task Force] or WECC stakeholders because it simply draws upon information created via the other risk classes (WECC 2014).

Table 3.5.2 Centerline Lengths of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by Gap Status Code

Corridor	State	GAP Status Code ¹				Total Length of Intersection (Miles)
		1	2	3	4	
Load CANO to Load CASO	California	0	6	15	10	31
	Total	0	6	15	10	31
WREZ AZCT to Load DSW	Arizona	0	0	62	14	76
	Total	0	0	62	14	76
WREZ AZCT to WREZ CASO	Arizona	0	0	34	28	62
	California	0	3	90	37	130
	Total	0	3	124	65	192
WREZ CASO to Load CASO	California	0	7	35	12	54
	Total	0	7	35	12	54
WREZ COSE to Load DSW	Arizona	0	0	135	125	260
	Colorado	0	7	16	2	25
	New Mexico	0	19	44	97	160
	Total	0	26	195	224	444
WREZ COSE to Load RMPA	Colorado	0	0	11	4	15
	Total	0	0	11	4	15
WREZ COSE to WREZ NMCT	Colorado	0	0	15	2	17
	New Mexico	0	2	56	123	181
	Total	0	2	71	125	198
WREZ IDEA to Load BASN	Idaho	0	0	7	0	7
	Utah	0	0	19	4	23
	Total	0	0	26	4	30
WREZ IDEA to WREZ IDSW	Idaho	0	0	70	1	71
	Total	0	0	70	1	71
WREZ IDSW to WREZ OREA	Idaho	0	0	19	0	19
	Oregon	0	0	100	0	100
	Total	0	0	119	0	119
WREZ MTCT to Load NWPP	Idaho	0	3	77	66	146
	Montana	0	6	41	14	61
	Washington	0	0	14	36	50
	Total	0	9	132	116	257
WREZ MTCT to WREZ IDEA	Idaho	0	0	71	16	88
	Montana	0	1	39	13	52
	Total	0	1	110	29	140

Table 3.5.2 (Cont.)

Corridor	State	GAP Status Code ¹				Total Length of Intersection (Miles)
WREZ NMCT to Load DSW	Arizona	0	0	122	100	222
	New Mexico	0	0	54	40	93
	Total	0	0	175	140	315
WREZ NVCT to Load CANO	California	0	7	66	8	81
	Nevada	0	0	283	1	284
	Total	0	7	349	9	365
WREZ NVCT to WREZ NVSO	Nevada	0	1	335	0	336
	Total	0	1	335	0	336
WREZ NVSO to WREZ CASO	California	0	46	42	36	124
	Nevada	0	18	86	0	104
	Total	0	65	128	36	228
WREZ OREA to WREZ NVCT	Idaho	0	0	82	12	94
	Nevada	0	0	171	14	185
	Oregon	0	0	101	0	101
	Total	0	0	354	26	380
WREZ OREA to WREZ ORWE	Oregon	0	1	226	1	228
	Total	0	1	226	1	228
WREZ ORWE to Load CANO	California	0	6	97	0	103
	Oregon	0	0	138	13	151
	Total	0	6	235	13	253
WREZ ORWE to Load NWPP	Oregon	0	68	40	41	149
	Washington	0	0	3	22	24
	Total	0	68	42	63	173
WREZ UTCT to Load BASN	Utah	0	2	84	37	123
	Total	0	2	84	37	123
WREZ UTCT to Load DSW	Arizona	0	3	109	99	211
	Utah	0	0	126	18	144
	Total	0	3	235	117	355
WREZ UTCT to Load RMPA	Colorado	0	13	90	9	112
	Utah	1	43	131	38	214
	Total	1	57	221	47	326
WREZ UTCT to WREZ NVCT	Nevada	0	2	145	1	148
	Utah	0	4	52	5	61
	Total	0	6	197	6	209
WREZ WYEA to Load RMPA	Colorado	0	0	2	8	10
	Wyoming	0	0	21	1	22
	Total	0	0	23	9	32

Table 3.5.2 (Cont.)

Corridor	State	GAP Status Code ¹				Total Length of Intersection (Miles)
WREZ WYEA to WREZ IDEA	Idaho	0	0	22	1	23
	Utah	0	0	8	0	8
	Wyoming	0	8	140	1	149
	Total	0	8	170	2	180
WREZ WYEA to WREZ MTCT	Montana	0	0	25	60	85
	Wyoming	0	2	54	0	56
	Total	0	2	78	60	141
¹ Gap Status Codes are defined as follows: 1—permanent protection, disturbance events permitted; 2—permanent protection, disturbance events suppressed; 3—permanent protection, extractive of multiple uses permitted; and 4—no known mandate for protection.						

Table 3.5.3 Areas of 3,500-foot Buffers of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by Gap Status Code

Corridor	State	GAP Status ¹				Total Area of Intersection with 3,500-foot Buffer (Acres)
		1	2	3	4	
Load CANO to Load CASO	California	0	2,514	8,292	3,307	14,113
	Total	0	2,514	8,292	3,307	14,113
WREZ AZCT to Load DSW	Arizona	0	7	9,725	5,822	15,554
	Total	0	7	9,725	5,822	15,554
WREZ AZCT to WREZ CASO	Arizona	0	1,145	14,577	12,646	28,368
	California	0	2,206	30,944	13,557	46,707
	Total	0	3,351	45,521	26,203	75,075
WREZ CASO to Load CASO	California	10	1,650	16,074	4,337	22,071
	Total	10	1,650	16,074	4,337	22,071
WREZ COSE to Load DSW	Arizona	41	136	32,407	44,277	76,861
	Colorado	0	2,565	6,878	1,518	10,961
	New Mexico	1	6,305	19,357	40,911	66,574
	Total	42	9,006	58,642	86,706	154,396
WREZ COSE to Load RMPA	Colorado	0	127	4,580	2,060	6,767
	Total	0	127	4,580	2,060	6,767
WREZ COSE to WREZ NMCT	Colorado	0	0	6,297	970	7,267
	New Mexico	0	961	23,612	51,833	76,406
	Total	0	961	29,909	52,803	83,673
WREZ IDEA to Load BASN	Idaho	0	0	3,281	0	3,281
	Utah	0	101	7,802	1,491	9,394
	Total	0	101	11,083	1,491	12,675
WREZ IDEA to WREZ IDSW	Idaho	0	2	29,397	135	29,534
	Total	0	2	29,397	135	29,534
WREZ IDSW to WREZ OREA	Idaho	0	330	8,001	104	8,435
	Oregon	0	154	19,631	0	19,785
	Total	0	484	27,632	104	28,220
WREZ MTCT to Load NWPP	Idaho	0	1,266	32,167	27,928	61,361
	Montana	0	3,172	16,366	5,322	24,860
	Washington	0	138	5,745	15,371	21,254
	Total	0	4,576	54,278	48,621	107,475
WREZ MTCT to WREZ IDEA	Idaho	0	399	27,302	6,889	34,590
	Montana	0	292	14,537	5,031	19,859
	Total	0	691	41,839	11,920	54,449

Table 3.5.3 (Cont.)

Corridor	State	GAP Status ¹				Total Area of Intersection with 3,500-foot Buffer (Acres)
WREZ NMCT to Load DSW	Arizona	2	0	28,886	34,351	63,238
	New Mexico	0	0	22,043	16,725	38,768
	Total	2	0	50,929	51,076	102,007
WREZ NVCT to Load CANO	California	89	2,614	30,233	3,843	36,779
	Nevada	0	289	80,335	413	81,038
	Total	89	2,903	110,568	4,256	117,817
WREZ NVCT to WREZ NVSO	Nevada	0	760	102,596	0	103,356
	Total	0	760	102,596	0	103,356
WREZ NVSO to WREZ CASO	California	0	19,305	11,861	12,593	43,759
	Nevada	0	8,441	36,530	8	44,978
	Total	0	27,745	48,390	12,601	88,737
WREZ OREA to WREZ NVCT	Idaho	0	444	35,003	5,191	40,639
	Nevada	0	9	74,442	5,797	80,249
	Oregon	0	154	19,625	0	19,779
	Total	0	608	129,070	10,989	140,666
WREZ OREA to WREZ ORWE	Oregon	0	1,550	75,091	390	77,031
	Total	0	1,550	75,091	390	77,031
WREZ ORWE to Load CANO	California	0	2,961	40,050	796	43,806
	Oregon	0	423	46,087	2,196	48,705
	Total	0	3,384	86,136	2,991	92,511
WREZ ORWE to Load NWPP	Oregon	0	24,268	15,975	15,572	55,815
	Washington	0	0	1,113	9,140	10,253
	Total	0	24,268	17,087	24,713	66,068
WREZ UTCT to Load BASN	Utah	0	600	35,524	14,408	50,532
	Total	0	600	35,524	14,408	50,532
WREZ UTCT to Load DSW	Arizona	149	2,133	43,795	41,695	87,772
	Utah	0	680	52,445	7,887	61,013
	Total	149	2,813	96,241	49,582	148,784
WREZ UTCT to Load RMPA	Colorado	363	5,632	40,377	3,829	50,202
	Utah	367	17,935	56,283	14,862	89,446
	Total	730	23,567	96,660	18,691	139,648
WREZ UTCT to WREZ NVCT	Nevada	81	976	60,843	162	62,062
	Utah	0	1,624	21,539	2,094	25,257
	Total	81	2,600	82,382	2,256	87,319

Table 3.5.3 (Cont.)

Corridor	State	GAP Status ¹				Total Area of Intersection with 3,500-foot Buffer (Acres)
WREZ WYEA to Load RMPA	Colorado	0	257	954	3,630	4,841
	Wyoming	0	0	8,172	466	8,638
	Total	0	257	9,126	4,096	13,479
WREZ WYEA to WREZ IDEA	Idaho	0	9	7,370	189	7,569
	Utah	0	0	3,001	53	3,054
	Wyoming	0	3,757	57,475	717	61,949
	Total	0	3,766	67,846	959	72,571
WREZ WYEA to WREZ MTCT	Montana	37	0	11,044	25,241	36,323
	Wyoming	0	183	20,138	1	20,323
	Total	37	183	31,182	25,243	56,645
¹ Gap Status Codes are defined as follows: 1—permanent protection, disturbance events permitted; 2—permanent protection, disturbance events suppressed; 3—permanent protection, extractive of multiple uses permitted; and 4—no known mandate for protection.						

Table 3.5.4 Centerline Lengths of WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by IUCN Category

Corridor	State	IUCN Category ¹								Total Length of Intersection (Miles)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
Load CANO to Load CASO	California	0	0	1	0	0	5	0	25	31
	Total	0	0	1	0	0	5	0	25	31
WREZ AZCT to Load DSW	Arizona	0	0	0	0	0	0	0	77	77
	Total	0	0	0	0	0	0	0	77	77
WREZ AZCT to WREZ CASO	Arizona	0	0	0	0	0	0	0	62	62
	California	0	0	0	0	0	3	0	127	130
	Total	0	1	0	0	0	3	0	189	193
WREZ CASO to Load CASO	California	0	0	1	0	0	6	0	47	54
	Total	0	0	1	0	0	6	0	47	54
WREZ COSE to Load DSW	Arizona	0	0	0	0	0	0	0	259	260
	Colorado	0	0	0	0	0	4	0	21	25
	New Mexico	0	0	0	4	8	7	0	141	160
	Total	0	0	0	4	8	11	0	421	444
WREZ COSE to Load RMPA	Colorado	0	0	0	0	0	0	0	15	16
	Total	0	0	0	0	0	0	0	15	16
WREZ COSE to WREZ NMCT	Colorado	0	0	0	0	0	0	0	16	16
	New Mexico	0	0	0	0	1	1	0	179	182
	Total	0	0	0	0	1	1	0	196	198
WREZ IDEA to Load BASN	Idaho	0	0	0	0	0	0	0	7	7
	Utah	0	0	0	0	0	0	0	22	22
	Total	0	0	0	0	0	0	0	29	29
WREZ IDEA to WREZ IDSW	Idaho	0	0	0	0	0	0	0	71	71
	Total	0	0	0	0	0	0	0	71	71
WREZ IDSW to WREZ OREA	Idaho	0	0	0	0	0	0	0	19	19
	Oregon	0	0	0	0	0	0	0	100	100
	Total	0	0	0	0	0	0	0	118	119
WREZ MTCT to Load NWPP	Idaho	2	0	0	0	0	1	0	142	145
	Montana	0	0	0	0	4	1	1	55	61
	Washington	0	0	0	0	0	0	0	51	51
	Total	2	0	0	0	4	2	1	248	257
WREZ MTCT to WREZ IDEA	Idaho	0	0	0	0	0	0	0	88	88
	Montana	0	0	0	0	0	1	0	51	52
	Total	0	0	0	0	0	1	0	139	140
WREZ NMCT to Load DSW	Arizona	0	0	0	0	0	0	0	222	222
	New Mexico	0	0	0	0	0	0	0	93	93
	Total	0	0	0	0	0	0	0	315	315

Table 3.5.4 (Cont.)

Corridor	State	IUCN Category ¹								Total Length of Intersection (Miles)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
WREZ NVCT to Load CANO	California	0	4	0	0	1	2	0	74	81
	Nevada	0	0	0	0	0	0	0	284	284
	Total	0	4	0	0	1	2	0	358	365
WREZ NVCT to WREZ NVSO	Nevada	0	1	0	0	0	1	0	335	336
	Total	0	1	0	0	0	1	0	335	336
WREZ NVSO to WREZ CASO	California	0	0	0	0	0	46	0	77	124
	Nevada	0	0	0	0	7	18	0	79	104
	Total	0	0	0	0	7	65	0	157	228
WREZ OREA to WREZ NVCT	Idaho	0	0	0	0	0	0	0	94	95
	Nevada	0	0	0	0	0	0	0	185	185
	Oregon	0	0	0	0	0	0	0	101	101
	Total	0	0	0	0	0	0	0	380	380
WREZ OREA to WREZ ORWE	Oregon	0	1	0	0	0	1	0	227	228
	Total	0	1	0	0	0	1	0	227	228
WREZ ORWE to Load CANO	California	0	4	0	1	1	0	0	97	103
	Oregon	0	0	0	0	0	0	0	151	151
	Total	0	4	0	1	1	0	0	248	253
WREZ ORWE to Load NWPP	Oregon	0	0	0	0	10	57	0	81	148
	Washington	0	0	0	0	0	0	0	24	24
	Total	0	0	0	0	10	57	0	105	173
WREZ UTCT to Load BASN	Utah	0	0	0	0	2	0	0	121	123
	Total	0	0	0	0	2	0	0	121	123
WREZ UTCT to Load DSW	Arizona	0	0	0	3	0	0	0	208	211
	Utah	0	0	0	0	0	0	0	144	144
	Total	0	0	0	3	0	0	0	352	355
WREZ UTCT to Load RMPA	Colorado	0	0	0	0	1	4	0	107	112
	Utah	0	0	0	0	0	44	0	169	213
	Total	0	0	0	0	1	47	0	277	326
WREZ UTCT to WREZ NVCT	Nevada	0	0	0	0	2	0	0	145	148
	Utah	0	0	0	4	0	0	0	58	61
	Total	0	0	0	4	2	0	0	203	209
WREZ WYEA to Load RMPA	Colorado	0	0	0	0	0	0	0	10	10
	Wyoming	0	0	0	0	0	0	0	22	22
	Total	0	0	0	0	0	0	0	32	32

Table 3.5.4 (Cont.)

Corridor	State	IUCN Category ¹								Total Length of Intersection (Miles)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
WREZ WYEA to WREZ IDEA	Idaho	0	0	0	0	0	0	0	22	22
	Utah	0	0	0	0	0	0	0	8	8
	Wyoming	0	0	0	0	8	0	0	141	149
	Total	0	0	0	0	8	0	0	171	180
WREZ WYEA to WREZ MTCT	Montana	0	0	0	0	0	0	0	85	85
	Wyoming	0	0	0	0	0	2	0	54	55
	Total	0	0	0	0	0	2	0	139	140

¹ Definitions for the IUCN categories are as follows: Ia—strict nature reserve; Ib—Wilderness Area; II—National Park; III—National Monument or Feature; IV—habitat/species management Area; V—protected landscape/seascape; and VI—protected area with sustainable use of natural resources.

Table 3.5.5 Areas of 3,500-foot Buffers of the WECC Proposed Energy Corridors That Intersect Parcels in the Protected Areas Database of the United States, by IUCN Category

Corridor	State	IUCN Category ¹								Total Area of Intersection with 3,500-foot Buffer (Acres)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
Load CANO to Load CASO	California	0	0	321	0	643	1,550	0	11,599	14,113
	Total	0	0	321	0	643	1,550	0	11,599	14,113
WREZ AZCT to Load DSW	Arizona	0	0	0	0	0	7	0	15,547	15,554
	Total	0	0	0	0	0	7	0	15,547	15,554
WREZ AZCT to WREZ CASO	Arizona	0	1,145	0	0	0	0	0	27,222	28,367
	California	0	1,468	0	0	0	739	0	44,501	46,708
	Total	0	2,613	0	0	0	739	0	71,723	75,075
WREZ CASO to Load CASO	California	0	0	314	0	0	1,347	0	20,411	22,071
	Total	0	0	314	0	0	1,347	0	20,411	22,071
WREZ COSE to Load DSW	Arizona	41	0	0	0	129	7	0	76,684	76,861
	Colorado	0	0	0	203	37	1,529	0	9,192	10,961
	New Mexico	0	1	0	1,411	2,537	2,357	0	60,268	66,574
	Total	41	1	0	1,614	2,703	3,892	0	146,144	154,396
WREZ COSE to Load RMPA	Colorado	0	0	0	0	0	127	0	6,640	6,766
	Total	0	0	0	0	0	127	0	6,640	6,766
WREZ COSE to WREZ NMCT	Colorado	0	0	0	0	0	0	0	7,267	7,267
	New Mexico	0	0	0	0	287	674	0	75,446	76,407
	Total	0	0	0	0	287	674	0	82,713	83,674
WREZ IDEA to Load BASN	Idaho	0	0	0	0	0	0	0	3,281	3,281
	Utah	0	0	0	0	0	101	0	9,293	9,394
	Total	0	0	0	0	0	101	0	12,573	12,674
WREZ IDEA to WREZ IDSW	Idaho	0	0	0	0	2	0	0	29,532	29,534
	Total	0	0	0	0	2	0	0	29,532	29,534

Table 3.5.5 (Cont.)

Corridor	State	IUCN Category ¹								Total Area of Intersection with 3,500-foot Buffer (Acres)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
WREZ IDSW to WREZ OREA	Idaho	0	0	0	0	330	0	0	8,105	8,436
	Oregon	0	154	0	0	0	0	0	19,631	19,786
	Total	0	154	0	0	330	0	0	27,737	28,221
WREZ MTCT to Load NWPP	Idaho	991	17	0	0	0	258	0	60,095	61,361
	Montana	0	0	0	0	1,615	1,001	556	21,688	24,861
	Washington	0	0	0	0	178	0	0	21,076	21,254
	Total	991	17	0	0	1,793	1,259	556	102,860	107,475
WREZ MTCT to WREZ IDEA	Idaho	58	183	0	0	0	158	0	34,191	34,590
	Montana	0	0	0	0	0	292	0	19,568	19,859
	Total	58	183	0	0	0	450	0	53,759	54,449
WREZ NMCT to Load DSW	Arizona	2	0	0	0	0	0	0	63,236	63,238
	New Mexico	0	0	0	0	0	0	0	38,768	38,768
	Total	2	0	0	0	0	0	0	102,005	102,006
WREZ NVCT to Load CANO	California	0	1,716	0	0	344	643	0	34,076	36,779
	Nevada	0	289	0	0	0	0	0	80,748	81,038
	Total	0	2,006	0	0	344	643	0	114,824	117,817
WREZ NVCT to WREZ NVSO	Nevada	0	460	0	0	0	300	0	102,596	103,356
	Total	0	460	0	0	0	300	0	102,596	103,356
WREZ NVSO to WREZ CASO	California	0	385	0	0	0	18,920	0	24,454	43,759
	Nevada	0	140	0	0	2,877	8,301	0	33,661	44,978
	Total	0	525	0	0	2,877	27,220	0	58,115	88,737

Table 3.5.5 (Cont.)

Corridor	State	IUCN Category ¹								Total Area of Intersection with 3,500-foot Buffer (Acres)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
WREZ OREA to WREZ NVCT	Idaho	0	0	0	0	444	0	0	40,195	40,639
	Nevada	0	9	0	0	0	0	0	80,239	80,249
	Oregon	0	154	0	0	0	0	0	19,625	19,779
	Total	0	164	0	0	444	0	0	140,059	140,666
WREZ OREA to WREZ ORWE	Oregon	0	1,160	0	0	0	390	0	75,481	77,032
	Total	0	1,160	0	0	0	390	0	75,481	77,032
WREZ ORWE to Load CANO	California	30	1,736	0	262	608	325	0	40,845	43,806
	Oregon	12	44	0	0	322	45	0	48,282	48,705
	Total	43	1,780	0	262	929	370	0	89,127	92,511
WREZ ORWE to Load NWPP	Oregon	23	0	0	0	3,427	20,818	0	31,547	55,815
	Washington	0	0	0	0	0	0	0	10,253	10,253
	Total	23	0	0	0	3,427	20,818	0	41,800	66,068
WREZ UTCT to Load BASN	Utah	0	0	0	0	600	0	0	49,932	50,532
	Total	0	0	0	0	600	0	0	49,932	50,532
WREZ UTCT to Load DSW	Arizona	42	1,175	0	949	0	116	0	85,490	87,772
	Utah	0	600	0	80	0	0	0	60,333	61,013
	Total	42	1,775	0	1,029	0	116	0	145,823	148,784
WREZ UTCT to Load RMPA	Colorado	0	237	0	187	720	1,388	0	47,671	50,202
	Utah	0	1,138	0	0	0	17,164	0	71,144	89,446
	Total	0	1,374	0	187	720	18,552	0	118,815	139,648
WREZ UTCT to WREZ NVCT	Nevada	0	62	81	28	913	0	0	60,977	62,061
	Utah	0	1	0	1,623	0	0	0	23,633	25,257
	Total	0	64	81	1,651	913	0	0	84,610	87,318

Table 3.5.5 (Cont.)

Corridor	State	IUCN Category ¹								Total Area of Intersection with 3,500-foot Buffer (Acres)
		Ia	Ib	II	III	IV	V	VI	Unassigned	
WREZ WYEA to Load RMPA	Colorado	0	0	0	0	28	257	0	4,555	4,840
	Wyoming	0	0	0	0	0	0	0	8,638	8,638
	Total	0	0	0	0	28	257	0	13,193	13,478
WREZ WYEA to WREZ IDEA	Idaho	0	9	0	0	0	0	0	7,560	7,569
	Utah	0	0	0	0	0	0	0	3,054	3,054
	Wyoming	0	0	0	154	3,600	3	0	58,192	61,948
	Total	0	9	0	154	3,600	3	0	68,805	72,572
WREZ WYEA to WREZ MTCT	Montana	0	0	0	0	0	37	0	36,286	36,323
	Wyoming	0	0	0	0	0	183	0	20,140	20,323
	Total	0	0	0	0	0	220	0	56,425	56,646

¹ Definitions for the IUCN categories are as follows: Ia—strict nature reserve; Ib—Wilderness Area; II—National Park; III—National Monument or Feature; IV—habitat/species management area; V—protected landscape/seascape; and VI—protected area with sustainable use of natural resources.

