May 8, 2010
Utility Facility Review Board of Utah
160 East 300 South 4th Floor
Salt Lake City, Utah 84145-0585
E-Mail: psccal@utah.gov

RE: Docket No. 10-035-39

Dear Utility Facility Review Board Members,

We appeal to you today our objection and disappointment with Rocky Mountain Power's (RMP) plan for high voltage power lines from the city of Mona, through Juab, Utah, Tooele and Salt Lake Counties to the Oquirrh and Terminal Substations. The Public Service Commission web page states that your goals are to "ensure safe, reliable, adequate and reasonably priced utility service." We will try to present from RMP's own documents that they have failed to provide a reliable, adequate and reasonably priced project and provide some alternative ideas from other sources.

RELIABILE

If you look at [Figure 1-1] you will see that it is planned for the Wasatch Front to be served via 14 - 345kV lines. These lines are made up of 4 from the Ben Lomond substation, 2 from the Spanish Fork/Emery Substations and 8 from the Mona Substation (4 existing to the Camp Williams substation and 4 planned to the Limber substation). This results in 57.14% of the Power for the Wasatch Front being obtained from the single source in Mona. This means that if any of the 8 incidents in 26 years as cited in Mr. Darrell T. Gerrard's Direct Testimony [Figure 1-2]occurs within the Mona System, could result in a loss of over half of the Wasatch Front's power. RMP states in the Final Environmental Impact Statement (FIES) inthe section Parallel 345kV lines from Limber Substation to Lake Point. "*This alternative route was considered and eliminated from further analysis because of unacceptable system reliability risk and loss of redundancy in the case of a simultaneous outage*".(FIES Page 2-35) RMP is concerned about the reliability of 2parallel 345kV lines in Tooele County yet seem to be content to have over 50% of the power for the Wasatch Front come from a single source.

A seemingly better plan would be to place the Limber Substation (proposed to be the largest physical RMP substation in Utah) on the Northern end of the Tooele Valley for easy access of the I80 energy corridor (proposed 500kV line) [Figure 1-3] and along the west side of the Great Salt Lake to the 500kV system in Southern Idaho [Figure 1-4]. Without creating multiple High Voltage lines on the West Side of the Tooele Valley. This would result in the 4 Limber 345kV lines to obtain power from multiple sources providing at least 8 - 345kV lines to the remain available to the Wasatch front in the event of a major incident along any of the routes.

ADEQUATE

In the Final Environmental Impact Statement (FIES) RMP states, "*Northern Utah represents the fastest growing area within the State of Utah and constitutes one of the major growth areas within the region. Demand for electrical power is increasing at an approximate rate of 200 to 250 megawatts (MW) each year*"(FEIS Pg S-1). Later they state in section 1.1.1 "*As originally proposed, the Project included an ultimate transfer capacity of 3,000 MW. Of the 3,000 MW capacity, a portion (1,500 MW) is required to meet the forecasted demand of the Proponent's customers, with the additional 1,500 MW of capacity to be made available to meet requests for third-party transmission service*". (FEIS Page 1-1) Using simple math that informs us that a 500kVline can handle approximately 1500 megawatts (MW) of power and that a 345kV line approximately 750 MW. So the initial phase of powering the Mona line section at 345kV will meet the expected growth rate for 3 to 3.75 years. At which time the Limber substation must be built and powered at 500kV, which then gains another 3 to 3.75 years. So we can see that in 6 to 7.5 years. At which time there will be a need for the second 500 kV line from Mona, which then gains us another 6 to 7.5 years for 12 to 15 years total.

A seemingly better plan would be to use a 765kV system. A single 765kV line carries as much power as 6 -345kV lines [Figure 2-1]. This would increase the proposed system to approximately 4500MW capacity. Which would then help meet the power demands of the Wasatch Front for 18 to 22.5 years, itrequires a much smaller land footprint of 200 feet wide rather than 450 to 900 feet wide right of ways [Figure 2-2] as well as being more environmentally friendly by having a greater transmission efficiency thus reducing the amount power lostduring transmission [Figure 2-1].

