ICC Docket No. 06-0179
Ameren Data Response

RDL 1.29 Provide a copy of the environmental impact evaluation used in establishing the recommended line routes and siting criteria (Ex. 2.0, p. 6, lines 113-115).

Response: Refer to the Prairie States Interconnect Study Routing Report dated 3/1/06, Sections 3, 4 and Appendix B attached to these responses.

3.0 ROUTE SELECTION PROCESS

3.1 Introduction

The alternative routes identified in this routing study result primarily from the evaluation of field observations, information available in the public domain, and recent aerial photography. These items were evaluated to identify opportunities and constraints within the project area. Impacts will result to some degree when construction occurs, no matter which route is selected. The goal of this process is to minimize impacts while identifying routes for further evaluation and scrutiny.

3.2 Issues

During the course of work for this study, preliminary issues regarding the proposed project were identified. AmerenIP will continue to engage relevant segments of the public using a variety of methods in order to provide information and obtain public feedback. Preliminary issues are listed below.

Residences and Towns

The transmission line corridors were routed to minimize potential impacts on communities. Concern has been expressed by the public regarding transmission line proximity to individual residencens as well as communities.

Major River Crossings

The Mississippi and Kaskaskia Rivers are prominent features in the project area. Both of these major water bodies would be crossed by the Baldwin-Rush Line regardless of the final alignment. Crossing these major rivers present a unique set of challenges from engineering and environmental perspectives.

Agricultural Land Loss

The project area is dominated by agriculturally based activities. Effects on agricultural operations and loss of production area are concerns for affected landowners. AmerenIP is in the process of entering into a mitigation agreement with the Illinois Department of Agriculture so that farming activities are addressed. AmerenIP has taken into

consideration the loss of agricultural land when determining the structure type for the project.

Effects on Natural Resources

Some level of impact to natural resources would likely occur. Some resources of concern are forested areas, threatened and endangered species, "protected" conservation areas, wetlands, and cultural resources.

3.3 GIS Analysis

An accurate and detailed base map is a fundamental requirement for any linear routing study. With this in mind, POWER used, Geographic Information Software "GIS", as the basis for integrating and modeling pertinent information. GIS is a computer software system which can be loaded with regionally specific data sets. It is an information system applied specifically to geographical data. The data can include detailed aerial imagery draped with parcel ownership, natural resources information, and transportation data sets, to name a few. GIS data can be grouped into three general types, raster, vector and grid. Aerial imagery is a form of raster data, elevation data is one type of grid data and vector data consists of points, lines and polygons, which describe features near the ground surface. Most vector data sets have their own database containing detailed information about that geographic location. The various data sets can be spatially overlaid within the computer. This allows the user to evaluate details associated with route selection and facilitate the decision making process. It enables the user to make informed decisions in line routing and helps planners identify and avoid areas of potentially high impact throughout the project planning stage. Calculations can be made which show the potential impacts and costs associated with each alternative route. Individual route segments can then be adjusted to minimize potential impacts. Ultimately, each proposed route alternative can be compared on the basis of associated impacts and costs.

Once the project boundary was established, the area was flown and photographed to produce high resolution digital aerial imagery. The aerial imagery was georeferenced to the section corners in the public land survey system and added to the GIS. The process of visualizing the region, based on sensitivity, allows for an informed method of selecting preliminary routing corridors. Aerial imagery was used to locate and identify buildings, roads, trails and land types within the project area. The building location data was then refined to identify individual residential structures. Homes were buffered at a distance of 200 feet assigned as high sensitivity. Other structures were also buffered at 200 feet and assigned sensitivity. Land cover types were digitized and assigned sensitivity levels. Publicly available information about the area was acquired and added to the GIS database. Planned and existing land use and natural resource data were assigned appropriate sensitivity levels. Details on sensitivity levels are discussed below, in the section on siting criteria.

3.4 Siting Criteria

Based on data collected for the project area, criteria were developed to help evaluate the sensitivity of a resource for potential impacts resulting from a transmission line. More

specifically, sensitivity is that measure of probable adverse response of each resource to direct and indirect impacts associated with the construction, operation, maintenance of proposed 345kV transmission lines. The following criteria were considered:

- Resource Value: A measure of rarity, high intrinsic worth, singularity or diversity of a resource within the area;
- Protective Status: A measure of the formal concern expressed for a resource, either through legal protection or by designation of special status;
- Present and Future Uses: A measure of the level of conflict based on policies of land management and/or use; and
- Constructability/Hazards: A measure of the degree to which a resource represents a significant challenge or hazard to construction and/or operation of the Project.

Using the above criteria as a framework, the mapped inventory data were categorized based on relative sensitivity to the introduction of a transmission line. Land use; natural and biological, cultural, and water resources were mapped identifying areas of varying resource sensitivity levels. Engineering constraints were also taken into consideration. Refer to Map 1 in Appendix A for information relative to resource sensitivity.