This page intentionally left blank.

4. Conclusions

The analysis of the WECC Proposed Energy Corridors summarized in this report provides an initial screening in several topic areas, including correlation to federal, tribal, and other land jurisdictions; designated Section 368 corridors, existing transmission lines, previously studied corridors, and land management protections. Overall characteristics and unique issues were reviewed for each of these topic areas, both for the corridor centerlines, and a 3,500-foot buffer around them consistent with the default corridor width used for many of the designated Section 368 corridors.

Twenty-seven WECC Proposed Energy Corridors were analyzed, connecting 19 hubs. The results provide a sense of the complexity and number of issues posed by such a large corridor network and geographic extent, with a total centerline length of 10,182 miles. The greatest centerline distances were in Arizona, California, Nevada, and Oregon, each over 1,000 miles. When a 3,500-foot buffer around the centerlines is assumed, the area covered is just over 4,007,093 acres.

In the land jurisdiction results, 68% of the corridor buffers were found to be on non-federal land, 20% on BLM, 10% on USFS, and less than 2% on other federal land. Section 368 corridors were only designated by BLM and USFS, with 90% of the designated Section 368 corridor being on BLM administered land, and 10% on USFS-administered land. The ratio of BLM (20%) to USFS-administered land (10%) associated with the WECC Proposed Energy Corridors is considerably less than the designated Section 368 corridors. Some WECC Proposed Energy Corridors were found to intersect lands administered by federal agencies that are less likely to designate corridors due to conflicts with their land management responsibilities and mission. An example of FWS intersections in Montana was given to illustrate one of these potential issues.

When compared to designated Section 368 corridors, the WECC Proposed Energy Corridors comprise a substantially different network in general, but in some locations they overlap designated Section 368 corridors. Most of the overlaps are insignificant, but there were several cases where longer centerline overlaps occurred, or areas over 1,000 acres when considering the 3,500-foot buffers. Several of these cases were discussed and illustrated in detail, and are good locations to compare the relative merits of the designated Section 368 corridors to the WECC Proposed Energy Corridors. Designated Section 368 corridors flagged as “Corridors of Concern” in the BLM Settlement Agreement were noted in this analysis when they intersected WECC Proposed Energy Corridors.

WECC used a rational approach to connecting the nodes it identified, but a closer correlation to the corridors identified in the West-wide Energy Corridor PEIS and designated in the RODs should be analyzed. The hubs and interconnections in the WECC analysis have a strong focus on renewable energy plants that have been built, and renewable energy zones that have been defined, since the initial Section 368 corridors were established. This, as well as concerns with the existing designated corridors that were identified in the settlement agreement, illustrates the need for periodic reviews of the corridors to assess the need for revisions, deletions, or additions. There is potential for combining the two corridor planning efforts to produce an effective system suited to more efficient acceptance and implementation. Figure 4.1 shows existing large capacity transmission lines, designated Section 368

corridors, and WECC Proposed Energy Corridors, illustrating how the designated and potential corridors augment the existing transmission grid.

When the WECC Proposed Energy Corridors were compared to existing transmission lines, it was found that a much smaller percentage of their length (4%) followed existing transmission lines than the Section 368 corridors proposed in the Final Corridor PEIS (66%). Tables in this section list the electrical transmission intersections, and a specific example addressing this difference between the two sets of corridor routes was discussed.

Previously studied corridor locations were compared to the WECC Proposed Energy Corridors, and several detailed examples were provided to illustrate how revisiting the planning process can be informative in locations where the WECC Proposed Energy Corridors overlap previously studied locations. This part of the analysis helped illustrate the pros and cons of the different approaches used to determine corridor route alternatives. The approach for the Corridor PEIS started with scoping, and an array of proposed corridor routes. These proposals were first used as a basis for a conceptual corridor network, and then a detailed collaborative planning effort led to the final corridor locations. Figure 4.2 shows the conceptual draft Section Corridors with the designated Section 368 corridors. Routes were primarily based on manual editing guided by planners familiar with local issues, previously designated routes, existing ROWs, and periods of public comment. In contrast, the WECC Proposed Energy Corridors were generated by a spatial modeling process after multiple siting criteria were encoded into cost surface maps. The modeling process results in optimal routes based on the input assumptions, and can be performed with far less effort than the approach used for the original Section 368 corridors, but a detailed review and refinement of the routes is needed to address the level of scrutiny of the Corridor PEIS process. As the settlement agreement illustrates, corridor siting will continue to be controversial, and it is necessary to continue reviewing and refining them to minimize potential impacts as much as possible.

While the size of the 3,500-foot buffer used for the analysis was somewhat arbitrary, a corridor width adequate to accommodate rights of way must be considered. Larger widths provide siting flexibility for individual projects planned within the corridors, and allow for collocation of multiple projects, consistent with the goals of the Section 368 corridors. Least-cost modeling to generate route alternatives can address corridor width, but it appears that a fairly narrow width was assumed in the WECC process. When the 3,500-foot buffers were applied, a considerable number of potential issues emerged. Many of these could be avoided by shifting the centerline away from the issue or reducing the corridor width, but modeling with an assumption of a wider width would more efficiently account for these issues.

Based on some of the corridor paths, it also may be useful to revisit the assumptions used for the cost surfaces. Greater emphasis on following existing transmission lines (and other ROWs) would result in routes more closely tied to existing ROWs, and this was found to be advantageous during the Corridor PEIS process. In addition, raising the cost associated with crossing federal jurisdictions of agencies unlikely to designate corridors would help avoid significant roadblocks to designation. For example,

DOD, NPS, and FWS-administered lands are usually problematic unless they have already granted a ROW in their internal planning processes.

The analysis of protected land categories includes WECC's results listing the lengths of their Proposed Energy Corridor centerlines in each WECC Risk Category. An independent assessment using the USGS Protected Areas Database (PAD-US) was performed, and this yielded many issues that would have to be investigated further. The PAD-US is only one data source for investigating potential environmental concerns, but the scope and schedule of this study precluded more detailed analysis.

Appendices B through D provide more detailed tabulations of various results, and the map atlas in Appendix E provides state-level maps depicting most of the data used in the analyses.



Figure 4.1 WECC Proposed Energy Corridors, Designated Section 368 Corridors, and Existing High-Capacity Transmission Lines (Source: Platts 2014).



Figure 4.2 Conceptual Draft and Designated Section 368 Corridors

This page intentionally left blank.

5. References

- Argonne (Argonne National Laboratory). 2008. *West Wide Energy Corridor Final PEIS Maps in GIS Format*. Available at <http://corridoreis.anl.gov/eis/fmap/gis/index.cfm>. Accessed February 14, 2014.
- Argonne. 2009. *GIS Data Representing Section 368 Energy Corridors Designated in BLM and USFS Records of Decision*. Unpublished data.
- Argonne. 2014. *GIS Data Representing Section 368 Energy Corridors of Concern in Settlement Agreement No. 3:09-cv-03048 JW*. Unpublished data.
- Bailey, M. 2014. *RE: 368 Task List Argonne*. Personal communication from Bailey (Western Electricity Coordinating Council) to J. Kuiper (Argonne National Laboratory), February 29.
- BLM (U.S. Bureau of Land Management). 2009. *Approved Resource Management Plan Amendments/Record of Decision (ROD) for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States*, BLM/WO-GI-09-005-1800. January. Available at http://corridoreis.anl.gov/documents/docs/Energy_Corridors_final_signed_ROD_1_14_2009.pdf. Accessed February 11, 2014.
- DOE (U.S. Department of Energy). 2008. *Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States*, DOE/EIS-0386. November. Available at <http://corridoreis.anl.gov/eis/guide/index.cfm>. Accessed February 12, 2014.
- Energy Policy Act of 2005. 42 USC §13201 et seq (2005). Available at <https://www.govtrack.us/congress/bills/109/hr6#>. Accessed February 13, 2014.
- Platts. 2014. *Electric Transmission Lines*. Available at <http://www.platts.com/products/gis-data-electric-power>. Accessed February 13, 2014.
- Reitsma, J. 2009. *Surface Management Agency GIS Data*. Personal communication from Reitsma (Bureau of Land Management, National Operations Center) to B. Cantwell (Argonne National Laboratory), September 14.
- USDC (U.S. District Court for the Northern District of California). 2012. *Notice of Motion and Joint Motion to Dismiss Case Pursuant to Fed. R. Civ. P. 41(A)(2)*, No. 3:09-cv-03048 JW. Available at http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/transmission.Par.39757.File.dat/Settlement_Agreement_Package.pdf. Accessed February 13, 2014.
- USFS (U.S. Department of Agriculture, Forest Service). 2009. *Record of Decision: USDA Forest Service Designation of Section 368 Energy Corridors on National Forest System Land in 10 Western States*, Available at http://corridoreis.anl.gov/documents/docs/WWEC_FS_ROD.pdf. Accessed February 11, 2014.

USGS (U.S. Geological Survey). 2012. *Protected Areas Database of the United States, Version 1.3*. November. Available at <http://gapanalysis.usgs.gov/padus/data/download>. Accessed February 14, 2014.

U.S. President. 2013. *Presidential Memorandum -- Transforming our Nation's Electric Grid through Improved Siting, Permitting, and Review*. June. Available at <http://www.whitehouse.gov/the-press-office/2013/06/07/presidential-memorandum-transforming-our-nations-electric-grid-through-i>. Accessed February 13, 2014.

WECC (Western Electricity Coordinating Council). 2014. *Potential Energy Corridors for Further Investigation*, prepared for the Department of Energy. Unpublished report and data.

Appendix A: Installing ArcReader and Navigating the Database

ESRI ArcReader 10.1, ArcGIS ArcView 10.1, or a more current version of either product is required to open the interactive map project files. ArcReader is a free application distributed by ESRI, and ArcView is a commercial product with more extensive capabilities. The instructions below assume ArcReader is the product in use. (When using ArcView, open the mxd files rather than the pmf files.) Because of the size and complexity of the database, ArcReader or ArcView may take a few minutes to open the interactive map project file on some computers.

- 1) Download ArcReader 10.1 (or a more current version) from <http://www.esri.com/software/arcgis/arcreader/download.html>.
- 2) Extract the contents of the downloaded zip file, run the ESRI.exe installation program with an administrator account, and install the software.
- 3) For better performance, copy the files to a local hard disk on your system.
- 4) Double-click on the WeccCorridorAnalysis.pmf file to open the Atlas in ArcReader (or the WeccCorridorAnalysis.mxd file if using ArcView). Figure A.1 shows a view of the default map content in ArcReader.
- 5) If you are not familiar with ArcReader, start by choosing the **Help → ArcReader Help** menu item for a guide on getting started with the software.

Below are some important considerations that will help improve your use of the electronic maps:

- Sometimes one map layer will obscure another one of interest when they are both displayed on the map. Layers in the map are drawn in reverse order of how they appear in the table of contents. In ArcView, drag a layer in the table of contents to a position higher than a layer obscuring it to make it draw above the ones listed after it. ArcReader does not provide this capability; however, the **Transparency** and **Swipe Layer** tools provide ways to view layers that might otherwise be obscured.
- Some layers have detailed information that require more time to display when the map is zoomed out. Scale dependency (a property where layers are only displayed at specified scale ranges) was avoided in ArcReader because the dependency cannot be changed by users. If a map display is taking too long to draw, press the **Escape (Esc)** key to stop the drawing process, then turn the layer off in the **Table of Contents**. Alternatively, **Zoom** the map into a smaller area.
- Most GIS layers include useful information beyond the legend settings used to symbolize the map. Surface Management Agency layer is symbolized by management agency; however, the tabular data for this layer also includes parcel names and types, such as “Death Valley” and “National

Park”, respectively. In ArcReader, use the Information tool to access this information. In ArcView, right-click on a layer name in the **Table of Contents** and choose **Open Attribute Table**.

- The Online Basemap layer at the bottom of the table of contents is an Internet-based map service provided by ESRI. It requires an adequate Internet connection to work properly, and provides a high-quality base map at both general and detailed scales.

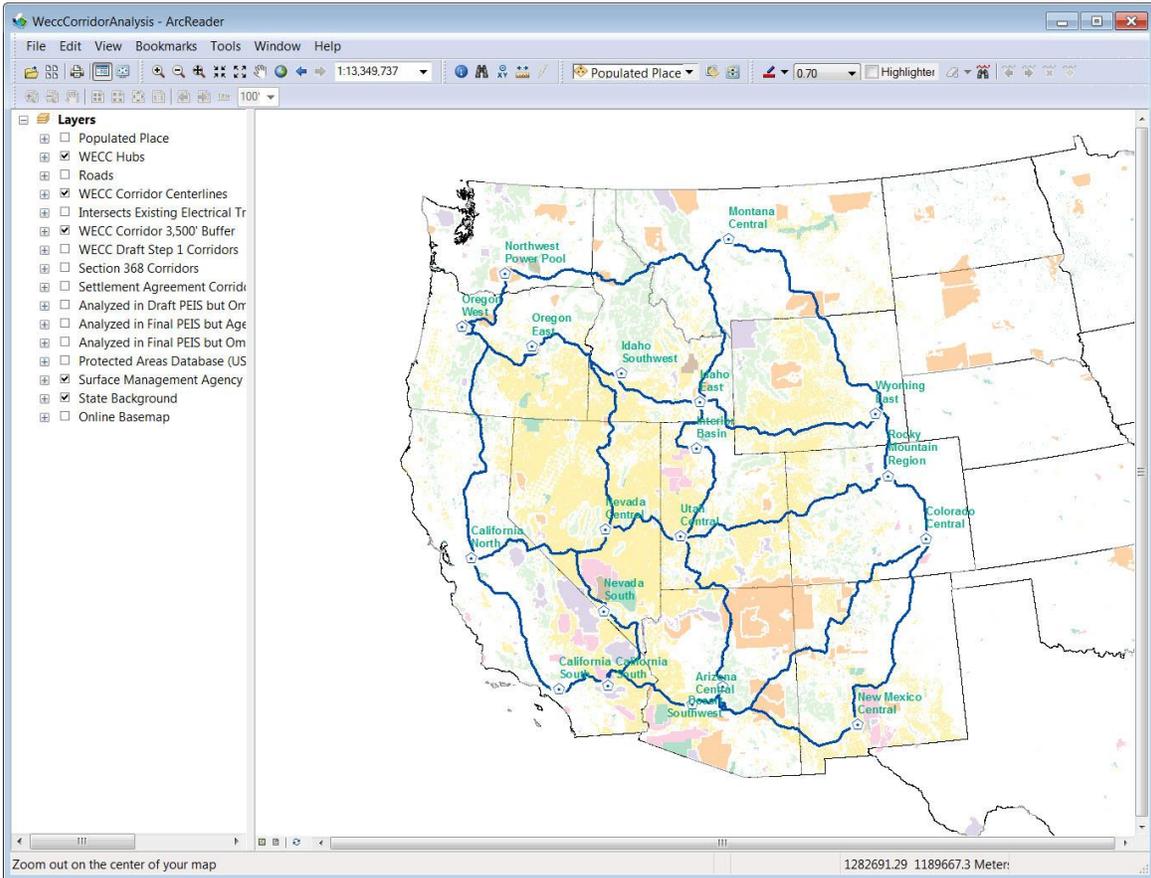


Figure A.1 View of the Default Map Content in ArcReader Showing WECC Potential Energy Corridors and Hubs, with Surface Management Agency

Appendix B: Land Jurisdictions Crossed by WECC Proposed Energy Corridors

This appendix lists each WECC Proposed Energy Corridor with tribal or federal land jurisdictions, by state and jurisdiction. Centerline lengths and area of the 3,500-foot buffers are given. Total lengths and areas reported in this table differ slightly from Table 1.2 due to rounding error.

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ NVCT to Load CANO	California	BLM	21	9,377
		Non-Federal	115	47,577
		Tribal		18
		USFS	61	25,943
	Nevada	BLM	164	68,826
		Non-Federal	11	4,687
		USFS	28	11,902
	Total		400	168,330
	WREZ WYEA to WREZ IDEA	Idaho	BLM	4
Non-Federal			78	32,683
USFS			13	5,209
Utah		BLM	6	2,666
		Non-Federal	23	9,787
Wyoming		BLM	106	47,747
		Non-Federal	303	124,016
		NPS		154
Total			533	224,382
WREZ ORWE to Load NWPP	Oregon	BLM	38	15,437
		DOD	5	1,155
		Non-Federal	67	29,318
		Tribal	39	16,383
		USFS	26	10,922
	Washington	Non-Federal	27	11,303
		Tribal	21	9,056
	Total		223	93,575
WREZ UTCT to Load BASN	Utah	BLM	76	33,025
		DOD	3	1,304
		Non-Federal	231	95,730
		USFS	5	2,101
	Total		315	132,160

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ CASO to Load CASO	California	BLM	14	7,385
		DOD	2	937
		Non-Federal	116	47,058
		NPS		26
		USFS	22	9,497
	Total		155	64,904
WREZ IDSW to WREZ OREA	Idaho	BLM	9	4,134
		FWS		29
		Non-Federal	75	31,427
		USFS	0	176
	Oregon	BLM	4	2,080
		Non-Federal	128	53,355
		USFS	42	17,650
	Total		259	108,851
Load CANO to Load CASO	California	FWS	5	2,245
		Non-Federal	383	159,943
		NPS	0	106
		USFS	13	6,386
	Total		401	168,680
WREZ OREA to WREZ NVCT	Idaho	BLM	69	29,349
		FWS		146
		Non-Federal	95	39,632
		Tribal	12	5,089
	Nevada	BLM	158	68,998
		Non-Federal	104	40,460
		Tribal	14	5,796
		USFS	11	5,306
	Oregon	BLM	4	2,080
		Non-Federal	128	53,355
		USFS	42	17,643
	Total		637	267,854
WREZ IDEA to WREZ IDSW	Idaho	BLM	51	21,858
		BOR	2	528
		FWS	0	154
		Non-Federal	167	70,159
		GSA	0	40
		Tribal		61
		USFS	0	156
	Total		221	92,955

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ MTCT to WREZ IDEA	Idaho	BLM	15	6,214
		Non-Federal	129	55,321
		Tribal	16	6,833
		USFS	32	12,897
	Montana	BLM	11	4,951
		Non-Federal	250	104,310
		USFS	0	680
Total		455	191,207	
WREZ COSE to Load DSW	Arizona	BLM	2	927
		Non-Federal	168	69,802
		Tribal	69	28,574
		USFS	72	30,995
	Colorado	BLM	4	2,012
		FWS	0	36
		Non-Federal	183	77,099
		USFS	11	4,328
	New Mexico	BLM	28	11,631
		BOR		105
		Non-Federal	191	79,387
		NPS	7	2,822
		Tribal	58	24,530
	USFS	20	9,175	
Total		813	341,424	
WREZ OREA to WREZ ORWE	Oregon	BLM	63	26,500
		DOD	0	211
		Non-Federal	70	29,461
		USFS	114	47,584
	Total		247	103,757
WREZ NMCT to Load DSW	Arizona	BLM	28	12,163
		Non-Federal	149	61,849
		Tribal	55	23,133
		USFS	38	16,319
	New Mexico	BLM	53	21,844
		Non-Federal	103	43,912
Total		426	179,219	
WREZ NVCT to WREZ NVSO	Nevada	BLM	228	96,485
		DOD		9
		Non-Federal	21	8,119
		USFS	14	5,951
	Total		262	110,564

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ ORWE to Load CANO	California	BLM	10	4,648
		DOD		41
		FWS	0	694
		Non-Federal	277	116,718
		NPS	0	159
		USFS	84	34,040
	Oregon	BLM	10	5,141
		DOD	7	1,965
		FWS	0	322
		Non-Federal	166	69,483
		Tribal	0	94
		USFS	87	36,767
Total		643	270,071	
WREZ UTCT to Load RMPA	Colorado	BLM	42	20,567
		BOR	1	516
		DOD	0	383
		FWS		7
		Non-Federal	195	78,188
		NPS		136
		USFS	48	20,681
	Utah	BLM	133	56,827
		DOD	4	1,512
		Non-Federal	98	38,985
		Tribal	1	552
		USFS	36	16,449
Total		558	234,803	
WREZ UTCT to WREZ NVCT	Nevada	BLM	120	50,915
		Non-Federal	26	10,431
		Tribal	0	89
		USFS	18	7,921
	Utah	BLM	52	21,475
		Non-Federal	15	6,410
	Total		231	97,241
WREZ COSE to Load RMPA	Colorado	Non-Federal	199	83,873
	Total		199	83,873
WREZ AZCT to Load DSW	Arizona	BLM	2	854
		Non-Federal	79	33,021
		USFS	21	8,884
	Total		102	42,759

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ UTCT to Load DSW	Arizona	BOR	1	377
		Non-Federal	51	20,952
		NPS	10	4,087
		Tribal	91	38,214
		USFS	106	44,607
	Utah	BLM	92	39,362
		Non-Federal	99	40,958
		NPS	4	1,720
		Tribal	0	65
		USFS	25	10,648
	Total		479	200,988
WREZ AZCT to WREZ CASO	Arizona	BLM	35	15,745
		Non-Federal	66	26,602
		Tribal	11	4,432
	California	BLM	77	32,826
		DOD	28	11,430
		Non-Federal	40	16,187
		Tribal	4	1,827
	Total		260	109,048
WREZ COSE to WREZ NMCT	Colorado	DOD		414
		Non-Federal	88	36,651
		USFS	12	4,881
	New Mexico	BLM	56	23,494
		DOD	1	643
		Non-Federal	368	154,269
	Total		524	220,352
WREZ MTCT to Load NWPP	Idaho	Non-Federal	25	9,948
		Tribal	69	29,132
		USFS	69	29,422
	Montana	BLM	12	5,506
		FWS	6	2,614
		Non-Federal	231	96,231
		USFS	9	4,376
	Washington	BLM	1	582
		FWS		138
		Non-Federal	176	73,473
		Tribal	36	15,263
	USFS		1	
	Total		634	266,686

Corridor	State	Jurisdiction	Length (Miles)	Area (Acres)
WREZ NVSO to WREZ CASO	California	BLM	74	30,756
		DOD	27	11,298
		Non-Federal	31	13,419
	Nevada	BLM	103	44,415
		BOR		27
		Non-Federal	56	22,459
		USFS		0
Total		291	122,373	
WREZ WYEA to Load RMPA	Colorado	Non-Federal	70	29,444
		USFS		8
	Wyoming	BLM	6	2,425
		DOD	2	959
		Non-Federal	89	37,314
Total		167	70,150	
WREZ IDEA to Load BASN	Idaho	BLM	6	2,332
		Non-Federal	40	16,358
		USFS	1	895
	Utah	BLM	18	7,511
		Non-Federal	56	23,500
Total		120	50,596	
WREZ WYEA to WREZ MTCT	Montana	BLM	0	218
		Non-Federal	260	109,465
		Tribal	60	24,990
		USFS	7	2,926
	Wyoming	BLM	15	7,091
		BOR	4	1,744
		Non-Federal	282	117,673
		Tribal	0	10
		USFS		23
Total		628	264,141	

Appendix C: BLM State, District, and Field Offices Crossed by WECC Proposed Energy Corridors

This appendix lists the BLM State, District, and Field Office jurisdictions crossed by the WECC Proposed Energy Corridors. Both BLM and non-BLM-administered lands exist within the BLM jurisdiction boundaries. The table contains only the BLM-administered portions of the lands within the jurisdictional units. Cases where a WECC Proposed Energy Corridor falls within a BLM district or field office boundary, but does not intersect BLM-administered land, are omitted from the table.

