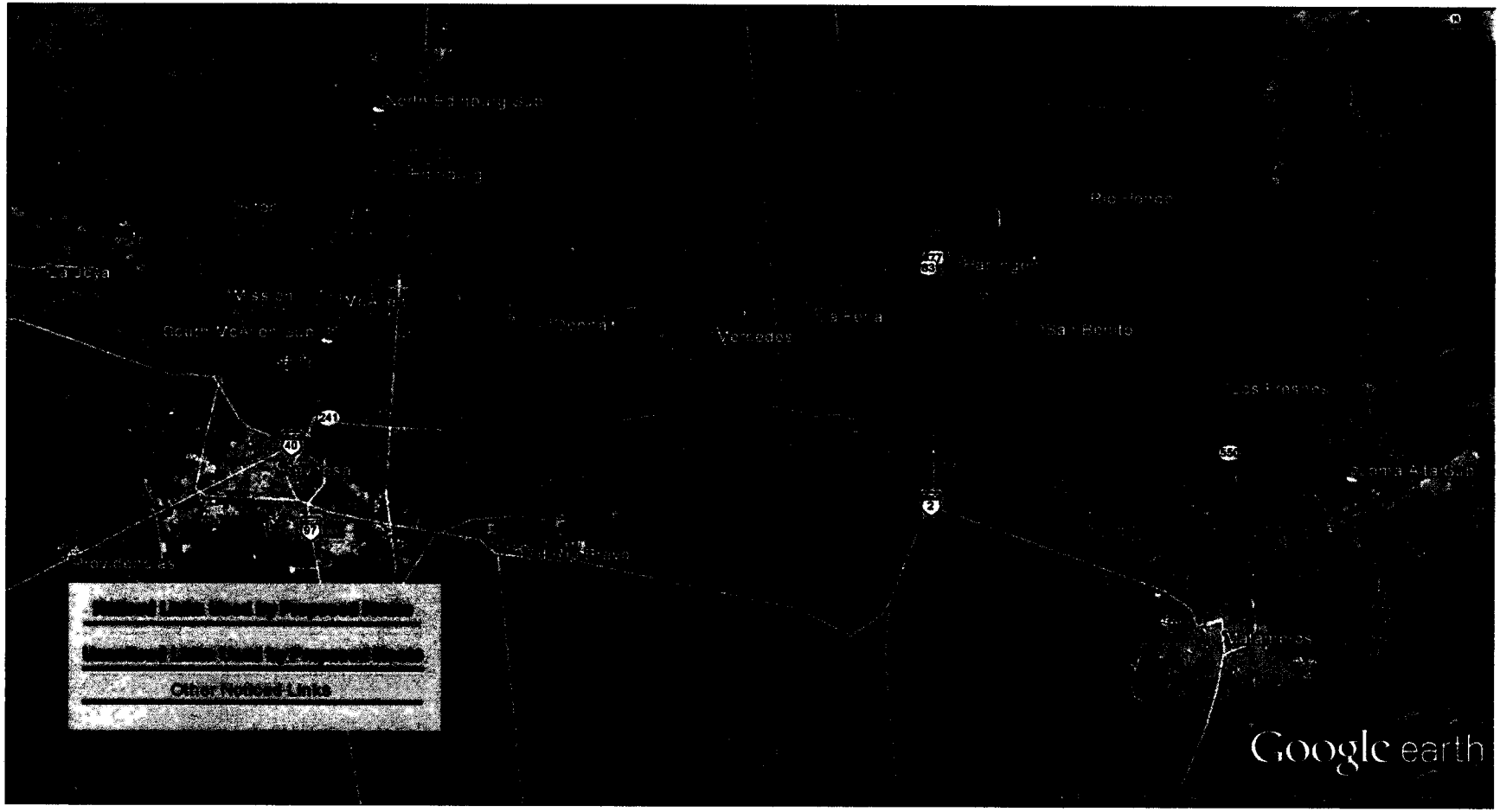
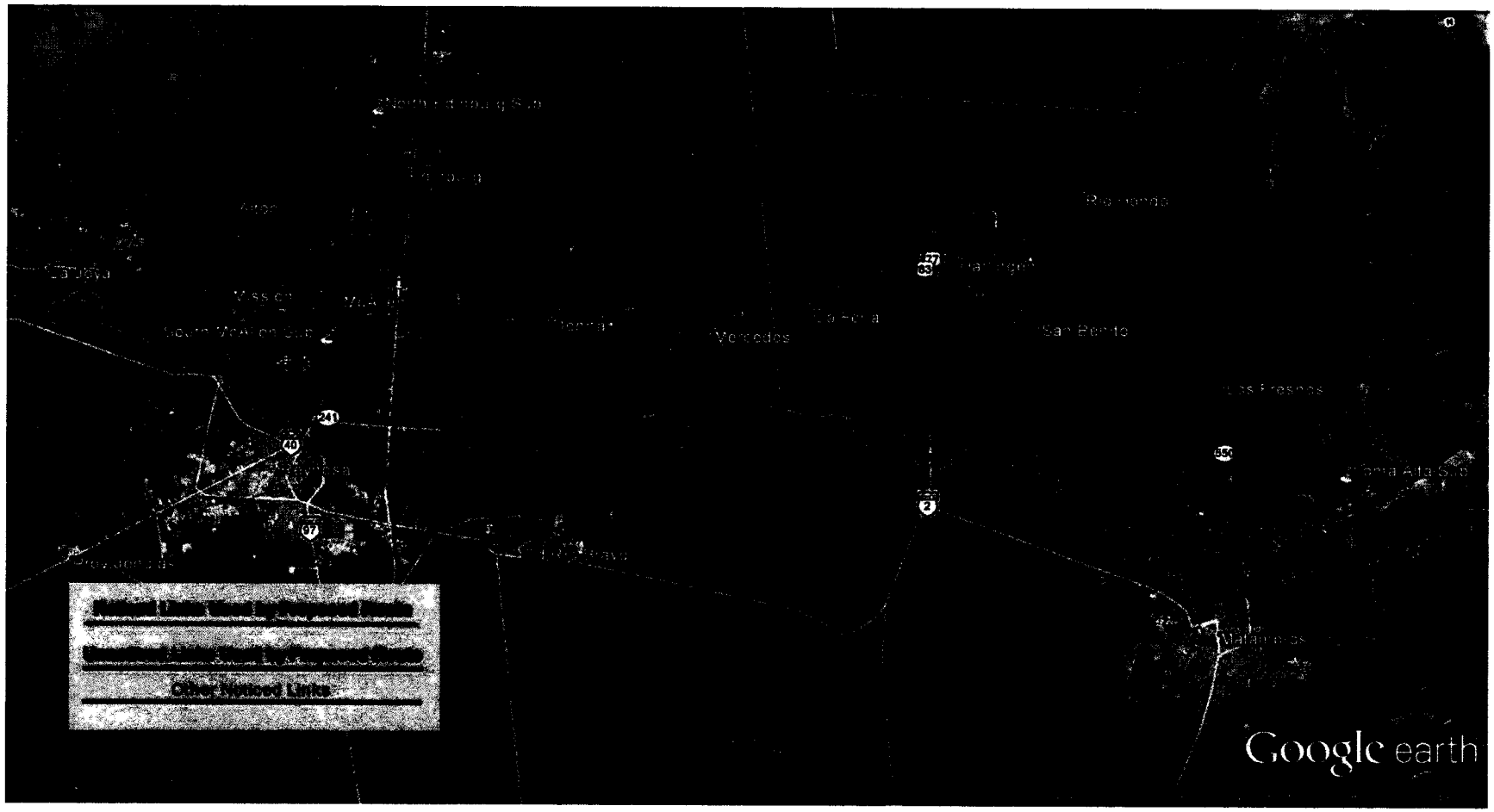
Overview Map of Route 29



Overview Map
of
Route 32



Routing Factor Data - Created with Individual Link Data
Routing Factor Analysis
NORTH EDINBURG TO LOMA ALTA 345-kV TRANSMISSION LINE PROJECT

	Route Description:	Filed Routes		Routes Not Filed Using Noticed Links & Inside Proximity Circle		Route Not Filed Using Noticed Links & Outside Proximity Circle	Routes Not Filed With Unnoticed Links & Outside of Proximity Circle	
	Exit from North Edinburg:	Eastern	Western	Eastern	Western	Eastern	Eastern	Eastern
	Evaluation Criteria	Route 29	Route 32	Route BAI -1	Route BAI -2	Route BAI -3	Route BAI -4	Route BAI -5
	Land Use							
1.	Length of alternative route	109.2	117.5	108.5	114.7	86.3	89.1	77.1
2.	Number of habitable structures[1] within 500 feet of ROW centerline (Includes Double Counting)	1,355	546	938	391	727	446	335
2a.	Number of habitable structures[1] within 500 feet of ROW centerline (Double Counting Removed)	1,153	465	914	337	711	#N/A	#N/A
3.	Number of habitable structures[1] potentially to be relocated/removed[2]	5	1	5	1	5	0	0
4.	Length of ROW parallel to existing transmission line ROW	15.3	24.8	19.3	21.4	16.3	17.6	13.4
5.	Length of ROW parallel to other existing ROW (highways, pipelines, railways, canals, etc.)	51.1	44.0	50.3	46.0	39.0	40.2	38.3
6.	Length of ROW parallel to apparent property lines[3]	17.3	18.3	16.5	16.6	12.5	12.3	12.0
	Additional Criteria							
7.	ETT/Sharyland Cost Estimate in Millions (Attachment 5 of Application)	$356.34	$352.23	#N/A	#N/A	#N/A	#N/A	#N/A
7a.	ETT/Sharyland Cost Estimate in Millions (Joint Applicants' Reponses to Rhodes 4th RFI)[5]	#N/A	#N/A	$349.25	$369.21	$277.79	#N/A	#N/A
8.	Length Based Cost Estimate in Millions (Length times average cost of $3.23 million per mile)	$352.88	$379.78	$350.58	$370.54	$279.01	$287.90	$249.20
8a.	Capped Length Based Cost Estimate (Minimum of Line 8 and $352.23 million)	$352.23	$352.23	$350.58	$352.23	$279.01	$287.90	$249.20
9.	Length NOT parallel to existing transmission line ROW (Line 1 - Line 4)	93.9	92.8	89.2	93.2	70.1	71.5	63.8
10.	Length NOT parallel to existing transmission line ROW or other existing ROW (Line 1 - Line 4 - Line 5)	42.8	48.8	38.9	47.3	31.0	31.3	25.5
11.	Length NOT parallel to existing tranmsision line ROW, other existing ROW, or apparent property lines (Line 1 - Line 4 - Line 5 - Line 6)	25.5	30.5	22.4	30.6	18.6	19.0	13.5
12.	Total number of interventions on noticed links (based on review of PUCT 41606 interventions)	103	108	102	106	51	51[4]	18[4]

[1]Single-family and multi-family dwellings, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230 kV or more

[2]ETT and Sharyland will potentially relocate/remove habitable structures within 75ft of the centerline

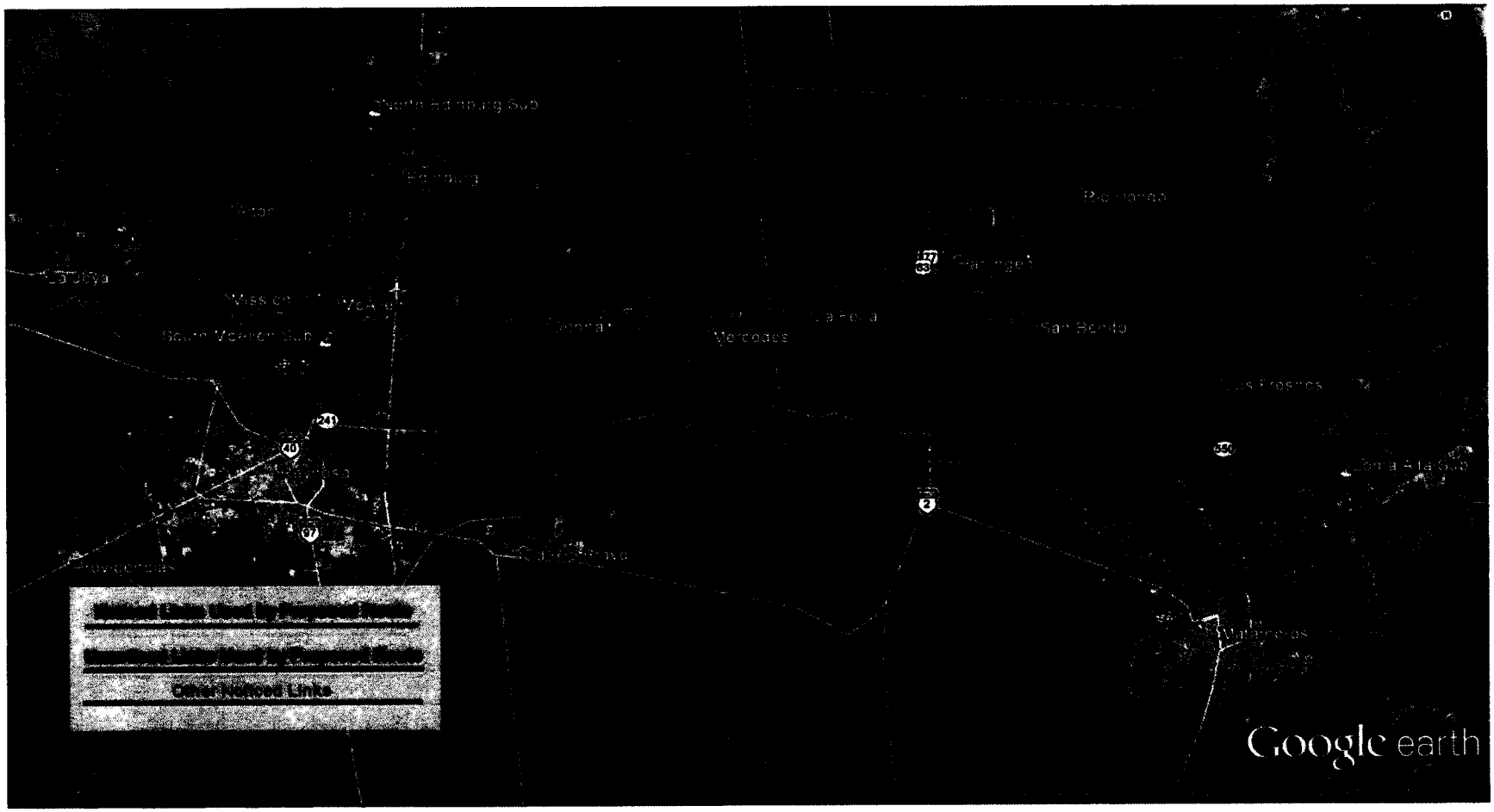
[3]Apparent property lines created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to property lines criteria

