

To whom it may concern,

We would like to present my comments about the Conditional Use Permit (CUP) CUP 2010-1 submitted by Rocky Mountain Power(RMP).

We believe that the CUP submitted by RMP does not fully represent all of the present and future plans for the proposed power lines. In the Draft Environmental Impact Statement(EIS) for the Mona to Oquirrh Transmission Corridor Project and Draft Pony Express Resource Management Plan Amendment DES 09-24 UT-020-2008-009 dated April 2009 on page S-2 it states "Permanent facilities would include:

- A future 500/345/138kV substation (Mona Annex) in Juab County near the existing Mona Substation
- A future 500/345/138kV substation (Limber) in Tooele County, southwest of the Tooele Army Depot
- A double-circuit 500/345kV transmission line that connects the existing Mona Substation to the future Mona Annex Substation, then on to the future Limber Substation, which would require a 300-foot-wide right-of-way
- A double-circuit 345kV transmission line from the future Limber Substation to the existing Oquirrh Substation, which would require a 150-foot-wide right-of-way
- A double-circuit 345kV transmission line from the future Limber Substation to the existing Terminal Substation, which would require a 150-foot-wide right-of-way
- Communication regeneration facilities associated with the transmission line and substations
- New access roads to all 500/345kV transmission line structures where

there is no existing access " This plan includes on page 1-1 "Rocky Mountain Power submitted an application to the BLM for a grant of right-of-way for the proposed Project, and requested that the BLM designate a utility corridor within the SLFO(BLM land administered by the West Desert District-Salt Lake Field Office) wide enough to accommodate both the current proposal and a second future 500kV transmission line with a minimum 1-mile separation between the transmission lines for reliability purposes."

Now in the CUP they are requesting a single circuit 500kV transmission line that is will enter Rush Valley in the vicinity of twelve mile pass(not five mile pass as referred to in the abstract letter sent to the Affected Entities) to the south west corner of the Tooele Valley proceeding east between the Tooele Army Depot and South Mountain then north east past the Settlement Reservoir and the East Bench of Tooele before going over the Oquirrh mountains to the Salt Lake Valley. According to

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

"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." Using this example, that means for Tooele Valley/Tooele County that a single 500kV line can only support a double 345kV line making it impossible to

- 1) completely power the double circuit 345kV line with out the substation
- 2) power the 2nd double circuit 345kV line to the terminal substation with out an additional single circuit 500kV line from Mona
- 3) provide any additional power from the proposed substation for Tooele Valley/Tooele County with out another additional High Voltage line from Mona

4) provide reliability via redundancy from the Limber substation as it's power come from a single source(Mona)

We also believe that we as Tooele County must proceed with "THE PRECAUTIONARY PRINCIPLE" as outlined by Dr. David O. Carpenter University at Albany, SUNY, Rensselaer, NY 12144I in his testimony before the

STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE ROUTE PERMIT APPLICATION BY GREAT RIVER ENERGY AND XCEL ENERGY FOR A 345 KV TRANSMISSION LINE FROM BROOKINGS COUNTY, SOUTH DAKOTA TO HAMPTON, MINNESOTA  
PUC DOCKET NO. ET2/TL-08-1474

OAH DOCKET NO. 7-2500-20283-2

available at this web site <http://justchangelaw.com/uploads/CarpenterDirect:Schedules.pdf>

We quote from his abstract "Inaction is not compatible with the Precautionary Principle, as enunciated by the Rio Declaration. Because of ubiquitous exposure, the rapidly expanding development of new EMF technologies and the long latency for the development of such serious diseases as brain cancers, the failure to take immediate action risks epidemics of potentially fatal diseases in the future." Our health and that of our children require that we must get this right the first time. If wrong, it will be to late before we know of the devastating affects.