REASONABLY PRICED

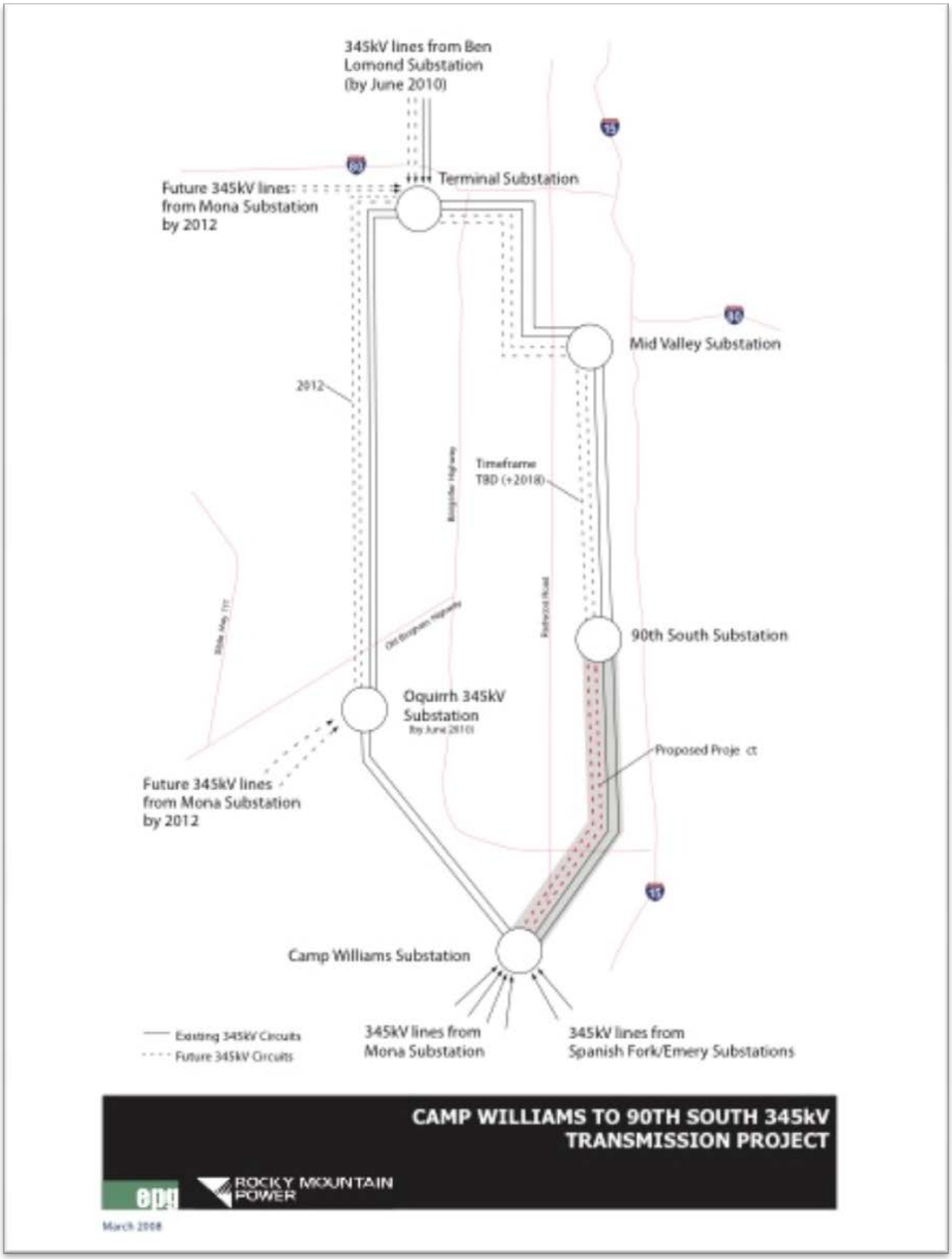
RMP claims that the cost of the 500kV line is approximately $2.5million per mile (this cost shows as the same in the Draft EIS double circuit and the FEIS single circuit configurations) while the 345kV line is $4.1millionper mile [Figure 3-1]. These calculations show that RMP could save approximately $1.6million per mile to use the 500kV line system. The equates to a savings of $48.6million on the approximately 30 mile Limber to Oquirrh and $69.6million on the 43 mile Limber to Terminal lines for a total savings of $118.2million. This would also in effect eliminate the need for the Limber substation, and the money saved from that would need to be utilized in upgrading the Oquirrh and Terminal substations to handle the 500kV system.