Corridor	BLM State Office	BLM District Office	BLM Field Office	Length (Miles)	Area (Acres)
WREZ AZCT to Load DSW	Arizona	Phoenix	Hassayampa	2	854
WREZ AZCT to WREZ CASO	Arizona	Colorado River	Lake Havasu	34	15,001
			Yuma		113
		Phoenix	Hassayampa		418
			Lower Sonoran	0	215
	California	California Desert	Barstow	2	1,102
			Needles	75	31,690
Palm Springs-South Coast				33	
WREZ CASO to Load CASO	California	California Desert	Barstow	14	7,385
WREZ COSE to Load DSW	Arizona	Gila	Safford	1	481
		Phoenix	Lower Sonoran	1	446
	Colorado	Front Range	San Luis Valley	4	1,602
			Royal Gorge	1	406
	New Mexico	Albuquerque	Rio Puerco	17	7,147
		Farmington	Farmington	6	2,841
			Taos	4	1,648
WREZ COSE to WREZ NMCT	New Mexico	Albuquerque	Socorro	34	14,559
		Farmington	Taos	1	256
		Las Cruces	N/A	19	8,062
		Pecos	Roswell	2	617
WREZ IDEA to Load BASN	Idaho	Idaho Falls	Pocatello	6	2,332
	Utah	West Desert	Salt Lake	18	7,511
WREZ IDEA to WREZ IDSW	Idaho	Boise	Four Rivers	26	10,972
		Idaho Falls	Pocatello	5	2,213
		Twin Falls	Burley	7	3,036
			Jarbidge	1	584
			Shoshone	11	5,053

Corridor	BLM State Office	BLM District Office	BLM Field Office	Length (Miles)	Area (Acres)
WREZ IDSW to WREZ OREA	Idaho	Boise	Four Rivers	9	4,134
	Oregon/ Washington	Prineville	Central Oregon	2	1,060
		Vale	Baker	2	882
			Malheur		138
WREZ MTCT to Load NWPP	Montana	Central Montana	Lewistown	1	425
		Western Montana	Butte	4	2,052
			Missoula	7	3,029
	Oregon/ Washington	Spokane	Border	1	465
			Wenatchee	0	117
WREZ MTCT to WREZ IDEA	Idaho	Idaho Falls	Pocatello	11	4,498
			Upper Snake	4	1,716
	Montana	Central Montana	Lewistown	1	425
		Western Montana	Butte	7	2,960
			Dillon	4	1,566
WREZ NMCT to Load DSW	Arizona	Gila	Safford	27	11,724
		Phoenix	Lower Sonoran	1	444
	New Mexico	Las Cruces	N/A	52	21,839
WREZ NVCT to Load CANO	California	Central California	Bishop	20	8,999
			Mother Lode	2	378
	Nevada	Battle Mountain	Tonopah	134	56,298
Carson City		Stillwater	30	12,528	
WREZ NVCT to WREZ NVSO	Nevada	Battle Mountain	Tonopah	165	69,998
		Southern Nevada	Las Vegas, Pahrump	63	26,487
WREZ NVSO to WREZ CASO	California	California Desert	Barstow	3	1,329
			Needles	71	29,426
	Nevada	Southern Nevada	Las Vegas, Pahrump, Red Rocks/Sloan	103	44,415
WREZ OREA to WREZ NVCT	Idaho	Boise	Bruneau	45	18,655
		Boise	Four Rivers	11	5,102
		Boise	Owyhee	13	5,592
	Nevada	Battle Mountain	Mount Lewis	69	29,600
		Elko	Tuscarora, Wells	62	28,245
		Ely	Caliente	27	11,153
	Oregon/ Washington	Prineville	Central Oregon	2	1,060
			Vale	Baker	2
Malheur					138
WREZ OREA to WREZ ORWE	Oregon/ Washington	Burns	Three Rivers	12	4,876
		Prineville	Central Oregon	17	7,146
			Deschutes	28	12,074
		Salem	Cascades	6	2,403

Corridor	BLM State Office	BLM District Office	BLM Field Office	Length (Miles)	Area (Acres)
WREZ ORWE to Load CANO	California	Northern California	Alturas	9	3,996
			Eagle Lake	0	48
			Redding	1	296
		Central California	Mother Lode	0	309
	Oregon/ Washington	Lakeview	Klamath Falls		2
		Prineville	Deschutes	9	4,150
Salem		Cascades	2	989	
WREZ ORWE to Load NWPP	Oregon/ Washington	Prineville	Deschutes	34	13,746
		Salem	Cascades	4	1,691
WREZ UTCT to Load BASN	Utah	West Desert	Fillmore	55	24,041
			Salt Lake	21	8,983
WREZ UTCT to Load DSW	Utah	Color Country	Cedar City	49	20,414
			Kanab	14	6,420
		N/A	Grand Staircase- Escalante NM	28	12,028
		West Desert	Fillmore	1	499
WREZ UTCT to Load RMPA	Colorado	Front Range	Royal Gorge	0	107
		Northwest	Colorado River Valley	16	9,652
			Grand Junction	21	8,847
			Kremmling	5	1,984
	Utah	Canyon Country	Moab	48	20,846
		Color Country	Cedar City	11	4,907
			Richfield	6	2,575
		Green River	Price	54	22,495
WREZ UTCT to WREZ NVCT	Nevada	Battle Mountain	Tonopah	9	3,755
		Ely	Caliente, Egan, Schell	111	47,160
	Utah	Color Country	Cedar City	29	12,039
		West Desert	Fillmore	23	9,436
		High Plains	Casper	6	2,425
WREZ WYEA to WREZ IDEA	Idaho	Idaho Falls	Pocatello	4	2,120
	Utah	West Desert	Salt Lake	6	2,664
	Wyoming	High Desert	Kemmerer	17	8,882
			Rawlins	48	20,951
			Rock Springs	31	13,952
	High Plains	Casper	10	3,964	

Corridor	BLM State Office	BLM District Office	BLM Field Office	Length (Miles)	Area (Acres)
WREZ WYEA to WREZ MTCT	Montana	Central Montana	Billings		2
			Lewistown	0	216
	Wyoming	High Plains	Buffalo	2	1,024
			Casper	14	6,067

Appendix D: Non-BLM Federal Agency and Tribal Parcels Crossed by WECC Proposed Energy Corridors

This appendix lists the state, tribal or non-BLM federal organization, and parcel name crossed by each WECC Proposed Energy Corridor, with the centerline length and 3,500-foot buffer area on lands administered by the specified organization within the specified parcel.

Corridor	State	Organization	Parcel Name	Length (Miles)	Area (Acres)
Load CANO to Load CASO	California	FWS	Grasslands WMA	5	2,245
		NPS	Santa Monica Mountains NRA	0	106
		USFS	Angeles NF	12	5,609
			Cleveland NF	1	669
			Los Padres NF		108
WREZ AZCT to Load DSW	Arizona	USFS	Tonto NF	21	8,884
		Tribal	Colorado River Reservation	11	4,432
	California	DOD	Twentynine Palms MCB	28	11,430
		Tribal	Colorado River Reservation	4	1,827
WREZ CASO to Load CASO	California	DOD	Twentynine Palms MCB	2	937
		NPS	Joshua Tree National Park		26
		USFS	Cleveland NF	2	781
			San Bernardino NF	20	8,716
WREZ COSE to Load DSW	Arizona	Tribal	Fort Apache Reservation	40	16,847
			Navajo Reservation	13	5,445
			Salt River Reservation	10	3,933
			San Carlos Reservation	6	2,349
		USFS	Apache-Sitgreaves NFs	10	4,174
			Tonto NF	62	26,820
	Colorado	FWS	Alamosa NWR	0	36
		USFS	Carson NF	0	40
			Rio Grande NF	11	4,288
	New Mexico	BOR	El Vado Reservoir		105
		NPS	El Malpais NM	7	2,822
		Tribal	Jicarilla Apache Reservation	7	3,061
			Navajo Reservation	0	3
			Navajo Reservation (Ramah)	19	8,131
			Zuni Reservation	32	13,335
		USFS	Carson NF	9	3,903
			Cibola NF	1	958
	Rio Grande NF			1	
Santa Fe NF	10		4,313		

Corridor	State	Organization	Parcel Name	Length (Miles)	Area (Acres)
WREZ COSE to WREZ NMCT	Colorado	DOD	Fort Carson Military Reservation		414
		USFS	Comanche NF	12	4,881
	New Mexico	DOD	White Sands Missile Range	1	643
WREZ IDEA to Load BASN	Idaho	USFS	Caribou-Targhee NF	1	895
WREZ IDEA to WREZ IDSW	Idaho	BOR	Minidoka Project	2	528
		FWS	Minidoka NWR	0	154
		Tribal	Fort Hall Reservation		61
		USFS	Boise NF	0	156
WREZ IDSW to WREZ OREA	Idaho	FWS	Deer Flat NWR		29
		USFS	Boise NF	0	176
	Oregon	USFS	Malheur NF	37	15,756
		USFS	Wallowa-Whitman NF	4	1,894
WREZ MTCT to Load NWPP	Idaho	Tribal	Nez Perce Reservation	69	29,132
		USFS	Clearwater NF	67	28,288
			Lolo NF		0
			Nez Perce NF	2	1,133
	Montana	FWS	Blackfoot Valley WMA	5	2,057
			Powell County Waterfowl Production Area	1	556
		USFS	Clearwater NF		1
			Helena NF	2	807
			Lolo NF	8	3,568
	Washington	FWS	McNary NWR		138
		Tribal	Yakama Reservation	36	15,263
USFS		Umatilla NF		1	
WREZ MTCT to WREZ IDEA	Idaho	Tribal	Fort Hall Reservation	16	6,833
		USFS	Caribou-Targhee NF	32	12,897
	Montana	USFS	Beaverhead-Deerlodge NF	0	638
			Caribou-Targhee NF		0
WREZ NMCT to Load DSW	Arizona	Tribal	Fort McDowell Reservation		2
			Salt River Reservation	8	3,548
			San Carlos Reservation	47	19,583
	USFS	Coronado NF	0	1	
		Tonto NF	38	16,318	
WREZ NVCT to Load CANO	California	Tribal	Chicken Ranch Rancheria		18
		USFS	Inyo NF	7	2,354
			Stanislaus NF	38	16,295
			Toiyabe NF	16	7,294
	Nevada	USFS	Toiyabe NF	28	11,902

Corridor	State	Organization	Parcel Name	Length (Miles)	Area (Acres)
WREZ NVCT to WREZ NVSO	Nevada	DOD	Nellis Air Force Range		9
		USFS	Toiyabe NF	14	5,951
WREZ NVSO to WREZ CASO	California	DOD	Twentynine Palms MCB	27	11,298
	Nevada	BOR	Lake Mead		27
		USFS	Toiyabe NF		
WREZ OREA to WREZ NVCT	Idaho	FWS	Deer Flat NWR		146
		Tribal	Duck Valley Reservation	12	5,089
	Nevada	Tribal	Duck Valley Reservation	14	5,796
		USFS	Humboldt NF	11	5,306
	Oregon	USFS	Malheur NF	37	15,749
			Wallowa-Whitman NF	4	1,894
WREZ OREA to WREZ ORWE	Oregon	DOD	Green Peter Lake	0	211
		USFS	Deschutes NF	20	8,247
			Malheur NF	34	14,536
			Ochoco NF	31	12,912
			Willamette NF	29	11,889
WREZ ORWE to Load CANO	California	DOD	Sharpe General Depot		41
		FWS	Stone Lakes NWR	0	571
			Tule Lake NWR	0	122
			NPS	Lava Beds NM	0
		USFS	Lassen NF	55	22,225
			Modoc NF	29	11,815
	Oregon	DOD	Detroit Lake	6	1,500
			Kingsley Field Air National Guard Base	1	465
			FWS	Upper Klamath NWR	0
		Tribal	Klamath Reservation	0	94
		USFS	Deschutes NF	44	18,120
			Fremont-Winema NFs	9	3,947
			Willamette NF	34	14,700
WREZ ORWE to Load NWPP	Oregon	DOD	Detroit Lake	5	1,155
		Tribal	Celilo Village		6
			Warm Springs Reservation	39	16,378
			USFS	Mt. Hood NF	6
		USFS	Willamette NF	20	8,192
	Washington	Tribal	Yakama Reservation	21	9,056
WREZ UTCT to Load BASN	Utah	DOD	Camp Williams	2	706
			Hill Air Force Base	1	390
			Little Mountain Test Annex	0	208
		USFS	Uinta NF	5	2,101

Corridor	State	Organization	Parcel Name	Length (Miles)	Area (Acres)
WREZ UTCT to Load DSW	Arizona	BOR	Lake Powell	1	377
		NPS	Glen Canyon NRA	7	3,071
			Montezuma Castle NM		67
			Wupatki NM	3	949
		Tribal	Navajo Reservation	91	38,214
		USFS	Coconino NF	52	21,804
			Prescott NF	25	10,764
	Tonto NF		29	12,039	
	Utah	NPS	Glen Canyon NRA	4	1,720
		Tribal	Indian Peaks Reservation	0	65
USFS		Dixie NF	25	10,648	
WREZ UTCT to Load RMPA	Colorado	BOR	Green Mountain Reservoir	1	516
		FWS	Colorado River WMA		7
		NPS	Colorado NM		136
		USFS	Arapaho and Roosevelt NF	24	11,098
			Routt NF		0
	Utah	DOD	Utah Launch Complex, White Sands Missile Range	4	1,512
	Utah	Tribal	Kanosh Reservation	1	552
	Utah	USFS	Fishlake NF	36	16,449
WREZ UTCT to WREZ NVCT	Nevada	Tribal	Ely Colony	0	89
		USFS	Humboldt NF	18	7,921
WREZ WYEA to Load RMPA	Colorado	USFS	Arapaho and Roosevelt NF		8
	Wyoming	DOD	F. E. Warren Air Force Base	2	959
WREZ WYEA to WREZ IDEA	Idaho	USFS	Caribou-Targhee NF	13	5,209
	Wyoming	NPS	Fossil Butte NM		154
WREZ WYEA to WREZ MTCT	Montana	Tribal	Crow Reservation	60	24,990
		USFS	Lewis and Clark NF		5
			USFS Other Montana	7	2,920
	Wyoming	Tribal	Crow Reservation	0	10
USFS		Bighorn NF		23	



Environmental Science Division

Argonne National Laboratory
9700 South Cass Avenue, Bldg. 240
Argonne, IL 60439-4847

www.anl.gov



Argonne National Laboratory is a U.S. Department of Energy
laboratory managed by UChicago Argonne, LLC

Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council

Appendix E: Map Atlas

Environmental Science Division

About Argonne National Laboratory

Argonne is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC under contract DE-AC02-06CH11357. The Laboratory's main facility is outside Chicago, at 9700 South Cass Avenue, Argonne, Illinois 60439. For information about Argonne and its pioneering science and technology programs, see www.anl.gov.

DOCUMENT AVAILABILITY

Online Access: U.S. Department of Energy (DOE) reports produced after 1991 and a growing number of pre-1991 documents are available free via DOE's SciTech Connect (<http://www.osti.gov/scitech/>)

Reports not in digital format may be purchased by the public from the National Technical Information Service (NTIS):

U.S. Department of Commerce
National Technical Information Service
5301 Shawnee Rd
Alexandria, VA 22312
www.ntis.gov
Phone: (800) 553-NTIS (6847) or (703) 605-6000
Fax: (703) 605-6900
Email: orders@ntis.gov

Reports not in digital format are available to DOE and DOE contractors from the Office of Scientific and Technical Information (OSTI):

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
www.osti.gov
Phone: (865) 576-8401
Fax: (865) 576-5728
Email: reports@osti.gov

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor UChicago Argonne, LLC, nor any of their employees or officers, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of document authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, Argonne National Laboratory, or UChicago Argonne, LLC.

Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council

Appendix E: Map Atlas

by
James A. Kuiper, Brian L. Cantwell, Kevin J. Hlava, H. Robert Moore, Andrew B. Orr, and Emily A. Zvolanek
Environmental Science Division, Argonne National Laboratory

prepared by
Argonne National Laboratory for U.S. Department of Energy,
Office of Electricity Delivery and Energy Reliability, Washington, D.C.

February 21, 2014

Analysis of Potential Energy Corridors Proposed by the Western Electricity Coordinating Council

Appendix E: Map Atlas

This Map Atlas provides large format state maps depicting the WECC Proposed Energy Corridors and the other spatial information used for analysis.

Contents

Figure E-1.1 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Arizona	3
Figure E-1.2 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in California	4
Figure E-1.3 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Colorado	5
Figure E-1.4 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Idaho	6
Figure E-1.5 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Montana	7
Figure E-1.6 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Nevada	8
Figure E-1.7 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in New Mexico	9
Figure E-1.8 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Oregon	10
Figure E-1.9 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Utah	11
Figure E-1.10 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Washington	12
Figure E-1.21 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Wyoming	13
Figure E-2.1 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Arizona	14
Figure E-2.2 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in California	15
Figure E-2.3 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Colorado	16
Figure E-2.4 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Idaho	17
Figure E-2.5 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Montana	18
Figure E-2.6 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Nevada	19
Figure E-2.7 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in New Mexico	20
Figure E-2.8 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Oregon	21
Figure E-2.9 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Utah	22
Figure E-2.30 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Washington	23

Figure E-2.41 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Wyoming	24
Figure E-3.1 WECC Proposed Energy Corridors and Land Protection Designations in Arizona	25
Figure E-3.2 WECC Proposed Energy Corridors and Land Protection Designations in California	26
Figure E-3.3 WECC Proposed Energy Corridors and Land Protection Designations in Colorado	27
Figure E-3.4 WECC Proposed Energy Corridors and Land Protection Designations in Idaho	28
Figure E-3.5 WECC Proposed Energy Corridors and Land Protection Designations in Montana	29
Figure E-3.6 WECC Proposed Energy Corridors and Land Protection Designations in Nevada	30
Figure E-3.7 WECC Proposed Energy Corridors and Land Protection Designations in New Mexico	31
Figure E-3.8 WECC Proposed Energy Corridors and Land Protection Designations in Oregon	32
Figure E-3.9 WECC Proposed Energy Corridors and Land Protection Designations in Utah	33
Figure E-3.50 WECC Proposed Energy Corridors and Land Protection Designations in Washington	34
Figure E-3.61 WECC Proposed Energy Corridors and Land Protection Designations in Wyoming	35