RMP has misrepresented that there was no consensus at the Conflict Resolution Conferences as shown here <http://www.psc.state.ut.us/utilities/electric/09docs/0903554/Formal%20Request%20Facility%20Review%20Board%20Meet..pdf> we have come together to have a consensus with Tooele County Commissioners, Tooele City Mayor/Council, Tooele Concerned Citizen's group, Grantsville City Mayor/Council, Grantsville Concerned Citizen's group and others that if Tooele County/Tooele Valley is to get and put up with these High Voltage Lines, the substation must be located in a more northern location of the valley as to really help increase the availability of electricity for the Tooele Valley/Tooele County as well as provide a better location to get redundancy by being available for connection to the Southern Idaho 500kv grid, or the proposed Western Nevada 500kv grid along the I80 corridor. The RMP proposed location of the Limber substation does not adhere to the Tooele County General Plan as stated on the CUP page 9 "The overall intent of the General Plan is to provide a higher quality of life for the residents of Tooele County" by the limitations as stated previously without multiple power lines as well as there are only 3 narrow corridors from the limber substation

- 1) South through Rush Valley
- 2) North through Grantsville
- 3) East on the South side of the Tooele Army Depot, then North through Tooele City.

As we have shown that RMP plan has some serious questions and flaws as to how this proposed project will really improve the quality of life for Tooele Valley/Tooele County citizens, put ourselves and children at an unacceptable risk of EMF exposure with no reward, and will Mar and change our

environment, open space, and rural looks forever, We implore upon you

1st table this request until the final EIS release is made.

2nd After the final EIS is release allow a generous amount of time for all concerned to study it and come up with most beneficial plan and requirements for the Tooele Valley/Tooele County area's impacted.

3rd Don't let RMP walk all over us. We need to show them that the Tooele Valley/Tooele County's area and plans are as important to us as the rest of the areas removed from the EIS by RMP.

"Level 1 Screening

Mona to Oquirrh via Camp Williams

the routes would have potential significant impacts on existing and planned land uses in northern Utah and southern Salt Lake Counties.

Mona to Goshen Valley

The segment would have potentially significant impacts on center-pivot agriculture fields in the Goshen Valley.

Mona to Tintic Junction

This route segment would have potentially significant impacts on cultural resources and sensitive vegetation in the Tintic Mountains

Cedar Valley to East Rush Valley

There are potential conflicts with a planned gravel pit in the area.

Oquirrh Substation from Butterfield Canyon

This route segment was eliminated, due to the potential impacts on planned land use and ongoing Kennecott Mining operations.

this segment was eliminated due to the potential impacts on planned land use.

this route segment would conflict with the current and planned Bingham Canyon Mine operations"

RMP has shown that the Tooele Valley/Tooele County is not as big of a FISH as the rest of the Salt Lake Valley and plans on running over or through us. Please don't allow them to do so.

Thanks

Members of the Grantsville Concerned Citizens Group

James Vera

Glenn Terry

Grantsville City Council

Grantsville/Tooele Valley Citizen

Grantsville, Utah 84029

Grantsville, Utah 84029

435-884-6966

435-884-0260



RMP Date for CUP  
Glenn Terry to: vern loveless, kbeutler

02/09/2010 11:18 PM

History:

This message has been replied to.

Vern and Kerry,

I talk to Jill Thomas and she said that I should send this information to you guys and you would see that they get it. Also based on the article in the paper about the need for power to use for economic development we must get more power for the Tooele Valley to use.

In listening to the discussion after the Planning Commission meeting last Wednesday, it sounded to me that we need to have either

- 1) A really really good validation of why there is no mitigation possible to deny the permit or
- 2) Put really good mitigation's in to try and force RMP to due things to get some reward for the county in approving the permit.

I believe that it would probably be easier to find mitigation's to help the County. I have attached some documents of some data points to help force RMP to get enough power to the substation to have some for the county.

Lets have mitigate the extra right of way land use by using a 756kV line from Mona to the Limber substation. They addressed this in the EIAs and dismissed it, but I think we could consider it. This line will carry the equivalent power of 3-500kV lines. This will power both the 345kV double circuit lines they want for Salt Lake and leave the equivalent of a double 345kV for the county.