A seemingly better plan would again be to utilize a 765kV system. Using Electric Transmission America costs as a guide [Figure 3-1]. We can see that a 765kV line is $300 thousand or 1.13 times higher in cost than a 500kV line, but can carry 3 times the power. We also see that it is $1.1 million or 1.7 times higher than a 345kV line, but can carry 6 times the power. If we use a cost of 1.13 times RMP's higher $2.5 million cost per mile of 500kV line or $2.8 million would make the cost of the approximately 69 miles Mona to Limber line cost $195.6 million rather than $173.1 million. That means that for small investment of $22.5 million or 13% of the estimated cost the Limber substation would have 3 times the amount of power. By comparison 3 lines of 500kV power would cost approximately $519.4 million oran increase of 265%($323.7 million)more than the 765kV system. Adding the use of 500kV dual circuit lines to the Oquirrh and Terminal substations would provide substantially more power to the entire Wasatch Front area at little or no increase in projected costs.

CONCLUSION

As we have shown, RMP's plan is really lacking in the areas of being reliable, adequate and reasonably priced utility service. The planned location of the Limber Substation tremendously limits its ability to be a reliable power source with the limited access from only 3 narrow corridors from the south, due east and due north. The Department of Defenses Army Depot will not go away any time soon and with the storage of the ammunition in bunkers will not allow power lines though the north-east area. The height and ruggedness of the Stansbury mountain range closes off routes to the west. Moving the substation will allow viable connections to the Nevada and Idaho high voltage transmission power grids. Utilizing a 765kV system would greatly increase the amount of power available to the Wasatch Front and West Desert areas. It would also decrease the monetary cost as well as the costs to the environment in the terms of land use and resources required to produce power lost on the less efficient transmission systems. Tooele County has never said "NO" to RMP, they have just said that this project must be done in a way that is the "BEST POSSIBLE" system for providing the greatest amount of power with the most effective costs to the Wasatch Front and Northern Utah. While reducing or eliminating the impacts to people (both present and future), property and environment of the Great State of Utah.

Sincerely,
Glenn and Lisa Terry
Concerned Citizens of
Grantsville City in the county of Tooele of the Great State of Utah