Overlays of resource sensitivity were used to produce a composite GIS representation illustrating potential constraints and opportunities for alternative transmission line corridors. Areas or features highly sensitive to disturbance from the construction, operation, and maintenance of the transmission line represent the greatest potential constraints or potentially significant changes to the human, natural, or cultural environment. Sensitivity levels were categorized as follows:

- High Sensitivity: Areas of high impact potential because of important or valued resources; resources assigned special status; conflict with existing or planned use; and areas posing hazard to construction, operation, or maintenance of the line. For purposes of the refinement of the assumed centerlines, crossing these areas should be avoided or minimized if complete exclusion is difficult or impossible.
- Moderate Sensitivity: Areas of moderate impact potential because of important or valued resources; resources assigned special status; some conflict with existing or planned use; and areas posing some hazard to construction, operation or maintenance of the line. For purposes of the refinement of the assumed centerlines, crossing these areas should be minimized to the extent practicable.
- Low Sensitivity: Areas where resource conflicts have been identified as minimal or present little hazard to construction and operation of the facility. These opportunities occur where the impacts can be reduced, minimized or spanned. In many cases, similar impacts have already occurred or will occur in the future. An example of such an opportunity would be an area of low sensitivity that has roads and existing or planned utility rights-of-way.

3.4.1 Land Use

The project area is dominantly rural in nature and sparsely populated. Major towns in the project area include Red Bud and Marissa with estimated populations (2004) of 3,522 and 2,069 respectively. Other towns in the project area include Tilden, Lenzburg, Baldwin,

Ruma, Maeystown, Fults and Renault. The primary land types in the project area are cropland, pasture, and forested areas. A significant portion of the land area is actively farmed. Some of the major crops include corn and soy beans. Cattle and swine operations are scattered throughout the area. Most of the area is dry land farmed, with irrigation infrastructure occurring very infrequently. Tile drains are present in some portions of the project area to allow for and increase agricultural production.

For many years, coal mining has been prevalent in the eastern portion of the project area. Much of the area in the northeastern part of the project, near Marissa, falls under active surface and underground coal mining permits. The western part of the area has very little known coal resources. Limestone and dolomite are the most common forms of bedrock. There are two active limestone mines in this area. Limestone is being mined southeast of the town of Fults along the bluffs overlooking the east bank of the Mississippi River. The Holcim cement plant is located to the south of the Rush Island Power Station on the west bank of the Mississippi.

Areas were mapped according to the sensitivity of a particular land use to siting a 345kV transmission line. Levels of sensitivity were assigned to the identified land uses within the project area based on the criteria described above. The sensitivities were determined by the characteristics of the land use classification, prior experience in siting transmission lines, and specific characteristics of the Project. Land use related items considered included:

High Sensitivity
- Occupied structures w/in 200 feet
- Municipal boundaries / urban area

Moderate Sensitivity
- Forest land cover
- Other buildings w/in 200 feet (barns, silos, etc.)

Low Sensitivity
- Cropland land cover
- Pasture land cover

3.4.2 Biological Resources

Biological and related resources in the project area are classified as either high or moderate sensitivity. Several protected conservation areas exist within the project area. The Kaskaskia River corridor is designated as a State Fish & Wildlife Area. East of the village of Maeystown, is the Renault Karst Area. This is a unique and sensitive land feature due to the number of solution cavities and caves within the local limestone deposits. Some of the caves in this area are know hibernation spots for two species of bats species federally listed under the Endangered Species Act. Many of the major drainages and ravines in this area consist of forested wetlands. These forest wetlands may contain habitat for endangered plant and animal species. Several protected conservation areas are present along bluffs overlooking the Mississippi River flood plain.

In the vicinity of the town of Fults, there are several privately owned "Natural Heritage Landmarks" and "Illinois Nature Preserves". These areas have been set aside due to their pristine and unique natural and biological characteristics.

National Wetland Inventory (NWI) data was used in conjunction with the State Soil Geographic Database (STATSGO) soils database to identify wetlands and hydric soils that they are associated with. The STATSGO data is produced and maintained by the Natural Resources Conservation Service. Many of the wetlands are associated with drainages and adjoining flood plains. Items considered include:

High Sensitivity
- DNR conservation areas, owned parcels
- Fish & Wildlife areas (Kaskaskia, Harlow Island, Beagle Island heron rookery)

Moderate Sensitivity
- National Wetlands Inventory coverage

3.4.3 Cultural Resources

A broad brush approach was used to assess the potential for impacting cultural resources within the project area. The potential for cultural resource occurrence is strongly correlated with proximity to reliable water sources. The GIS coverage utilized for cultural and archaeological resources, uses a 500 yard buffer along the Mississippi and Kaskaskia rivers and a 300 yard buffer for all other drainage ways. The dataset also includes occurrences of Cahokia Alluvium, Carmi Member of Equality Formation, Grayslake Peat, Parkland Sand, Peyton Colluvium, the Batavia Member of the Henry Formation, or the Mackinaw Member. This information is based on the statewide distribution of documented cultural and archaeological resource sites and was produced by the Illinois State Museum.