The extra cost of 25 million for the substation would be offset by saving approx 1.3 million per mile of constructing 1-756kV line rather than 2-500kV single circuit lines.

We can also have them mitigate the move of the substation to the north end of the valley to

1) reduce future large right of way for redundancy and reliability improvements when adding addition lines from other sources. The only way to have true redundancy would be to come from the north to the Limber substation from a source to the West or North. Which then puts multiple lines on the west side of Grantsville, instead of just 1-765kV line.

2) This will move the lines away from the most populous part of the Tooele Valley (Tooele City) for reduced health risks.

3) This will eliminate most of the large scenic destruction of going across the East Bench.

4) This will eliminate future issues of getting power out of the substation and into the Tooele valley. They are limited to 3 narrow corridors in and out of the substation. North East and South.

The 765kV lines are also supposed to be more efficient thus helping the environment, cheaper to install over an equivalent capacity 500kV lines, thus being better for the County, State and

Country as well as the rate payers of RMP.

I hope that this info is useful.

I will keep looking for other stuff. Thinking about talking about DC current as a way to help alleviate the EMF concerns.

Let me know if there is something else that I can help do some research for you.



Glenn Terry Data\_Conditional\_Use.doc LookingTowardstheFuture.pdf



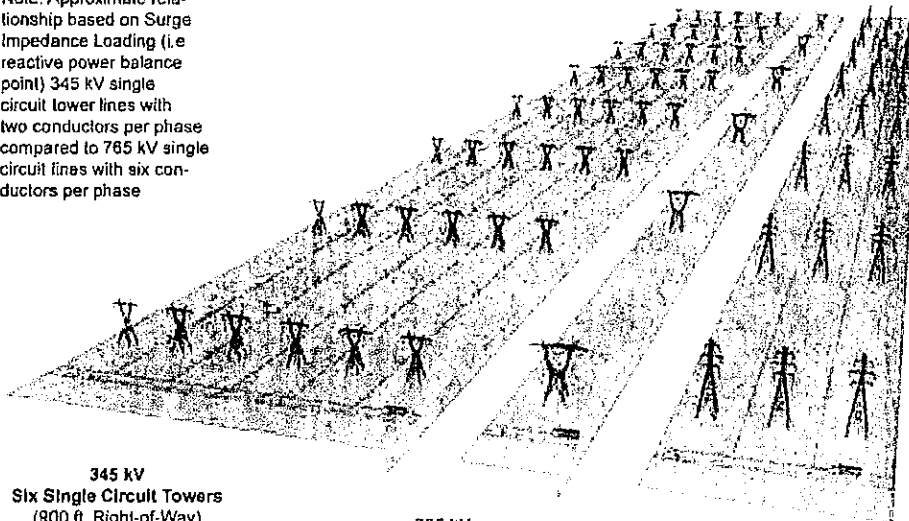


## Looking Towards the Future: *Right-of-Way Stewardship*

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 spanning 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.

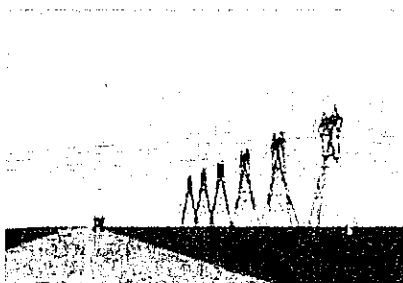
Note: Approximate relationship based on Surge Impedance Loading (i.e reactive power balance point) 345 kV single circuit tower lines with two conductors per phase compared to 765 kV single circuit lines with six conductors per phase



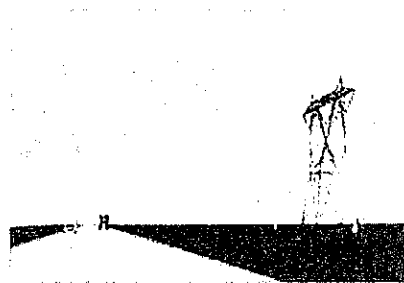
345 kV  
Six Single Circuit Towers  
(900 ft Right-of-Way)