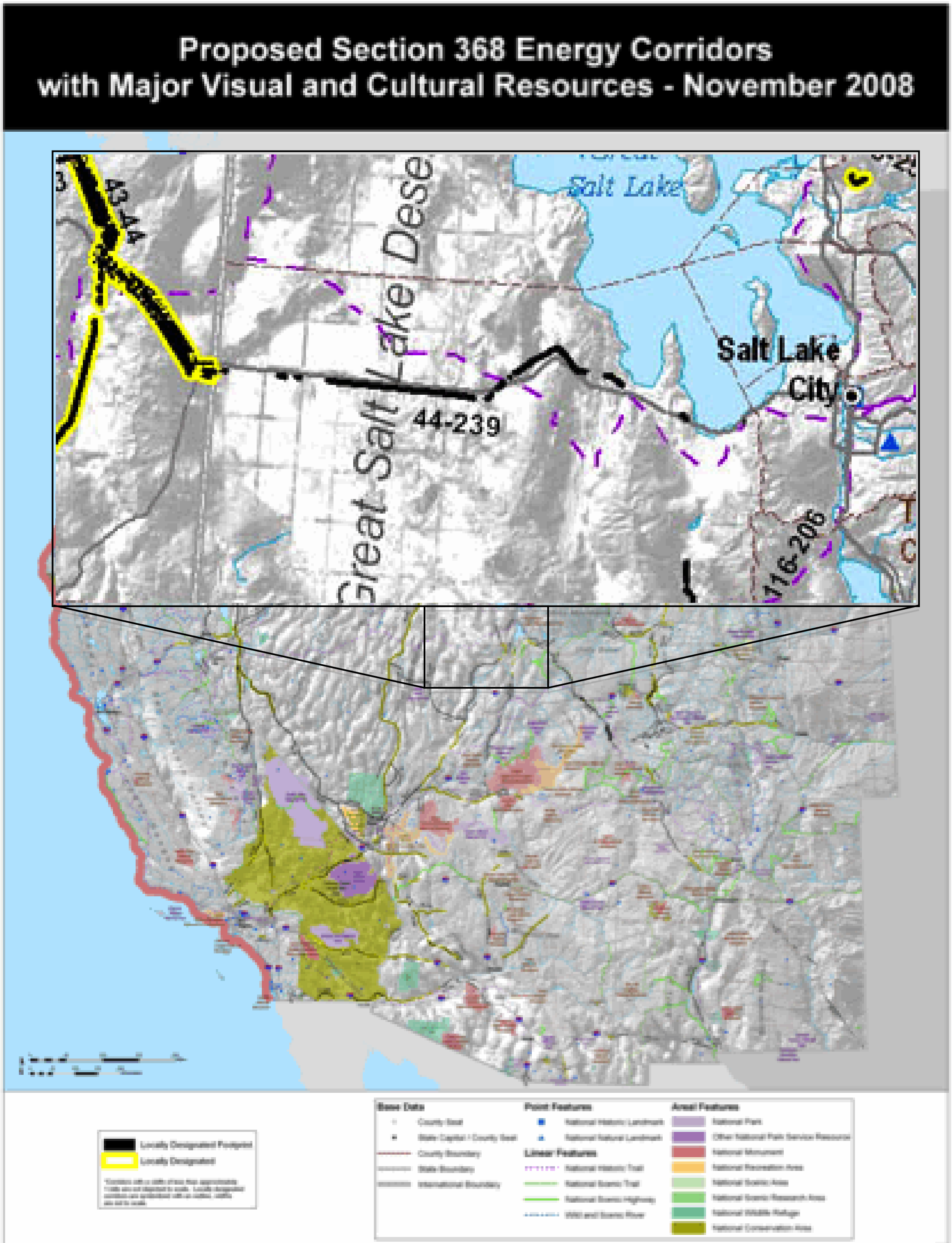
http://www.pacificorp.com/content/dam/pacificorp/doc/Transmission/Transmission_Projects/Camp_Williams_1.pdf

Figure 1-1

1981 – Due to a human-caused fire, two 345 kV lines north of Camp Williams were forced out of service and a third 345 kV line cascaded, resulting in a state wide blackout.
1982-83 - Landslides on the two Emery-Sigurd 345 kV lines destroyed transmission towers.
1983 - Severe wind storms caused two 345 kV, two 230 kV and three 138 kV lines between Salt Lake City and Ogden to go down.
1990 – An Air Force jet contacted transmission causing outages of double circuit 345 kV and 230 kV lines between Terminal and Ben Lomond.
2000 - Fires in the corridor of Emery-Camp Williams and Huntington-Spanish Fork 345 kV lines forced lines out of service.
2002-2003 - Multiple fires in the corridor between Mona and Camp Williams forced lines out of service due to smoke and to protect fire fighters in the area.
2007 - A fire caused both the Mona to Huntington and the Mona to Bonanza 345 kV lines in Central Utah to be de-energized for fire crew safety.
2007 - Three 345 kV lines connecting Jim Bridger Wyoming to southeast Idaho experienced a fire that forced multiple lines out of service.

http://psc.utah.gov/utilities/electric/10docs/1003539/66119Direct Testimony of Darrell T. Gerrard.pdf

Figure 1-2



http://corridoreis.anl.gov/documents/fpeis/maps/Section368CorridorsVisResources_Nov2008_Poster.pdf

Figure 1-3

http://psc.utah.gov/utilities/electric/10docs/1003539/66122Exhibit C.pdf

Figure 1-4

ETA

ELECTRIC TRANSMISSION AMERICA, LLC

Looking Towards the Future:
Advantages of 765-kV Transmission Technology

In the electric transmission business, design plays a key role in the efficiency and productivity of the nation's energy delivery system.

Electric Transmission America, LLC (ETA) believes that high-voltage, high-efficiency transmission facilities are the cornerstone of efforts to maximize system performance while minimizing overall environmental impacts and system cost.

