

TIMELINE

- 2009-05-15** LCRA Open Houses Landowners notified
- 2009-06-01** CVA goes live on world wide web
- 2009-09-24** Motion to Delay & Expand Study Area
- 2010-02-15** 1/4 scale model lattice tower tours region
- 2010-02-15** LCRA Open Houses second round
- 2010-04-19** LCRA / Fish & Wildlife Scoping Meetings
- 2010-07-28** Filing of CCN
- 2010-09-01** Hearing on the Merits, Austin Conv. Center
- 2010-12-17** ALJ issued PFD recommendation to PUC
- 2010-12-23** CVA filed Exceptions to PFD
- 2011-01-13** PUC routing deliberations / Final Order

TERMS

- PFD** Proposal for Decision
- ALJ** Administrative Law Judge
- CVA** Clear View Alliance
- LCRA** Lower Colorado River Auth
- PUC** Public Utilities Commission
- CCN** Certificate of Convenience & Necessity
- TPWD** Tx Parks & Wildlife Dept.
- PURA** Public Utility Regulatory Act
- CREZ** Competitive Renewable Energy Zones
- CTO** CREZ Transmission Optimiz

Junction Airport Link Y11 www.ClearViewAlliance.org



in bound private aircraft to Kimble Co. Airport at Junction pumps the life blood of local economy

Above-Ground Construction of Link Y11

LCRA TSC has failed to demonstrate that it has accurately analyzed the construction options for an above ground transmission line at Link Y11 near the Kimble County Airport. It has misapplied the FAA’s obstruction standards, resulting in a conclusion that the structure height must be lower than actually allowable by FAA rule. It then determined that the low structures would require security fences and would result in a conductor height that in a flood event would require it to take the line out of operation for hours or days. And, it concluded that the purposes of the CREZ transmission lines require it to ensure that this portion of the line never be taken out of operation. The upshot of this erroneous chain of conclusions was a proposal to build the line underground at a cost of \$54,000,000.

JUNCTION AIRPORT LINK Y11



Runway 35 (350 degrees), looking north to the hills beyond where staff MK15 creates possible safety hazard to air navigation

Kimble County Airport and Llano River Floodplain

Summary of the situation:

The proposed location of Link Y11 south of the Kimble County Airport concerned LCRA TSC's engineers, so they retained the services of a consultant who never visited the airport but advised LCRA TSC that he believed the Federal Aviation Administration would object to the location of transmission line structures unless they were less than 40 feet tall. This revelation caused the LCRA TSC engineers to determine that they would have to construct a fence around the area of reduced height structures. Because the Llano River is located in that same location, LCRA TSC became concerned that flood waters could rise too close to the conductors, causing LCRA TSC to have to shut down the line during 100-year flood events. That possibility caused LCRA TSC to have concerns about reliability and the ability of the transmission line to carry CREZ-generated electricity. LCRA TSC then concluded that it would have to build a half of a mile of the transmission line underground, something it has never done, at a cost of \$54 million.

Summary of CVA's position:

CVA's aviation engineer testified that the transmission line can be built on structures as tall as 60 feet high. No fence would have to be built. Only rare, 100-year flood events may require the temporary shutting down of the transmission line. Those events could be predicted and planned for, possibly not even having any impact on the transfer of electricity in the region. If curtailment of wind generation were required, it would be temporary and able to be restored after the flood event was over and LCRA TSC performed its evaluation of the line and completed any repairs. The future costs of any curtailment would be substantially less than \$54 million.

In Docket No. 38140 Oncor Electric Delivery Company LLC identified reliability and security concerns so it retained the services of ABB to conduct studies addressing those concerns. After a hearing on

CVA's aviation expert analyzes conditions surrounding Kimble Co Airport near Junction



the issue, the ALJ and the Commission determined that Oncor's reliability concerns were valid and precluded the paralleling of certain transmission lines due to reliability and security concerns. In Docket No. 38517, Oncor again identified reliability concerns related to paralleling of transmission lines. It commissioned ABB to conduct a dynamic stability analysis to determine how the grid would respond if the Proposed Project were constructed parallel to one of the existing 345 kV lines in the study area and a loss of both parallel lines occurred simultaneously. ABB analyzed three different outage scenarios. After Oncor's engineer, Ken Donohoo, reviewed the studies, he testified that none of Oncor's filed links create sufficient grid reliability or security concerns to justify not utilizing any particular link. Commission Staff subsequently relied on the ABB study to make its recommendation in the case for paralleling of links that originally were a cause of concern for Oncor.