765 kV  
One Single Circuit Tower  
(200 ft Right-of-Way)

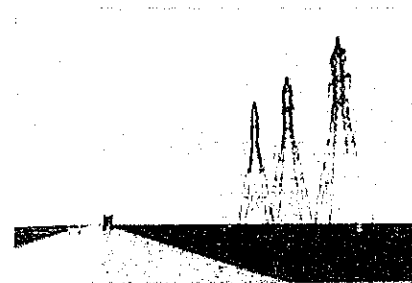
345 kV  
Three Double Circuit Towers  
(450 ft Right-of-Way)



345 kV  
Six Single Circuit Towers  
(900 ft Right-of-Way)

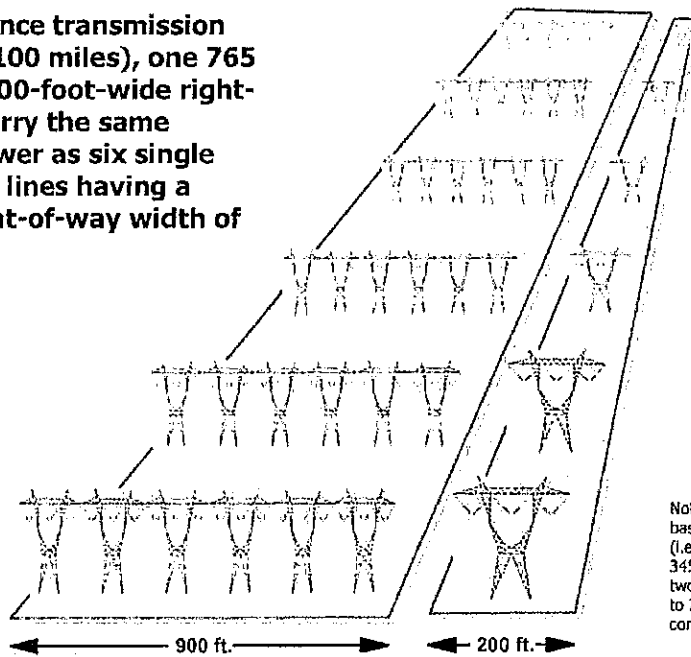


765 kV  
One Single Circuit Tower  
(200 ft Right-of-Way)



345 kV  
Three Double Circuit Towers  
(450 ft. Right-of-Way)

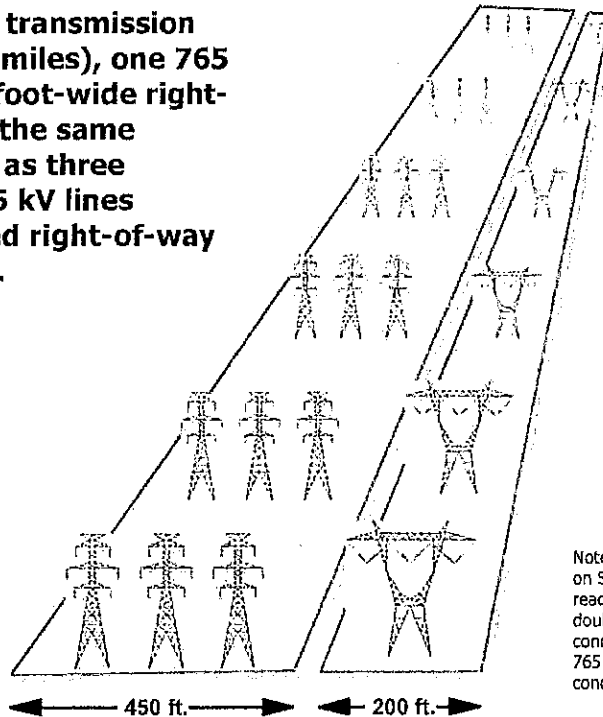
For long distance transmission (longer than 100 miles), one 765 kV line on a 200-foot-wide right-of-way can carry the same amount of power as six single circuit 345 kV lines having a combined right-of-way width of 900 feet.