ETA's partners, American Electric Power (AEP) and MidAmerican Energy Holdings Company, are advancing the concept that high efficiency transmission systems should serve as the foundation for new transmission investment that will become the electrical equivalent of the national interstate highway system. By easing the loads on tired and often overtaxed transmission systems, ETA is looking to raise the bar on transmission design and system performance. In particular, ETA believes that 765-kilovolt (kV), extra-high voltage transmission offers a number of appealing technological and operational advantages for expansion of the nation's energy grid.

Resource Conservation

- A single-circuit 765-kV line can carry as much power as three single-circuit 500-kV lines, three double-circuit 345-kV lines, or six single-circuit 345-kV lines, reducing the overall number of lines and rights of way required to deliver equivalent capacity.
- The high capacity of 765-kV can easily facilitate the efficient and economical integration of large-scale renewable generation projects into the nation's transmission grid.
- ETA projects use a minimum right-of-way width of 200 feet for 765-kV construction. Standard industry right-of-way width for 500-kV is also 200 feet, and 150 feet for 345-kV construction. For equivalent power carrying capability, lower voltages require more lines and as a result more right-of-way.
- Typical 765-kV lines have a tower height of approximately 130-140 feet. This is 30-40 feet shorter than a typical double-circuit 345-kV tower.

Performance and Design Efficiency

- Power losses in a transmission line decrease as voltage increases. Since 765-kV lines use the highest voltage available in the United States, they experience the least amount of line loss.

Figure 2-1
(Continued)

- The greater transmission efficiency of 765-kV can be attributed mainly to its higher operating voltage (and thus lower current flow) and larger thermal capacity/low resistance compared to lower voltage lines. This also allows 765-kV lines to carry power over significantly longer distances than lower voltages.
- With up to six conductors per phase, 765-kV lines are virtually free of thermal overload risk, even under severe operating conditions.
- By shifting bulk power transfers from the underlying lower-voltage transmission system to the higher-capacity 765-kV system, overall system losses are reduced significantly.
- New 765-kV designs have line losses of less than one percent, compared to losses as high as 9 percent on some existing lines.
- The overlay of a 765-kV system allows for both scheduled and unscheduled outages of parallel lower voltage lines without risk of thermal overloads or increased congestion.

Minimizing Costs

- Use of 765-kV technology allows transmission builders to take advantage of economies of scale. A typical 765-kV line costs approximately $2.6 million/mile. For equivalent capacity, three 500-kV lines at a cost of $6.9 million/mile or six 345-kV lines at a cost of $9.0 million/mile would be required. In other words, 765-kV construction is only 29% of the cost of 345-kV and 38% of the cost of 500-kV for a comparable system.
- Utilizing 765-kV results in a substantial reduction in system losses. For instance, a loss reduction of 250 megawatts, equates to saving as much as 200,000 tons of coal, and 500,000 tons of CO_2 emissions on an annual basis.
- The addition of 765-kV systems relieves the stress on underlying, lower voltage transmission systems, postponing the potential need for upgrades of these networks. This results in additional savings for end-use customers over time.

Our electric intensive society relies on the reliable delivery of power. By designing bulk power transmission systems to maximize efficiency and operational functionality, ETA is working to ensure that we can meet the energy needs of the nation's electricity users in a responsible and cost-effective manner.

http://www.electrictransmissionamerica.com/whyETA/docs/advantages-of765.pdf

Figure 2-1

Looking Towards the Future: *Right-of-Way Stewardship*

AEP advocates the development of a robust interstate grid. 765kV technology allows for the maximum electric transfer capabilities of any AC voltage used in the United States and reflects an ideal solution when considering land use requirements. Transmission lines require the acquisition of land use rights. AEP believes its important to maximize the benefit associated with needed land use rights.

From a siting standpoint, 765 kV is much more efficient in terms of economies of scale and right-of-way than lower capacity lines. A 765 kV line requires a much narrower right-of-way than multiple smaller lines needed to transmit the same amount of power and is capable of using either four-bundled or six-bundled subconductors. 765kV tower spaning capabilities also allow for longer spans between structures thereby resulting in 765kV having a smaller towers per mile number than AEP experiences with lower voltage construction.