A cultural and archaeological records review of the proposed line routes was preformed by American Resources Group, of Carbondale, Illinois. There report lists several historic farmsteads in the area, although most sites were not eligible for listing under the Register of Historic Places.

A moderate level of sensitivity was applied to the coverage based on its level of detail. Proximity to centennial farm properties was also evaluated using publicly available data from the Illinois Department of Agriculture. These data were also assigned a moderate sensitivity level.

Moderate Sensitivity
- General cultural resources coverage
- Centennial farm properties

3.4.4 Water Resources

For purposes of this routing study, the following criteria were considered to determine sensitivity levels of water and water-related features:

- Potential for degradation of water quality
- Potential for increased erosion, scour, or siltation to occur
- Potential decrease in water level and/or availability
- Potential to increase the risk of flooding

Typically, water features fall into the low to moderate sensitivity category because the size and location of these features allows the project components to span them. This designation may be superseded by other factors associated with water resources. For example, the Kaskaskia River crossing has been classified as high sensitivity due to its special standing as a Fish & Wildlife area. Wetlands, streams, and riparian areas may provide habitat for sensitive or federally listed plant and animal species and may also be considered as high sensitivity areas from a biological resources perspective.

Floodplains can pose challenges to transmission line structures and foundations due to pressure of water flow, debris buildup, and scouring of the soil overburden weakening the foundations. Another concern is access to the structure if emergency maintenance is required. There is strong correlation to severe storms and the need for maintenance on transmission lines. Emergency maintenance to transmission tower structures during flood events or when the potential for flash flooding exists creates a health and safety risk to workers. Transmission line structures do not increase upstream flood elevations since the volume of water storage displaced by the structure is minimal and thus their presence would have a low impact on the floodplain itself.

Much of the land in the northwest part of the project is karst terrain. Karst is a term applied to specific topography, usually formed on limestone's which have undergone dissolution. This type of terrain is characterized by sinkholes, caves and underground drainages. Karst terrain is known to be very susceptible to groundwater contamination. Fractures and solution cavities within the limestone act as conduits between surface contaminates and groundwater.

The following sensitivity levels have been assigned to water and related features:
Insert where Karst topography fall into under sensitivity?

High Sensitivity
- Kaskaskia River crossing
- Renault Karst Area

Moderate Sensitivity
- Mississippi River crossing
- Stream crossings

Low Sensitivity
- Flood plains

3.5 Engineering Constructability

An engineering constructability review is an integral part of the routing process. Several factors should be taken into account when considering the merits of a potential route. These factors include:

- Overall alignment
- Topography
- Structure type
- Angle structure placement
- River crossings
- Substation and switchyard entrance and exit

3.6 Opportunities and Constraints

A composite sensitivity map, showing the combined sensitivity areas was created to illustrate opportunities for a transmission line routing and constraints that would likely inhibit route placement. High sensitivity areas indicate limited opportunities because of potential conflicts with items such as valued resources, special status species, or existing/planned land uses. Moderate sensitivity areas indicate potential opportunities with limitations or potential opportunities that may require mitigation of some type in order to minimize potential impacts. Areas designated as Low sensitivity generally indicate opportunities because few potential conflicts were identified.

3.7 Identification of Alternatives

Based on opportunities identified during the field visit and evaluating the composite sensitivity map, route alternatives were selected. These alternatives are shown on Maps 1 and 2.

4.0 ROUTE SELECTION

4.1 Preliminary Corridors

4.1.1 Baldwin-Rush Line

Four preliminary corridors (A, B, C, and D) were identified as potential connections between the Baldwin Energy Complex and the Rush Island Power Station. Refer to Map 1 for their alignments. A corridor one mile wide was delimited around the assumed centerline of each preliminary corridor. Corridor lengths are approximately 39, 36, 30 and 29 miles respectively.

Two potential exits from the Baldwin Energy Complex were considered. The north exit would proceed north of Lake Baldwin; turn west and cross the Kaskaskia River. This exit would serve potential corridors A and B (the north corridors). Corridor A proceeds northwest approximately three miles, turns due west approximately 17 miles (2.5 miles north of the Monroe/Randolph County line), turns southwest approximately 7 miles, crosses the Mississippi River (south of the town of Festus), turns south along the Mississippi River bluffs for approximately 7 miles to the Rush Island Power Station.