[4]There is no intervention reflected for the unnoticed links used in these routes

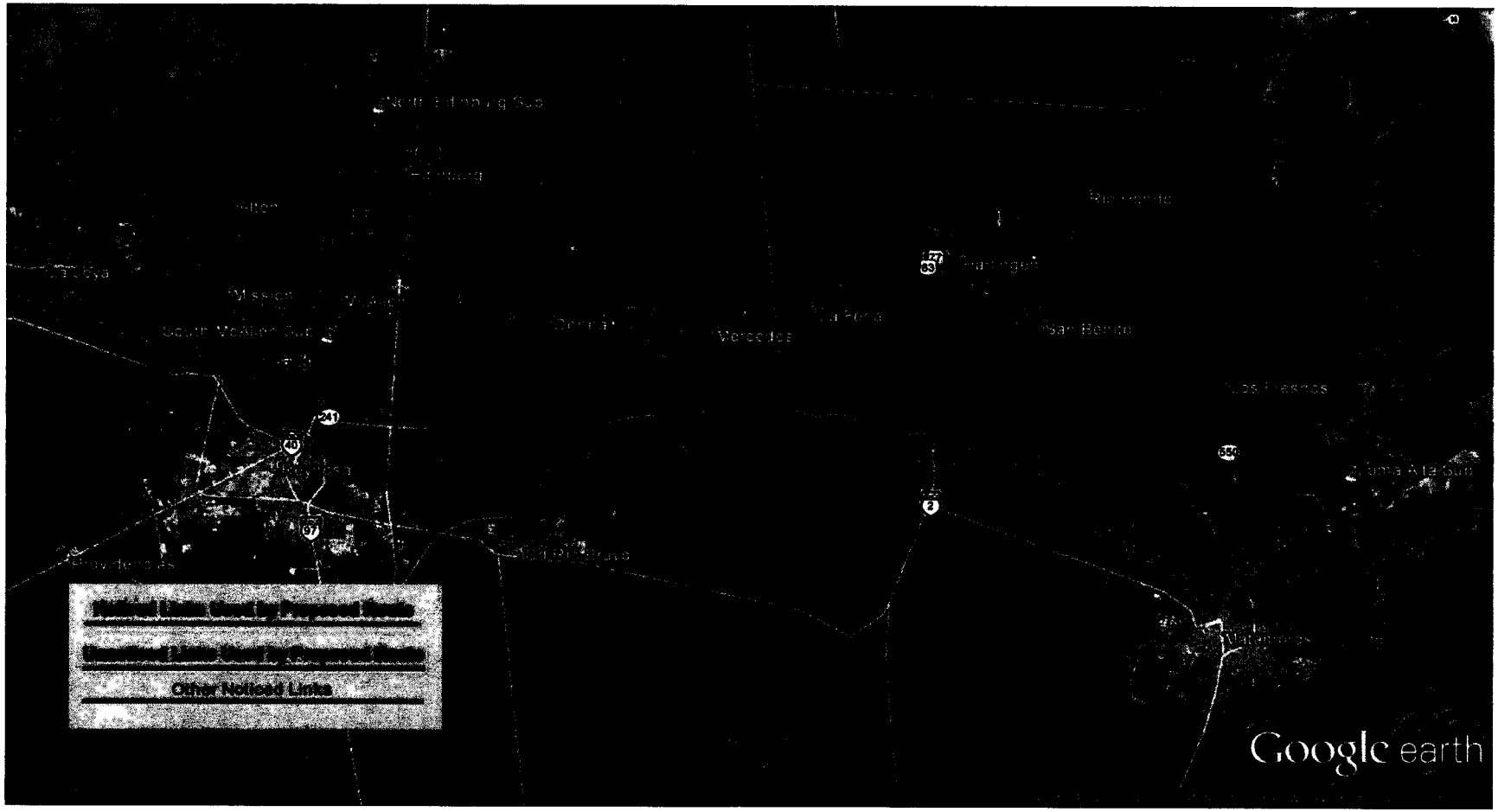
[5]In Rhodes RFI No 4-1 ETT-SU Attachment 1, Route BAI-1 was referred to as Route 4-2, Route BAI-2 referred to as Route 4-1, and Route BAI-3 was referred to as Route 4-3

Route	Links
Route 29	134-135-137a-137b-138-141-145-146-151-154-159-161-164-168-169-184-178-173b-172-170b-352-118c-118a-116-117-119-121-130-180-186-350-188b-196a-196b-204-215-217-216-218-223-224-227-231-237-241-250-252-254-264-271-286-287-294-297-299-317-318-332-333
Route 32	1-4-7-10-17-26-32-33-43-45-51-48-54-56-60-64-342-71a-71b-75-78-81-82-83-85a-85c-84b-84c-87-89-92-94-96-97-105-107-114-117-116-118a-118c-125a-125b-128-175-179-185-187a-187b-196a-196b-200-203-212-214-219-226-233-235-256-258-265-271-270-269-268-267-274-277-304-305-312-313-357-339-341
Route BAI -1	134-135-137a-137b-138-141-147-152-155-162-165-169-184-178-173b-173a-171-170a-352-118c-118a-116-117-119-121-130-180-186-349b-187a-187b-196a-351a-351b-193c-194-201-210-221-223-225-230-233-234-240-243-249-255-265-286-287-294-297-299-317-318-331
Route BAI -2	1-4-7-10-17-26-32-33-43-45-51-48-54-56-60-64-342-71a-71b-75-78-81-82-83-85a-85c-84b-84c-87-89-92-94-96-97-105-107-114-117-116-118a-118c-125a-125b-128-175-179-185-187a-187b-196a-351a-351b-193c-194-201-210-221-223-225-230-233-234-240-243-249-255-265-286-287-294-297-299-317-318-331
Route BAI -3	134-135-137a-137b-138-141-147-152-155-162-165-169-193a-349a-187a-187b-196a-351a-351b-193c-194-201-210-221-223-225-230-233-234-240-243-249-255-265-286-287-294-297-299-317-318-331
Route BAI -4	134-135-137a-137b-138-141-147-152-155-162-165-168-169M-193a-349a-187a-187b-196a-351a-351b-193c-194-201-210-221-223-225-230-233-234-240-243-249-255-265-286-287-294-297-299-317-318-331
Route BAI -5	134-135-137a-137b-Canal-221-223-225-230-233-234-240-243-249-255-265-286-287-294-297-299-317-318-331