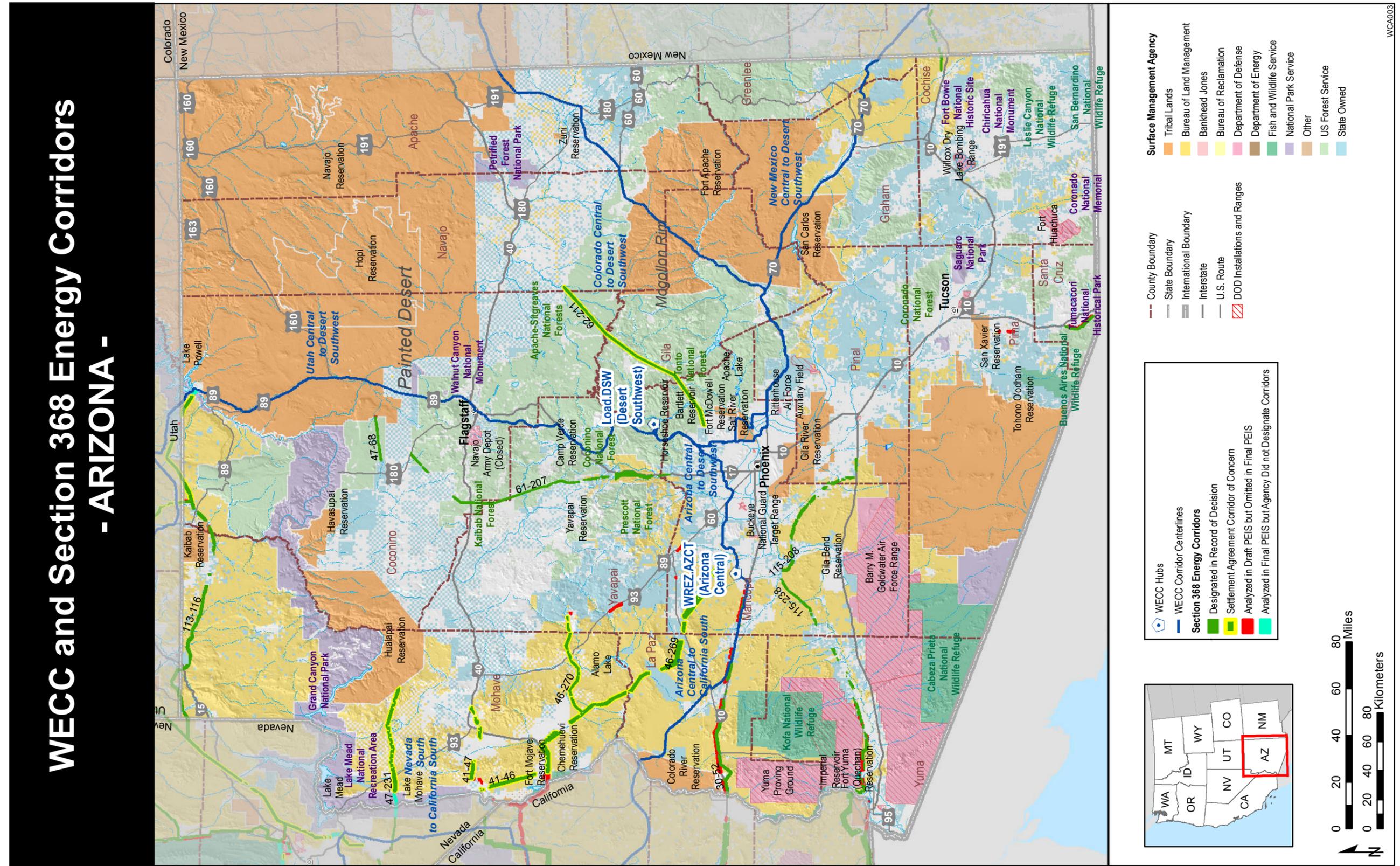


Figure E-1.1 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Arizona

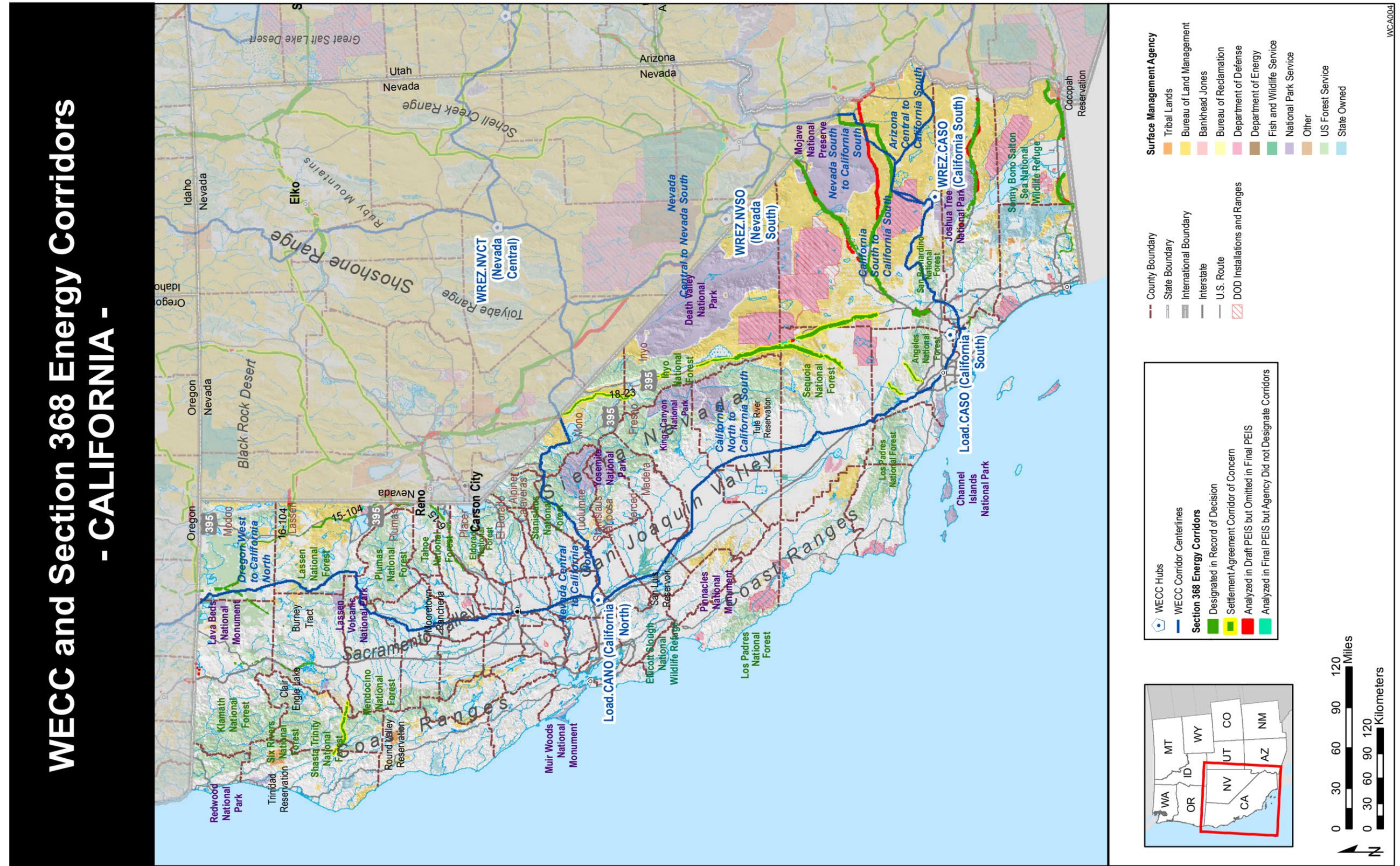


Figure E-1.2 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in California

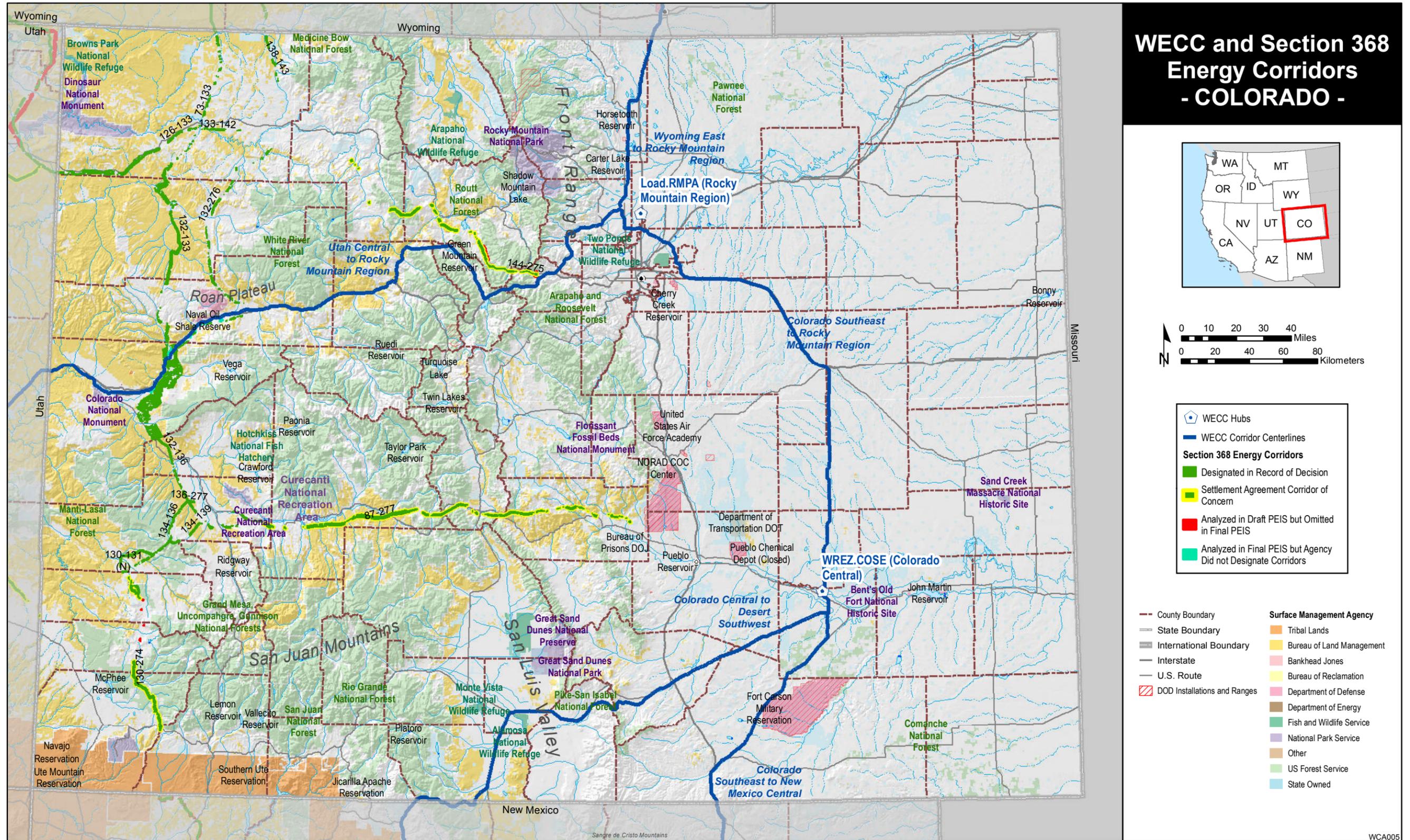


Figure E-1.3 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Colorado

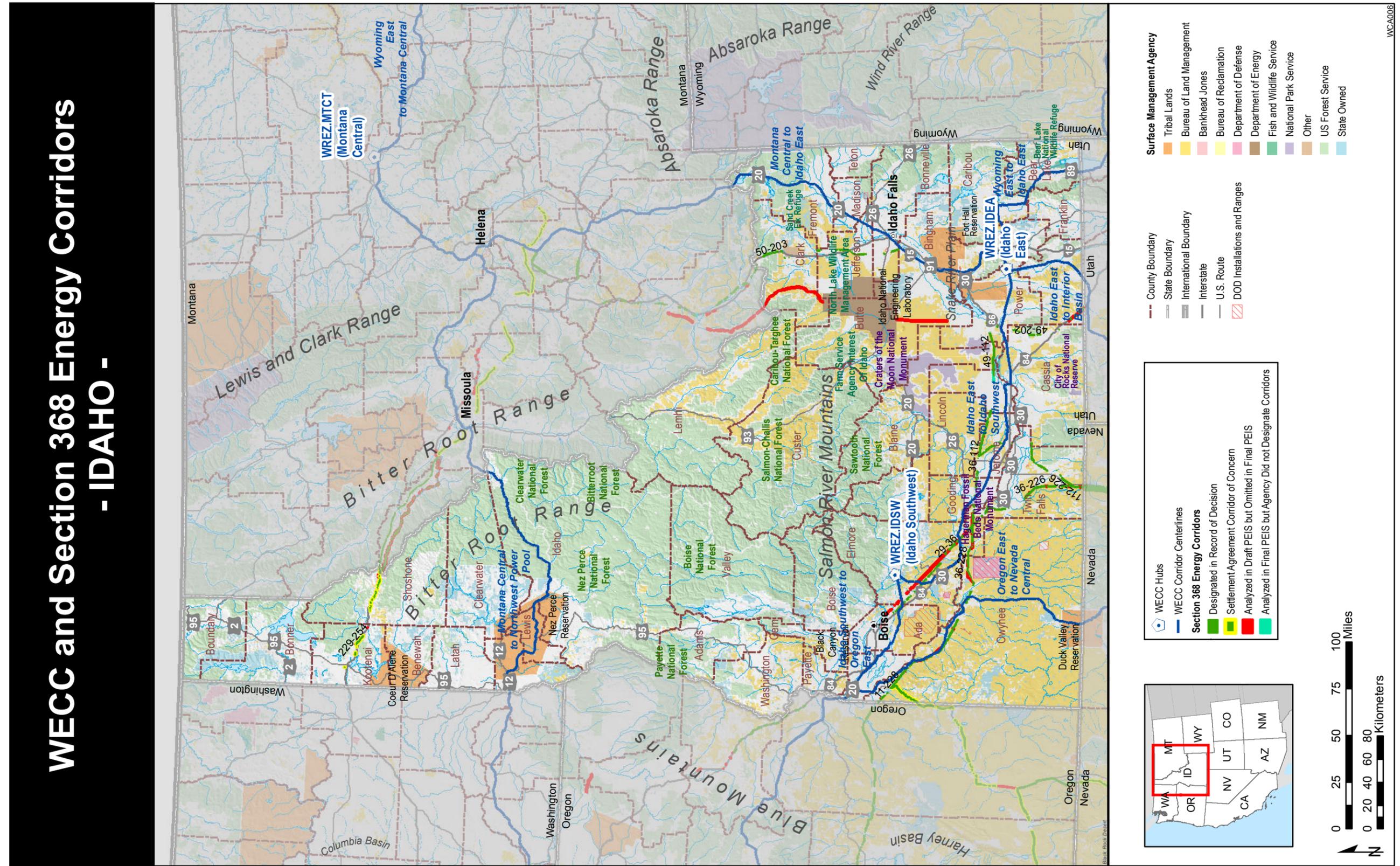


Figure E-1.4 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Idaho

WECC and Section 368 Energy Corridors - MONTANA -



Figure E-1.5 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Montana

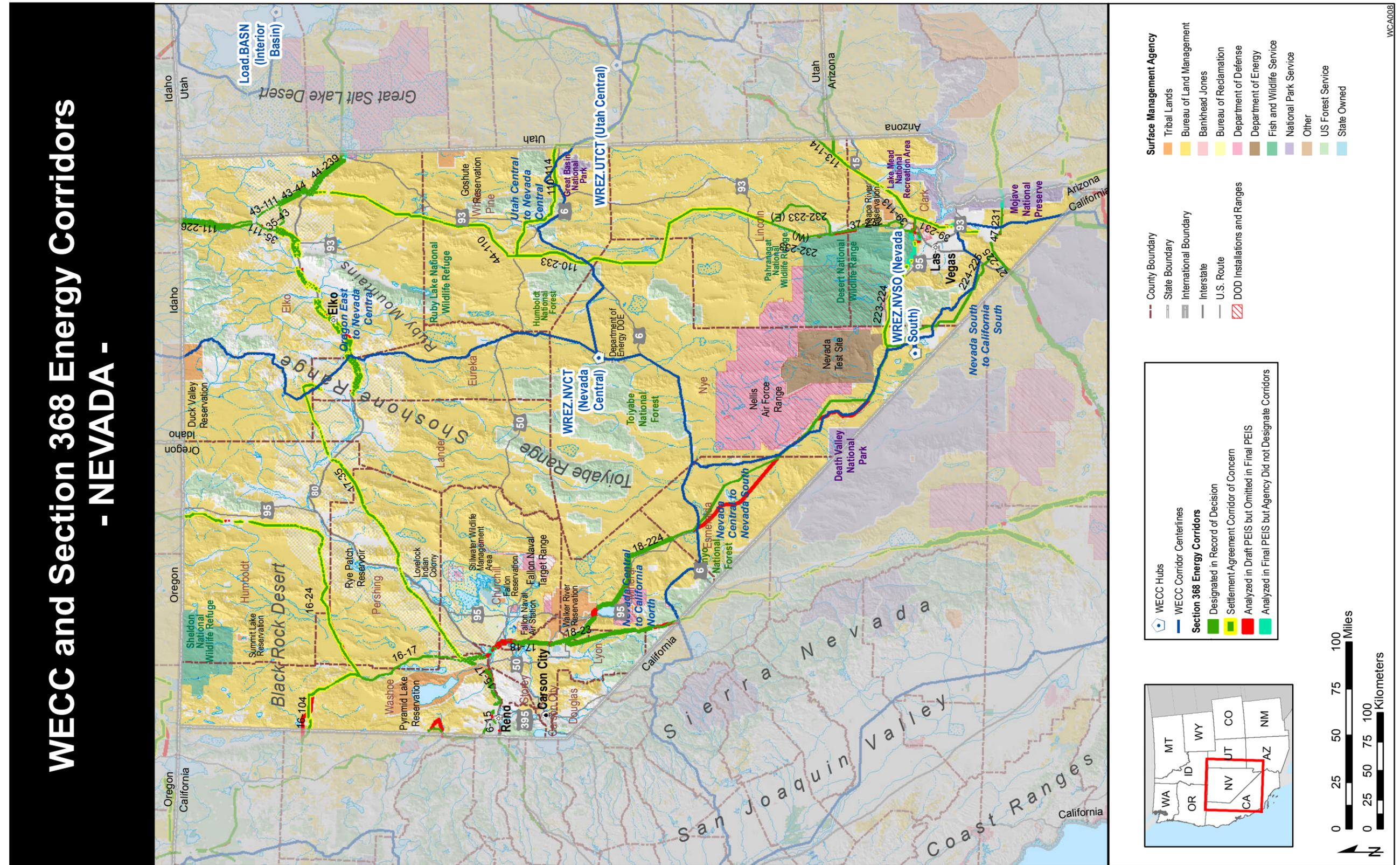


Figure E-1.6 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Nevada

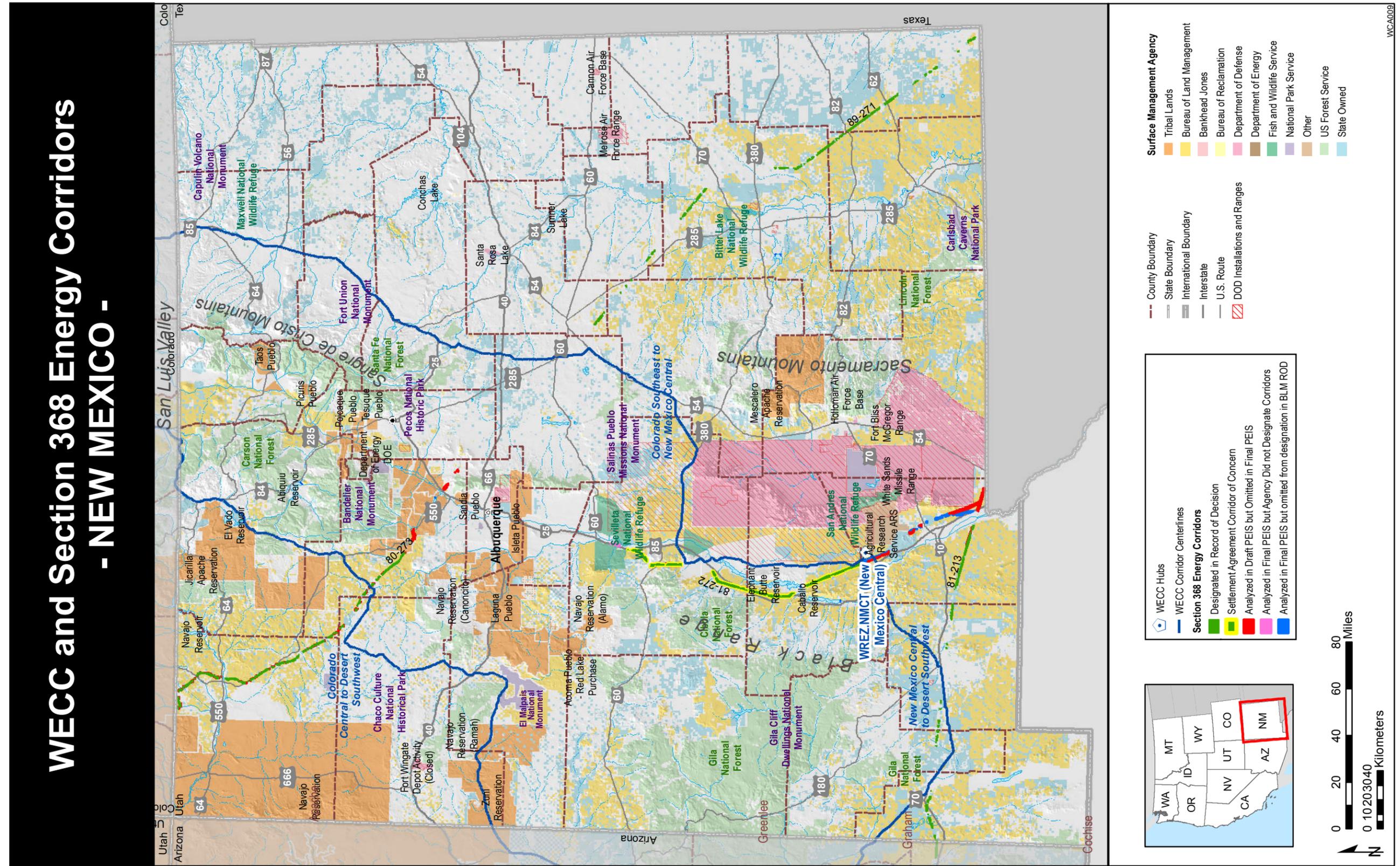


Figure E-1.7 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in New Mexico



Figure E-1.8 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Oregon

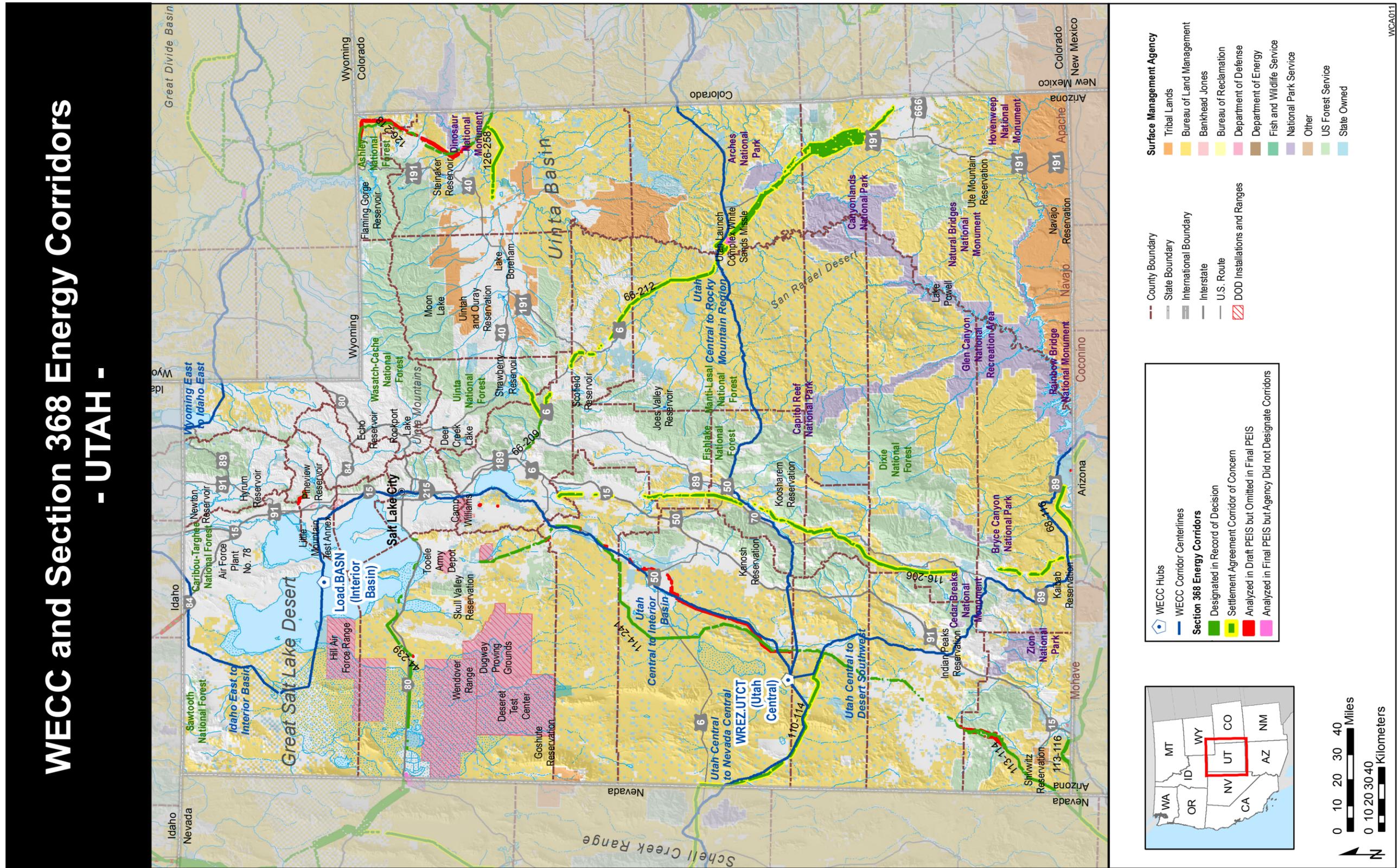