Corridor B proceeds west approximately 21 miles (passing about one mile north of the Monroe/Randolph County line and the towns of Red Bud and Maeystown) turns southwest approximately five miles, crossing the Mississippi River north of Harlow Island and proceeds along the Mississippi River bluffs approximately three miles to the Rush Island Power Station. The south exit would proceed south approximately three miles turn west and cross the Kaskaskia River. The south exit would serve potential corridors C and D (the south corridors). After crossing the Kaskaskia River, corridor C proceeds northwest approximately one mile then turns due west for approximately 20 miles (passing about 1.5 miles south of Red Bud and one mile north of Renault), crosses the Mississippi River at Harlow Island, then turns south along the bluffs approximately two miles to the Rush Island Power Station. After crossing the Kaskaskia River, corridor D proceeds southwest approximately 1.5 miles, turns due west for approximately seven miles (passing north of the town of Ruma), then follows the Monroe/Randolph County line for approximately 10 miles, crosses the Mississippi then turns north along the bluffs about 4.5 miles the Rush Island Power Station.

POWER Engineers personnel conducted a field investigation of the preliminary corridors the week of May 30, 2005. Observations and data were recorded for the preliminary corridors and the project area in general. Observations and data collection occurred from public access points. In summary, field observations revealed:

- The northern portion of the project area has a higher density of homes and associated subdivisions.
- The west facing bluffs overlooking the Mississippi have several sensitive areas to consider in the route selection process including several conservation areas and nature preserves (e.g. Fults Prairie and Kidd Lake),
- The east facing bluffs overlooking the Mississippi have several sensitive areas to consider in the route selection process including the Holcim cement facility south of Rush Island, Harlow Island north of Rush Island.
- The City of Red Bud is centrally located in the project area.
- The Renault Karst Area (approximately two miles north of the town of Renault) contains a large cave complex and other potentially sensitive features.
- The majority of forested areas are associated with major drainages including the Mississippi and Kaskaskia Rivers and Horse and Richland Creeks.

Preliminary corridors A and B were not carried forward in the analysis for the following reasons:

- The north exit would cross up to four 345kV and one 138kV transmission lines. These multiple crossings would create an unacceptable risk in terms of system reliability. This significant draw back would affect both the A and B corridors.
- The northern corridors have the potential to affect a greater number of residences.
- The north exit would cross the Kaskaskia Rivers and its associated flood plain and wetlands complex at one of its widest points. Generally, there are more oxbows and braided wetland areas associated with the Kaskasia north of the Baldwin Power Plant. Crossing the Kaskaskia River to the north would result in significantly more impacts to wetlands and water resources. The south crossing

of the Kaskaskia is simply superior. This significant draw back would affect both the A and B corridors.

- The Renault Karst Area is located generally north of the town of Renault. Both corridors A and B would run through this sensitive area. This area is considered a "resource rich area" of special significance to the Illinois Department of Natural Resources. The area contains one of two known hibernation sites for the federally listed (endangered) Indiana bat.
- A and B are the longest of the four corridors at 39 and 36 miles respectively.
- Corridors A and B would potentially impact Harlow Island National Wildlife Refuge, a federally protected property located directly north of the Rush Island Power Station.
- At its closest point, corridor B would pass approximately one half mile north of the City of Red Bud.

Preliminary corridors C and D were carried forward in the analysis for the following reasons:

- The limitations listed above do not apply to corridors C and D.
- The south exit would not cross existing transmission lines.
- The south exit from the Baldwin Energy Complex would cross the Kaskaskia River at one of its narrowest points in the project area, thus minimizing potential impacts to wetland and water resources.
- The west portion of corridor D was shifted north to avoid conflict with the present and future plans of the Holcim limestone mining and cement manufacturing facility.

4.1.2 Prairie West Line

Two preliminary corridors (E and F) were identified as potential connections between Prairie State's proposed generating facility and AmerenIP's existing Stallings 345kV transmission line. Corridors are both approximately seven to eight miles long. Refer to Map 1 for more details. Both corridors generally proceed west from the generating facility site to the Stallings 345kV transmission line. Preliminary field investigations revealed a relatively uniform land use pattern of residences and farmsteads interspersed in cropland. Mud Creek, a predominantly forested perennial drainage, is a prominent feature in this part of the project area.

4.1.3 Prairie South Line

One preliminary corridor was identified as a potential connection between Prairie State's proposed generating facility and AmerenIP's existing West Mt. Vernon 345kV transmission line. The corridor is approximately one mile long and proceeds due south. This corridor was identified with the intent to route the line entirely on property owned in fee by Prairie State. Thus, no other alternatives were identified.

4.2 Selected Routes

Based on the analysis presented in previous sections of this report a series of route segments or links were identified. These route links are shown on Map 2 and in Table 4-

1. The links identified were generated through a refinement process and focused on minimizing overall impacts to the human and natural environments based on several factors. Areas of known or perceived opportunities such as existing transmission line corridors, roads, section lines and property lines were incorporated where practicable. In some cases, areas of known sensitivity are included in a route link in order to be able to logically form entire routes.

Table 4-1 Route Links

Link Number	Length (Miles)
10	0.06
20	0.93
30	2.53
40	1.90
50	3.85
70	4.16
80	0.41
90	13.77
100	13.72
110	20.78
120	0.66
130	5.53
140	5.22
150	1.45
210	0.10
300	1.03
310	0.15
320	0.48
330	0.36
340	7.01
350	7.21
360	7.36

Table 4-2 provides an analysis of individual links in relation to the distance of identified sensitive areas they cross. Links connected together forming entire routes can then be evaluated as to likely impact levels.