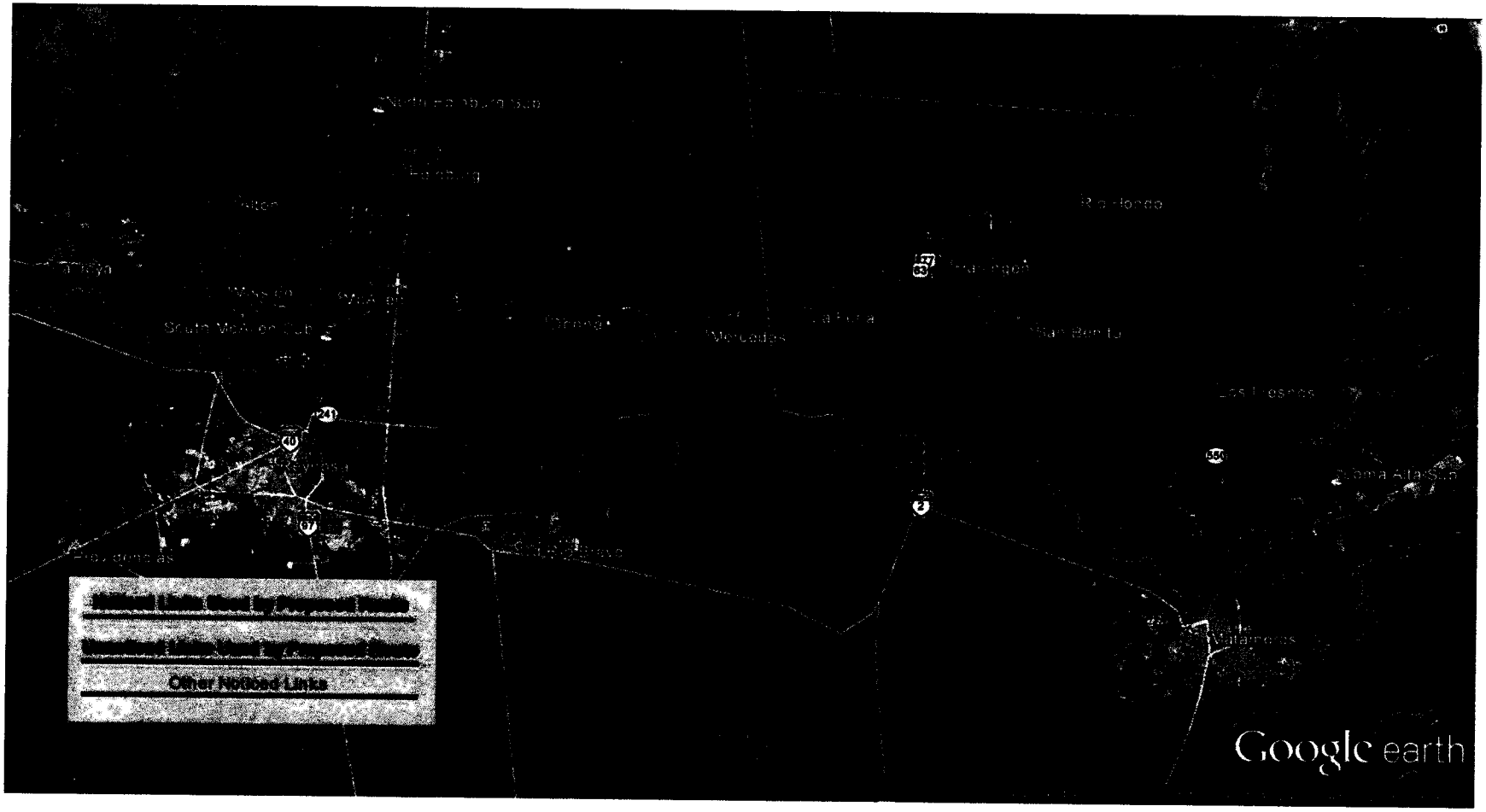
Overview Map
of
Route BAI-1



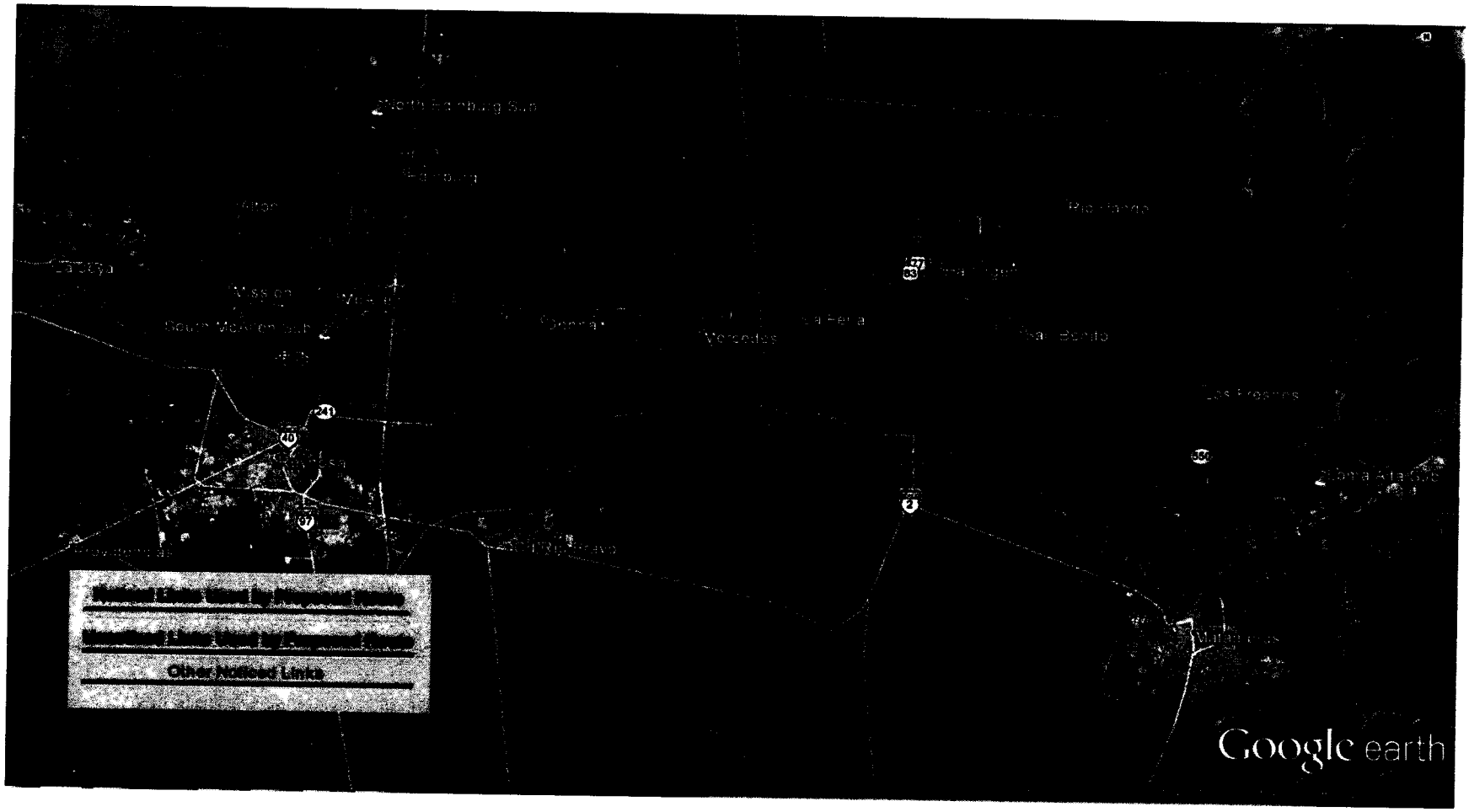
Overview Map
of
Route BAI-2



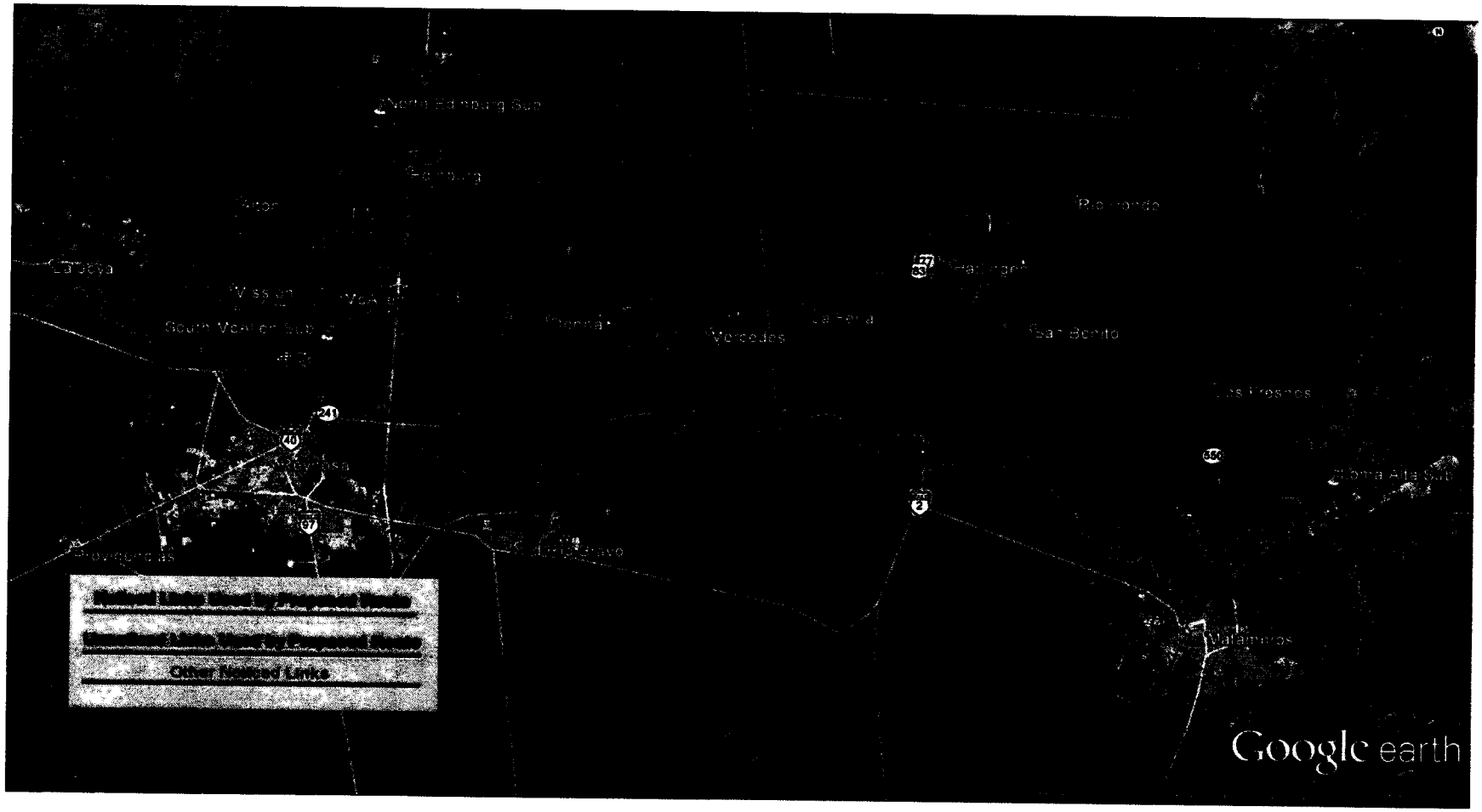
Overview Map
of
Route BAI-3



Overview Map
of
Route BAI-4



Overview Map
of
Route BAI-5



SOAH DOCKET NO. 473-13-5207
PUC DOCKET NO. 41606

JOINT APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES, L.P. TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE PROPOSED NORTH EDINBURG TO LOMA ALTA DOUBLE-CIRCUIT 345-KV TRANSMISSION LINE IN HIDALGO AND CAMERON COUNTIES, TEXAS	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES, L.P.'S RESPONSE TO RHODES, ML RHODES, LTD., AND RHODES ENTERPRISES, INC.'S FIRST REQUEST FOR INFORMATION

Question No. Rhodes RFI No. 1-16:

Please refer to the Direct Testimony of Sharyland witness Mr. Caskey at pages 14 through 16 and 24 as well as Exhibit MEC-2. Please explain whether or not ETT and Sharyland have confirmed that their proposal to route the line within the Figure MEC-2 proximity circle rather than to South McAllen substation is acceptable to ERCOT.

Response No. Rhodes RFI No. 1-16:

No, Joint Applicants do not believe it is necessary to confirm with ERCOT that routing the line within the proximity circle shown in Exhibit MEC-2 is acceptable. ERCOT recommended that the project be "routed in proximity to" the South McAllen substation. ERCOT Endorsement Letter, Attachment 6 to the Application at 1; ERCOT Independent Review, Attachment 6 to the Application at 29. ERCOT's recommendation did not include an interconnection to the South McAllen substation, and Joint Applicants therefore believe the phrase "in proximity to" requires only that the line be routed near the South McAllen substation, in expectation of a future potential interconnection to the substation. Please see Mr. Caskey's testimony at pages 23 and 24 for the design criteria used in routing the project in proximity to the South McAllen substation and for an explanation of how the proximity circle meets ERCOT's recommendation.

Prepared By: Mark Caskey — Title: President, Sharyland Utilities, L.P.
Sponsored By: Mark Caskey — Title: President, Sharyland Utilities, L.P.

SOAH DOCKET NO. 473-13-5207
PUC DOCKET NO. 41606

JOINT APPLICATION OF) STATE OFFICE OF
ELECTRIC TRANSMISSION)
TEXAS, LLC AND SHARYLAND)
UTILITIES TO AMEND THEIR)
CERTIFICATES OF)
CONVENIENCE AND NECESSITY)
FOR THE NORTH EDINBURG TO)
LOMA ALTA DOUBLE-CIRCUIT)
345-KV TRANSMISSION LINE)
IN HIDALGO AND CAMERON)
COUNTIES, TEXAS) ADMINISTRATIVE HEARINGS

ORAL DEPOSITION
JEFF BILLO
August 29, 2013

ORAL DEPOSITION OF JEFF BILLO, produced as a witness at the instance of the Landowners represented by Mr. Medrano, and duly sworn, was taken in the above-styled and numbered cause on August 29, 2013, from 1:35 p.m. to 4:22 p.m., before Kim Pence, Certified Shorthand Reporter in and for the State of Texas, reported by computerized stenotype machine at the offices of the Electric Reliability Council of Texas, 7620 Metro Center Drive, Room 168, Austin, Texas 78744, pursuant to the Texas Rules of Civil Procedure and the provisions stated on the record or attached hereto.

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ALSO PRESENT: Bridget Headrick
Michael J. Lee
Mel Eckhoff
James R Dauphinais (via telephone)
Courtney Forthuber (via telephone)

TABLE OF CONTENTS

BILLO DEPOSITION EXHIBITS

BILLO DEPOSITION EXHIBITS

(Signature was agreed to be completed by 9/11/13 in an off-the-record discussion)

JEFF BILLO,

having been first duly sworn, testified as follows:

EXAMINATION

BY MR. MEDRANO:

Q Would you state your name, please?

A Jeff Billo.

Q Okay. Mr. Billo, my name is Andres Medrano. I represent a number of landowners in this docket, and I'm going to ask you some questions. In general, I want this to be a conversation. I'm not trying to do it as a cross-examination, and so please feel free to explain as fully as you think is necessary for the record.

On occasion, I may ask you a question and ask you for a yes or no. If you could give me a yes or no answer, I'd appreciate it, and then please feel free to expand as much as you need to after that. Is that okay?

A Yes.

Q Okay. To start, can you let us know your education and professional accreditations?

A Sure. I have a Bachelor's of Science in mechanical engineering from LeTourneau University. I also have a Master's in -- Master's of Science in

electrical engineering from the University of Texas at Austin. I have been employed at ERCOT since January of 2004 in the -- and the entire time in the planning department.

Q Are you a licensed engineer?

A I am not.

Q Okay. And what is your title at ERCOT?

A I am the manager of transmission planning.

Q And you said you've been there since when?

A January of 2004.

Q Okay. And can you generally describe what your job duties in that role are?

A Sure. My role is to oversee all of the transmission planning work at ERCOT. That includes steady-state analysis for a time period of one to five and even up to ten and 20 years in the future. I also oversee our dynamic stability studies that we perform for transmission planning. More specifically it's my job to ensure that we comply with the ERCOT protocols and planning guides as it relates to planning as well as the NERC TDL standards.

Q Okay. Have you ever testified at the PUC -- the Public Utility Commission of Texas before?

A Not -- not testify, no.

Q Okay. Have you ever testified at any other

regulatory body before?

A No.

Q Okay. Mr. Billo, I'm going to -- am I saying your name correctly?

A Yes.

Q Okay. Mr. Billo, I'm going to have the court reporter mark this document as Exhibit 1. I have some copies of the documents I'll put here if the parties want them.

(Exhibit Billo No. 1 marked)

Q (BY MR. MEDRANO) Do you recognize this document?

A Yes, I do.

Q And this is -- what is this document?

A This document is the report of the ERCOT independent review of the Sharyland and BPUB Cross Valley project.

Q And were you a co-author on this report?

A Yes, I was.

Q Okay. I'm going to ask you a number of questions about this report if you want to follow along with me.

A Okay.

Q To start, this review was conducted in 2011. Is that correct?

A That's correct.

Q And this -- there have been no updates to the information in this report since 2011 -- is that correct -- that are incorporated in this document?

A That's correct.

Q Okay. And is it your -- is it your understanding or do you know if this document has been filed as a part of the application in this case?

A I do not know that.

Q Okay. Are you willing to accept it has been filed as part of the application?

A Yes.

Q Okay. Thank you.

I'm going turn to Page 10 of this report, and I'm looking at Figure No. 8. This figure is labeled Historical Maximum Daily Peak for 2010-2011 for Brownsville Area. Are you there?

A Yes.

Q Okay. To what extent were the 2011 --

(Telephonic voice: Joining the meeting)

MR. HERRERA: Angel Herrera, Jr.

Q (BY MR. MEDRANO) To what extent were 2011 weather conditions incorporated into this review?

A When we look at the historic peaks for the Brownsville area, we looked at both -- or we looked at

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the previous year of data, which included obviously 2011, and that was, in part, to gauge from a maintenance perspective the ability of transmission and generation utilities in the area to take their -- to take the maintenance outage on their equipment. So we looked at -- in other words, we looked at, you know, if the peak was -- you know, occurred in February or January, you may not be able to take a maintenance outage during that time period if that peak was too high.

Q Would you agree that 2011 included a particular spike in February of that year?

A Yes.

Q And that, in fact, lead -- there were a variety of factors, but there were actually rolling outages in ERCOT in February 2011. Correct?

A Yes.

Q And the summer of 2011 was also extremely hot. Correct?

A Yes.

Q Would you agree that the 2011 weather conditions were extreme, perhaps an outlier, for weather conditions in ERCOT?

A For ERCOT, yes.

Q So on Figure 8 on Page 10 of the review, is this the level of load that the report assumes going

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forward in this -- in this review?

A No. That was -- primarily when we looked at the maintenance piece of it, we were looking at the load level from that perspective. The other load levels that we assumed were based on a -- were a normal forecast, which includes, you know, many years of historic data.

Q Was it a ten-year or 20-year weather forecast?

A I don't recall.

Q Do you recall if the forecast included 2011?

A I don't recall.

Q Do you recall if any adjustments were made for it to statistically adjust for any outliers that might have been in the period of study?

A Are you asking in terms of -- I'm not sure I understand your question.

Q In terms of projecting load primarily, if you were using ten-year weather, were any adjustments made that you recall to adjust for outlier years, either high or low in that period?

A Uh-huh. I don't recall that.

Q Okay. The review begins with a general discussion of the Brownsville area. I'm looking specifically at Page 2, and you talk some about the characteristics of Brownsville and its load particularly in figures on Page 3. Correct?

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A Yes.

Q Okay. The report does not -- I'm going to call it the report or review. Is that correct?

A Sure.

Q Okay. The report does not include a similar introduction with regards to Harlingen or McAllen or other cities in the Lower Rio Grande Valley. Correct?

A That's correct.

Q And why is that?

A The primary drivers for the project were because of the load in the Brownsville area.

Q And I'm looking again at Page 3, specifically Figure 2, which is labeled Historical BPUB Summer & Winter Peak Demand, 1990-2011. Do you follow me?

A Yes.

Q BPUB stands for Brownsville Public Utility Board. Correct?

A That's correct.

Q And we see in Figure 2 historic -- gradual historic load growth in Brownsville to approximately 300 megawatts. Is that correct?

A Correct.

Q Okay. And I'm going to look now at Figure 3 also on Page 3, and this is titled Projected BPUB Summer & Winter Peak Demand with the 250 MW Industrial Load

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Addition in 2014. Do you follow?

A Yes.