Figure E-1.9 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Utah

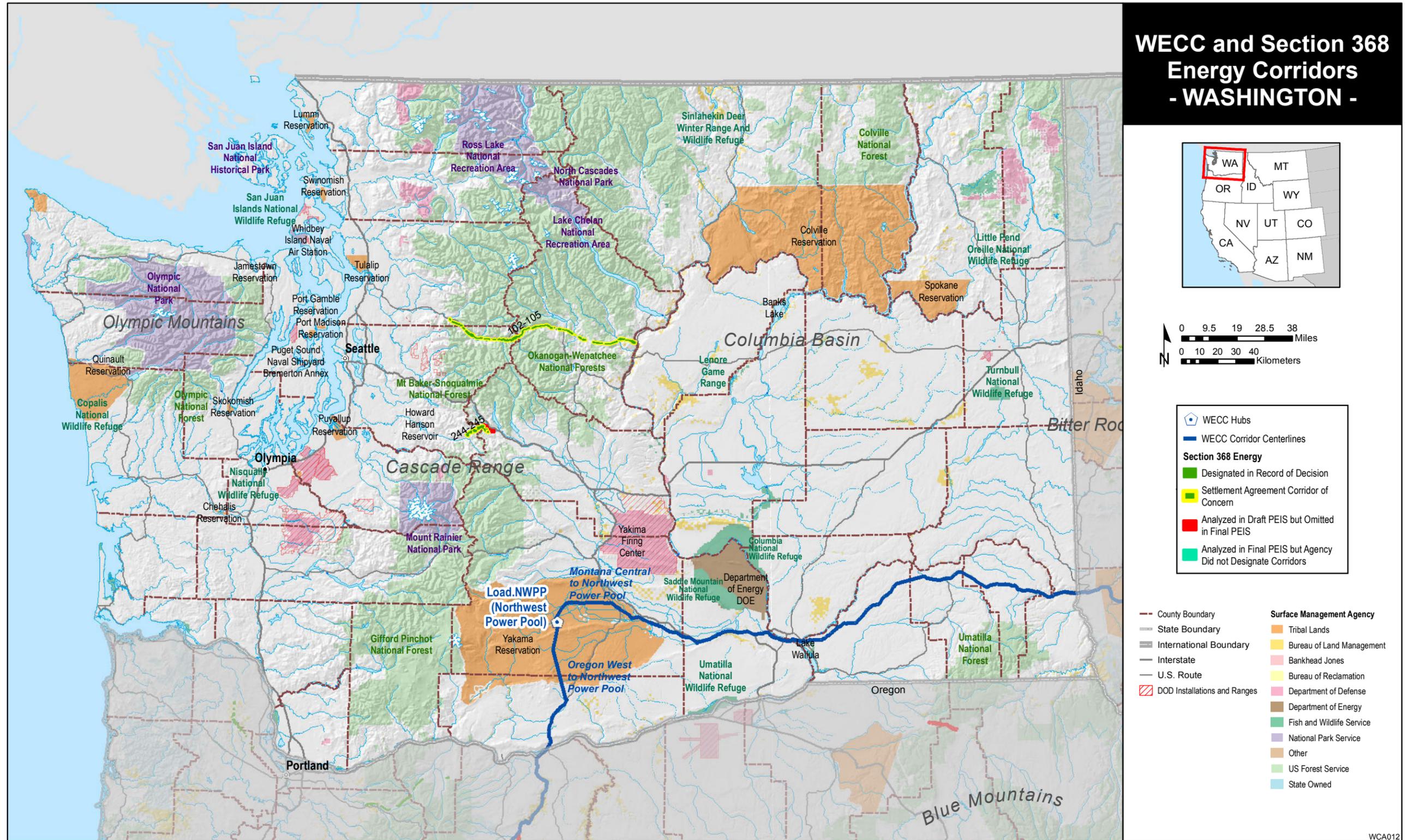


Figure E-1.10 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Washington

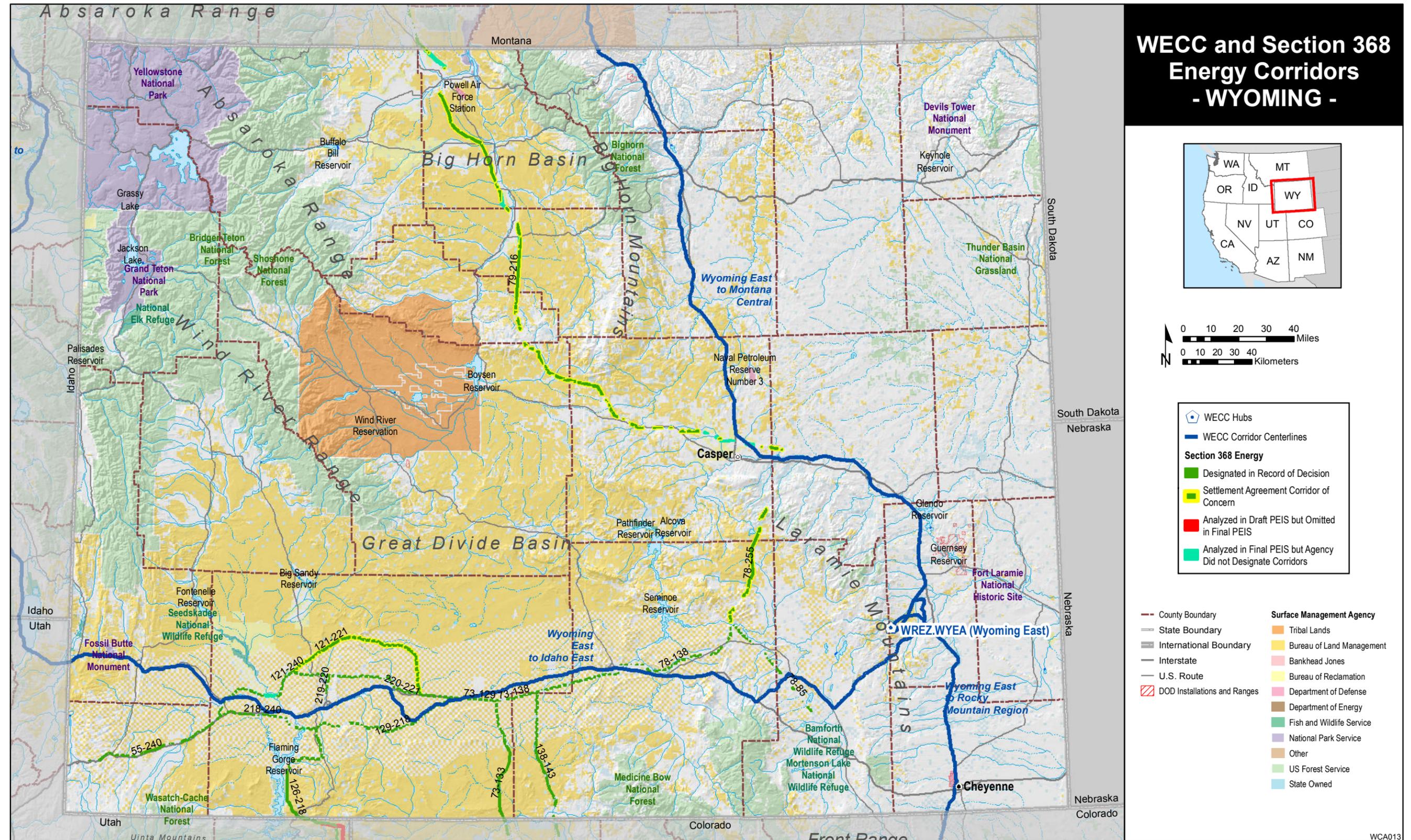


Figure E-1.21 WECC Proposed Energy Corridors, Section 368 Energy Corridors, and Land Jurisdictions in Wyoming

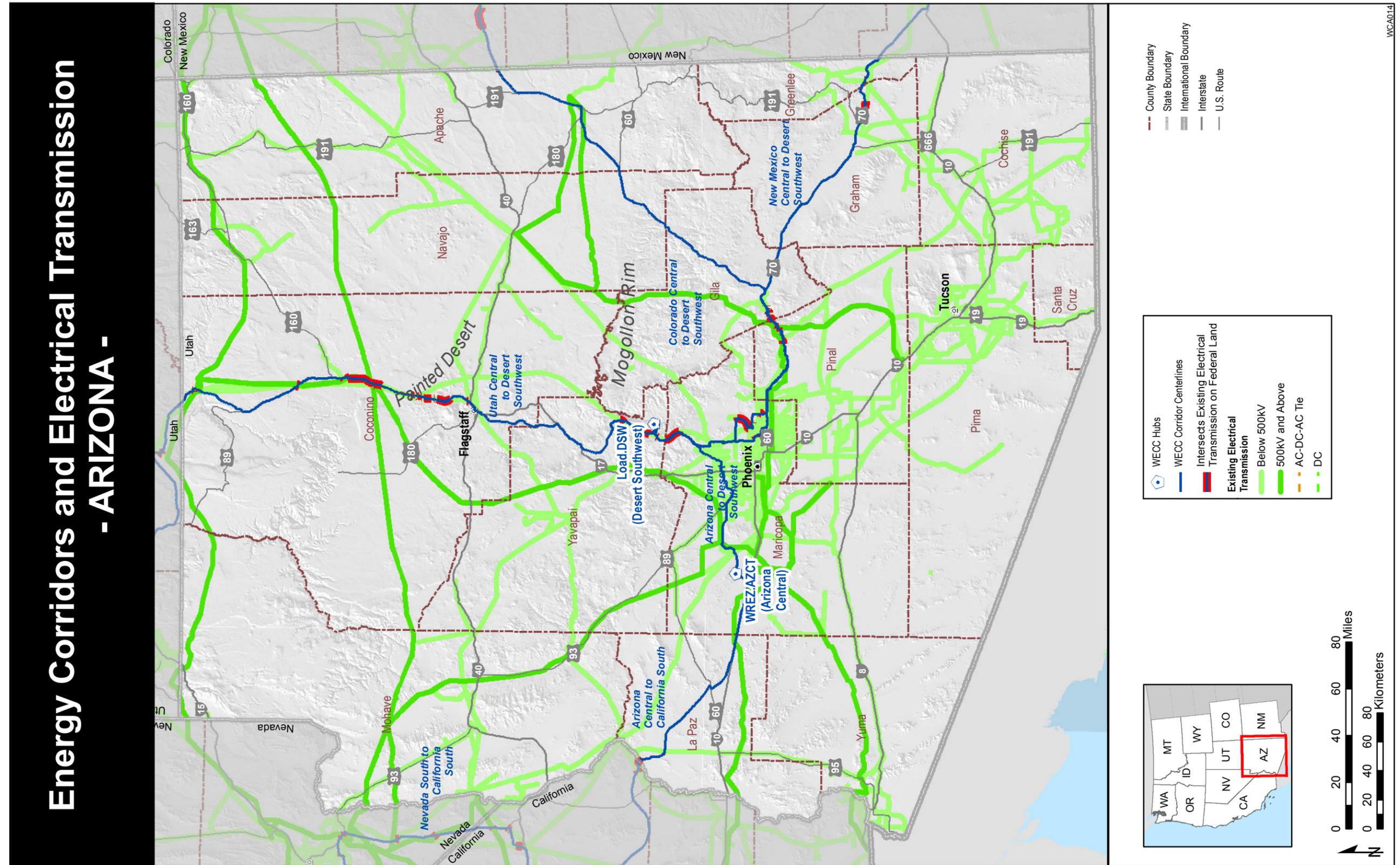


Figure E-2.1 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Arizona

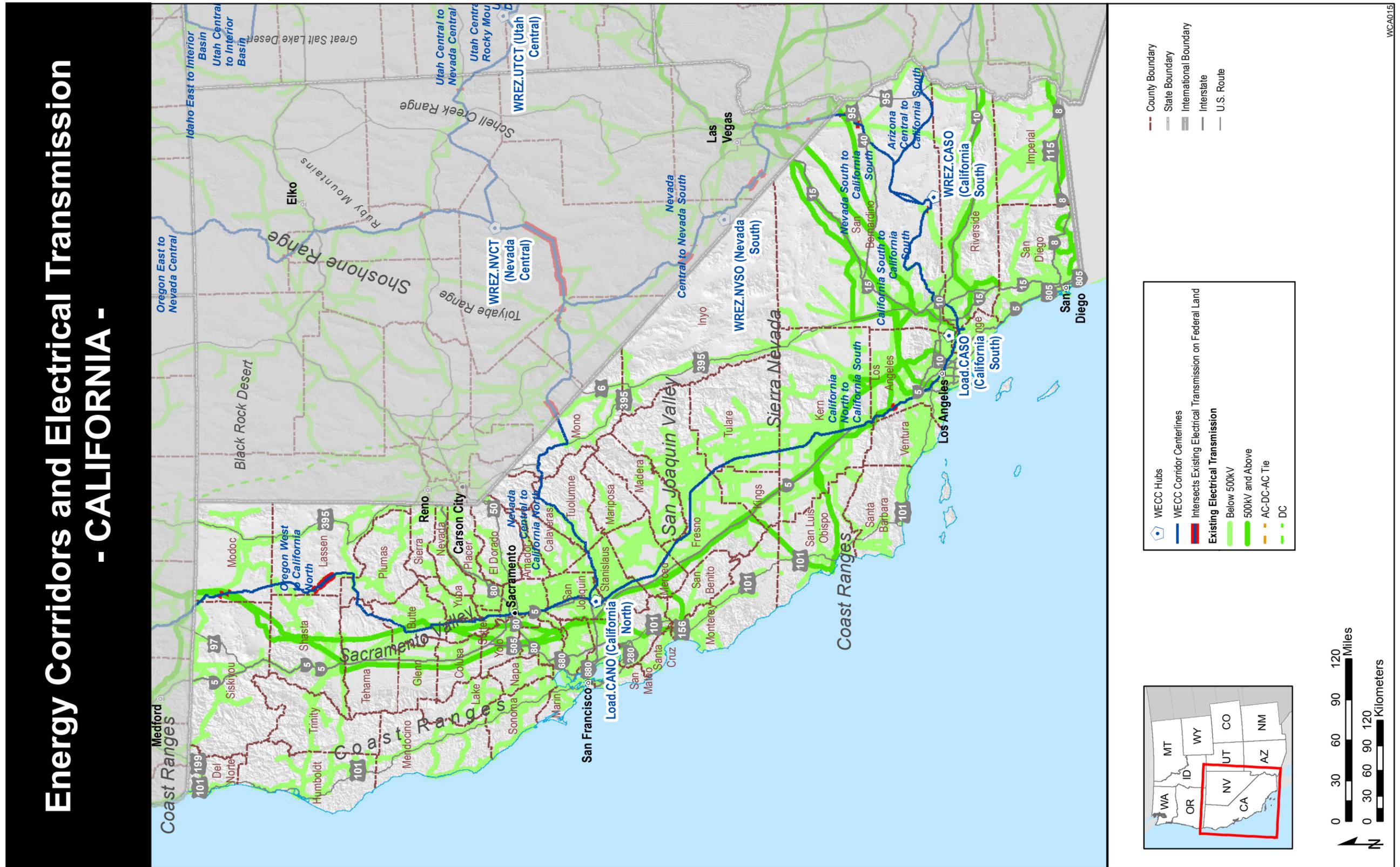
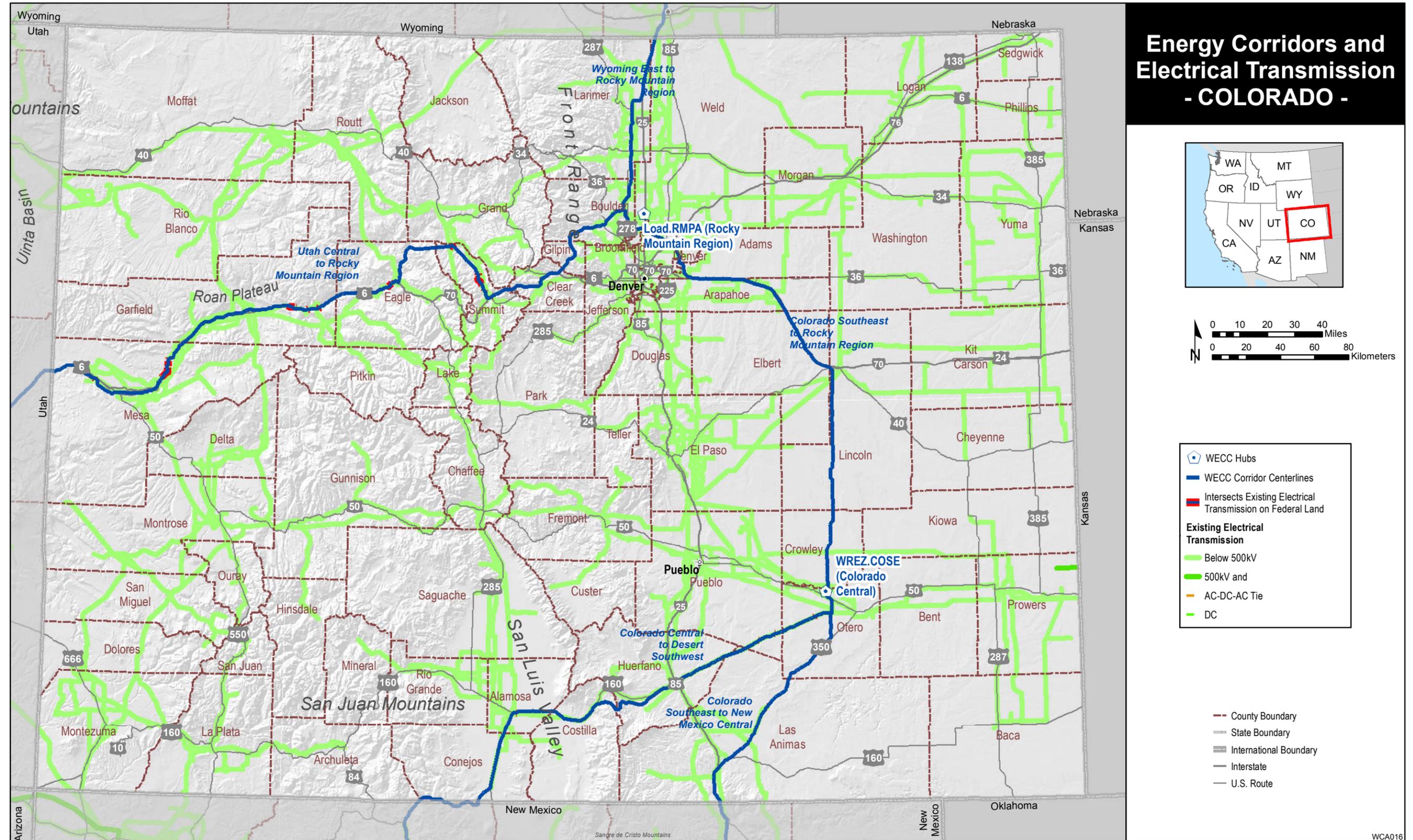


Figure E-2.2 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in California



Energy Corridors and Electrical Transmission - COLORADO -



- WECC Hubs
- WECC Corridor Centerlines
- Intersects Existing Electrical Transmission on Federal Land
- Existing Electrical Transmission**
- Below 500kV
- 500kV and above
- AC-DC-AC Tie
- DC

- County Boundary
- State Boundary
- International Boundary
- Interstate
- U.S. Route