Table 4-2 Route Link Analysis

Link	Sensitivity			Unclassified	Total Miles
	High	Moderate	Low		
10	0.06	0.00	0.00	0.00	0.06
20	0.93	0.00	0.00	0.00	0.93
30	0.00	0.00	2.49	0.03	2.53
40	0.82	0.05	1.03	0.00	1.90
50	0.00	1.13	2.70	0.03	3.85
70	1.73	1.21	1.17	0.04	4.16
80	0.41	0.00	0.00	0.00	0.41
90	0.20	6.96	6.58	0.04	13.77
100	0.06	7.38	6.25	0.03	13.72
110	0.80	14.05	5.89	0.03	20.78
120	0.00	0.19	0.46	0.01	0.66
130	0.18	4.93	0.38	0.05	5.53
140	0.15	3.68	1.38	0.00	5.22
150	0.00	1.45	0.00	0.00	1.45
210	0.00	0.06	0.04	0.00	0.10
300	0.00	0.85	0.17	0.00	1.03
310	0.00	0.00	0.15	0.00	0.15
320	0.00	0.46	0.03	0.00	0.48
330	0.00	0.36	0.00	0.00	0.36
340	0.00	1.90	5.11	0.01	7.01
350	1.84	3.49	1.74	0.16	7.21
360	1.94	5.19	0.23	0.00	7.36

Numerous route alternatives can be made from the identified route links. While some of the route combinations do not form logical constructible routes, all route links are shown for AmerenIP's review. We anticipate that some links may be further refined or modified as further environmental analysis, engineering design, and the Illinois Commerce Commission (ICC) process dictates. Table 4-3 shows a comparison of selected logical routes.

All routes identified in Table 4-3 have some level of constraint. Sensitivity levels encountered by the selected routes are generally low to moderate. Thoughtful line design and construction mitigation techniques would help to further reduce potential impacts to the human and natural environment. Table 4-4 compares the relative level of constraints and opportunities of the selected routes. Those routes with the least amount of sensitive areas generally provide less overall impact for the resources evaluated in this report than those exhibiting higher scores. That said, it should also be recognized that this analysis has limits in terms of discriminating differences between routes. It is reasonable to conclude that comparative analyses in this report yielding similar results are, for all practical purposes, the same. Said another way, there is no identifiable difference between routes when the results for a particular parameter are very similar. Other factors such as line length need to be taken into consideration also. Generally, a shorter alignment would result in fewer impacts related to construction, operation and maintenance of the proposed transmission lines.

A route matrix table was constructed to support the ICC permitting process. Refer to Appendix B for the route matrix. The table utilizes the route links and criteria required by the ICC to illustrate and compare various characteristics of the selected routes. Data used to populate the matrix table were generated predominantly through the GIS database described earlier in this report. The GIS database is also the source of the data presented in tables 4-1, 4-2, 4-3 and 4-4 in this Section.

4.2.1 Baldwin-Rush Line

The Alternate A for the Baldwin-Rush Line is composed of links 10, 70, 80, 90, 120, 140, 150, and 210. Alternate B is composed of links 10, 20, 40, 50, 80, 100, 120, 130, 150, and 210. Alternate C is composed of links 10, 20, 30, 50, 80, 110, and 210. Route lengths are 25.82, 28.62, and 28.67 respectively. All three potential routes are very similar in several ways. One of the compelling discriminators is alignment length. Alternative A is approximately 10 percent shorter than both Alternatives B and C. This shorter length would likely translate into less overall impact potential compared to both alternatives. Examining the sensitivity data summarized in Tables 4-3 and 4-4 reveals that the three potential route alignments are very similar. High sensitivity areas are encountered along approximately 8-10 percent of the routes. Moderately sensitive areas are encountered along approximately 52-53 percent of the routes. Low sensitivity areas are encountered along approximately 37-39 percent of the routes. All three routes can be considered to be essentially the same regarding the degree of sensitivity this study has identified.

Examination of the route matrix table located in Appendix B reveals both similarities and differences between the routes. Alternate A would affect 80 landowners and 112 land parcels. Alternate B would affect 70 landowners and 92 land parcels. Alternate C would affect 67 landowners and 109 land parcels. Alternate A would cross an estimated 101.7 acres of timberland. Alternates B and C would cross an estimated 124.7 and 100.2 acres of timberland respectively. Alternate A would cross an estimated 326.2 acres of cropland. Alternates B and C would cross an estimated 361.9 and 383.0 acres of croplands respectively. Alternate A would also cross the fewest waterways at 27 compared to 36 and 31 for Alternates B and C. Alternate A appears to be within 200 feet of two occupied homes. Both Alternates B and C appear to be within 200 feet on one occupied home. Please note that landowner and parcel totals used in this analysis reflected the updated totals in AmerenIP's filing to the ICC.