In this case, however, LCRA TSC provided no study projecting how frequently or for how long flood events could require LCRA TSC to shut down the transmission line. LCRA TSC provided no analysis or projections of ERCOT's ability to reallocate load to other lines during those times that the McCamey D to Kendall line would be shut down. LCRA TSC provided no analysis or even an estimate of the temporary curtailment of wind generation that would result from shutting down the McCamey D to Kendall line for flood events that occur in the 100 year floodplain. Having based its entire conclusion on an erroneous analysis of FAA regulations, LCRA TSC submitted its application to the Commission claiming that the only way it could build the proposed transmission line on Link Y11 would be to bury the line underground at a cost of \$54 million.

Had LCRA TSC expended as much effort analyzing the Airport and the FAA's rules as it has spent trying to avoid construction on Link Y11, a complete picture of the considerations and potential solution as would have been presented in the Application and in LCRA TSC's direct case. Instead, the burden fell to intervenors to perform the analysis LCRA TSC should have performed at the outset.

CVA and its witnesses provided evidence that not only can a transmission line be constructed above ground on Link Y11, but it also can be done economically and in a manner that does not endanger safety or the reliability of the transmission line.

Link Y11, South of the Airport

Although the ALJs agree with CVA and TPWD that environmentally, the best choice for the line would be to parallel I-10 as much as possible, they conclude underground construction along Link Y11 is too expensive to recommend. They determined that the weight of the evidence does not support CVA's contention that Link Y11 can be built above ground. Given that LCRA TSC is responsible for ensuring that the line is safe and reliable, the ALJs state that the better option is to route the line north of the Kimble County Airport. Staff, Weinzierl, and CVA alternate proposal MK32 all route around the airport along Links b19b and b19c. Staff MK15 best balances the factors of cost, paralleling ROW, prudent avoidance, and environment. MK32 and 33 are better in terms of the environmental factors but are poor on cost and prudent avoidance. Therefore, the ALJs recommend Staff MK15.