Figure E-2.3 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Colorado

WCA016

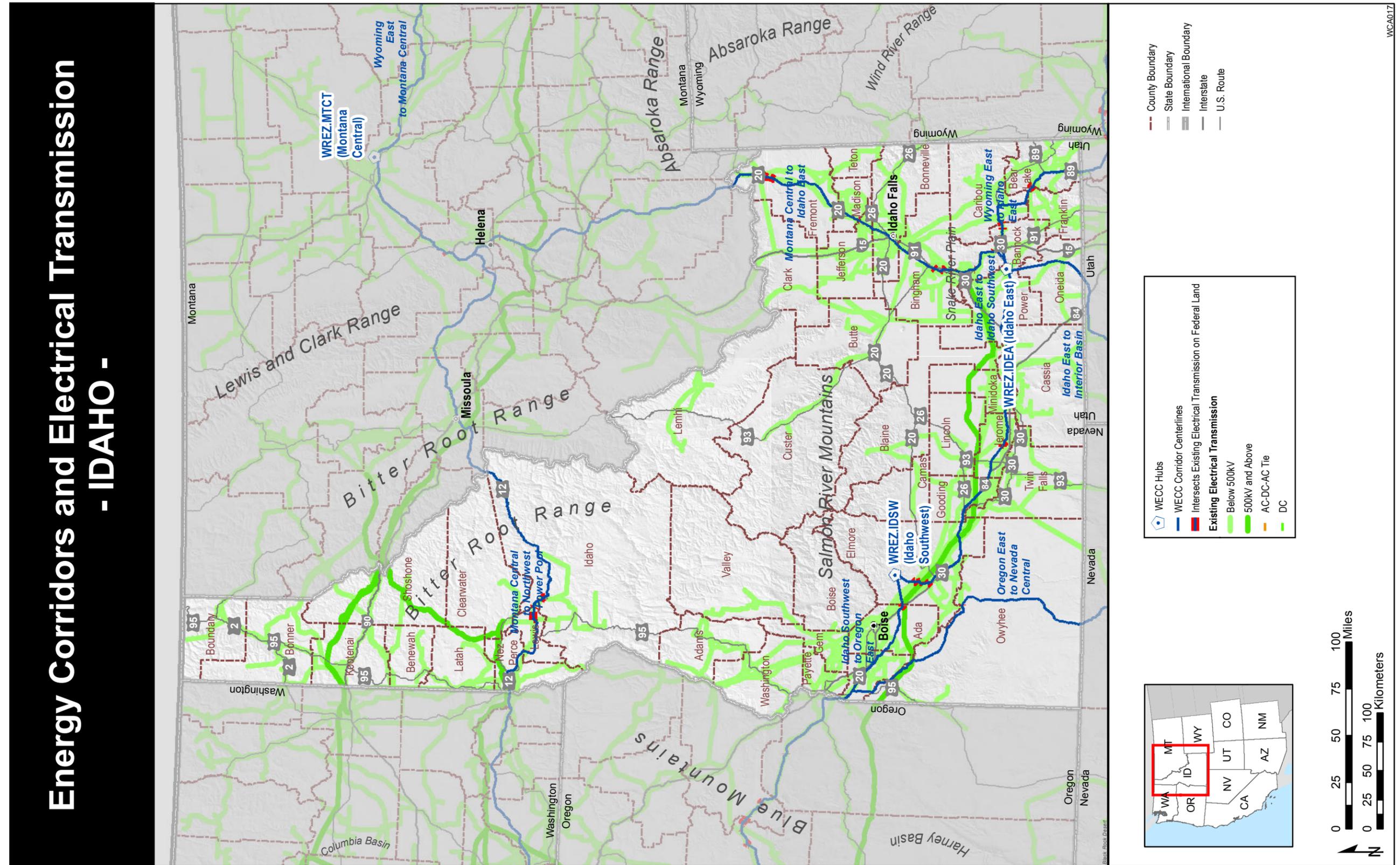


Figure E-2.4 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Idaho

Energy Corridors and Electrical Transmission - MONTANA -

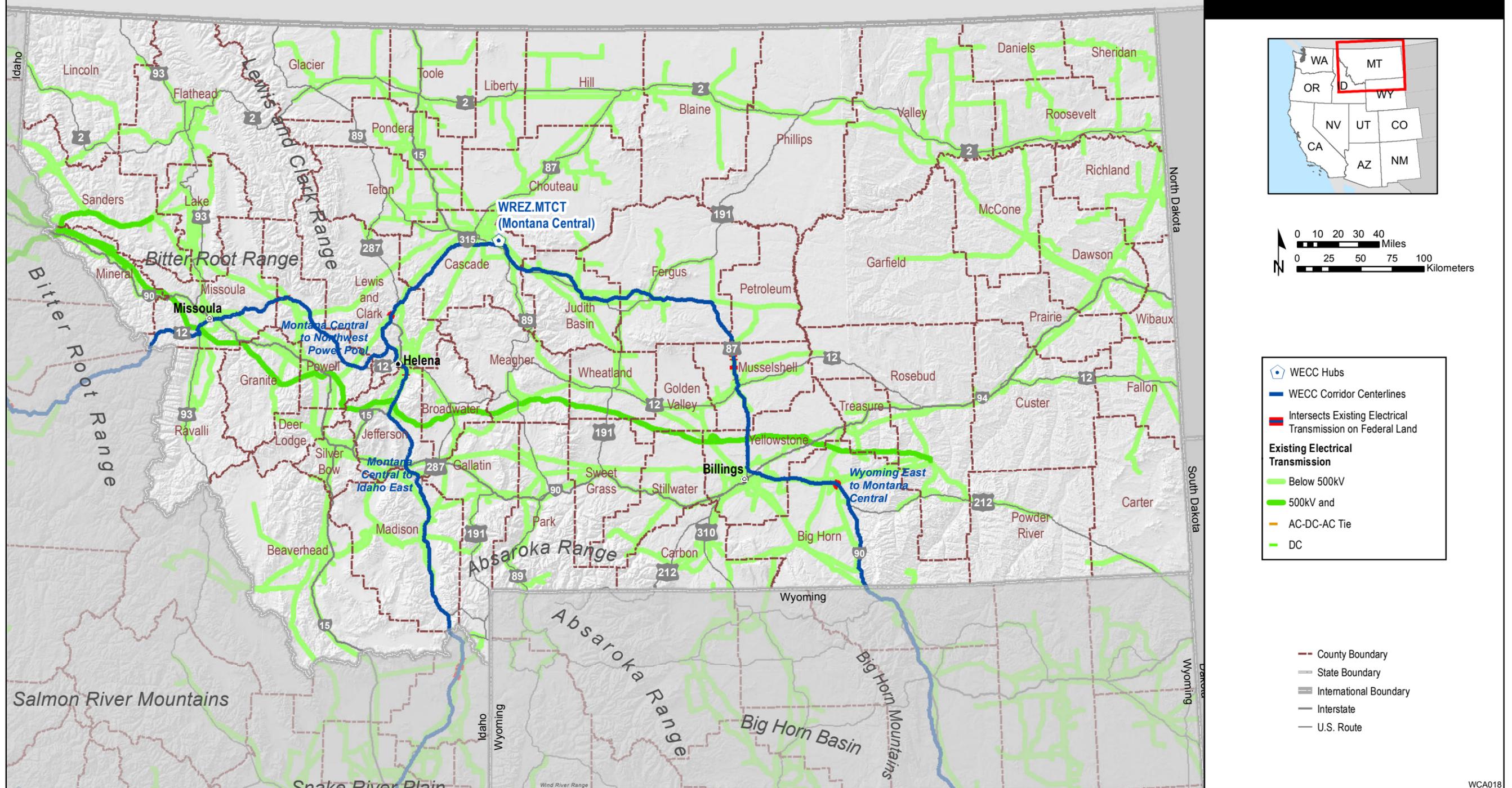


Figure E-2.5 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Montana

WCA018

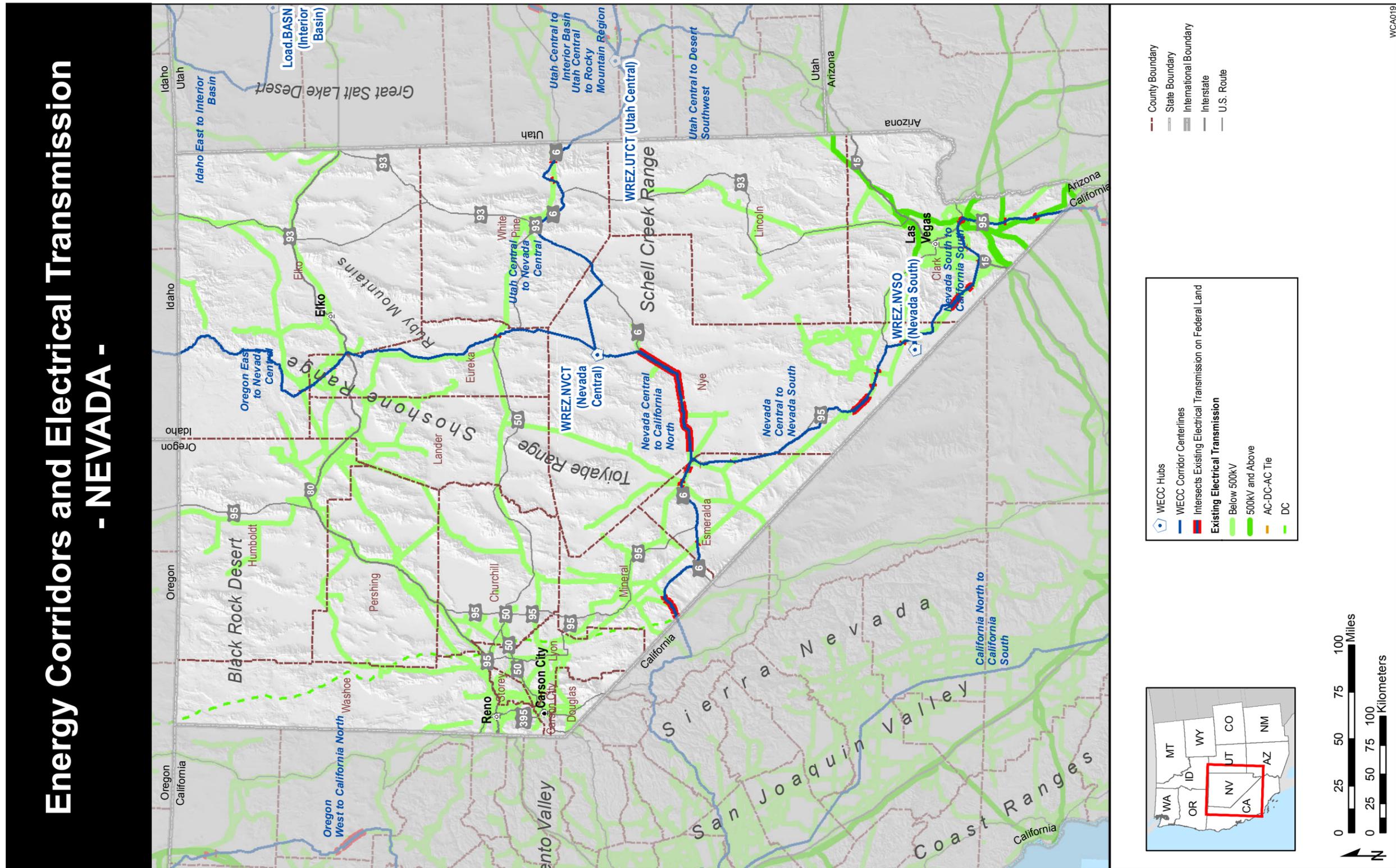


Figure E-2.6 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Nevada

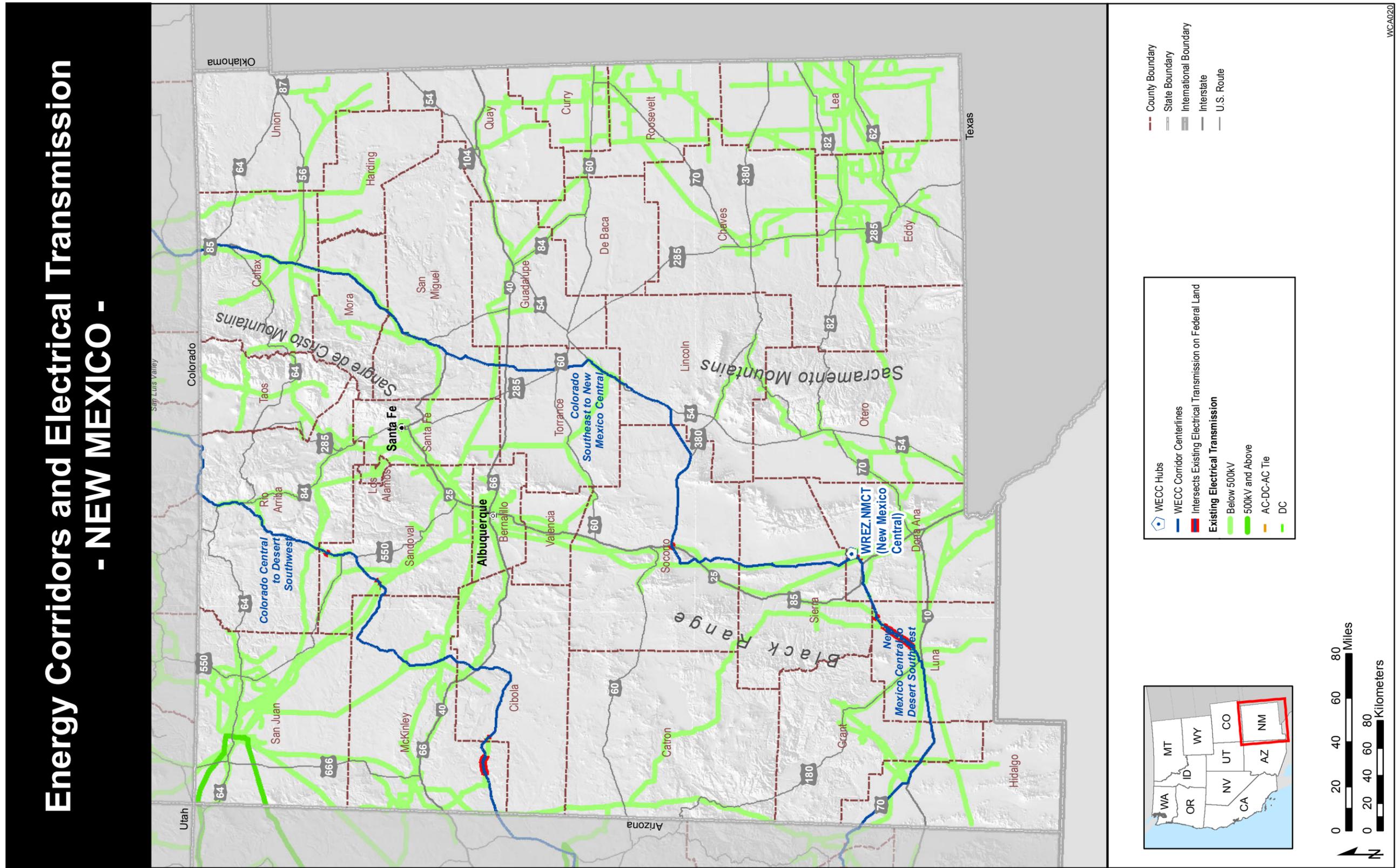


Figure E-2.7 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in New Mexico

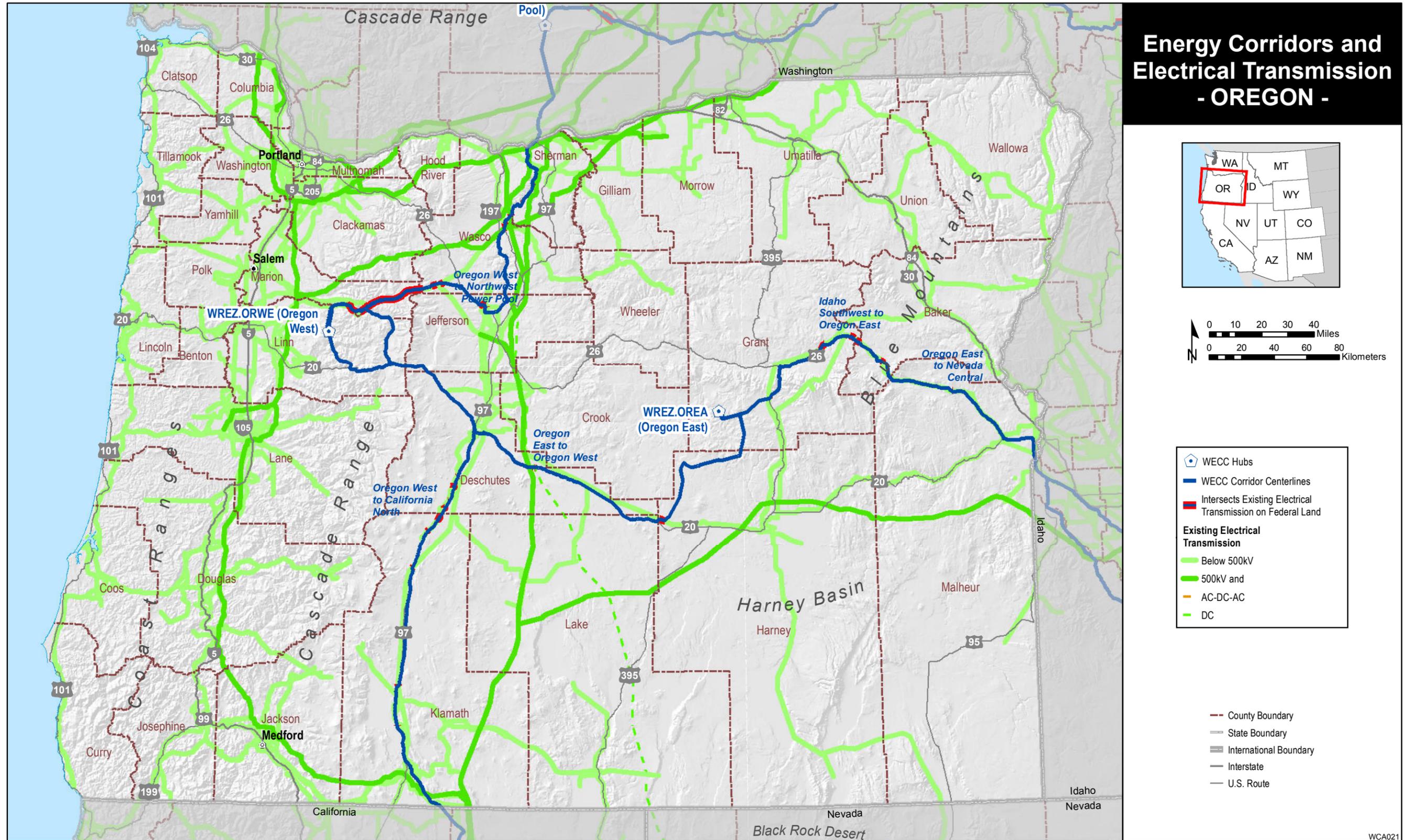


Figure E-2.8 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Oregon

WCA021

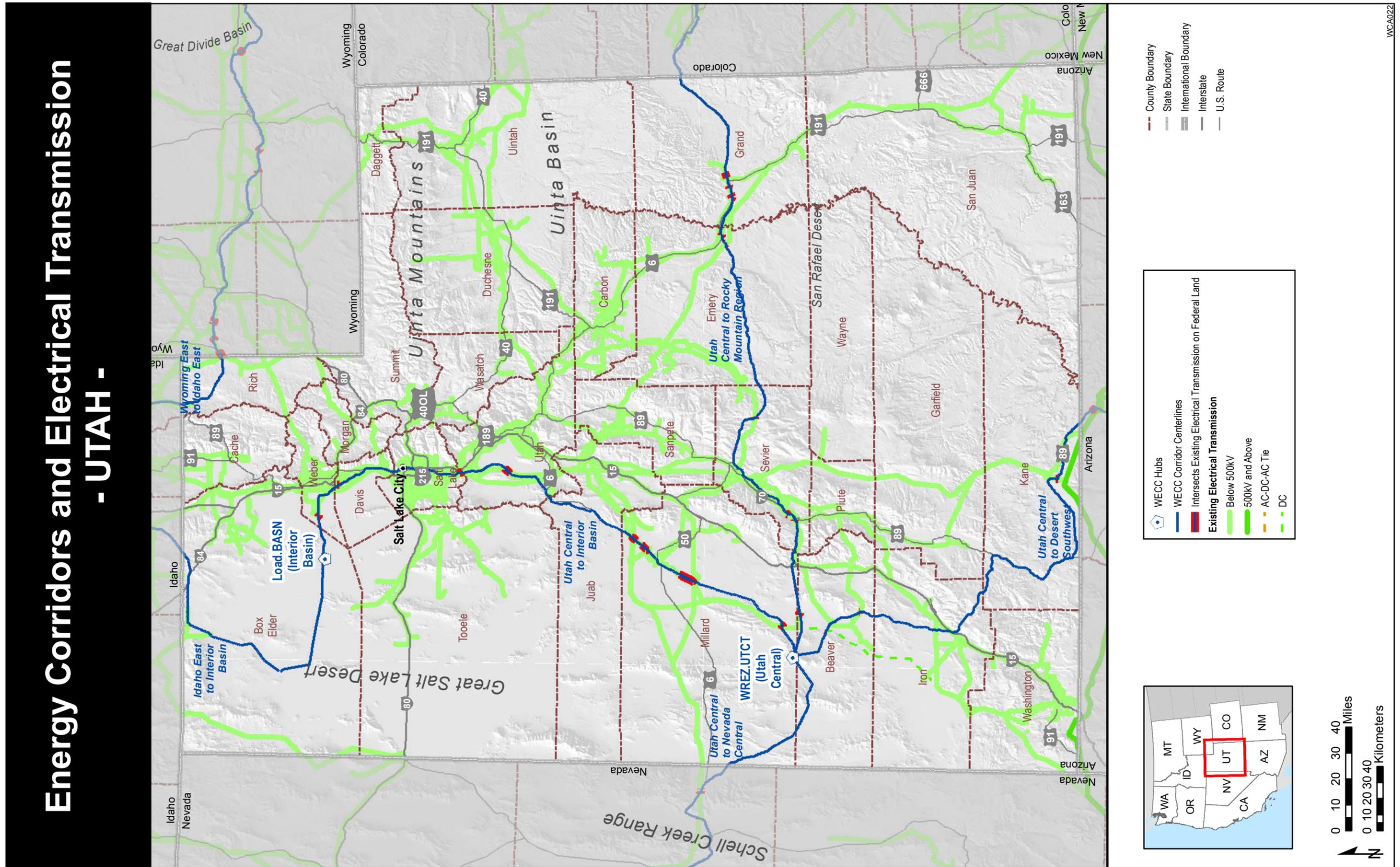


Figure E-2.9 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Utah

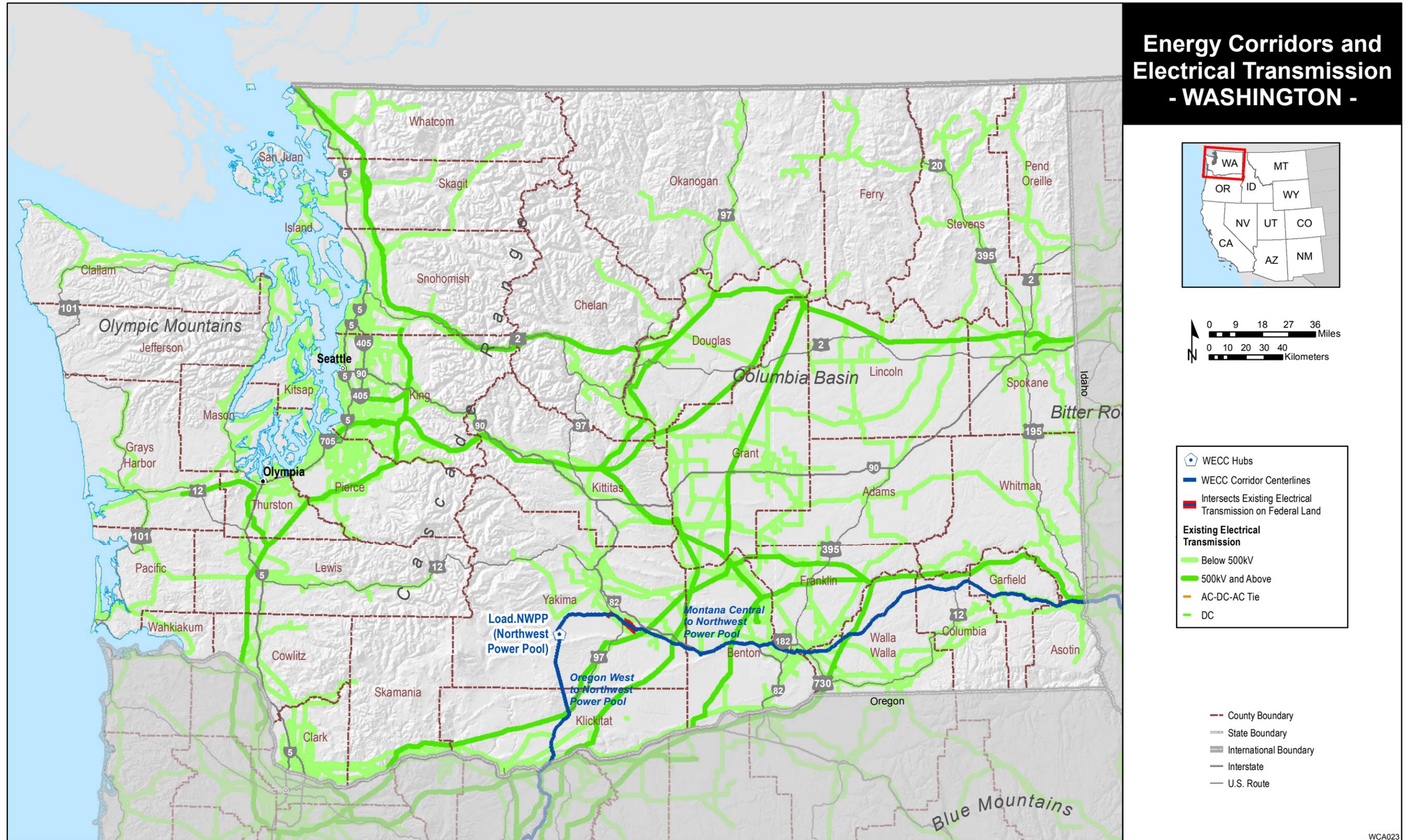


