



## **West-wide Energy Corridors and Missed Opportunities for Renewable Energy Development and Public Lands Protection: an Engineering Assessment**

The West-wide energy corridor designations, finalized by the Bush administration in January, should be a tool to expand transmission capacity for bringing new megawatts of solar, wind and geothermal energy from the far reaches of the West to energy-starved population centers.

However, the Department of Interior and Energy failed to recognize real opportunities to achieve a much-desired win-win situation: maximizing renewable energy potential while minimizing impacts to sensitive public lands.

**In many cases, there is a way to connect stranded renewable energy generation to the grid without building new transmission lines that compromise treasured public lands.** By using readily available engineering technologies, upgraded transmission lines in existing rights-of-way can facilitate greater renewable energy capacity without building new lines through special areas. A rigorous examination of upgrading available grid assets and locating new transmission facilities in existing locations is a key analysis that went missing from the federal agencies' plan.

For example, an engineering assessment by the engineering firm Utility Systems Efficiencies, Inc. (USE)<sup>1</sup>, finds that technical upgrades on a transmission line in one existing corridor has potential to carry an additional 1,500 to 3,000 MW of Wyoming wind energy directly to Las Vegas. If it is considered a viable option after more detailed engineering, this solution could **eliminate altogether the need for energy corridor designations passing through Grand Staircase National Monument and near Arches National Park** (see map p. 2).

The USE assessment **highlights over 100,000 linear miles of existing high-voltage power lines running through already-impacted rights of way in Western states where load capacity for renewables could be expanded using a variety of techniques:**

- Better analyzing electricity needs and recognizing opportunities for efficiency in load centers that are targeted by proposed transmission lines as an integral part of transmission planning.
- Upgrading and maximizing existing transmission lines by installing new 230 kV, 345 KV or 500 kV power lines or by adding equipment such as new substations.
- Using more efficient conductors to optimize flows via the use of technology known as series capacitors and/or reactors.

**All of these options are well-within reach** and were not fully considered by federal agencies during West-wide Energy Corridor designations. To address this and other inadequacies and make the designations a useful tool for our clean energy future, the West-wide Energy Corridors should be fixed.

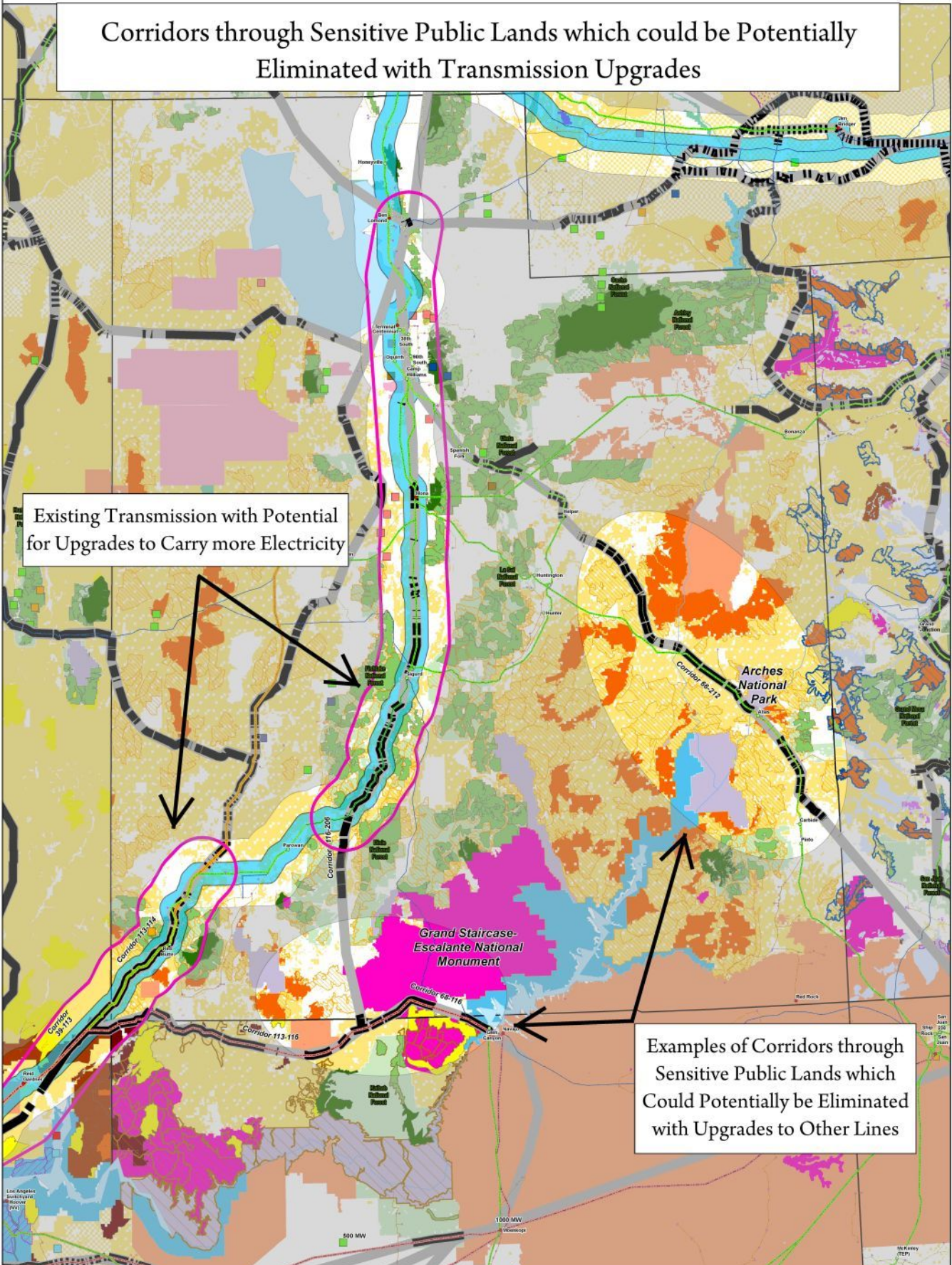
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<sup>1</sup> Expert Opinion Statement Regarding Potential Engineering Solutions to Assist in Regional Transmission Planning, prepared by Utility System Efficiencies, Inc. for Western Resource Advocates. Ty Larson, 6/6/2008.