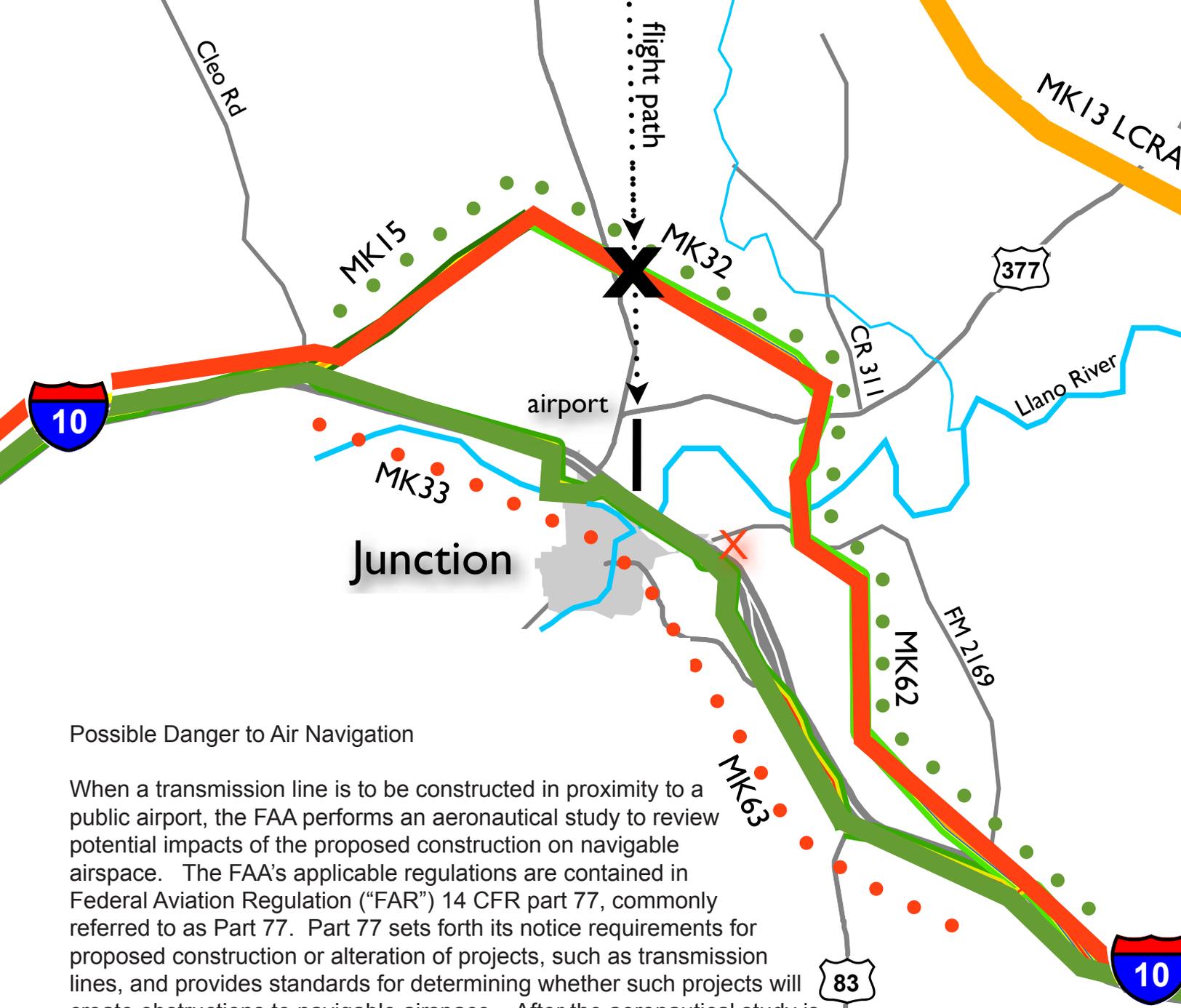
No aviation safety concern, no reliability concern and no erosion concern requires that the transmission line be buried at Link Y11.



The credible evidence in the record proves that LCRA TSC can construct the transmission line above ground on Link Y11 south of the Kimble County Airport. What the hearing revealed as well, however, is that it does not want to do so and it has focused its case on stating the reasons why it made the decision to bury the line. LCRA TSC's position is untenable. It is based on an erroneous analysis of the Federal Aviation Administration's ("FAA") rules, misstated and overstated concerns about reliability, and a false assumption as to its obligations to wind generators.

If the Commission accepts LCRA TSC's flawed analysis, Route MK33 almost certainly is cost prohibitive. CVA agrees that an expenditure of \$54 million to bury a portion of the line would not be a wise investment of ratepayers' funds. Fortunately, that expenditure is unnecessary and the line can be built above ground.

The reasons LCRA TSC states for not wanting to build the transmission line above ground are: possible danger to air navigation; flood events and reliability concerns associated with lower height transmission structures; and erosion. Three of the four reasons LCRA TSC cites to justify its recommendation of underground construction are related to the height of the structures, so the proper analysis of and understanding of the FAA's rules is critical to a determination of how to construct the line on Link Y11. Structures in proximity to an airport runway that are too tall will be objected to by the FAA. At the same time, because of the Airport's location near the North Llano River, the supporting structures will be in a flood plain. If the height of the structures is reduced below a certain level, the conductors could be located at a height that causes reliability concerns if a flood event were to occur. So long as the structures are sufficiently tall, however, the conductors will be enough high above the water to eliminate any reliability concern during a flood event. If the structure height issue is resolved, then LCRA TSC's reliability concerns should be eliminated and the distances between the transmission lines and the flood plain would be increased to a point that they should no longer be a problem.



Possible Danger to Air Navigation

When a transmission line is to be constructed in proximity to a public airport, the FAA performs an aeronautical study to review potential impacts of the proposed construction on navigable airspace. The FAA's applicable regulations are contained in Federal Aviation Regulation ("FAR") 14 CFR part 77, commonly referred to as Part 77. Part 77 sets forth its notice requirements for proposed construction or alteration of projects, such as transmission lines, and provides standards for determining whether such projects will create obstructions to navigable airspace. After the aeronautical study is completed, the FAA regional office normally will issue either a "No Objection," "Conditional No Objection," or an "Objection" to the proposed project.