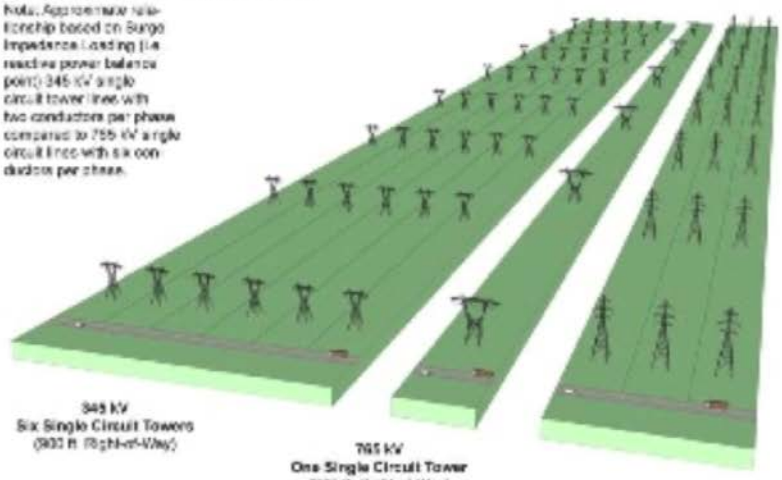
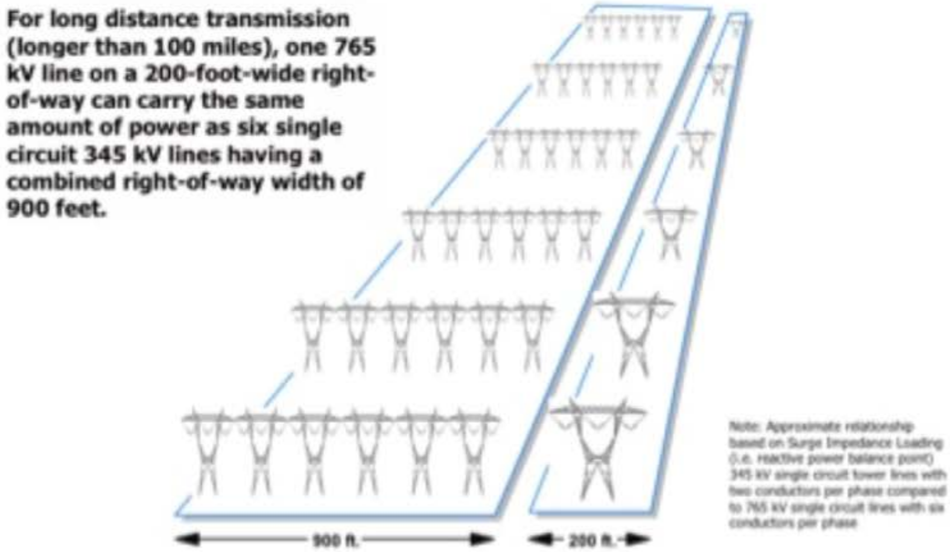
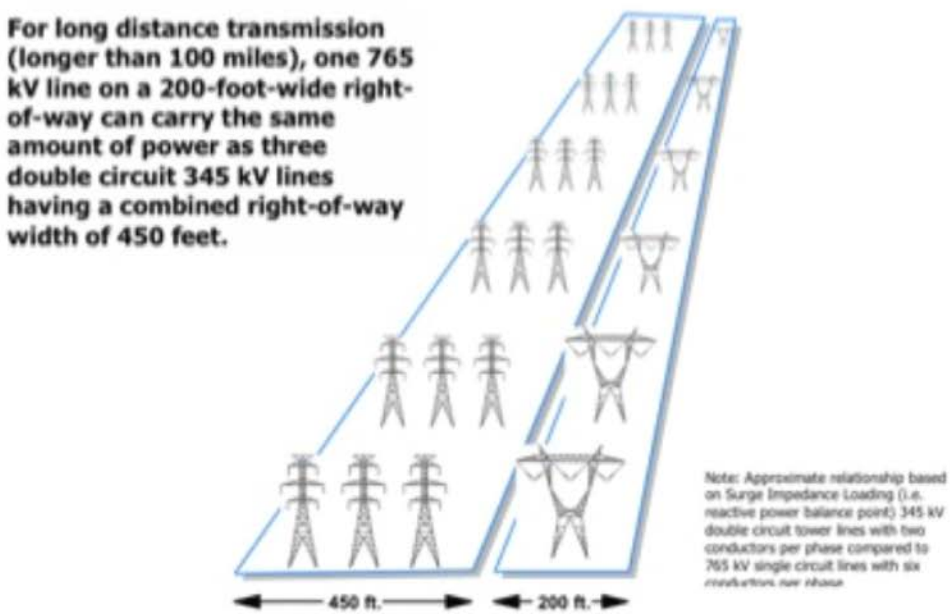