Figure E-2.30 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Washington

WCA023

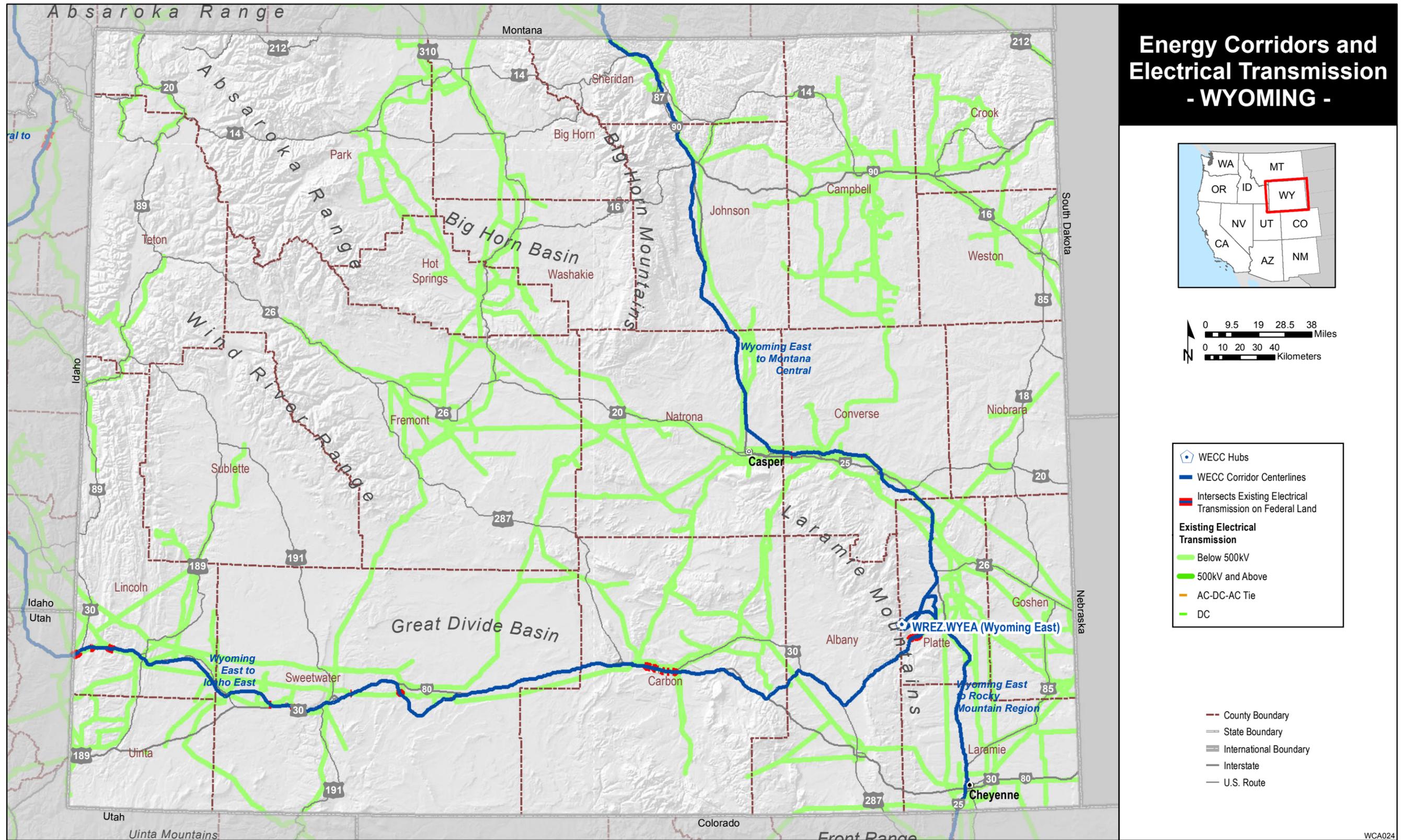


Figure E-2.41 WECC Proposed Energy Corridors, Electrical Transmission Lines, and Land Jurisdictions in Wyoming

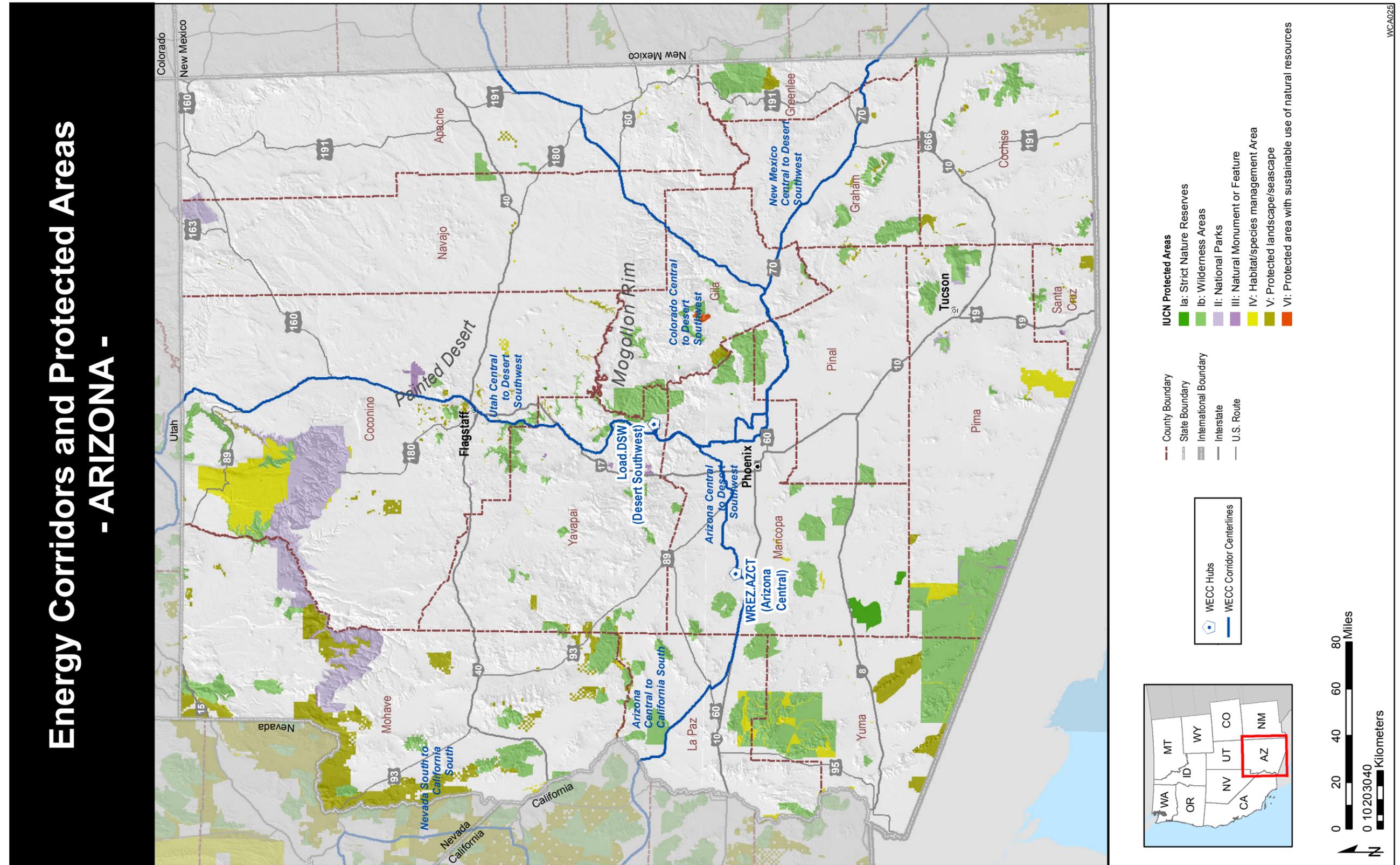


Figure E-3.1 WECC Proposed Energy Corridors and Land Protection Designations in Arizona

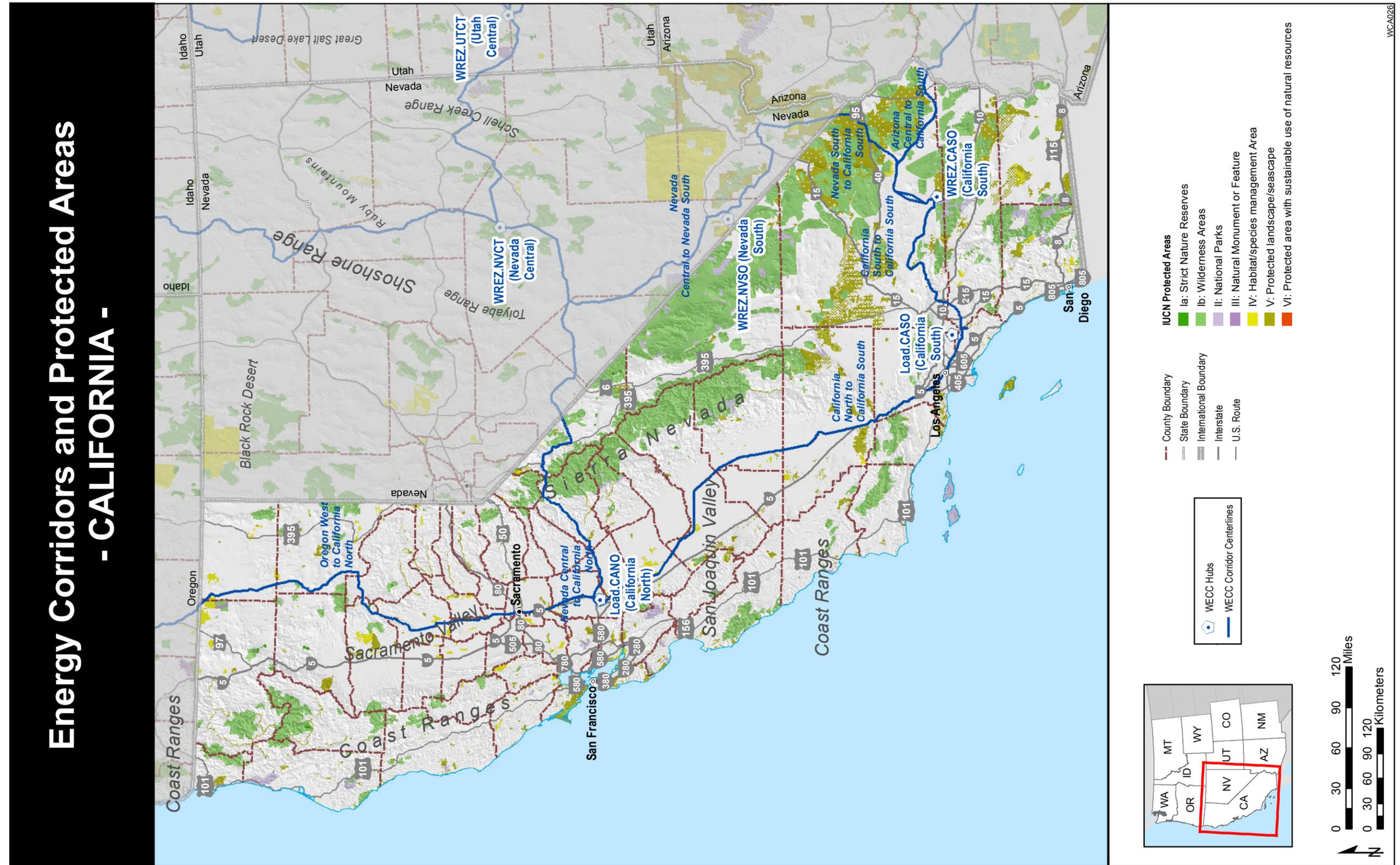


Figure E-3.2 WECC Proposed Energy Corridors and Land Protection Designations in California

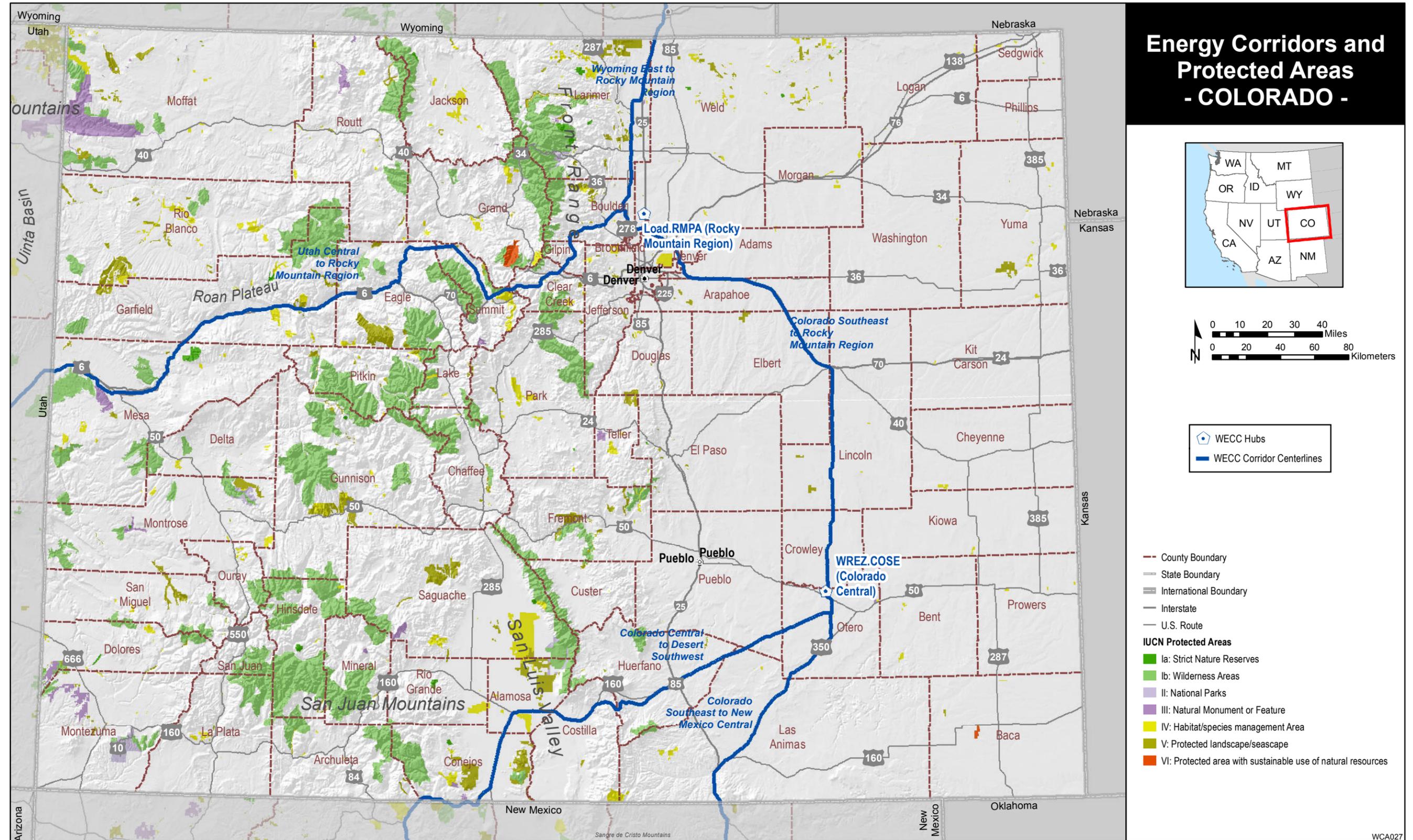


Figure E-3.3 WECC Proposed Energy Corridors and Land Protection Designations in Colorado

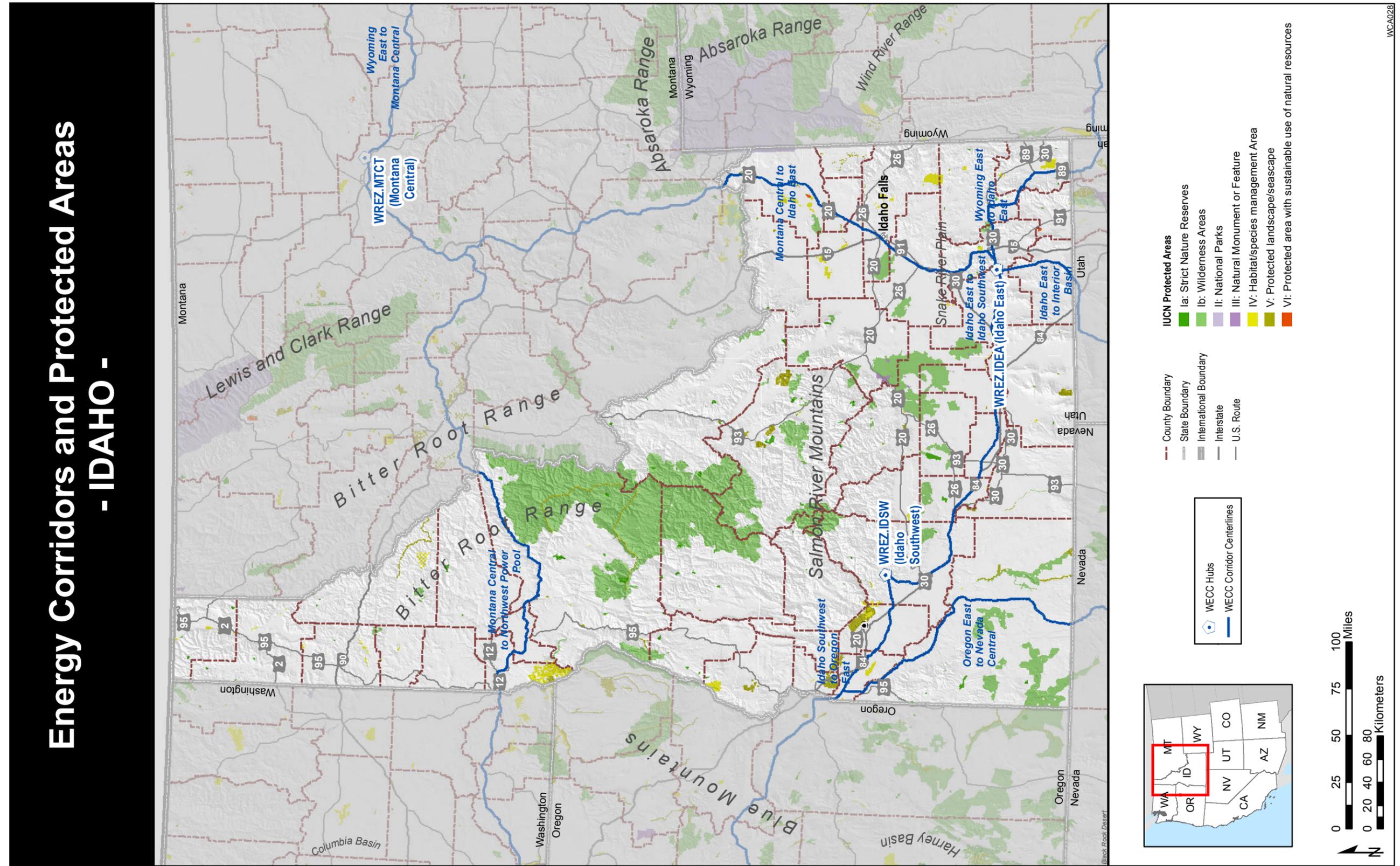


Figure E-3.4 WECC Proposed Energy Corridors and Land Protection Designations in Idaho

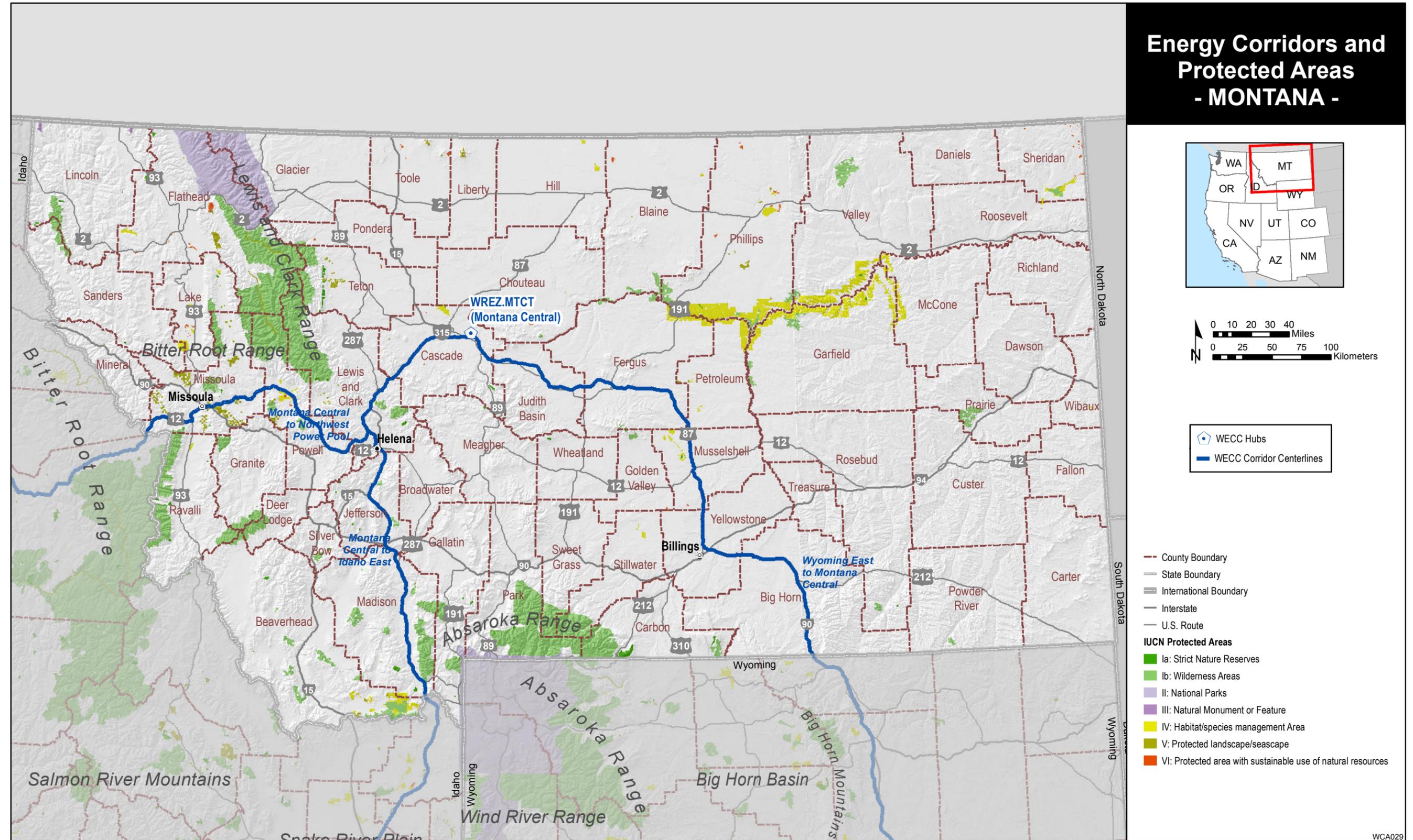


Figure E-3.5 WECC Proposed Energy Corridors and Land Protection Designations in Montana