Note: Approximate relationship based on Surge Impedance Loading (i.e. reactive power balance point) 345 kV single circuit tower lines with two conductors per phase compared to 765 kV single circuit lines with six conductors per phase

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.\*

For long distance transmission (longer than 100 miles), one 765 kV line on a 200-foot-wide right-of-way can carry the same amount of power as three double circuit 345 kV lines having a combined right-of-way width of 450 feet.

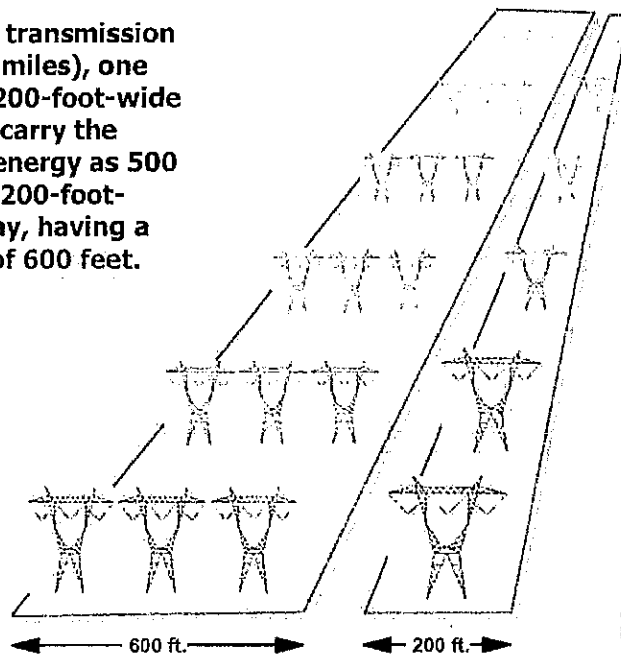


Note: Approximate relationship based on Surge Impedance Loading (i.e. reactive power balance point) 345 kV double circuit tower lines with two conductors per phase compared to 765 kV single circuit lines with six conductors per phase

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

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.\*

**For long distance transmission (longer than 100 miles), one 765 kV line on a 200-foot-wide right-of-way can carry the same amount of energy as 500 kV lines on three 200-foot-wide rights-of-way, having a combined width of 600 feet.**



Note: Approximate relationship based on Surge Impedance Loading (i.e. reactive power balance point) 500 kV single circuit tower lines with three conductors per phase compared to 765 kV single circuit lines with six conductors per phase

**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.

## Limber substation size

EIS<sup>1</sup> 2.3.1 155 acres

CUP Right of Way pg. 13 footprint 155 acres with a total property requirements 370 acres

## Right of Ways

EIS<sup>1</sup> S-2, table 2-2, Figure 2-10, Figure 2-11, Figure 2-12, Figure 2-14

500kV 300 feet (Double Circuit)

345kV 150 feet

EIS<sup>1</sup> 1-1

RMP submitted an application to the BLM for a grant of right-of-way for the proposed Project, and requested that the BLM designate a utility corridor within the SLFO wide enough to accommodate both the current proposal and a second future 500kV transmission line with a minimum 1-mile separation between the transmission lines for reliability purposes.

CUP<sup>2</sup> Right of way pg. 13

500kV 250 feet Single Circuit. (will need more in the future for terminal line ect.)

345kV 150 feet

American Electric Power<sup>4</sup>

765 kV Single Circuit 200

500 kV Single Circuit 175 - 200

345 kV Double Circuit 150

345 kV Single Circuit 150

## Use of 500kV vrs 765kV

RMP - stated disadvantages

EIS<sup>1</sup> 2.6.1.4 -

Construction cost 1.75 times higher (this is comparing the use a 500kV double circuit, not 2 single circuits)

765kV requires taller structures (Table 2-2 500kV double circuit states 170 - 200 feet)

higher voltage does not result in higher capacities without significant facility additions (Both substations will be new from the ground up)

Electric Transmission America<sup>3</sup> - Stated advantages of 765kV

Page 3 Minimizing cost - For the equivalent capacity:

765-kV costs approximately \$2.6 million/mile

3 qty 500-kV lines at a cost of \$6.9 million/mile (\$2.3 million per line)

6 qty 345-kV lines at a cost of \$9.0 million/mile (\$1.5 million per line)

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.