4.2.2 Prairie West Line

Alternate A for the Prairie West Line is composed of links 310 and 340. Alternates B and C are composed of links 310, 320, and 350, and links 310, 320, 330 and 360 respectively. Alternate A appears to offer several advantages over the alternates. First, Alternate A is the shortest at 7.2 miles compared to 7.9 and 8.4 miles for Alternates B and C respectively. Alternate A would not cross any areas identified in this analysis as high sensitive as compared to 1.84 miles (23.4%) and 1.94 miles (23.3%) for Alternates B and C. Alternate A would also cross the least amount of areas identified as moderately sensitive at 1.90 miles (26.5%) and the most area identified as low in sensitivity at 5.26 miles (73.4%). Refer to Tables 4-3 and 4-4 for more details.

Examination of the route matrix table located in Appendix B reveals further differences in the Prairie West Line routes addressed in this study. Alternate A would affect the least number of landowners/land parcels at 22/35 as compared to Alternates B and C at 31/45 and 32/46 respectively. Alternate A would affect the lowest amount of timberland at 14.6 acres as compared to 37.1 and 54.0 acres respectively for Alternates B and C. Alternate A would also cross the fewest waterways at 7 compared to 13 and 14 for Alternates B and C. None of the potential routes would be within 200 feet of an occupied house.

4.2.3 Prairie South Line

Alternate A for the Prairie South Line is composed entirely of link 300. It is 1.03 miles long. This route appears to offer several advantages. No other alternatives were identified for this line because the proposed route is located entirely on property owned in fee by Prairie State. This alignment is very direct and as a result is also short. This route would not cross any areas identified in this analysis as sensitive. The route would cross 0.85 (83.0%) miles identified as moderately sensitive and 0.17 miles (17%) identified as low in sensitivity.

Examination of the route matrix table located in Appendix B reveals the following. Alternate A would affect one landowner and six land parcels, and 6.0 acres of timberland. Two waterways would be crossed by the alignment. There would be no occupied houses within 200 feet of the assumed centerline.

Table 4-3 Comparison of Selected Routes

Route	Links	Length (mi)	Length (mi) High	Length (mi) Moderate	Length (mi) Low	Length of Total (mi) Sensitivity	Length (mi) Unclassified
Baldwin – Rush Island Line							
ALT A	10, 70, 80, 90, 120, 140, 150, 210	25.82	2.56	13.54	9.63	25.74	0.08
ALT B	10, 20, 40, 50, 80, 100, 120, 130, 150, 210	28.62	2.46	15.18	10.86	28.50	0.12
ALT C	10, 20, 30, 50, 80, 110, 210	28.67	2.21	15.24	11.13	28.57	0.10
Prairie West Line							
ALT A	310, 340	7.16	0.00	1.90	5.26	7.15	0.01
ALT B	310, 320, 330, 360	8.36	1.94	6.00	0.41	8.36	0.00
ALT C	310, 320, 350	7.85	1.84	3.94	1.91	7.69	0.16
Prairie South Line							
ALT A	300	1.03	0.00	0.85	0.17	1.03	1.03

Table 4-4 Comparison of Route Sensitivity Levels

Route	Length (mi)	High (%)	Moderate (%)	Low (%)	Unclassified (%)
Baldwin – Rush Island Line					
ALT A	25.8	9.9%	52.4%	37.3%	0.3
ALT B	28.6	5.7%	53.0%	40.8%	0.4
ALT C	28.7	7.7%	53.1%	38.8%	0.10
Prairie West Line					
ALT A	7.2	0.0%	26.5%	73.4%	0.1
ALT B	7.9	23.4%	50.2%	24.4%	2.0
ALT C	8.4	23.3%	71.9%	4.9%	0.0
Prairie South Line					
ALT A	1.0	0.0%	83.0%	17.0%	0.0

4.3 Conclusions

4.3.1 Baldwin-Rush Line

Alternate A has been selected as the preferred route. Alternate A is approximately 10 percent shorter than the other alternatives, likely resulting in less overall impacts to the natural and human environment. The sensitivity data indicate that the three alternatives are very similar. Differences among routes for all three sensitivity categories are within approximately two percent of each other. The route matrix data are consistent with the sensitivity data also indicating that the alternate routes are similar in overall character.

4.3.2 Prairie West Line

The Alternate A has been selected as the preferred. Alternate A is the shortest at 7.16. This is approximately 14 and 9 percent shorter than Alternates B and C respectively. Alternate A would not cross any areas identified in this analysis as sensitive. Both Alternates B and C would cross approximately 23% of areas identified as sensitive. Alternate A would also cross the least amount of areas identified as moderately sensitive and the most area identified as low in sensitivity. The route matrix data are consistent with the sensitivity data indicating that Alternate A would likely result in less impacts than the other alternate routes.