Q Okay. And this -- with this addition, the assumed 250 megawatts of industrial load, this Figure 3 shows load growth to approximately 600 megawatts. Is that correct?

A That's correct.

Q And that 250 megawatts of projected load is the bulk of the increase over this period from 2011 to 2020. Correct?

A Correct.

Q And 250 megawatts is a very significant amount of load, is it not?

MR. McGRATH: Objection; leading.

MR. MEDRANO: I believe I'm allowed to lead this witness.

MR. McGRATH: Why?

MR. MEDRANO: He's not mine.

MR. McGRATH: You called him.

MR. MEDRANO: So you're objecting to form?

MR. McGRATH: No. I'm objecting to leading.

MR. MEDRANO: Okay.

Q (BY MR. MEDRANO) Can you answer the question, please?

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A Can you repeat the question?
Q Certainly. How would you -- in terms of size, how would you characterize 250 megawatts of load?
A That would be a large addition.
Q Okay. And there was a lack of consensus at the Regional Planning Group regarding including this load of 250 megawatts. Would you agree with that?
A I agree.
Q And given that lack of consensus, can you explain why there's not a figure showing projected load in the Brownsville area without the 250 megawatts of potential industrial load?
A I think as we were presenting that information, we felt that you could look at the graph and, you know, we noted that the graph included the 250-megawatt load addition, but it would be easy to subtract that.
Q Okay. Did the inclusion of the 250 megawatt of industrial load account for any self-supply or cogeneration that might accompany that load of that scale for industrial load specifically?
A No.
Q Does ERCOT's analysis in this report of the addition of the 250 megawatts of industrial load assume that it must be met 100 percent with transmission solutions?

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A In this review, yes.
Q Okay. I'm going to move to Page 5 of the review, and this is -- this is a section titled Study Case Evaluation labeled Section 3. This evaluation considers the loss of a 138-kV line combined with the loss of a combined-cycle train in the Silas Ray plant, which is identified here as the largest generator in Brownsville. Is that correct?
A Correct.
Q Together these events constitute a contingency that's described in this section of the report. Is that correct?
A Correct.
Q Okay. And can you confirm that the term "precontingency" means peak load with no outage of transmission or generation capacity?
A Yes.
Q It's precontingency, just normal -- normal operations?
A That's correct.
Q Okay. Can you explain generally, or specifically as you'd like but for our general audience if you can, what the significance of a thermal overload is?
A Sure. Each transmission line has a rated

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amperage capacity. Oftentimes in the power industry this gets translated into an MVA capacity. The issue is when you push too much power through a transmission line, then the transmission line will heat up, the conductor will heat up and it will sag, and there are -- there's an allowable amount of sag that you can have before the transmission line is considered overloaded.
Q Is that termed in a percentage?
A It's usually -- the capacity of a transmission line is usually termed in either amps or MVA.
Q In terms of the overload issue, how is that generally termed?
A Usually it's a percentage.
Q Okay. So it would be a percentage of the maximum that that line can tolerate?
A That's correct.
Q Okay. A similar question. Can you explain generally the significance of voltage violation?
A Sure. A voltage violation would be if you had a voltage on a system that was too low for that -- that system. So, for instance, if a -- if a certain substation experienced a voltage that was too low, that could have adverse impacts on customers.
Q Is that also expressed in percentage, or is there some other term?

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A That's usually expressed in terms of per unit voltage.
Q Can you give me an example?
A So -- so for a 138-kV station if the voltage was 138-kV, that would be one per unit. In ERCOT, according to our system operating limit -- yeah, system operating limit methodology, the precontingency, the lowest voltage that would be allowed would be .95 per unit. In other words, that would be 95 percent of that 138-kV voltage. Undercontingency, then the low voltage on that would be .90 per unit. In other words, that would be 90 percent of that 138-kV voltage.
Q Okay. Okay. The next question -- I'm looking at Page 6 and 7 of the report, specifically Figures 4 and 5. Figure 4 is 2016 Thermal Overloads in Brownsville Area Without 250 MW of Load, and I assume that means the industrial load is projected?
A That's correct.
Q And Figure 5 is 2016 Thermal Overloads in Brownsville Area including 250 MW of Load. Are you following me?
A Yes.
Q Okay. Can you explain on -- for Figure 4 and Figure 5 the significance, in general terms, the overloads that are demonstrated in these cases?

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A Sure. In Figure 4, the red bubble, so to speak, represents a line that is overloaded before the contingent -- before any contingencies occur, and the orange bubbles represent lines that are overloaded after a contingency.

In Figure 5, the same thing, the red bubbles indicate lines that are overloaded before the contingency occurs, and the green.

(Telephonic voice: Joining the meeting)

(Inaudible)

THE REPORTER: I didn't understand that.

MR. MEDRANO: We'll come back to it.

A The orange bubbles represents lines that are --

THE REPORTER: I can't hear you.

MR. MEDRANO: Can everybody on the line -- if everyone on the line can mute your phones, please, that will help the back feed.

Q (BY MR. MEDRANO) Continue, please.

A Sure. So, again, on Figure 5, the red bubbles graphically illustrate where there are lines that are overloaded precontingency, and the orange bubbles represent lines graphically that are overloaded after a contingency.

Q Okay. Are any voltage violations shown on Figures 4 and 5?

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A No.

Q Does that mean there are none, or does that just mean they are not shown on these figures?

A There were no voltage violations in the case.

Q Okay. Thank you.

MR. McGRATH: Andres, can we take a minute to find out who that was that joined?

MR. MEDRANO: Can we do that at the end and go on?

MR. McGRATH: (Nodded)

Q (BY MR. MEDRANO) All right. Can you describe generally the significance of load flow in excess of 100 percent on a line's contingency rating?

A Sure. So if a line is in excess of 100 percent of its rating, then that represents a violation of criteria, it would be a violation of NERC criteria as well as ERCOT planning criteria. You know, more physically what that represents is that that line is beyond its designed capacity, and it would represent a safety hazard.

Q And can you explain generally what the significance of a load flow greater than 90 percent of a line's contingency rating means?

A From a planning perspective, if load is -- if a line is loaded greater than 90 percent of its capacity,

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then that means it's nearing its capacity and would be something from a planning perspective that we'd want to keep an eye on.

Q Does ERCOT typically plan to alleviate loads greater than 90 percent using transmission solutions?

A Not -- we would nonexplicitly plan a project to alleviate a line that was loaded greater than 90 percent if it was below its -- if it was below 100 percent.

Q So there's no NERC -- NERC or ERCOT planning protocol or guide that requires 90-plus percent below 100 to be resolved?

A Not at this time.

Q Okay. And I just want to clarify. On these figures, a base-case violation means that that's a current violation and postcontingency means if there's an outage of a component?

A Let me clarify that. So a base-case violation would be precontingency, so that means before the contingency were to occur that that line would already be overloaded. Postcontingency is after a contingency were to occur, then that line would be overloaded. And both of those are -- both of those would be occurred planning criteria violations under NERC and ERCOT planning criteria.

Q Okay. And you'd agree that over half of the

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violations shown on Figure 5 occur because of the inclusion of the 250 megawatts of potential industrial load. Correct?

A Correct.

Q And I believe you just answered this, but I just want to clarify. And these -- these overloads shown on these figures do constitute violations of ERCOT rules and NERC requirements?

A That's correct.

Q All right. I'm at the bottom of Page 7 now. An N-1-1 contingency considers a loss of both -- in this example in this report -- considers the loss of both 345-kV lines supporting the Rio Hondo substations. Is that correct?

A That was one of the N-1-1 contingencies that we considered in this report.

Q That's the one discussed here on Page 7?

A Right. Correct.

Q Okay. But there are others -- there were others later?

A Yes.

Q And do you agree with this definition of an N-1-1 contingency, a sequence of events consisting of the initial loss of a single generator or transmission component, which is the primary contingency, followed by

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system adjustments followed by another loss of a single generator or transmission component, which would be the secondary contingency?
A Yes.
MR. MEDRANO: Can I remind everyone if you're on the phone, can you please mute your line. It's pretty loud here.
Q (BY MR. MEDRANO) So although on Page 7 they are talking about losing both the 345-kV lines in the Rio Hondo, an N-1-1 could be the loss of one of those lines in, say, a power plant near it. Is that correct?
A I'd like to clarify that a little bit.
Q Sure.
A Under NERC standards, that would be true. Under ERCOT planning criteria per the planning guides, a generator -- a generator as the first contingency followed by a transmission line, that would -- that would be treated differently than it would be under the NERC standards. And in ERCOT, the planning guide treats that as no loss of load is allowed for that situation.
Q Okay. You agree that the NERC standards require the system to operate at a minimum N-1 contingency planning. Correct?
A Correct.
Q But you'd agree that NERC does not require the

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system to operate at a minimum N-1-1 contingency, just NERC?
A Just NERC requires that the system must be stable with no cascading outages under an N-1-1 condition.
Q Okay. And what does ERCOT require for N-1-1?
A The same thing, the system must be stable with no cascading outages.
Q But in each -- in each that could include a loss of load. Correct?
A That is correct.
Q So just to summarize, you'd agree that neither NERC nor ERCOT requires the system to operate with no loss of load in the event of an N-1-1 contingency?
A Correct.
Q I'm turning to Page 10 of the report. This is continuing the discussion of the N-1-1 contingency. And on Figure 8, which is the historical maximum daily peak for 2010-'11 for the Brownsville area and also in the text describing the figure, the peak -- area peak load for Brownsville is stated approximately 627 megawatts without, excluding, the hypothetical 250 megawatts of industrial load. Is that correct?
MR. GUY: Objection; form.
Q (BY MR. MEDRANO) I'm sorry. I'm on Page 8.

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If you look at the first full paragraph midway down, the second sentence. Do you agree that this states that the Brownsville area has a peak load forecast of about -- of approximately 627 megawatts excluding the 250-megawatt load addition in 2016?
A Yes. And I would like to clarify that when we say the Brownsville area in this section of the report, we're talking about the greater -- not just the BPUB load, but also the greater Brownsville area.
Q Okay. Because that's my next question. The tables earlier in the report, specifically Figures 2 and 3 on Page 3, show a BPUB load of approximately 300 megawatts in 2014?
A Right.
Q Okay. Without the 250 addition. So that's just for the Brownsville public utilities?
A Yes.
Q The Brownsville area is 627 approximately projected in 2014?
A That's correct. Actually, I think that's for 2016.
Q 2016? Yeah, you're correct.
In ERCOT's analysis of the N-1-1 contingency, does it accept that the failure of two transmission lines feeding a substation is a low

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likelihood contingency?
A I don't know that we define "likelihood" in ERCOT, not that I recall.
(Exhibit Billo No. 2 marked)
Q (BY MR. MEDRANO) Mr. Billo, I've handed you a copy of what I've had marked as Exhibit No. 2, and this is an excerpt from the NERC, North American Electric Reliability Corporation, Reliability Concepts document, and I understand that you did not author this. I'm simply providing it as a means of a demonstrative exhibit.
A Okay.
Q On Page 23, which is the second page of the exhibit, there's a chart entitled Likelihood where it shows various contingencies with a scale of decreasing likelihood. Do you follow me?
A Yes.
Q Okay. And you'd agree that the failure of two transmission lines feeding a substation is near the bottom of this likelihood scale. Correct?
A Correct.
Q Do you agree with this -- with this diagram?
A Yes.
Q But to clarify, you said that that likely -- the low likelihood was not factored into ERCOT's

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consideration of the N-1-1?
A I'd agree with that.
Q All right. Did ERCOT analyze the need for this project on an N-1-1 basis because it believes that this type of contingency is more likely to happen in the Brownsville area or because of the impact to the Brownsville metropolitan area would be so severe even if that likelihood did occur?
A Can you repeat that?
Q Sure. It's sort of two parts.
A Uh-huh.
Q Did ERCOT -- ERCOT based its analysis on this project on an N-1-1 basis. You'd agree with that. Correct?
A Yes.
Q Okay.
A In part.
Q In part. Did it do so because it thought that that contingency is more likely than not to -- more likely to occur in Brownsville than elsewhere in ERCOT?
A No.
Q Did it do so because it thought that that contingency would be more severe if it happened in Brownsville than elsewhere in ERCOT?
A Yes.

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Q So you would not necessarily analyze a transmission project for need in another area of ERCOT on an N-1-1 basis?
A We would.
Q But the severity of the contingency's occurrence would factor into your analysis. Is that what you're saying?
A This -- I would say that the impact to the area would be a factor; that would be a factor in our analysis.
Q Okay. I'm looking on Page 12. In the third -- the third paragraph it states that the -- there was a recommendation that the line be routed near the existing South McAllen 138-kV station in order to support the long-term needs of the west side of the Lower Rio Grande Valley. Do you follow me?
A Yes.
Q And there's two scenarios discussed here. Scenario 1 assumes that there is no addition of the 250 megawatts of industrial load. Scenario 2 assumes that there is the addition. Correct?
A Correct.
Q Okay. So for Option 3 in Scenario 1, which is the North Edinburg to Loma Alta 345-kV line, and this is described starting on Page 14, you would agree that this

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option, Option 3 in Scenario 1, resolves the postcontingency overloads in the study model for Brownsville by connecting those two substations?
MR. McGRATH: Objection; leading.
Q (BY MR. MEDRANO) Mr. Billo, have we ever spoken before today?
A Not that I remember.
Q Do I represent you in any manner? Am I your legal counsel?
A No.
MR. PETERS: (Nodded)
MR. MEDRANO: I would ask counsel to hold the leading objections since it's not my witness.
A I'm sorry. Could you repeat that question?
Q (BY MR. MEDRANO) Certainly. Would you agree that Option 3 in Scenario 1, which is a North Edinburg to Loma Alta 345-kV line, resolves postcontingency overloads in the study model for Brownsville?
MR. McGRATH: Objection; leading.
A I agree.
Q (BY MR. MEDRANO) And that is -- that is connecting the two substations, North Edinburg and Loma Alta. Correct?
A Yes.
Q And the same is true for Option 4 -- correct --

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which also connects North Edinburg to La Palma?
A The same is true in that it -- it corrects the overloads in the Brownsville area. I agree.
Q Okay. Although the Option 3 description and cost includes the factor that it be routed in proximity to South McAllen substation, that is not required to resolve the postcontingency overloads in the study model as shown on Figures 4 and 5. Is that correct?
A That's correct.
Q Did ERCOT estimate the cost for this project in Option 3 or 4 in Scenario 1 without routing in proximity to South McAllen?
A The cost estimates were provided by AEP and Sharyland Utilities. I do not believe that -- I do not recall receiving a cost estimate not including the routing near South McAllen.
Q And Option 3, as estimated in this report, is cheaper -- scratch that.
Option 4 in the scenario still requires load shed in the case of an N-1-1 contingency. Correct?
A That's correct.
Q And, again, that load shed that occurs with Option 4 does not depend on the line being routed in proximity to the South McAllen substation. Correct? It has to do with connecting North Edinburg to La Palma

with the new La Palma to Palo Alto 138 line. Correct?
MR. McGRATH: Objection; leading.
A That's correct.
Q (BY MR. MEDRANO) Okay. I'll move on to Scenario 2 now, and this scenario assumes the addition of the 250 megawatts of industrial load to Brownsville by 2016. Am I correct?
A Correct.
Q And for this option, am I reading the report correctly that the preferred Option 4 for Scenario 1 was deemed insufficient when that load was incorporated into the analysis?
A That's correct.
Q And option -- excuse me. In Option 5, the proposal is to -- in addition to the 138 La Palma to Palo Alto line is to construct a North Edinburg to Loma Alta 345 line. Is that correct?
A Correct.
Q And going to Loma Alta instead of La Palma adds length, approximately 16 miles, to the project. Would you agree with that?
A I would agree with that.
Q And you agree as a general matter that adding length to transmission projects increases their costs as well. Correct?