Figure 2-2
(Continued)



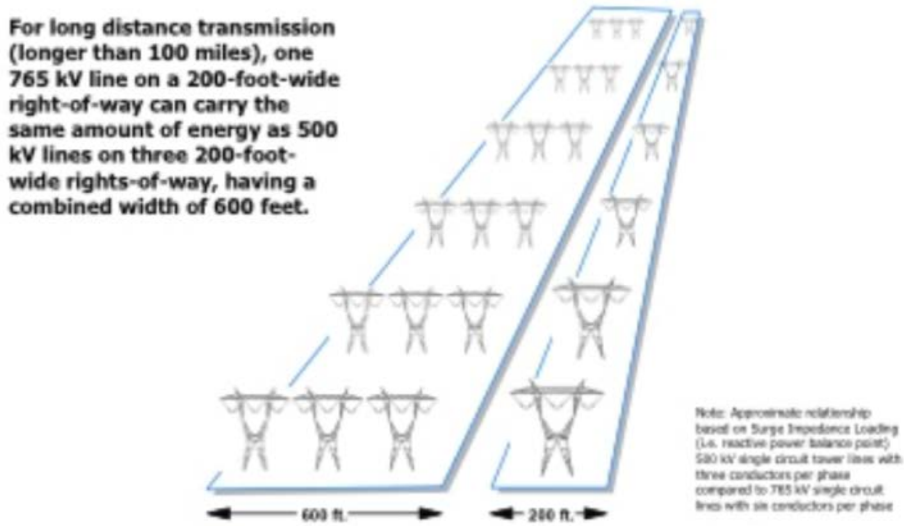
765 kV vs. Single Circuit 345 kV: a 765 kV line requires a 200-foot wide right-of-way. Six single-circuit 345 kV lines would be required to carry a comparable amount of power (based on the surge impedance level), with a combined width of 900 feet of right-of-way (assuming no overlap). In addition, a single-circuit 345 kV line uses lattice towers averaging 110 feet tall, while a 765 kV line has lattice towers averaging 127 feet tall.*



765 kV vs. Double Circuit 345 kV: A 765 kV line requires a 200-foot wide right-of-way. Three double-circuit 345 kV lines would be required to carry a comparable amount of power (based on the surge impedance level), with a combined width of 450 feet of right-of-way (assuming no overlap). In

Figure 2-2
(Continued)

addition, a double-circuit 345 kV line uses lattice towers averaging 170 feet tall, while a 765 kV line has lattice towers averaging 127 feet tall.*



765 kV vs. 500 kV: With six-bundled 765 kV subconductors, the equivalent numbers of lower voltage classes is three 500 kV lines, with a combined total of 600 feet of right of way, six 345 kV lines, with a combined total of 900 feet of right of way, or 24 double-circuit 138 kV lines, with a combined total right of way of 2,400 feet. In comparison, a 765 kV line only requires 200 feet of right-of-way.

*Average tower height calculations based on standard conductor size with standard tension and sagging characteristics, AEP's required conductor-to-ground clearance and similar terrain conditions. Tower heights vary depending on site conditions.