4.3.3 Prairie South Line

Prairie State owns all of the property along the alignment, thus one alignment taking advantage of this fact was developed. The alignment is very direct and short. This route would not cross any areas identified as sensitive. The majority of the route (83.0%) would pass through moderately sensitive areas. Thus, Alternate A is designated the preferred route.

Prairie State Interconnection Project			Baldwin - Rush Line			Prairie West Line			Prairie South Line
Route Matrix			ROUTE A SEGMENTS 10,70,80,90,120,140,150,210	ROUTE B SEGMENTS 10,20,40,50,80,100,120,130,150,210	ROUTE C SEGMENTS 10,20,30,50,80,110,210	ROUTE A SEGMENTS 310, 340	ROUTE B SEGMENTS 310, 320, 350	ROUTE C SEGMENTS 310, 320, 330, 360	ROUTE A SEGMENT 300
1.		**Total Length of Routes - in miles**	25.9	28.7	28.7	7.2	7.9	8.4	1.0
		- in feet	136542.4	151313.0	151551.8	37827.0	41453.0	44135.0	5416.0
	a)	Average Span Length	900.0	900.0	900.0	900.0	900.0	900.0	900.0
	b)	Maximum Span Length	2770.0	2770.0	2770.0	1100.0	1100.0	1100.0	1100.0
	c)	Average Height Above Ground	90.0	90.0	90.0	100.0	100.0	100.0	100.0
2.		**Estimated Project Cost:**							
	a)	Cost of Proposed 345kV Line	$31,737,345	$35,170,558	$35,226,064	$11,658,310	$12,775,846	$13,602,440	$1,669,215
	b)	Cost of Land and Right of Way	$1,879,985	$2,083,353	$2,086,641	$520,838	$570,764	$607,692	$74,573
	c)	Cost of Proposed 345kV Termination Equipment	$0	$0	$0	Ameren	Ameren	Ameren	Ameren
3.		**Right of Way Information (easement/fee)**							
	a)	Total Number of Landowners	80	70	67	22	32	31	1
	b)	Total Number of Parcels	112	92	109	35	46	45	6
	c)	Parcels Signed	0	0	0	0	0	0	0
4.		**Other Utilities Within 500 Feet:**							
	a)	Ameren IP Electric	10			6			
	b)	Egyptian Electric Coop	7						
	c)	Monroe County Electric	9						
	d)	Tri-County Electric Coop	0			2			
	e)	360 Networks	0			1			
	f)	Charter Cable	0			1			
	g)	Egyptian Telephone Co.	9			1			
	h)	Harrison Telephone Co.	24						
	i)	MCI	0			1			
	j)	Verizon	0			3			
	k)	CenterPoint Energy - Miss. / River Gas Trans. Co.	1						
	l)	Gas Line, City of Red Bud	1						
	m)	Illinois Power - Gas	0			1			
	n)	Kaskaskia Water	0			1			
	o)	Washington County Water	0			2			
	p)	Egyptian Water Coop	0						
	q)	Sparta City Water	1						
	r)	Canadian National/Illinois Central Railroad	1						
	s)	Dynegy Water	1						
	t)	Baldwin City Water	1						
5.		**Type of Right of Way (miles):**							
	a)	Public	1.9	1.5	1.4	0.0	0.0	0.0	0.0
	b)	Private easement	24.0	27.2	27.3	7.2	7.9	8.4	1.0
	c)	Fee Simple	0.0	0.0	0.0				
6.		**Width of Right of Way (feet)**							
	a)	Total Width	150	150	150	150	150	150	150
	b)	Distance from Centerline Easement to Edge of Easement	75	75	75	75	75	75	75
	c)	Centerline of Easement is the Approximate Centerline of Support Structure (yes/no)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7.		**Present Land Use (acres):**							
		(Acquired by Easement)							
	a)	Cropland	326.2	361.9	383.0	116.4	73.9	98.6	12.8
	b)	Pasture	25.8	20.9	21.1	0.0	10.4	12.7	0.3
	c)	Timberland	101.7	124.7	100.2	14.6	54.0	37.1	6.0
	d)	Nonagricultural	0.0	0.0	0.0	0.0	5.2	4.2	0.0
	e)	Other	15.8	13.1	15.2	0.0	0.0	0.0	0.0
8.		**Present Land Use (acres):**							
		(To Be Acquired by Fee)							
	a)	Cropland	0.0	0.0	0.0				
	b)	Pasture	0.0	0.0	0.0				
	c)	Timberland	0.0	0.0	0.0				
	d)	Other Agricultural	0.0	0.0	0.0				
	e)	Nonagricultural	0.0	0.0	0.0				
9.		**Direct Benefits of the Construction to the Farms in the Area of Land Used by the Utility**				Ameren	Ameren	Ameren	Ameren
10.		**Line Adjacent/Parallel To (Miles);**							
	a)	Railroad Right of Way (Precedence 3)	0.4	0.1	0.1	0.0	0.0	0.0	0.0
	b)	Road Right of Way (Precedence 2)	4.9	6.3	6.1	1.7	0.0	0.4	0.0
	c)	Drainage Ditches (Precedence 4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	d)	Misc. Field & Property Div., etc. (Precedence 5)	6.7	3.3	10.6	0.0	3.3	0.0	0.0
	e)	Utility Corridor (Precedence 1)	0.3	0.4	0.4	0.0	0.2	7.5	0.5
11.		**Rivers and Other Waterways Crossed:**							
	a)	Mississippi River	1	1	1	0	0	0	0
	b)	Kaskaskia River	1	1	1	0	0	0	0
	c)	Horse Creek	1	7	1	1	6	5	1
	d)	Unnamed Creeks	21	22	27	6	6	8	1
	e)	Unnamed Lakes/Ponds	3	4	1	0	2	0	0
		Others as needed	0	1	0				
12.		**Major Highways Crossed:**							
	a)	Route Illinois 3	1	1	1	1	1	1	0
	b)	Route Illinois 154	1	1	1	1	1	1	0