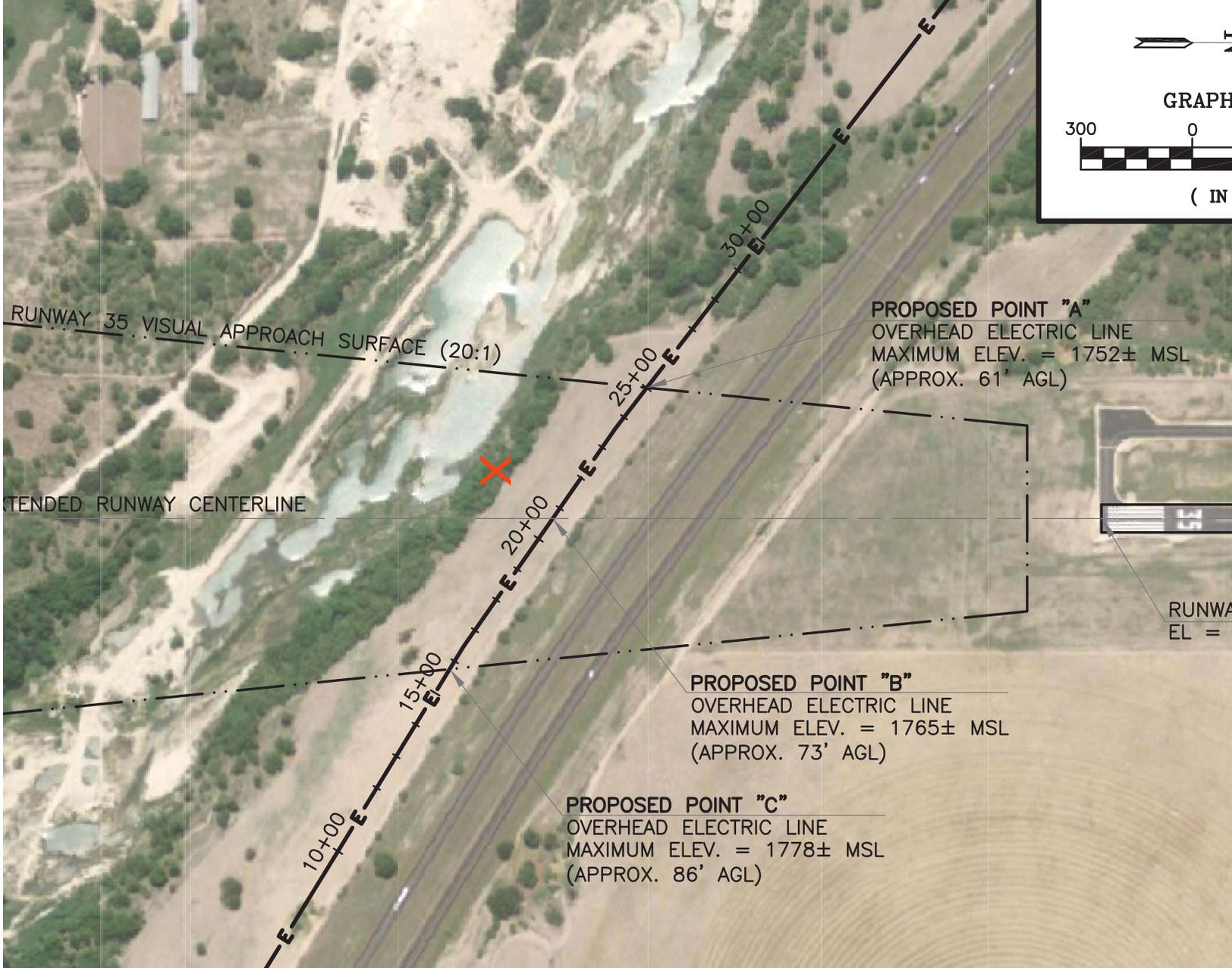
CVA witness Frank McIlwain, P.E. is an engineer with 12 years of airport design experience; he also is a pilot. Mr. McIlwain testified that it is his opinion that the FAA will not object to construction of the transmission line on Link Y11 if the heights of the structures do not exceed 61 feet. Mr. McIlwain's direct testimony includes an exhibit that depicts the Runway 35 approach and shows the results of his calculations based on the FAA's regulations. The exhibit indicates how tall the structure could be without being determined to be an obstruction. Copies of engineering drawings included in Mr. McIlwain's direct testimony are provided with these exceptions as Attachment E. The northern approach is identified as Runway 17; the southern approach is identified as Runway 35.