http://www.aep.com/about/i765project/docs/LookingTowardstheFuture.pdf

Figure 2-2

Data Source	Total Cost	Miles	Cost per Mile
[FEIS] Mona-Limber 500kV			
Route A1	$170,530,722	67.9	$2,511,498
Route A2	$170,269,972	69.4	$2,453,458
Alternative B1	$176,527,980	70	$2,521,828
Alternative B2	$176,267,230	71.5	$2,465,276
Alternative C1	$172,616,725	67.1	$2,572,529
Alternative C2	$172,355,975	68.4	$2,519,824
	500kV average cost		$2,507,402
[FEIS] Limber to Oquirrh			
Alternative D	$124,521,694	31.1	$4,003,913
Alternative E1	$127,037,284	31.1	$4,084,800
Alternative E2	$128,295,078	31.1	$4,125,244
Alternative F1	$121,167,574	29.3	$4,135,412
Alternative F2	$122,844,634	29.6	$4,150,157
Alternative G	$205,439,832	49	$4,192,650
[FEIS] Limber to Terminal 345kV			
Alternative H	$189,088,498	45.4	$4,164,945
Alternative I	$167,705,985	40.4	$4,151,138
	345kV average cost		$4,126,032
	Cost for equal Transmission	Lines req'ed	
[Figure 2-1] Electric Transmission America			
765kV	$2,600,000	1	$2,600,000
500kV	$6,900,000	3	$2,300,000
345kV	$9,000,000	6	$1,500,000
[Figure 3-2] American Electric Power			
765kV	$2,600,000	1	$2,600,000
345kV DoubleCircuit	$4,500,000	3	$1,500,000

Figure 3-1
(Calculated from noted data)

clearance exceeds 100 ft, minimal right-of-way clearing is required. Except for tower sites, clear-cutting is usually not required and low-growing compatible species, such as redbuds and dogwoods, are preserved. These minimized and selective right-of-way clearing techniques substantially decrease the line visibility. As the right-of-way is cleared and towers erected, the final stage of the visual assessment involves minimizing impacts during construction.

X. Cost

Cost estimates for any transmission line construction depend on many variables, with terrain conditions and right-of-way costs being key components. Accordingly, per-mile cost estimates will vary for different regions of the country.

Base line cost estimates for a 765 kV line and a double-circuit 345 kV line are $2.6 million and $1.5 million, respectively, per mile of line. These costs include siting, right-of-way and construction, but exclude the cost of terminal stations. The per-mile cost will increase from this basis depending on environmental, land use and other factors. While there is a significant premium for building a 765 kV line, this cost relationship is reversed when power transfer capabilities of the two transmission designs are taken into account. Table 3 provides the details for a typical transmission corridor considered in the AEP-ITC study, capable of carrying nearly 4,000 MW over a distance of 150 miles.

Table 3 – Transmission Cost to Deliver 3,900 MW Over 150 Miles

	765 kV Single Circuit	345 kV Double Circuit
Phase Conductor Bundle	6-795 kCM ACSR 45/7 (Tern)	2-954 kCM ACSR 45/7 (Rail)
Number of Circuits per Line	1	2
SIL per Line*	2,400 MW	780 MW
Loadability**	3,800 – 3,900 MW	1,200 – 1,300 MW
Lines Required for 3,900 MW	1	3
ROW Width Required	200 ft	450 ft
Cost per Mile for 3,900 MW* **	**$2.6 Million**	**$4.5 Million (3 x $1.5 Million)**
Cost per MW-Mile	**$670**	**$1,150**

Assumptions:
* SIL, surge impedance loading, is a measure of relative line loadability at the reactive power balance point without voltage support. Thermal capacities vary; e.g., 765 kV can carry well over 4,000 MW and 345 kV (double circuit) can carry over 2,000 MW.
** Based on maximum expected loading of a 150-mile transmission corridor (approx. 1.6 SIL).
*** Average cost in 2007 dollars; rural terrain with rolling hills. Includes siting, right-of-way and construction (but excludes station costs) for the number of lines required in each option.

The two transmission alternatives shown in Table 3 can deliver equivalent amounts of power (i.e., 3,900 MW), with only one circuit needed at 765 kV and three double-circuit lines required at 345 kV. It is notable that, on a per-MW basis, a 70% premium would be required for the 345 kV alternative ($1,150 per MW-mile) over 765 kV ($670 per MW-mile). This cost advantage of 765 kV can increase further with a line design optimized for use in flat, low-elevation terrain. Apart from the cost savings, a significant reduction in the overall right-of-way requirements is possible with 765 kV transmission.

http://www.aep.com/about/i765project/docs/AEPInterstateProject-765kVor345kV.pdf

Figure 3-2