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

American Electric Power<sup>4</sup>

Q3 page 1 Costs

Typical installed costs per mile for 765kV, 500kV and 345kV transmission lines are:

765kV Single Circuit	\$2.6 – 4.0 Million
500kV Single Circuit	\$2.3 - 3.5 Million
345kV Double Circuit	\$1.5 - 2.5 Million
345kV Single Circuit	\$1.1 – 2.0 Million

\*Average construction costs in 2008 dollars; rural terrain with rolling hills; elevations up to 4000 feet above sea level; station costs.

DOE Technical Conference<sup>6</sup>

Page 6

Typical installed costs per mile for 765kV, 500kV and 345kV transmission lines are:

765kV Single Circuit	\$2.25 Million
500kV Single Circuit	\$1.8 Million
345kV Double Circuit	\$2.6 Million
345kV Single Circuit	\$1.2 Million
765kV Substation	\$125 Million
500kV Substation	\$100 Million
345kV Substation	\$75 Million

American Electric Power<sup>4</sup>

Q9 Tower Heights

765 kV Single Circuit	135	150
500 kV Single Circuit	120	135
345 kV Double Circuit	160	175
345 kV Single Circuit	110	125

**Efficency**

American Electric Power<sup>4</sup>

LINE LOSSES - MW/100 MILES

	Resistive	Corona*	Total
	-----	-----	-----
765 kV LINE @1000 MW LOAD:			
Original 4-conductor ("Rail") bundle (1.1%)	4.4	6.4	10.8
Newer 4-conductor ("Dipper") bundle (0.7%)	3.3	3.7	7.0
Current 6-conductor ("Tern") bundle (0.6%)	3.4	2.3	5.7
Planned 6-trapezoidal cond. ("Kettle") bundle (0.5%)	3.1	2.3	5.4
500 kV LINE @1000 MW LOAD:			
Typical 2-conductor bundle (1.3%)	11.0	1.6	12.6
345 kV LINE @1000 MW LOAD:			
Typical 2-conductor bundle (4.2%)	41.9	0.6	42.5

\*Yearly average corona loss at sea level based on 20%/2%/78% rain/snow/fair weather conditions, respectively.

## Capacities

EIS<sup>1</sup> Table 2-2

500kV 1500MW per circuit (3000 on double circuit line)  
345kV 750MW per circuit (1500 on double circuit line)

American Electric Power <sup>4</sup> Voltage Class	Loadability (@300 Miles)	"Reach" (@1500 MW)
765 kV Single Circuit	2200 – 2400 MW	550 Miles
500 kV Single Circuit	900 MW	140 Miles
345 kV Double Circuit	800 MW	110 Miles
345 kV Single Circuit	400 MW	50 Miles

## References:

1 -

[http://www.blm.gov/pgdata/etc/medialib/blm/ut/salt\\_lake\\_fo/planning/monatransmission.P  
ar.68693.File.dat/Volume%20I.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/ut/salt_lake_fo/planning/monatransmission.P<br/>ar.68693.File.dat/Volume%20I.pdf)

2 - Tooele County Application for Conditional Use Permit 2010-1

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

4 - <http://www.aep.com/about/transmission/docs/transmission-facts.pdf>

5 - <http://www.aep.com/about/i765project/docs/LookingTowardsTheFuture.pdf>

6 - [http://events.energetics.com/electric\\_transmission09/pdfs/Varinetti.pdf](http://events.energetics.com/electric_transmission09/pdfs/Varinetti.pdf)