Mr. McIlwain testified that the FAA applies a 20:1 slope requirement to the Approach Surface when it evaluates whether it will issue an objection for a project that may affect a visual approach (as with the existing Runway 35 approach at Kimble County Airport). A 20:1 approach slope means that when a plane is taking off, for example, within a distance of 200 feet, the pilot should expect to climb 10 feet; in a distance of 2,000 feet, a pilot should expect to climb 100 feet.

LCRA TSC's expert witness, William Griffin, P.E. acknowledged on cross examination that a structure 60 feet tall would not be determined by the FAA to be an obstruction to air navigation. Mr. Griffin, however, said in his prefiled rebuttal testimony that he believes the FAA will object to the construction in the configuration that Mr. McIlwain concluded is acceptable, because it would violate what Mr. Griffin referred to as an "Obstacle Clearance Slope." Mr. Griffin emphasized the Obstacle Clearance Slope and recommended not building a structure that required a change in the Obstacle Clearance Slope. The Obstacle Clearance Slope that Mr. Griffin applied, however, is a flatter 34:1 obstruction clearance slope, not the 20:1 standard Mr. McIlwain identified as what the FAA would use to determine whether it objects to construction of the transmission line.

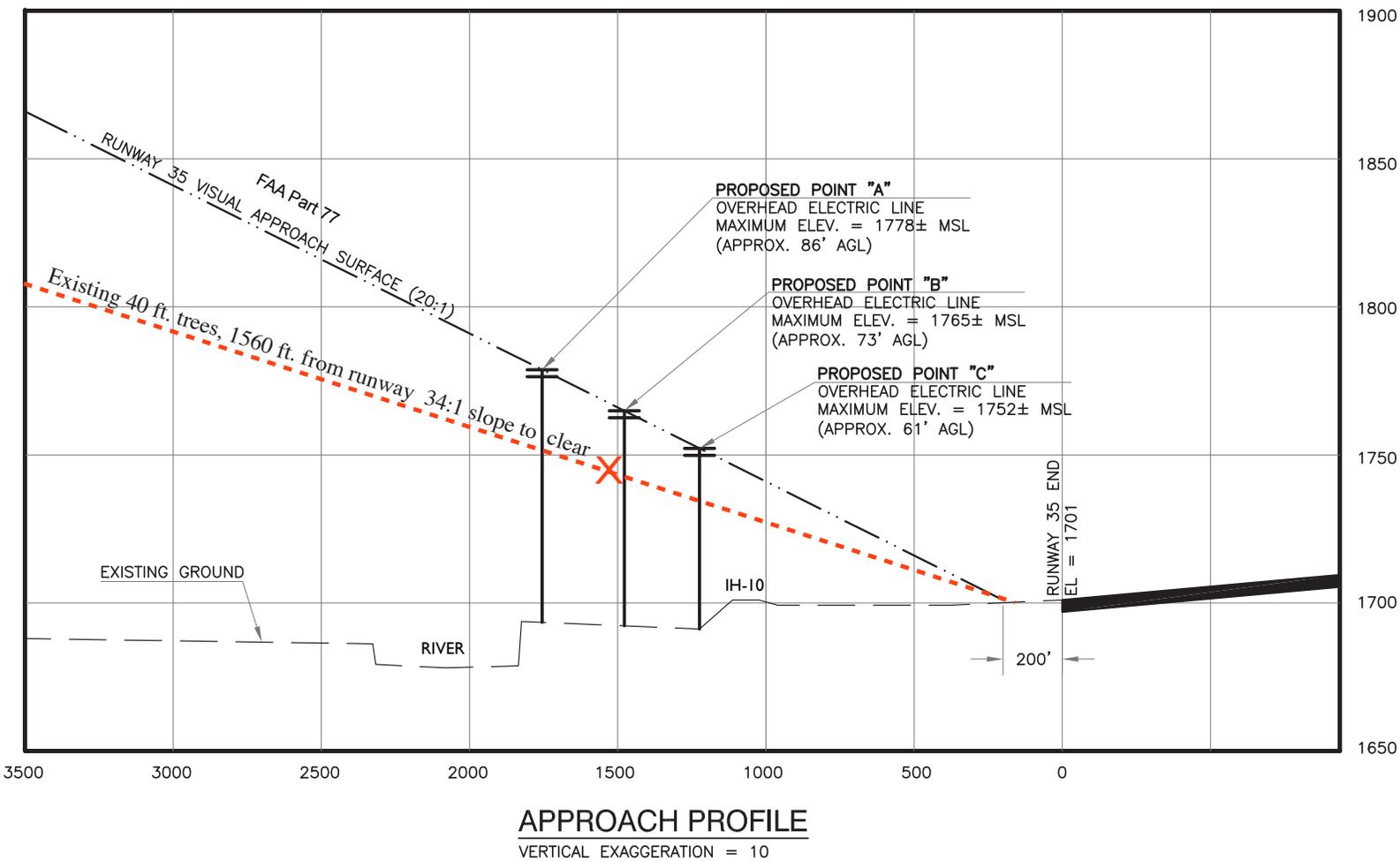
airport runway looking south towards I-10 with town of Junction in the background