A Correct.
Q And Option 5 is the preferred option for Scenario 2 as recommended in this report. Is that correct?
A Correct.
Q And Option 5 still would necessitate load shed in the option -- in the occurrence of an N-1-1 contingency. Correct?
A Correct.
Q So to summarize, you'd agree that Option 5, which is longer and more expensive than Option 4 for Scenario 1, still requires load shed if the 250 megawatts of industrial load materializes?
MR. GUY: Objection; form.
Q (BY MR. MEDRANO) In the case of an N-1-1 contingency?
MR. McGRATH: Objection; leading.
A I agree.
Q (BY MR. MEDRANO) Okay. I'm moving on to Page 19 of the report, which is titled Long-Term Considerations for the Lower Rio Grande Valley. All of the long-term considerations include the addition of the 250 megawatts of industrial load in Brownsville. Is that accurate?
A That's correct.

Q And that is -- that's despite the fact that there was no consensus at RPG to include that load in this report?
A That's correct.
Q Was any sensitivity analysis conducted for the long-term considerations without that 250 megawatts of industrial load?
A Not -- not that I remember.
Q Okay. On Page 19 about halfway down, there's a sentence, "The Rio Hondo-Loma Alta 345-kV line was added as a proxy to support the load addition in the Brownsville area in order to evaluate the Cross Valley reliability needs in 2020." Do you see that?
A Yes.
Q Can you explain what that means?
A Sure. When we were evaluating the long-term needs of the Valley, obviously with that 250-megawatt load addition, then that would put a stress on the Brownsville area. We were primarily concerned with looking at the west side of the Valley as well as Cross Valley flows. And so we put a line in to sort of serve as a way to serve that 250-megawatt load in the Brownsville area without affecting the results in the rest of the area.
Q So was the Rio Hondo to Loma Alta 345-kV line,

was that incorporated into any of the cost assumptions in this report?
A No.
Q So that's independent -- that would be independent of the -- any of the projects described in this report?
A That's correct.
Q Okay. What load projections were used for any area of the Lower Rio Grande Valley other than Brownsville?
A For the -- for the long term --
Q Yes.
A -- in 2020? We used an in-house developed load forecast for 2020.
Q And why were these projections not included in this report?
A They -- they would have been available through the long-term system assessment.
Q Have you and your counsel prepared any documents to produce today at the deposition electronically?
A Yes.
Q Okay. Do you know if what you just mentioned that the load forecast for 2020 for areas other than Brownsville is included in those documents?

A I don't recall if they are.
Q Do you know if they are publicly available?
A They are available on our website, but on the log-in side of the website.
Q Okay. All right. Moving on to Page 20 of the report, and would you agree with the summary that the North Edinburg to South McAllen transmission line is presented as an alternative solution to the upgrades of 138-kV lines?
A That's correct.
Q And is it accurate to -- is the report accurate that the cost to upgrade overloaded lines is estimated at $35.4 million?
A Lines that would be projected to be overloaded in 2020, yes.
Q And is it accurate to state that the cost to upgrade the lines that would have the 90 percent plus that we discussed earlier is estimated at $95 million?
MR. GUY: Objection; form.
MR. MEDRANO: Can you -- can you explain your objection so I can clarify?
MR. GUY: You mentioned the 90 percent we discussed earlier.
MR. MEDRANO: Certainly.
MR. GUY: Earlier when we were talking

about 90 percent, I think we were talking about the short-term forecast and the short-term conditions. We're now on the long-term conditions. I don't know if the answer is different.
MR. MEDRANO: Happy -- happy to ask for that clarification.
Q (BY MR. MEDRANO) Mr. Billo, earlier I asked you to describe the significance of load flow greater than 90 percent of a line's contingency rating. Do you recall that?
A Yes.
Q And we were talking then about short-term forecasts. Correct?
A That's correct.
Q Is the same principle of your -- of your answer and description there applicable to the long-term forecast? And if not, how is it different?
A In the long term, we would view it slightly differently in that when we look at the long-term analysis, we would look to see if there were lines that were near overloaded, and that would give us an indication if -- if we were to propose an upgrade to solve a need in a particular area if there were lines that were near overloaded, then we would want to make sure that we account for that.

Q Can you describe what "near overloaded" means? And is there a percentage term for that?
A Yeah; I don't think that there's anything particularly defined in that regard. That's more an engineer judgment. In this case, we used 92 percent -- lines that were 92 percent overloaded we felt would -- the potential would be overloaded in the near future.
Q And is that the 92 percent overloaded now or projected in 2020?
A It's projected in 2020.
Q So if you looked at the lines now in the near term, they would not be near 90 percent?
A Did not look at that; I did not look at that.
Q Okay. So the 90 percent for the long term is purely looking at projected load in 2020?
A That's correct.
Q Okay. And is the answer the same for the short term that there's -- there's no ERCOT requirement or NERC requirement that you resolve lines that are loaded at 90 percent plus --
A That's correct.
Q -- until they get to 100?
A That's correct.
Q Would you agree generally that the upgrades to the 138-kV lines described here on Page 20 would not

require the acquisition of new right-of-way?
MR. GUY: Objection; form.
MR. MEDRANO: Do you want to clarify?
MR. GUY: I just think it's misleading. Requiring right-of-way is outside the scope of an ERCOT independent review of a transmission project.
Q (BY MR. MEDRANO) Would you agree that the term "upgrade" means that you would be modifying, replacing or enhancing existing infrastructure rather than building new infrastructure?
A Generally, yes.
Q Do you generally assume in applying the process that new transmission infrastructure assumes a new right-of-way?
A Not always, but typically.
Q Okay. So would it be fair to say that typically upgrades would not require that new right-of-way?
A I think that would be fair.
MR. MEDRANO: I'm going to ask, again, if everyone on the line could please mute your phones. Little clicks and clacks really reverberate here in the room. Thank you.
Q (BY MR. MEDRANO) On Page 20 of the report, it states, "The Frontera station was considered as an

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alternative to South McAllen, but terming the line at South McAllen showed a greater reduction in loading on the overloaded elements." Do you follow me?
A Yes.
Q Okay. Where is the data to support that conclusion?
A I don't think that we provided that data in this report. It may be in the documents that we provided on the CD.
Q If it's not, would it be publicly available?
A If it's not, it is probably not publicly available at this time.
Q Do you recall what the difference in reduction was over terminating a line at Frontera as opposed to at South McAllen?
A I do not recall.
Q Do you recall what criteria generally were used to determine if the difference was deemed significant?
A I don't recall.
Q And just to clarify, there's two lines that are mentioned here in the report, La Palma to Rangerville and Weslaco Unit to Stewart Road lines, and it's -- it's indicated those lines would need -- would need their own solutions regardless of 138 upgrades for the new 345 to South McAllen. Is that correct?

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A That's correct.
Q So no costs for the upgrade or replacement of those lines is included in this report?
A That's correct.
Q A similar question just to clarify on Page 20. It states that the -- the 345-kV to South McAllen solution would provide for better long-term solution because it would significantly reduce the north to south flow on other highly loaded transmission lines on the west side of the Lower Rio Grande Valley. Do you follow? It's about midway through that big paragraph. It says, "Further, this alternative will provide."
A Yes.
Q Okay. And my question is the same as before. Where is the data to support that conclusion?
A I don't believe that we included that in this report.
Q Do you believe it's included in the document -- the electronic documents you've brought today?
A I don't remember. It may be included in that, but I don't remember for sure.
Q Okay. And if not, is it the same answer that it would not be publicly available?
A That's correct.
Q Okay. And similar questions as before. Do you

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recall the difference in the reduction between the two potential solutions?
A I do not recall.
Q Okay. And do you recall what criteria was applied to determine if the difference was significant?
A Don't remember that.
Q Same paragraph, next sentence. It says, "Therefore, connecting a 345-kV source from North Edinburg into the South McAllen 138-kV substation will defer or eliminate the need to implement a significant amount of 138-kV line upgrades." Do you follow me?
A Yes.
Q Can you specify which of those upgrades would be deferred rather than eliminated?
A I don't remember that.
Q Would this analysis -- for any of the topics we discussed here on Page 20, would this analysis change if the 345-kV source was not connected to South McAllen substation but rather to a new substation?
A It could potentially change.
Q Was that scenario analyzed?
A I believe that we -- we only looked at Frontera and South McAllen.
Q You didn't look at what if there was a new substation instead of South McAllen?

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A Not that I remember.
Q If there was a new substation instead of South McAllen, would it matter what proximity it was to South McAllen, or was that analyzed?
A We didn't -- did not analyze that.
Q Okay.
A Let me clarify that.
Q Certainly.
A The -- what would matter is the connectivity to the 138-kV lines in the area.
Q The connectivity of the 138-kV lines in the area to whatever substation the 345 went into?
A That's correct.
Q Okay. Would that necessitate proximity to the South McAllen substation?
A Again, we did not analyze that specifically.
Q Still in that paragraph on Page 20, the last sentence says, "Any 345-kV lines that are constructed between the west part of the Lower Rio Grande Valley and the east part of the Valley should be constructed and routed in anticipation of a 345/138-kV connection at the existing South McAllen substation." Do you follow?
A Yes.
Q Okay. Can you explain what 138-kV connection at the South McAllen substation would be sufficient to

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substitute for the 345-kV connection?
A I'm not sure I'm following your question.
Q Certainly. In the sentence it says the line should be routed in anticipation of a 345/138-kV connection at the South McAllen substation.
A Right.
Q Generally in reading the report, it implies that the connection needs to be a 345 connection --
A Right.
Q -- but this has/138-kV. So I'm asking what the connection of the 138 would need to be to substitute for the 345?
A Yeah, so what -- what we mean by that is that the 345 system of whatever line would go from the west side of the Valley to the east side of the Valley, that 345 line should be connected to the 138-kV system at South McAllen.
Q So it matters that the 138s to South McAllen are somehow connected to the 345 line, whether or not it's at that substation?
A Our analysis was based on the connection being at that substation. I can't answer for a different type of connection.
Q Okay. You may not -- you may know this, you may not. Are you aware that the application in this

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case states that a 345 connection cannot be made at South McAllen, but instead a new substation will be required?
A I am not aware of that.
Q If you assume with me for a moment that that's true, would that affect your analysis?
A I'd have to think about that. I'm not sure off the top of my head.
Q Would it be something you'd want to model in making a recommendation on this project?
A A different type of connection?
Q If there was a new substation required instead of connecting to South McAllen, would that be something you'd want to model in making a recommendation for this project? When I say "modeled," I mean that term very generally, evaluate, analyze, however you characterize it.
A Potentially. I'd really have to think about that. Potentially we might want to look at that.
Q Okay. Okay. I'm on the last paragraph on Page 20. And I'm sorry to take this line by line, but I just need clarification on some of these concepts --
A Sure.
Q -- that don't jump out to the layman.
A Sure.

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Q It says, "Based on this analysis, it can be concluded that a 345-kV line from North Edinburg to the east side of the Lower Rio Grande Valley (with a future connection at South McAllen) will likely defer multiple line upgrades that would be needed between 2016 and 2020." Do you follow me?
A Yes.
Q Okay. Do you agree that that statement is based -- all these long-term projections are based on the -- on the addition of 250 megawatts of industrial load in Brownsville?
A I'm not sure that I would agree with that. While the 250-megawatt load was included in this analysis, I'm not sure that I would say that that would be -- that that recommendation is dependent upon that.
Q So the upgrade to those lines may be needed whether or not the 250 megawatts materializes or not?
A We did not analyze that, but that -- that could be the case.
Q But you don't -- you don't know based on your analysis of this project. Correct?
A That's correct.
Q And you'd agree that that statement that the line -- the line improvements being necessary, that contemplates, as we were just talking about, the

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connection at South McAllen and not a new substation. Correct?
A Correct.
Q And you also agree that that statement does not require the North Edinburg to Loma Alta line be routed in proximity to South McAllen, only that there's a connection to that substation for the 138s connected to that substation of a 345 line at some time to resolve the long-term reliability issues. Is that correct?
A I think that in our analysis we looked at a -- we were primarily looking at a North Edinburg to South McAllen 345-kV connection. So I would -- I would say that -- based on our analysis, I would say that a North Edinburg to South McAllen 345-kV connection would be needed to resolve those overloads.
Q To prevent the -- to prevent upgrades to the 138s. Correct?
A That's correct.
Q That's for the long-term plan. Correct?
A That's correct.
Q For the short-term plan --
(Telephonic voice: Leaving the meeting)
(Inaudible)
Q (BY MR. MEDRANO) For the short-term plan, the routing of North Edinburg to Loma Alta only matters that

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those points are corrected. Correct?
A Strictly taking into account the needs by 2016, that's correct.
Q And the term "likely" that's used there for the multiple upgrades --
A Uh-huh.
Q -- can you -- can you give me insight on how likely, near certain, somewhat likely?
A No, no. That's -- no, I cannot.
Q Okay. I am going to Page 22 through 24 of the report, figures labeled Figure 9 through Figure 15, and these are graphical straight-line depictions of the various project proposals in this project. Is that correct?
A That's correct.
Q You'd agree that none of these options include a version of the project that is not routed in proximity to the South McAllen substation. Is that correct?
A The submitted option graphically was not specifically routed by South McAllen, but all of the others, I would agree with that.
Q Which one? I'm sorry.
A Submitted Option, Figure 9 on Page 22.
Q Okay. The submitted option was not, all the other ones are?