Corridors through Sensitive Public Lands which could be Potentially Eliminated with Transmission Upgrades

Existing Transmission with Potential for Upgrades to Carry more Electricity

Examples of Corridors through Sensitive Public Lands which Could Potentially be Eliminated with Upgrades to Other Lines



**Legend**

**Existing Transmission Network (Not to Scale)**

- 345 kV\*
- 500 kV\*
- 69 kV-345 kV\*
- 66 kV-90 kV\*
- 69 kV-150 kV\*
- 200kV-300 kV\*
- 301 kV-400 kV\*
- 500 kV\*
- 735-765kV\*
- DC\*

**Grid Interconnection Requests (Queues) by Generation Type†**

- Wind
- Solar
- Geothermal
- Hydro
- Coal
- Gas
- Unknown
- DC\*
- Other

**Land Use Designations**

- Bureau of Land Management (BLM)
- BLM (Areas of Critical Environmental Concern)
- BLM (Wilderness Study Areas) ‡
- BLM (Wilderness) ‡
- US Forest Service (USFS)
- USFS (Inventory Roadless Areas) ‡
- USFS (Wilderness) ‡
- National Park Service (NPS)
- NPS (Wilderness)
- US Fish and Wildlife Service (USFWS)
- National Monument
- National Recreation Area
- National Wildlife Refuge
- Bureau of Indian Affairs
- Department of Defense

**Proposed Wilderness and Other Sensitive Landscapes**

- Citizen's Wilderness Proposal\*1
- AMC Proposed Wilderness Areas†
- Proposed Wilderness Areas†
- Potential Conservation Areas†
- Jack Morrow Hills Boundary†

**Potential Energy Corridors on Federal Lands†**

**Likely Continuation of Energy Corridors on All Lands:**

- Potential Upgraded Corridors
- Areas Where Potential/Likely Continuation of Energy Corridors and Potential Upgrade Corridor Overlap

**Sources**

- \* Global Energy Decision, LLC (2007)
- † Public Service Co of Colorado, WAPA, PacifiCorp, Nevada Power Company, Sierra Pacific Power Company, Arizona Public Service (January 2009)
- ‡ Utah GIS Portal at <http://gis.utah.gov> (2008)
- § Arizona Wilderness Coalition (2009)
- ¶ Southern Rockies Conservation Alliance (2009)
- || Colorado National Heritage Program (2009)
- Department of Energy and Interior (Bureau of Land Management) (2007)
- Department of Energy and Interior, Draft West Wide Energy Corridors FEIS, Figure 2.2-5 at page 3-19 (2007)
- 1 Utah Wilderness Coalition (2008) and Utah Forest Network (2008)

0 15 30 45 60 Miles

**USE** Utility Systems Enterprises, Inc.

**Western Resource Advocates**

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