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			SEGMENTS 10,70,80,90,120,140,150,210	SEGMENTS 10,20,40,50,80,100,120,130,150,210	SEGMENTS 10,20,30,50,80,110,210	SEGMENTS 310, 340	SEGMENTS 310, 320, 350	SEGMENTS 310, 320, 330, 360	SEGMENT 300
	13.	**Structures Within 200 Feet of Centerline of Line:**							
	a1)	Occupied Houses, Within 200' of Centerline	2	1	1	0	0	0	0
	a2)	Occupied Houses, Across Road	0	0	0				
	b1)	Unoccupied Houses, Same Side of Road	0	0	0				
	b2)	Unoccupied Houses, Across Road	0	0	0				
	c1)	Garage & Farm Buildings, Within 200' of Centerline	13	4	9	0	4	1	0
	c2)	Garage & Farm Buildings, Across Road	0	0	0				
	d1)	Grain Bins, Within 200' of Centerline	4	0	4	0	0	1	0
	d2)	Grain Bins, Across Road	0	0	0				
	e1)	Other Within 200' of Centerline	2	2	2	0	0	0	0
	e2)	Other, Across Road	0	0	0				
	e3)	Other Misc.	0	0	0				
	e4)	Occupied Houses & Bldgs Adjacent within 200'	0	0	0				
	14.	**Anticipated Location of Support Structures:**							
	a)	Cropland	113	118	129	38	24	31	4
	b)	Pasture	5	8	6	0	2	4	0
	c)	Timberland	32	42	31	4	18	12	2
	d)	Other Agricultural	0	0	0	0	1	0	0
	e)	Public Right of Way	0	0	0	0	0	0	0
	f)	Along or Within Utilization Lines (e.g. Roads, Field Borders, Grassy Waterways, etc.)	2	1	1	0	1	0	0
	g)	Other:	1	0	1	0	1	1	0
	15.	**State Parks and Conservation Areas (Miles):**							
	a)	Line Crosses through	0.6	0.6	0.4	0.0	0.0	0.0	0.0
	b)	Adjacent to Line	0.0	0.0	0.1	0.0	0.0	0.0	0.0
	c)	Within 1 Mile of Line	8.2	6.5	9.8	0.0	0.0	0.0	0.0
	d)	1 to 5 Miles of Line	16.9	21.3	16.6	0.2	0.3	0.5	0.0
	e)	Total of Above	25.7	28.4	26.9	0.2	0.3	0.5	0.0
	16.	**Airports and Restricted Landing Areas (Miles):**							
	a)	Adjacent to Line	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	b)	Within 1 Mile of Line	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	c)	1 to 5 Miles of Line	12.4	13.9	8.6	0.0	0.0	0.0	0.0
	d)	Total of Above	12.4	13.9	8.6	0.0	0.0	0.0	0.0
	17.	**The proposed construction will become a controlling obstruction to the use of the above airports as defined in FAA and State Regulations relative thereto (yes/no):**				No	No	No	No
	18.	**Designated "Flood Plain" Areas (Miles):**							
	a)	Parallel to Line	7.2	5.9	6.3	2.8	1.6	2.8	0.6
	b)	Crossed by Line	10.0	10.9	9.5	1.3	3.6	2.9	0.5
	c)	Total of Above	17.2	16.8	15.8	4.1	5.2	5.7	1.1
	19.	**The proposed construction will cause interference with said "floodplain" areas (yes/no):**				Yes 17a 6b	Yes 12a 17b	Yes 16a 15b	Yes 3a 3b
	20.	**With reference to the above matters, Company has letters of transmittal to:**							
	a)	U.S. Army Corps of Engineers							
	b)	Federal Aviation Administration							
	c)	Illinois Department of Transportation							
	d)	Illinois Historic Preservation Agency							
	e)	Illinois Dept. of Trans. Division of Aeronautics							
	f)	Illinois Department of Natural Resources							
	g)	Illinois Department of Agriculture							

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