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A That's correct.
Q Okay.
(Exhibit Billo No. 3 marked)
Q (BY MR. MEDRANO) Mr. Billo, I'm handing you what I've had marked as Exhibit No. 4.
THE REPORTER: 3.
Q (BY MR. MEDRANO) 3. I'm sorry. No. 3. And this is a red-lined document entitled Issue for ERCOT Board of Directors. Is that correct?
A Yes.
Q And it identifies you as the author of this document. Is that correct?
A That's correct.
Q Okay. It's red-lined, and I apologize but this is the only version of this that I could find on the ERCOT website. To your recollection, was the document submitted with these red lines incorporated in the document?
A Not to my recollection, but --
Q Okay. That's okay. This is really clarification for me for what I found.
(Exhibit Billo No. 4 marked)
Q (BY MR. MEDRANO) All right. Mr. Billo, I've just handed you what I've had marked as Exhibit No. 4, and this is a version of the same letter authored by

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you. Is that correct?
A That's correct.
Q And this -- and this version does not have the red lines on it. Would you agree?
A I agree.
Q And would you agree also it doesn't have red lines -- the red-line changes accepted into it?
A Just a cursory look, I would agree with that.
Q Okay. To your recollection, is the Exhibit 4 that I handed you, the letter without the red-lined additions, is that the document that was submitted to the ERCOT Board?
A I don't recall. I mean, it looks -- it looks like it.
Q Subject to check, is that -- do you recall that being the version you submitted?
A Yes.
Q Okay.
(Exhibit Billo Nos. 5 through 7 marked)
Q (BY MR. MEDRANO) Mr. Billo, I've just handed you three exhibits marked in order, 5, 6 and 7, and would you agree with me that Exhibit 5 is titled -- a report to ERCOT, the RPG group, Regional Planning Group?
A Yes.
Q On the Cross Valley project. Correct?

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A Yes.
Q Okay. And Exhibit 6, would you agree, is a similar Cross Valley report made to the TAC, Technical Advisory Committee?
A Yes.
Q And would you agree that Exhibit 7 is a report made to the ERCOT Board?
A Yes.
Q Okay. Are you the author of these documents or co-author?
A Yes.
Q I'm looking on Page 23 of the report now. I'll reference it in just a second. On Page 23 on Figure No. 12.
A Okay.
Q And this shows a line, an L-shape, from North Edinburg to South McAllen to Loma Alta. Correct?
A Yes.
Q Okay. Would you agree that this was the only conceptual diagram provided to TAC and the ERCOT Board with regards to this project in your presentations that I just handed to you?
MR. GUY: Andres, would you clarify? When you said "this," which page are you talking about?
MR. MEDRANO: On Page 23 of the report,

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Document No. 1, Figure No. 12, which is labeled Option 3. I asked if he agrees that that figure -- a representation of that figure is what was presented in Exhibit Nos. 6 and 7.

MR. GUY: (Nodded)

A Actually, I think it was Figures 13 and 14 that were presented to TAC, and Figure 14, that was presented to the ERCOT Board of Directors.

Q (BY MR. MEDRANO) Okay. And each of those -- each of those figures is a North Edinburg to South McAllen to Palo Alto line -- correct -- with Figure 13 having a stop at La Palma? Correct?

A Not Palo Alto. Loma Alta.

Q Loma Alta. I'm sorry. Is that correct?

A Right.

Q Okay. But you'd agree that TAC and the ERCOT Board were not presented with options that did not route through South McAllen. Is that correct?

A Correct.

Q Okay. And if you could look at Exhibit 5 for me, which is the report to the Regional Planning Group, would you agree that there's no -- no project -- no proposal there that's labeled as an option that includes South McAllen? I'm sorry.

MR. MEDRANO: If everyone could mute their

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phones, please?

A Actually, on Slide 5, there is an option that goes to South McAllen.

Q (BY MR. MEDRANO) That's for the 345 project option for the N-1-1. Correct?

A That's correct.

Q But the options labeled 1, 3, 4 and 5, none of those options include a South McAllen. Correct?

MR. MEDRANO: I'm sorry. I'm going to have to ask one more time. I know it's annoying. Can everyone please mute your phones. Little noises are echoing very loud in the meeting room. Thank you.

MR. McGRATH: I guess we can turn that down.

MR. PETERS: We'll work on it at the break.

A That's correct.

Q (BY MR. MEDRANO) Okay. So although RPG was presented with a number of these options that did not include South McAllen, the only options that were presented at TAC and at the ERCOT Board included the South McAllen stop in order to resolve N-1 -- N-1-1 contingencies in the 2020 time frame. Would you agree with that?

MR. McGRATH: Objection; leading.

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A The Regional Planning Group is not a -- it's not a voting body. So I don't know that I would characterize that as being the same thing.

Q (BY MR. MEDRANO) Very well. In the -- in the documents in the slides that you authored --

A Uh-huh.

Q -- the slides that were labeled as presented to the Regional Planning Group did not include a labeled option with South McAllen. Correct?

A That's correct.

Q But the only labeled options presented to TAC and the Board did include South McAllen. Correct?

A That's correct.

Q And in each of those cases at TAC and at the ERCOT Board, the reason -- South McAllen was included on the basis to resolve N-1-1 contingencies in 2020. Is that accurate?

A No. It was to resolve G-1+N-1 contingencies in 2020.

Q Okay. And can you explain what the difference between an N-1-1 contingency is and an N-1 and G-1 contingency?

A Sure. So N-1-1 is a NERC Category C contingency, and that -- that would include -- that would include a G-1+N-1 where it's -- as we were talking

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earlier, it's an outage of one element followed by system adjustments followed by the outage of a second element. The difference in ERCOT is that for a G-1+N-1 is that there's no load shed allowed to resolve that versus other N-1-1 load shed is allowed.

Q When you say no load shed is allowed, is that by NERC standards or by ERCOT standards?

A It's ERCOT standards per the planning guides.

Q And I want to go back for a minute to the Option 5 in Scenario 2, which was the recommended option in this project. Is that correct?

A That's correct.

Q It shows that in the event of an N-1-1 there is load loss. Correct?

A That's correct.

Q So how is that not a violation of the ERCOT planning guide?

A So, again, for N-1-1 load shed is allowed, but for the G-1+N-1 version of an N-1-1, G being a generator out, load shed is not allowed for that condition.

Q But the report does not -- this report does not state that as the objective of Option 5. Is that correct?

A No. I think --

Q Let me help you out.

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A Okay.
Q On Page 18, it says all through -- I just missed this. It says all three alternatives solved the G-1+N-1 postcontingency overloads. Is that correct?
A That's correct.
Q But it continues to say that Option 5, which is the recommended option, still has N-1-1 load shed. Correct?
A That's correct.
MR. MEDRANO: Would you like to take a break. I think the court reporter might.
Q (BY MR. MEDRANO) Are you okay?
A I'm okay.
Q Okay.
(Exhibit Billo No. 8 marked)
Q (BY MR. MEDRANO) Mr. Billo, I've handed you what I've had marked as Exhibit No. 8, which is a series of routing maps. I'm not going to ask you questions on the final routing, but I do have some questions regarding the impact of certain routes on the analysis of your report. Do you agree that these appear to be transmission line routing maps?
A I agree.
Q Okay. And I would stipulate I have outlined certain routes as described in the Company's

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application. You do not have to accept those are accurate, though I represent I attempted my best to make them so. These are simply as an -- as a demonstrative exhibit. And if you flip through, you'll see that there's portions, not the complete routes of any route, portions of various routes primarily in the West and South McAllen region. Would you agree with that?
A Yes.
Q Do you accept that none of the -- of the applicant's routes proposed in this case run in a straight line from North Edinburg to South McAllen?
A Yes.
Q In reviewing these maps, you'd agree that many of the routes are circuitous to one degree or another for various reasons. Correct?
A Yes.
Q Can you please review the Exhibit 8 route examples labeled Routes 21 through 30 as highlighted?
A Okay.
Q Do you agree that the South McAllen substation is designated on each of these route maps? Correct?
A Yes.
Q Okay. And you'd also agree that each of these routing options highlighted makes kind of a lasso to get there, going there and looping back around. Correct?

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A No, I don't know if I -- I don't know if "lasso" is a technical term, but this -- it does appear that the highlight loops west and then back east.
Q Okay. And would you agree with the proposition that these routing options couldn't have been considered when you were making your analysis for this report? When you made your analysis, you were considering a straight line hypothetically from North Edinburg to South McAllen?
A Well, we don't -- at ERCOT, we don't typically get into the routing analysis.
Q Correct.
A However, we're not naive to think it was actually going to be a straight line.
Q Did you consider that there would be an eastward -- a westward then eastward progress of this line and then the lasso or loop, however you want to describe it?
A Did not consider that.
Q Okay. Can you look at the labeled Routes 23, 24, 26 and 30, please?
A Okay.
Q Okay. Would you agree that on each of those routes the highlighted lines, as I've depicted the route to the best of my ability as proposed in the

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application, has routes proceeding westward then eastward in very close proximity to one another?
A I'm not sure what very close proximity -- I'm not sure what your definition of --
Q For instance, Links 119 and 120.
A Is there a scale on the map?
Q Yes, on the bottom right-hand corner.
A Okay. I would agree that they appear to be, in some cases, less than a mile.
Q Okay. And, of course, you're aware that there's certain NERC contingencies labeled A through D. Correct?
A Correct.
Q And you'd agree that a Category D contingency could be the loss of multiple transmission elements in closest proximity?
A That's correct.
Q When you were analyzing this project, did ERCOT consider the potential creation of any Category D contingencies?
A Not that I recall.
Q If you were aware that the line might create a Category D contingency, would that have been a factor in your analysis?
MR. McGRATH: Objection; form.

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MR. MEDRANO: Can you explain?
MR. McGRATH: Yeah, you seem to be assuming that this creates a Category D contingency.
MR. MEDRANO: I will clarify that I am not assuming.
Q (BY MR. MEDRANO) I'm asking that if a Category D contingency were created in routing, would that have been something ERCOT would consider?
A I don't know if we would have considered that. I'd probably have to confer with -- typically in a situation like that, I would confer with my engineers and get their opinion before we --
(Telephonic voice: Joining the meeting)
A -- before we would analyze that.
Q (BY MR. MEDRANO) Okay. Still on Exhibit 8, can you please review the labeled Routes 11, 12, 13 and 32?
MR. PETERS: Can we take a quick break?
MR. MEDRANO: Certainly.
(Recess: 2:58 p.m. to 3:06 p.m.)
MR. MEDRANO: Okay. We're going to resume.
Q (BY MR. MEDRANO) Mr. Billo, when we broke, I'd asked you to review Exhibit 8, the routes labeled 23, 24 -- I'm sorry, that's not correct -- 11, 12, 13

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and 32.
A Okay.
Q Okay. And would you agree that these routes generally are heading in the opposite direction of the Loma Alta substation from the North Edinburg substation?
A Yes.
Q And would you agree that this type of routing could potentially add significant length and/or costs to the project?
A Yes.
Q And would that type of effect to length and cost, would you agree that that could have an impact on your analysis of the cost benefits of this project in relation to other possible solutions?
A When we obtained the cost estimates in the length estimates from the -- from AEP and Sharyland for this -- this particular project, they indicated that it would be a significant length due to routing considerations.
Q But you include costs in each of your options, including the Option 5 that you recommended. Correct?
A That's correct.
Q All right. Is your -- is your analysis that the project is worth on a cost/benefit analysis --
(Telephonic voice: Inaudible)

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Q (BY MR. MEDRANO) -- based on those cost estimates?
A (No response)
Q Let me repeat that question. We were interrupted.
Is your analysis of whether to recommend one of the options outlined in the report, does that depend -- is that in part based on the cost estimate attached to that option as included in the report?
A That's correct.
Q Okay. And so if there were a greatly divergent cost of an option, that could change the analysis of the cost/benefit versus another solution. Correct?
A Hypothetically, yes.
Q Is there any standard cost variance that you work into your analysis?
A No.
Q Moving on to the -- back on Exhibit 1, your report, to the conclusion, which begins on Page 24. Would you agree at the bottom of the page there that the report states, "The decision concerning which project set to recommend hinges on the assumption of the 250-megawatt load additions to Brownsville."
A Yes.
Q And that -- and that assumes that this load

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addition comes with no new generation, no cogeneration, no other transmission or distribution upgrades other than what's described in this report. Is that correct?
A That's correct.
Q And on Page 25, it states that ERCOT recommends that the facilities associated with Option 5 be constructed in order to meet the needs of the Brownsville area for 2016 and beyond. Is that correct?
A That's correct.
Q Would you agree that the South McAllen connection is meant to resolve the concerns of the west area of the Lower Rio Grande Valley beyond 2020 and not the needs of Brownsville in 2016 as projected?
A Not beyond 2020, but between 2016 and 2020.
Q Would you agree that some of the -- some of the estimations for the projects that are discussed in the report do talk about a period beyond 2020?
A That's correct.
Q Would you agree that the analysis for the needs of the South McAllen connection for the future benefits of the west area of the Lower Rio Grande Valley is based on analysis that's not included in this report? You have a conclusion, but not the analysis getting there. Correct?
A Correct, not all of the -- not all of the

results are presented in the report.
Q And I guess related to my last question also on Page 25, it states that the North Edinburg to South McAllen 345-kV line portion of this project will be needed by 2020 and the South McAllen to east Lower Rio Grande Valley 345-kV line portion will most likely be needed sometime in the 2020s for N-1-1 contingency conditions. Is that correct?
A Correct.
Q And when it says "likely," is there any -- is there any criteria for determining the likelihood?
A "Likely" in that context means that our forecast -- our forecasted load projections in the models that we have show the need -- let me restate.
Our load forecast and projections show that the lines are getting near loaded, near their capacity limit by 2020. "Likely" means that if the load were to continue to grow, then it is likely that that upgrade would be needed.
Q So that's based on looking at a load forecast beyond the five-year plan more into between a ten- or even 20-year plan. Is that correct?
A That's correct.
Q Would you agree that forecasting load gets increasingly more difficult beyond the period of three

to five years?
A Yes.
Q As an example, would you agree that the ERCOT CDR reports can have fairly different projections of future load year to year?
A They can have different projections, yes.
(Exhibit Billo No. 9 marked)
Q (BY MR. MEDRANO) Mr. Billo, I've handed you what I've had marked as Exhibit 9, and these are a sampling of three CDR reports that I'm presenting to you as a demonstrative exhibit. Would you agree that these are excerpts from 2009, 2012 and 2013?
A Yes.
Q As an example, would you agree that the projected load, say, in 2012 for 2020 -- or take 2022. The projected load for 2022 in 2012 was 84,000 megawatts more or less?
A Yes.
Q And in 2013, a year later, it was 79,000 megawatts. Correct?
A Yes.
Q So you agree that it's -- there's variance in projecting load in that -- in that time frame in the future. Correct?
A Yes.