black dashed line with E is LCRA's easement
red X is the obstacle clearance advisory is trees along the edge of the river

When questioned on this at the hearing, Mr. Griffin was unable to substantiate his statements. When asked if he based his belief on any FAA rule, Mr. Griffin stated: "And as far as I know, the FAA doesn't publish rules — or all of the rules associated with their OE in-houses (sic)." Upon further cross-examination, Mr. Griffin acknowledged that the FAA does have a 350-page handbook for its obstruction evaluations. He did not identify any rule, order, or precedent that was the basis for his belief that the FAA will object to construction of the proposed transmission line as Mr. McIlwain proposes. To be clear, Mr. McIlwain's proposed construction height for the transmission line supporting structure is higher than the existing obstruction clearance slope at the Airport, but it is below what is required by the FAA Part 77 Approach Slope Surface. In other words, there is "head room" in Part 77 to erect a structure near the Airport that is taller than structures or natural obstacles (such as trees) that exist there now. The existing obstruction clearance slope upon which Mr. Griffin relies for his belief that the FAA will object to the proposed construction is not listed in the list of surfaces considered by the FAA in FAR 14 CFR § 77.25.



ABOVE GROUND OPTIONS EXIST:

LCRA misinterpreted the FAA Part 77 20:1 slope requirements for visual approaches, instead LCRA used the obstruction 34:1 slope as the basis for it's decision to bury the line for 2,500 feet (1/2 mile) for \$54 million (\$1800 / inch) The existing 40' tree 34:1 slope to clear is nothing more than an advisory to pilots

also of interest the national codes minimums for 345-kV line allow for the 60' height poles as shown above in proposed point "C"

The record thus establishes that LCRA TSC may construct, without an FAA objection, transmission line structures that are up to 60 feet tall in the area that is within the aircraft approach surface. What LCRA TSC mistakenly concluded is that a flatter approach slope and a different obstruction standard apply to the Airport instead of the 20:1 visual runway Approach Surface standard established in FAA Part 77. As a result, LCRA TSC restricted its structure heights to under 40 feet, thereby creating a potential reliability concern because of the proximity to the flood waters.

LCRA TSC's Concerns about Reliability

Because LCRA TSC limited itself to building transmission structures that are lower than what will be permitted by the FAA, the lower height structures became the cause of LCRA TSC's flood and reliability concerns. Specifically, the use of lower height structures means that the conductors will be closer to the ground than if the supporting structures are the standard 120 to 180 foot towers. LCRA TSC anticipated that the lower height lines would have to be fenced with security fences. The Airport is located near the North Llano River and the route LCRA TSC selected for the transmission line in this location includes Link Y11 which crosses a 100-year flood plain. The National Electrical Safety Code and LCRA TSC's safety standards require that a minimum separation of 26 feet be maintained

between conductors and any ground or water surface. In the event of a flood, rising water would make the gap between the conductors and the water level smaller. Floodwaters also could damage the security fences.