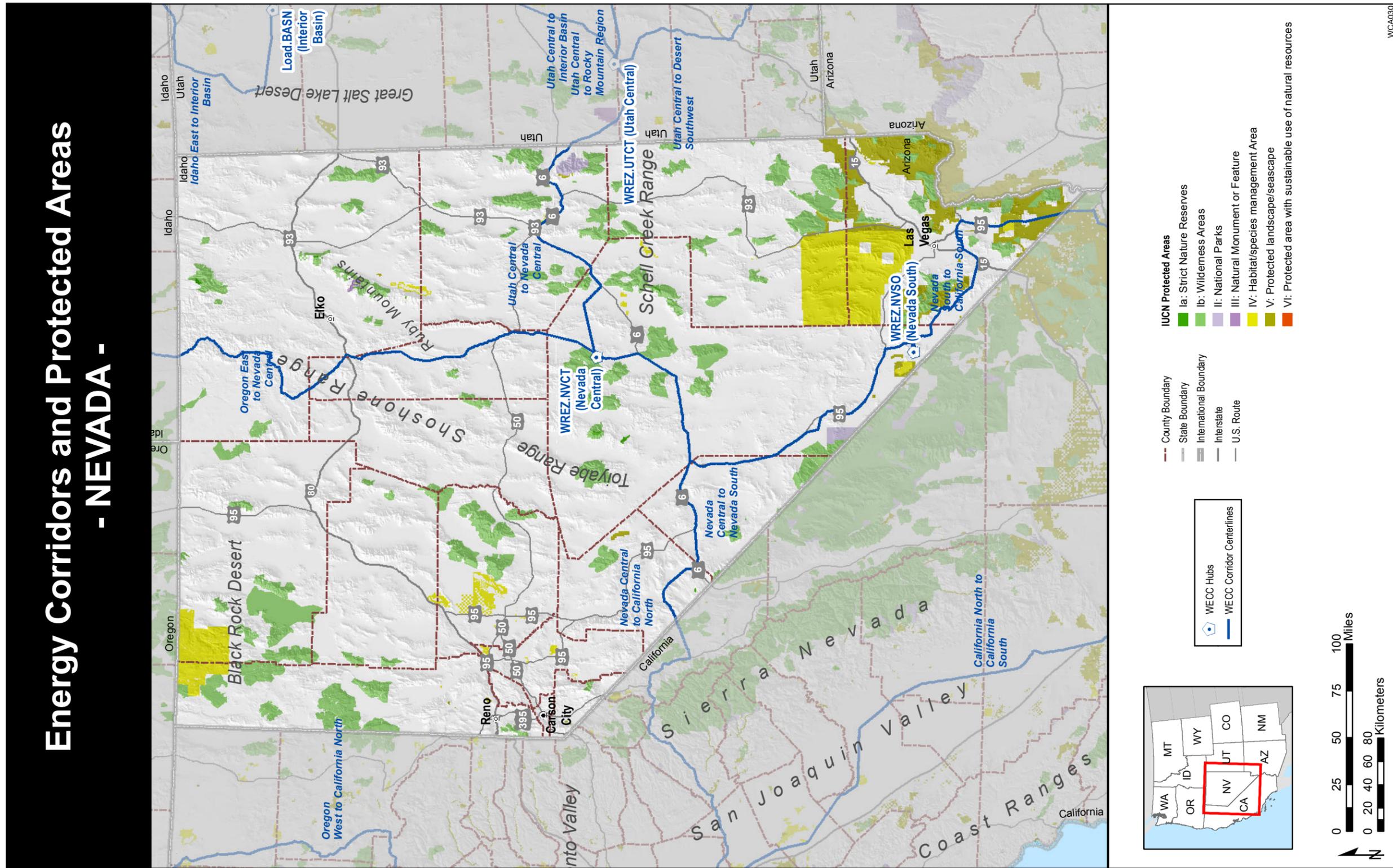
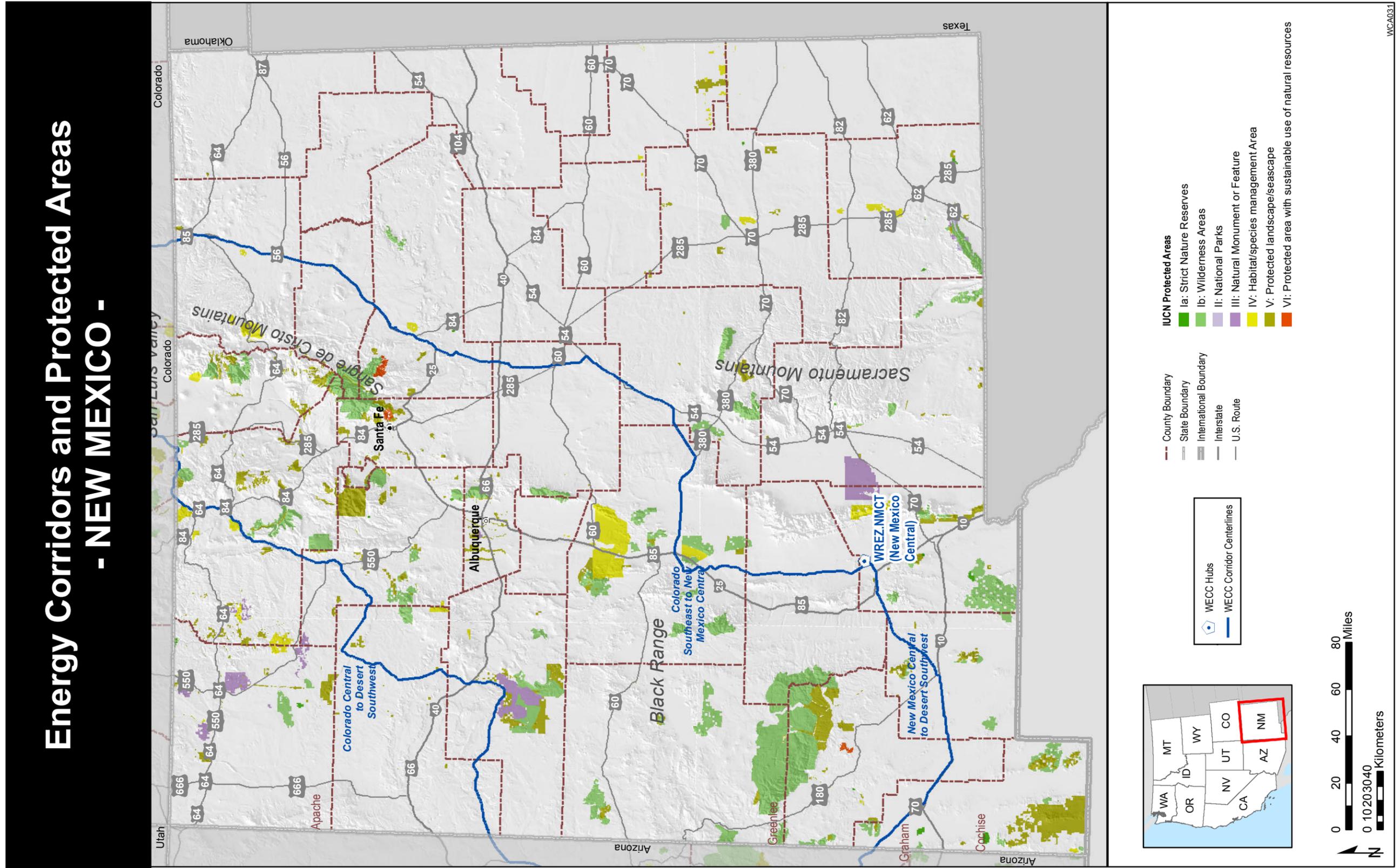


Figure E-3.6 WECC Proposed Energy Corridors and Land Protection Designations in Nevada



Energy Corridors and Protected Areas - NEW MEXICO -

Figure E-3.7 WECC Proposed Energy Corridors and Land Protection Designations in New Mexico

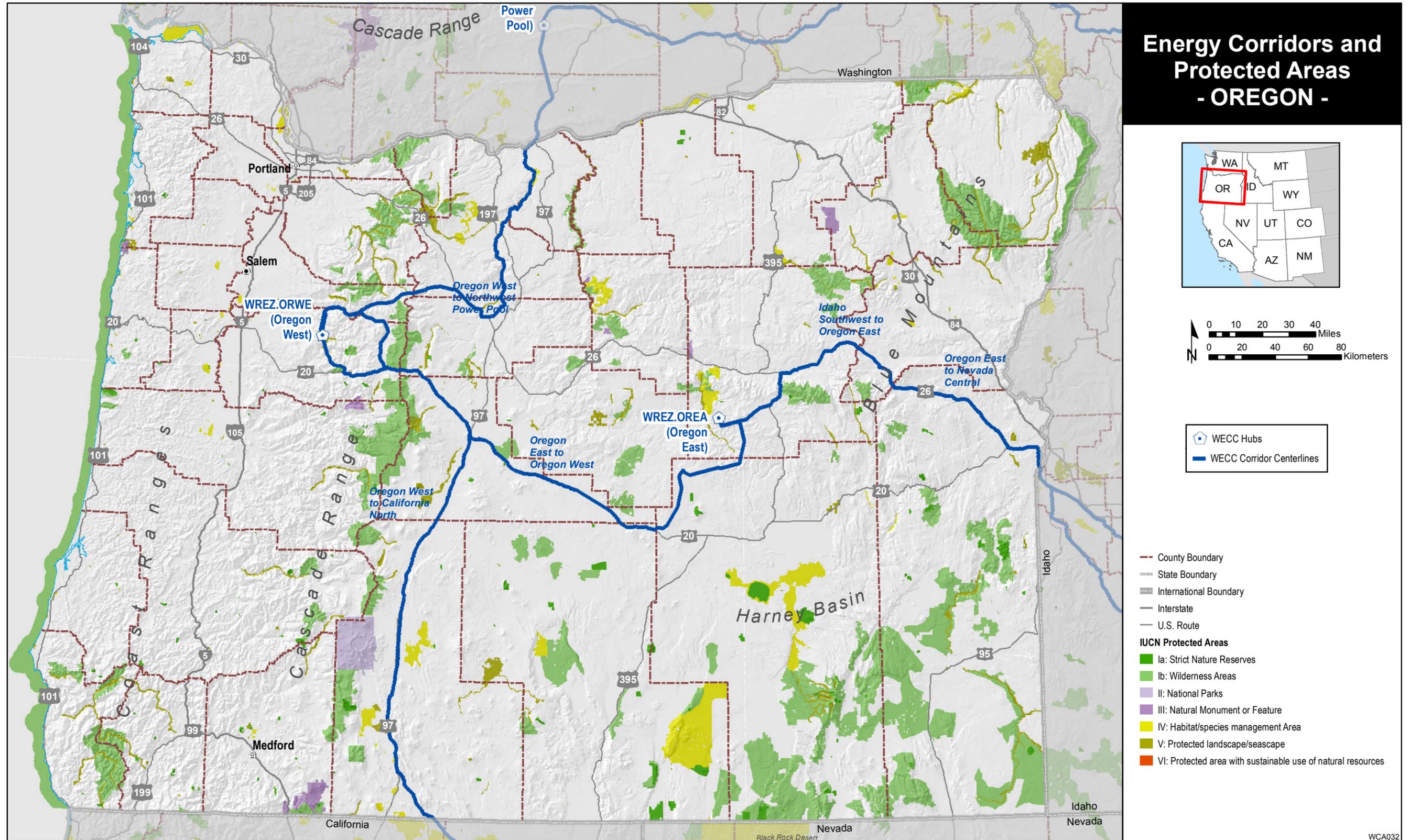


Figure E-3.8 WECC Proposed Energy Corridors and Land Protection Designations in Oregon

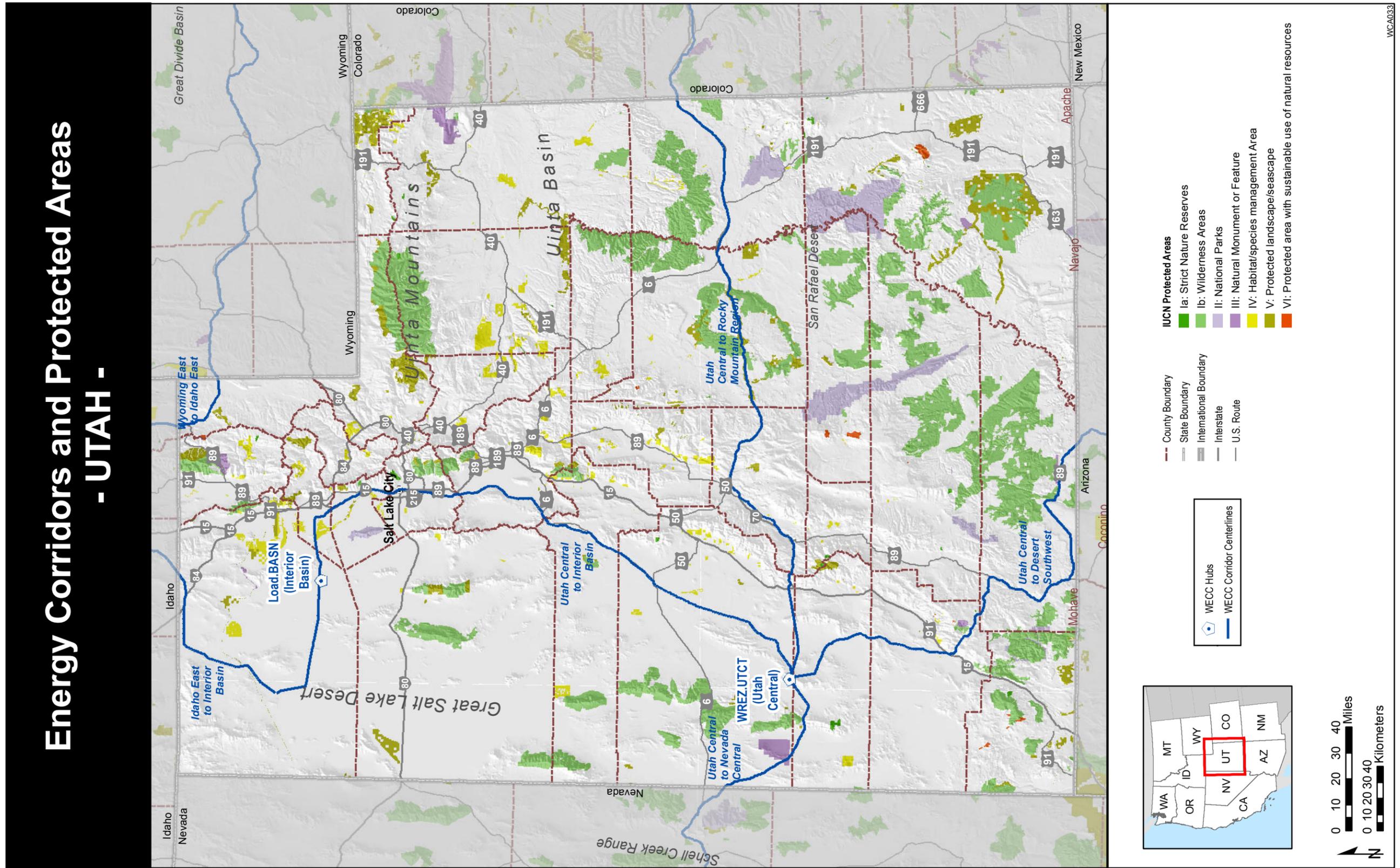


Figure E-3.9 WECC Proposed Energy Corridors and Land Protection Designations in Utah

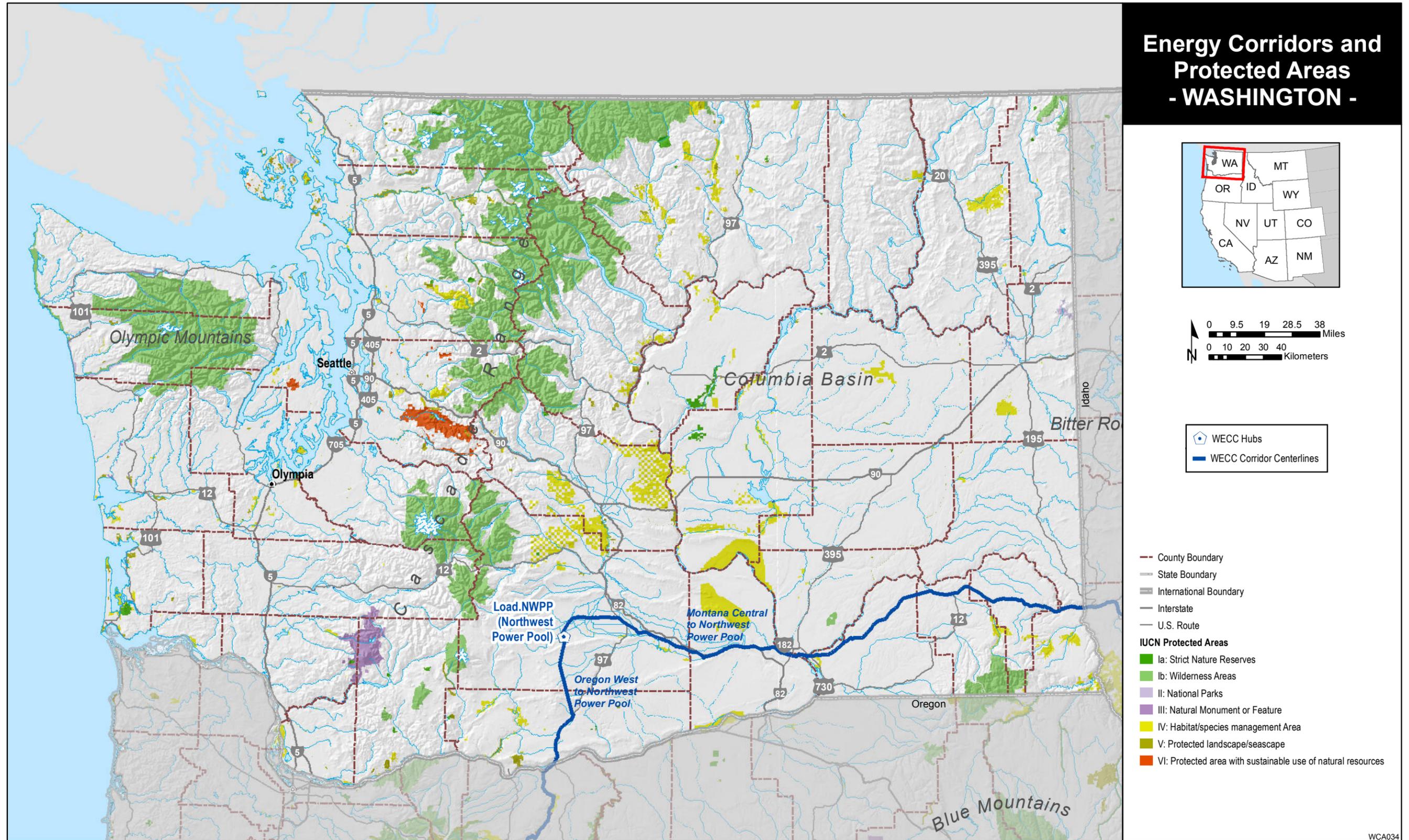


Figure E-3.50 WECC Proposed Energy Corridors and Land Protection Designations in Washington

WCA034

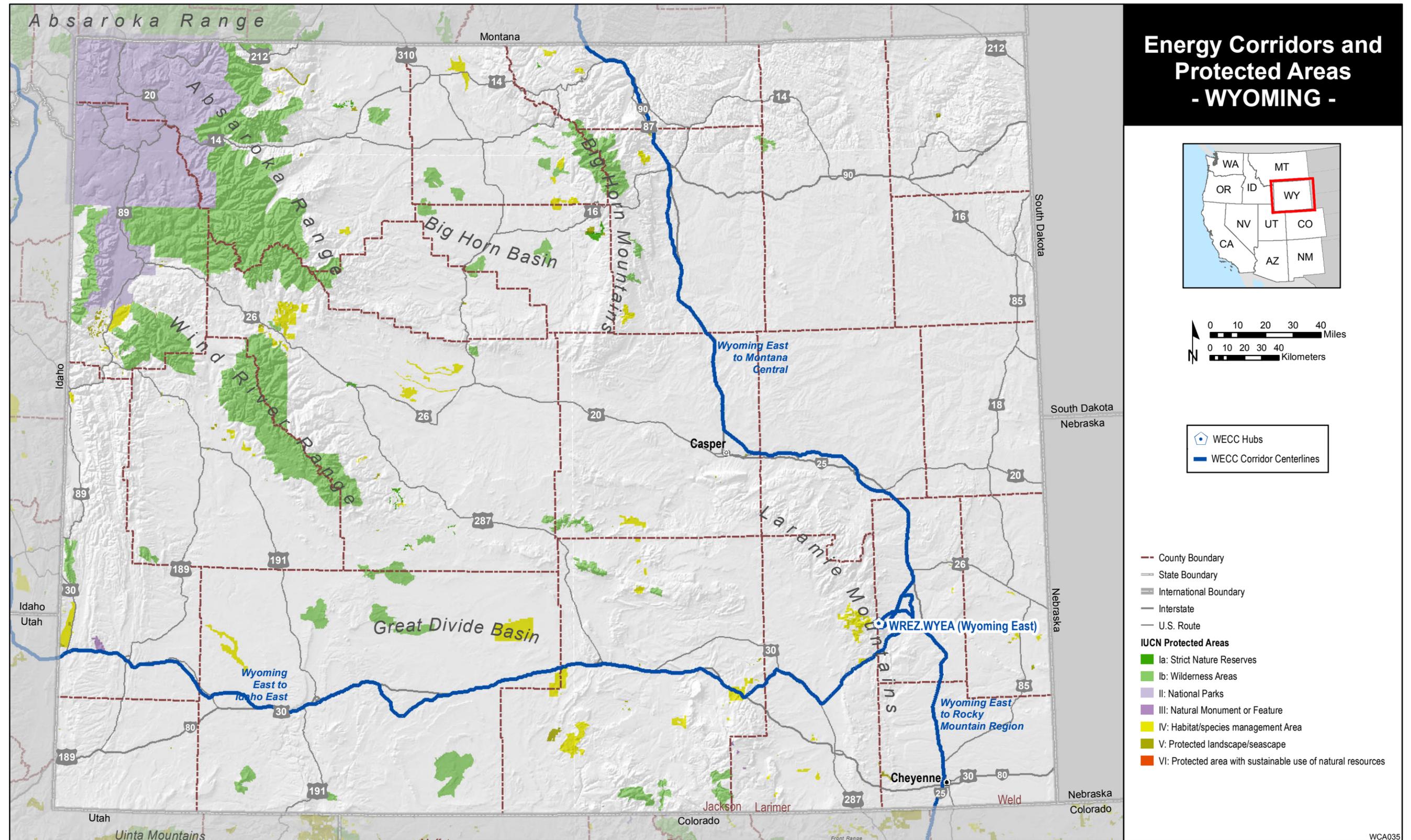


Figure E-3.61 WECC Proposed Energy Corridors and Land Protection Designations in Wyoming



Environmental Science Division

Argonne National Laboratory
9700 South Cass Avenue, Bldg. 240
Argonne, IL 60439-4847

www.anl.gov



Argonne National Laboratory is a U.S. Department of Energy
laboratory managed by UChicago Argonne, LLC