Q But nonetheless, that type of projection is what you are basing your recommendation in this project for when you're discussing the needs for the project in -- by 2020 or beyond 2020. Correct?
A Yes.
Q The term "in proximity" is used in this report and in your presentations to the various ERCOT bodies. Do you agree?
A Yes.
Q Okay. What is the methodology that ERCOT used in determining what constitutes "proximity"?
A We did not attempt to define proximity.
Q Did ERCOT's analysis in this regard assume that the future 345-kV line would be tied directly into the South McAllen substation?
A That was the assumption in our analysis.
Q If the line can't be directly tied into South McAllen and a new substation is required, did ERCOT perform any analysis in that regard?
A We did not.
Q Were you to do so, are you able to describe how that analysis would be conducted, what type of factors you'd look at?
A We would run -- we would model that and run a contingency analysis.

Q And without doing that, you don't know what the results of that could be. Correct?
A That's correct.
Q And without doing that analysis, you wouldn't be able to say what reliability reasons, if any, there would be to locate a new 345-kV substation in direct proximity to South McAllen. Is that correct?
A Can you repeat that?
Q Sure. Without doing the study of having a new substation, you're not able to assume -- or you're not able to speculate of how -- where that substation would even be located in relation to South McAllen. Correct?
A We typically don't make judgments on exactly where a substation would be located.
(Exhibit Billo Nos. 10 and 11 marked)
Q (BY MR. MEDRANO) All right. Mr. Billo, I've handed you what I've had marked as Exhibit 10 and Exhibit 11. Would you agree that Exhibit 10 is marked at the top right-hand corner Exhibit MEC-2 and shows a satellite map with the South McAllen substation identified?
A Yes.
Q Okay. Would you agree that Exhibit No. 11 is a pair of RFI answers that were prepared by Mr. Mark Caskey?

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A I agree with that.
Q Okay. And you did not prepare either of these or have any role in preparing either of these documents. Is that correct?
A Correct.
Q I'm looking at -- and I'm going to ask you a couple of questions that involve both the answer and the map together if you could consider both of them.
Would you agree that you, and to the best of your knowledge anybody at ERCOT, was not consulted about the location of this circle?
A I agree with that.
Q And would you agree this circle is labeled "All routes will have to come into and out of this circle"?
A Yes.
Q Do you agree that the South McAllen substation is not at the center of this circle as depicted?
A Yes.
Q Was routing through this circle -- mandatory routing through this circle, was that a consideration that you or anyone at ERCOT, to the best of your knowledge, made in coming up with your recommendation in this matter?
A That was not a consideration.
Q I'm going to refer to RFI Response No. 1-14 --

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I'm sorry -- Rhodes RFI Response No. 1-14. Are you with me?
A Okay.
Q And in the response it states, "Placing the westbound and eastbound circuits on common structures would result in a double-circuit 345-kV line with both circuits being used instead of a single-circuit line that is double-circuit capable, foreclosing the possibility of using the unused circuit for future transmission projects." Do you read that in the response?
A Yes.
Q Okay. Would you agree that no part of the ERCOT review discussed a scenario for adding a circuit to that line other than the first circuit?
A For each of the options, it states -- when it's discussed in the 345 line double-circuit capable with one circuit in place.
Q Was any analysis conducted of a scenario where the second circuit was added?
A No.
Q Was any specific project considered where any second circuit was added?
A No.
Q Can you read the last line of RFI -- Rhodes RFI

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No. 1-14? "Such consideration could also have an adverse impact on service reliability to the future South McAllen 345-kV/138-kV substation."
A Okay.
Q And not to be repetitive, but as we've discussed, your analysis did not consider there being a new future substation. Correct?
A Correct.
Q So -- and you'd agree that your analysis did not include any analysis of service reliability to a future substation. Correct?
A Correct.
Q Have you or anyone at ERCOT, to the best of your knowledge, had any communication with the applicants regarding what constitutes proximity to the South McAllen substation?
A I have not, and I'm not aware of anybody else at ERCOT.
Q Would you agree then that as far as your analysis is concerned, this circle shown on Exhibit No. 10 is somewhat arbitrary?
MR. GUY: Objection; form.
MR. MEDRANO: Can you clarify?
MR. GUY: I mean, you're sort of characterizing what his testimony is.

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MR. MEDRANO: Oh, I'm asking his opinion.
Q (BY MR. MEDRANO) How would you characterize the specific nature of the circle on Exhibit No. 10?
A Yeah, again ERCOT -- we did not define -- determine close proximity. I felt like our view of that situation was we wanted to provide technical analysis but leave it to the TSPs and the Public Utility Commission to determine what was appropriate.
Q Would you agree that your recommendation was made -- for Option 5 in Scenario 2 was made at least in part on the basis of the benefit of avoiding upgrades to existing 138-kV lines?
A Yes.
Q And you provide cost estimates for those upgrades. Correct?
A That's correct.
Q But you would agree, would you not -- or let me ask -- would you agree that the 138 upgrades could include reconductoring or reconstruction?
A The avoided 138-kV upgrades?
Q Yes.
A That would be a possibility.
Q Okay. And would you agree that those upgrades are a feasible alternative to a 345-kV line connecting to South McAllen sometime in the future?

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A We received some information from AEP that it may not be feasible to take those 138-kV lines out and reliably serve the system due to the length of time it would -- it would take to make those upgrades. However, that -- we did not include that in the report.
Q Did you -- did you analyze their opinion of the feasibility?
A Did not.
Q As presented in the report, would you agree that it is presented as a feasible alternative?
A Yes.
Q I'm just trying to eliminate questions. Bear with me.
(Exhibit Billo No. 12 marked)
Q (BY MR. MEDRANO) I'm going to change topics very slightly, Mr. Billo, to talk about the "critical to reliability determination" made in your recommendation.
A Okay.
Q I've handed you what's marked as Exhibit No. 12, I believe -- 12, which is an excerpt from the Commission's rule and the ERCOT Planning Guide, Section 3: Regional Planning. Do you agree that's what I have before you?
A Yes.
Q Okay. And on the second page of the exhibit,

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there's a highlighted portion which states Section (D) -- I'm sorry -- (b) Subsection (D), "Projects deemed critical to reliability." Do you follow?
A Yes.
Q Okay. Do you know of any definition for the term "critical to reliability" for this process?
A No.
Q Would you agree there's no definition for "critical" in the PUC rules, PURA or the ERCOT protocols and market guides?
A Not that I'm aware of.
Q Is the designation "critical to reliability" solely within ERCOT's discretion?
(Telephonic voice: Leaving the meeting)
MR. HELD: Mark Held.
A I don't recall the exact language, but I believe that it is.
Q (BY MR. MEDRANO) In this -- in this matter was it your decision to designate this project as critical to reliability?
A It was the ERCOT Board of Directors.
Q You made that recommendation. Correct?
A Made the recommendation to the Board.
Q Are you aware of anybody at ERCOT making an analysis of whether it was critical to reliability other

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than yourself?
A My -- my staff assisted me in that analysis.
Q And you communicated the recommendation to the Board?
A That's correct.
(Exhibit Billo No. 13 marked)
Q (BY MR. MEDRANO) Mr. Billo, I've handed you what I've had marked as Exhibit No. 13. This is a document titled System Operating Limit Methodology for Planning Horizon. Is that correct?
A Yes.
Q You are a co-author of this document. Correct?
A That's correct.
Q And you'd agree that this document does not pertain to this project -- correct -- directly?
A I would say that it -- not directly, but from the standpoint of how we evaluate system operating limits, the study would have been conducted in accordance with our system operating limit methodology.
Q Okay. You'd agree that for system operating limits and interconnection reliability, this document describes a process and methodology for that determination?
A I'm sorry. Can you repeat that?
Q Sure. Well, actually, let me guide you to

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Page 5 of this document --
A Okay.
Q -- to the last paragraph. Are you with me?
A Okay.
Q Okay. It states, "A list of transmission facilities that are identified to be critical to the derivation of an IROL and the station or substation location that are associated with the initiating contingencies that lead to the identification of an IROL, will be sent to NERC," and so forth.
A That's correct.
Q Okay. So you agree that in the process of the system operating limits methodology, which this document describes, there can be the designation of a critical infrastructure. Correct?
A No, that's not correct. What this paragraph is talking about is facilities that are critical to the derivation of an IROL but not critical to the reliability of the system.
Q But they're critical for the purpose of this document. Correct?
A I would -- I would say "yes," but that's -- I think that term is used differently in this than it is --
Q Certainly. But this document determines --

defines a methodology. Correct?
A That's correct.
Q Is there any similar document for determining a critical need for reliability as the determination was made in this case?
A There's not.
Q Okay. Do you know why there's not?
A It's been -- that's been a determination that's been left to the judgment of ERCOT.
Q Does the -- in your judgment then -- I think we're done with that document.
In your judgment, does the critical need designation in this project apply for the line to serve the 250 megawatts of industrial load in Brownsville but does not exist at this time?
A The designation applies to the North Edinburg to Loma Alta line.
Q The designation does not apply to the North Edinburg to South McAllen line. Correct?
A I don't think we made a distinction between segments of the line.
Q Perhaps I'm asking you to. If you had -- if you had a North Edinburg to Loma Alta line and North Edinburg to South McAllen line, would you agree that your determination of a critical need applies to the

North Edinburg to Loma Alta line?
MR. McGRATH: Objection; form.
MR. MEDRANO: Explain.
MR. McGRATH: Yeah, there's not a North Edinburg to South McAllen line. There's one line --
MR. MEDRANO: I believe that counts as --
MR. McGRATH: -- in the proximity of South McAllen.
MR. MEDRANO: I believe I couched it as a hypothetical. I'm happy to clarify that as a hypothetical.
MR. McGRATH: Okay.
A So hypothetically if there were two lines --
Q (BY MR. MEDRANO) Correct.
A -- then the critical designation would apply only to the North Edinburg to Loma Alta.
Q Okay. Then why is there a critical need at this point to route it in the vicinity of South McAllen?
A I didn't say there was a critical need to route it in South McAllen at this point. I said that there -- that the report states that there is a need if you're going to construct a line from the west side of the Valley to the east side of the Valley, there is a need to route it in proximity to South McAllen.
Q But not critical need?

A It does not state that it's a critical need.
Q I believe I asked you at the beginning if there had been any updates to the report since 2011 and you said there had not been. Was that right?
A Not that I'm aware of.
Q Okay. Has there been any updates to the analysis or methodology behind the report that was not included in the report?
A Not of the report.
Q Of the analysis or the methodology that was used to create this report?
A Uh-huh.
Q Has there been any updates of that since 2011?
A As far as our --
Q How you --
A -- updates and how we do contingency analysis, that sort of thing?
Q Yes.
A Sure.
Q How many updates would you say there are?
A I don't know that I can define that. We are constantly trying to improve our processes.
Q But you've not gone back and reanalyzed this project from 2011 with any of those updated analyses?
A We have not specifically addressed this -- this

project.
MR. MEDRANO: If you can just give me a minute to review my notes, we might be done.
A Okay.
(Brief pause)
MR. MEDRANO: I pass the witness.
MR. McGRATH: Does anybody else have questions besides possibly James?
(No response)
MR. McGRATH: Mr. Billo, would you like to proceed or would you like to take a break?
WITNESS BILLO: I'm okay with proceeding.
EXAMINATION
BY MR. McGRATH:
Q Mr. Billo, I'm Kerry McGrath, and I represent Electric Transmission Texas in this case.
MR. LEE: Kerry, push the button and talk into that thing.
Q (BY MR. McGRATH) As I said, I'm Kerry McGrath, and I represent Electric Transmission Texas, one of the applicants in the case.
I'd like to go back to a few of the questions that Andre's asked you and follow up on those. And let me start with the -- the questions about the proximity of South McAllen.

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What did you have in mind when you -- when you recommended that the project be routed in proximity to South McAllen?

A As I stated, at ERCOT we typically don't get into routing analyses, but we wanted the TSPs and the transmission service providers and the Public Utility Commission of Texas to take into consideration that we saw a technical need to have a 345- to 138-kV connection at South McAllen. So what we had in mind is that they would factor that in their decision on routing.

Q Okay. Was it your expectation that this line would actually be directed -- be routed directly into South McAllen or is it proximity as it suggests be routed nearby?