LCRA TSC did not raise concerns about cascading outages, but expressed concerns that the McCamey D to Kendall circuits will be required to be removed from operation. It also said that reenergizing the circuits could be delayed if the security fences are damaged. LCRA TSC witness Mr. Garza acknowledged that ERCOT will have the appropriate measures in place to address the new issues being introduced into the grid by the full CREZ environment and continue to operate the grid in a safe, reliable and prudent manner as long as the TSCs provide them with reliable facilities. He did not raise concerns about power outages at the hearing; rather, LCRA TSC's main concern appeared to be that the wind generators would be curtailed during the time the line was out of operation.

Saba Ranch expert witness Mr. Dauphinais testified that, if there were no structural damage to the supporting structures of the transmission line, restoration of service could be accomplished relatively quickly after a flood event. Questioned further by LCRA TSC, Mr. Dauphinais testified that "we're talking about an event that is not going to occur very frequently, and it may not – may not damage the secured area when it occurs." Mr. Dauphinais also testified that the power would be distributed on the transmission system in a controlled fashion.

Planning for weather events that may affect transmission line reliability is not unusual in Texas. Mr. Dauphinais testified that: "It is not unusual to have some lines that may have special operating procedures associated with them." Mr. Dauphinais further testified that LCRA TSC could take the McCamey D to Kendall circuits out of operation at a time of concern and that this could be done in advance of an anticipated flooding event that has the potential to create a safety or reliability concern. A process to take a transmission line out of operation is not different than other types of reliability events we experience in Texas.

If a flooding event were to require that the line be taken out of operation, the potential consequence identified by Mr. Dauphinais is that "[i]t might reduce transfer capability during the period of time that it is out of operation." This would have an effect on the ability to accept wind power on the ERCOT grid during the period of the outage. Mr. Dauphinais, however, stated that he would expect "the economic impact of the reduction of transfer capability to be substantially less than the additional cost incurred to put the line underground."

On cross-examination by LCRA TSC on this issue, Mr. Dauphinais disagreed that the purposes of CREZ would be compromised by this situation, stating that the purposes of CREZ would only be limited for a number of hours or days. Mr. Dauphinais further testified that the power would be distributed on the transmission system in a controlled manner.

Based on the record evidence, it is CVA's position that the concerns LCRA TSC has raised regarding reliability are misplaced and overstated.

If LCRA TSC were in fact required to build the line using structures shorter than 60 feet, LCRA TSC is at most faced with the prospect of shutting down the line for a relatively brief period of time during a flood event. LCRA TSC has not contended that ERCOT cannot safely and reliably operate the transmission grid in the event the line is out of operation for a time. CVA is confident that LCRA

TSC will be able to carry out its responsibilities to operate the line safely and LCRA TSC has not said otherwise.

What CVA considers incredible is LCRA TSC's decision that burying the line at a cost of \$54,000,000 is an appropriate means of ensuring that a flood at this location will not cause any curtailment of CREZ generating capacity. CVA cannot in conscience ask the Commission to approve and the ratepayers to pay for a half-mile of buried cables in this location when a tornado or an ice storm is equally capable of causing an outage in this or any other CREZ 345 kV line. CVA is aware of no guarantees to any wind generator made by the Public Utility Commission of Texas that there will be a continuous and maximum capacity operating CREZ system for the next 100 years. CVA believes that no individual generator is entitled to any specific level of production or a system topology. If, due to infrequent flood events, the McCamey D to Kendall circuits are out of operation for a matter of hours or even days, CVA is confident that ERCOT will manage the grid so that power is reliably delivered to Texas customers. An investment of \$54 million to assuage LCRA TSC's concerns for wind generation is not warranted or cost-effective. LCRA TSC can construct the transmission line above ground on Link Y11 so that power is transferred on a reliable and consistent basis without charging Texas ratepayers for its proposed underground facilities.

Erosion

LCRA TSC did raise a concern that is not related to the height of the transmission structures: erosion in the flood plain crossed by Link Y11. Yet, LCRA TSC apparently ignored the use of cost-effective options that would allow it to construct Link Y11 without erosion concerns. Instead, LCRA TSC raises the unsupported specter of erosion even affecting I-10.

CVA witness Russell Gully, P.E., R.P.L.S. is a Professional Engineer, Registered Professional Land Surveyor and the owner of SKG Engineering. Mr. Gully performed an in-person examination of the area of the North Llano River where Link Y11 would be constructed and did not observe active erosion of the river bank in this area. Mr. Gully testified that in his expert opinion there are few, if any, erosion concerns associated with the area south of the Kimble County Airport and that those concerns can be addressed in an efficient and economic manner.

Mr. Gully testified that the right-of-way will be in the floodplain, not in the floodway, and discussed large, old oak trees that are located north of the river. He also testified that an oak tree is similar to the concrete post of a power line. It is effectively the same scenario, except the tree would be closer to the river. Mr. Gully testified that there is not active erosion where the trees are located, so he would not expect there to be erosion problems with the transmission lines.

Mr. Gully's rebuttal testimony included 5 aerial photographs showing the location in question, dating back to 1939. Contrary to LCRA TSC's claims, these photographs show that the river bank does not appear to be eroding or endangering the interstate or the area where the transmission line would be located. What Mr. Gully's testimony makes clear is that LCRA TSC's erosion concerns are not supported by any evidence, and LCRA TSC has undertaken no effort to determine what solutions are available, solutions that Mr. Gully testifies exist and can address LCRA TSC's concerns in an efficient and economic manner. LCRA TSC's parent company is a well-regarded custodian of many of the rivers and lakes in central Texas. CVA is confident that LCRA TSC can address any erosion concerns that arise during construction and operation of the transmission line on Link Y11.

In conclusion, LCRA TSC has failed to demonstrate that it has accurately analyzed the construction options for an above ground transmission line at Link Y11 near the Kimble County Airport. It has

misapplied the FAA's obstruction standards, resulting in a conclusion that the structure height must be lower than actually allowable by FAA rule. It then determined that the low structures would require security fences and would result in a conductor height that in a flood event would require it to take the line out of operation for hours or days. And, it concluded that the purposes of the CREZ transmission lines require it to ensure that this portion of the line never be taken out of operation.

Purported Easement

The final point on this issue concerns the purported easement to which LCRA TSC refers in its Initial Brief. CVA has searched the record and can find nothing to support LCRA TSC's claim that such an easement exists. Notably LCRA TSC cites to no exhibit substantiating the claimed existence of the easement. There is no mention of any easement in Mr. Symank's direct testimony, nor any in his rebuttal testimony. LCRA TSC witness Mr. Griffin does not refer to the purported easement in his rebuttal testimony and at hearing testified that he based his belief that the FAA would object to the construction of the transmission line upon the obstacle clearance slope. Nothing in the record indicates that Mr. Griffin was aware of any purported easement.

Furthermore, in LCRA TSC's response to Staff's RFI 3 7, it stated the reasons for the decision to propose and support underground, rather than overhead, construction on Link Y11. There is no mention of any easement, no reference to the purported easement to which LCRA TSC now refers in its brief in that discovery response. LCRA TSC did not supplement its response in any subsequent filing or at hearing. All that is in the record is a statement made by Mr. Symank on redirect where he referred to airspace easements associated with the Airport and he alleged that the construction of the transmission line in a manner that affects the obstacle clearance slope "would require a condemnation of those easements." Mr. Symank is neither an expert in real estate nor an expert in aviation or airports; his statement is nothing but speculation. LCRA TSC has not provided any evidence of the existence, much less the content, of the purported easements referred to by Mr. Symank or the easement to which it refers in its Initial Brief. LCRA TSC has gone outside the record in an effort to substantiate its failed analysis and erroneous conclusions. The Commission's decision in this case must be based on the record evidence. It cannot be based on speculation; it cannot be based on purported easements that no party has seen.

**The upshot of this
erroneous chain of conclusions**

**was a proposal to
build the line underground
at a cost of**

\$54,000,000

Proposed Ordering Paragraph

LCRA TSC's Application to build the McCamey D to Kendall double circuit 345 kV transmission line is approved. The Project will follow the segments identified as Route MK33, except that LCRA shall construct Link Y11 below the south approach surface of the Kimble County Airport, using structures that do not exceed 60 feet in height rather than burying the line.