A We modeled it as directly connected. It did not have any other expectations beyond that.

Q Okay. The approach that Mr. Medrano described to you where the applicants have established a -- a circle around South McAllen that they interpret as proximity to South McAllen, does that strike you as a reasonable interpretation of your recommendation?

A I think that we really feel like that it's more for the PUC and the transmission providers to make that determination.

Q Okay. So when you -- when you recommended the

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routing in proximity to South McAllen, it was your expectation that the transmission providers would interpret that and implement that in some fashion?

MR. MEDRANO: Objection; form. I believe he said PUC or the TSPs.

MR. McGRATH: Oh, I'm sorry.

Q (BY MR. McGRATH) The TSPs?

A The PUC and the TSP.

Q Okay. You discussed with Mr. Medrano issues surrounding deferring upgrades to 138-kV lines in the -- in the South McAllen area, and you mentioned there may be issues with taking those lines out of service to upgrade them. Can you describe what those issues might be?

A When we were doing our analysis, AEP provided us with some -- we had a discussion with AEP that they felt like -- they felt that ERCOT's coordination group would not allow them to take extended outages on those lines because they may be needed for reliability to serve the -- to serve the load in the South McAllen -- or in the McAllen area.

Q And in your view, is that a reasonable assumption that those lines are fairly heavily loaded right now or in your forecast?

A I'm sorry. Can you repeat that?

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Q Yes. In your view, is it a reasonable assumption that those 138-kV lines are now or in your forecast heavily loaded transmission lines?

A In our forecasts they were heavily loaded.

Q And in your experience, is there -- would you need to take transmission lines out of service in order to upgrade?

A Yes.

Q All right. So there may be significant concerns about the ability to upgrade those lines if you can't take them out of service?

A Right. Yes, I agree with that.

Q Why did you designate this project as -- or why did ERCOT designate this project as a critical reliability project?

A The main reason was that we saw a need for the line in a time frame that when we consulted with the transmission providers, they indicated --

(Telephonic voice: Leaving the meeting)

A -- they would not be able to get that line -- they would not be able to get that line constructed in a time frame that we saw the need without the critical designation.

Q (BY MR. McGRATH) So why is there a short time frame needed for this line?

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A Essentially because our model showed the need for the line in 2016, and the TSPs indicated to us that they would not be able to get that line constructed by 2016 without the -- without the critical designation.

Q Okay. Let me take you back to -- I guess it was Exhibit 1, the independent analysis, ERCOT's independent analysis. And let me ask you to turn to Page 7 where Mr. Medrano discussed the N-1-1 analysis with you.

Can you describe why N-1-1 is a particular concern for the Brownsville area?

A Sure. The concern in the Brownsville area is that it -- for an N-1-1 contingency there would be a large amount of load shed that would need to occur, and it's -- it would be a significant percentage of the load in the area.

Q Okay. And do I interpret this correctly that with the first contingency there would actually need to be load shed to protect against a second contingency?

A That's correct.

Q Okay. Is that a -- is the Brownsville area unique in ERCOT in this regard?

A To my knowledge, yes.

Q So this is a -- this is a situation in Brownsville that is an outage exposure that's not seen

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in other parts of ERCOT?
A Yes, but let me clarify. There are -- our analysis has shown there are other areas in ERCOT where you could have to shed some amount of load after the first contingency in preparation for the second, but none that's -- that would be that significant. I think it was 175 megawatts, none near that close.
Q Okay. So in the Brownsville area, you would potentially have to shed 175 megawatts after the first contingency. Is that correct?
A That's correct.
Q Okay. How many customers -- can you estimate how many customers that would be?
A I cannot.
Q On Page 9 of Exhibit 1 there's a Figure 7, Load Duration Curve for the Brownsville Area. Can you describe what that demonstrates?
A Sure. So when you look at the area and you -- I think we had a total of 627 megawatts forecast -- forecasted load for that area, and that would be at your summer peak forecast. And what we found is you would have to shed about 365 megawatts of that load in order to maintain a reliable system under -- for that N-1-1 contingency.
So if you subtract the 627 minus 365, I

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believe you get the 337. And so just looking at that, you know, linearly, anytime the load would be above 337 megawatts, you'd have to do some amount of load shed. So we did a load duration curve based on an ERCOT forecast that showed that -- and just looking at the graph of approximately -- looks like a little over 5,000 hours of the year -- there would be some -- some chance of needing to shed load for that N-1-1 condition.
Q Okay. Am I interpreting this correctly that for somewhat over 5,000 hours of the year Brownsville is exposed to a load shed on the first contingency in order to protect against the second contingency?
A I'm not -- I don't know that I would interpret it that way. I think that's load shed for both contingencies.
Q Okay.
A I don't know that we provided the load shed after the first --
Q All right. 5,000 hours, that's more than half of the hours in the year. Right?
A That's correct.
Q It's more than half the time that Brownsville is exposed to that risk?
A That's correct.
Q Let me ask you -- I don't think you talked much

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about the maintenance windows issues that exist in the Brownsville area. Can you describe the concerns about the ability to take generators and transmission lines out of service for maintenance in that area?
A Sure. We received comments -- I believe it was in the formal comments, but I don't recall -- from transmission providers in the area that they had had a difficulty -- a difficult time in getting outage clearances to do maintenance on their transmission lines and similarly with the generation in the area. And the reason for that -- the reason for that is that the load in the area is such that you can't take multiple lines or multiple facilities out -- facilities I mean lines -- and generation. You can't take multiple facilities out at the same time because of this -- the dependency on the existing lines and generation in the area.
So there's a difficulty in scheduling all of the outages that need to occur in a maintenance season because there's -- there's only small windows in the fall and spring in which, you know, there's a potential that the load is going to stay low enough during those time periods that you're going to be able to take the facilities off for maintenance.
Q Okay. And is Figure 8 on Page 10, does that -- is that sort of an illustration of limitations on

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maintenance windows? Does that sort of show --
A That's correct.
Q Okay. Am I interpreting this correctly that anywhere with that -- well, let me back up.
All of the dots on there are the peak loads for each day of the year that's shown on here?
A That's correct.
Q Okay. So anytime a dot is below the dashed line, that might be an opportunity for maintenance?
A That's correct.
Q If it's above the dashed line, then you need that facility in service?
A That's correct.
Q Okay.
A Yeah. And the other thing -- the other thing to note on that graph is that when you're scheduling maintenance, if you're scheduling it, you know, several weeks in advance -- this is looking back -- you may not know whether the peak is actually going to be above that line or below that line. So when you get to, for instance, like a January time period, it may be that you have mild temperatures and, you know, maybe you could have scheduled maintenance. But, you know, in January you could hit a cold spell as well, in which case you could be above that line and you may not -- so if you're

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trying to schedule that a couple of weeks ahead of time, you know, there may be hours looking back in hindsight that maybe you could have done it, or maybe days, but in reality when you're looking ahead, then you may not have that.

Q You may need to be more conservative about what you schedule?

A That's correct.

Q Okay. There's -- up above the -- in Figure 8 up above the date 11 February, there's some outlier dots. Do you see those?

A Right.

Q Can you describe what those are?

A Sure. That was the -- those are the cold weather event days in February of 2011. We certainly had very high peak loads during that time period.

Q Can you describe what happened on the February 2011 event? What happened in the Valley?

A So, you know, I'm not an operator, but my knowledge is that we had a very cold -- a cold front that came into the ERCOT system, and essentially you had a lot of load due to heaters and whatnot that caused a spike in demand.

Q And that's what you see in these dots that are up between 400 and 600? Those are the heating load

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during that period?

A That's correct.

Q All right. Is it true that during that -- that was a period when you thought you could schedule outages and in fact there was a generation plan of scheduled outages at that point?

A That's correct. In the Valley.

Q So it turned out that a period you thought you could schedule outages because of the weather turned into a problem?

A That's correct.

Q This situation that's described in the N-1-1 contingencies section of the report, does that situation exist in Brownsville today, these risks of outages in the Brownsville area? Maybe I should phrase is this an ongoing issue?

A (Whispering to Mr. Peters)

Q Let me add, I don't want to get into any confidential information. So if you're concerned about that, let me know.

A (Whispering to Mr. Peters) I think that's confidential.

Q Okay. I withdraw the question then.

Tell me if you can answer this question. Is part of the motivation for declaring this a critical

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reliability project to try to help resolve these concerns in an expedited time frame?

A Yes.

Q Okay. Let me switch back over to South McAllen for a little bit. I'm on Page 20 now of your report. You talked to Mr. Medrano about lines that were loaded over 90 percent or 92 percent and whether NERC criteria would require that you address those lines. In your view, is it reasonable for you to look ahead at these lines in the Valley in a fast-growing area, 90-percent-plus lines, when you're planning?

A Yes, we feel like that's a reasonable thing to do for planning the system.

Q Is it accurate that load in the Valley is growing quite rapidly compared to other parts of the state?

A That's my understanding.

Q Okay. So is it reasonable to expect that a line loaded at 90-plus percent will continue to be -- continue to incur increasing loads in the future in a fast-growing area?

A Yes.

Q Just to be clear, is the routing near South McAllen, is that -- does that have any relationship to the question of whether to plan for a 250-megawatt load

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in Brownsville, or is that a western Valley consideration?

A We did not study that without the 250-megawatt load addition on the east side of the Valley, but I would agree that the South McAllen recommendation is primarily due to line loadings on the west side of the Valley some distance.

Q Okay. And I believe Mr. Medrano asked you a question about your assumption of a Rio Hondo to Loma Alta line in your long-term analysis. Did I understand correctly that that line was essentially designed to address the 250-megawatt industrial load issue in that analysis?

A That's correct. We were trying to make the analysis on the west side sort of agnostic to the east side.

Q I see. Mr. Medrano asked you if you have updated your analysis in Exhibit 1. Is there any process at ERCOT that would have you update an analysis like this after it's completed and approved by the Board?

A We typically would not do that.

Q All right. I've got just a couple of exhibits to introduce.

(Exhibit Billo Nos. 14 through 16 marked)

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Q (BY MR. McGRATH) Okay. Mr. Billo, if you'll take a look at what I've had marked as Exhibit 14 and tell me if you can identify that as the minutes of the Board of Directors meeting -- the ERCOT Board of Directors meeting where this project was approved?
A It is.
Q Okay. Could you take a look at Exhibit 15 and ask -- and tell me if you can identify that as the minutes of the Technical Advisory Committee or TAC meeting where this project was approved?
A It is.
Q And could you take a look at Exhibit 16 and tell me if that is the ballot that reflects the TAC vote on this project?
A It is.
Q Could you describe just briefly a process that a project like this goes through at ERCOT as it works its way through various levels of review and approval?
A Sure. Initially a project will be submitted by a stakeholder to the Regional Planning Group. It will be sent out to an email list to the RPG for a 21-day comment period.
Q And the RPG is Regional Planning Group?
A RPG is Regional Planning Group. My apologies. The interested stakeholders, through the

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RPG, can make comments. Those comments will be consolidated and sent out -- sent back out to the entire RPG. The project proposer has 28 days to review those comments and provide responses back to those comments. That period is called a study mode.
At the end of the study mode, a project will undergo ERCOT independent review. And I should clarify those are -- there are four different levels of -- four different tiers of projects that are described in the protocols -- ERCOT protocols, Section 3.11. Tier I and Tier II projects will have an ERCOT independent review where ERCOT will do an assessment to determine if the project is needed and is the best -- the best project alternative to meet the need. For Tier I projects such as this, which are over $50 million, ERCOT will make a -- will take that -- will take the project -- that project recommendation to the Technical Advisory Committee, TAC, and TAC can comment on that. And then ERCOT will also take that project to the ERCOT Board of Directors for endorsement.
Q Okay. At the Regional Planning Group is there an actual vote on the project?
A There is not.
Q What about at TAC, Technical Advisory Committee?

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A TAC does not vote up or down on the project, but TAC can -- I believe TAC can make comments and they can -- I'm not sure what the technical term is -- but I think that they can vote to recommend that the Board of Directors endorse the project.
Q Okay. And then the ERCOT Board does vote on the project?
A That's correct.
Q All right. Can you describe briefly the membership of TAC and the ERCOT Board with -- what the Board -- where the Board members are from, what groups they represent?
A I don't know if I can list them all, but generally the Board is made up of both different market segments as well as independent members.
MR. McGRATH: Okay. I think that's all I have.
MR. GUY: I have a few questions.
EXAMINATION
BY MR. GUY:
Q Mr. Billo, I'm James Guy on behalf of Sharyland Utilities. I have just a few follow-up questions if you're ready to proceed.
A (Nodded)
Q Just to pick up where Mr. McGrath left off

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there on some of the process questions, you sort of described the RPG process generally. Did this project go through that process?
A Yes.
Q And do you recall how long of a review process -- or how long it took for the RPG, TAC and ERCOT Board to review this project?
A Well, I don't recall that off the top of my head. That's probably in the -- in the documents that are provided.
Q Okay. Do you recall whether any market participants provided comments on the projects that were being discussed?
A I knew there were several market participants that provided comments.
Q And then at the end of the independent review and at the end of the comments from the market participants, the report then recommended Option 5 as being the project that best addressed the reliability consideration -- the contingencies discussed in the report. Is that correct?
A That's correct.
Q And then -- and then you -- I think we've already discussed, but did you then present that recommendation to the Technical Advisory Committee?

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A Yes.
Q And was the Technical Advisory Committee made aware of the lack of consensus on the 250-megawatt load in Brownsville?
A Yes.
Q And they essentially gave a thumb's up to the project knowing that?
A I believe, if I recall, the vote was 28 for, two against.
Q And then -- you then presented the project or the option to the ERCOT Board of Directors. Is that correct?
A Yes.
Q And do you recall -- did you make the Board of Directors aware that option -- that there was not a consensus on the -- whether the 250-megawatt load should be considered?
A Yes.
Q And did ERCOT then endorse the project that you recommended?
A Yes.
Q Did ERCOT endorse any alternative projects as well?
A Not -- not to my recollection, no.
Q Just a couple of sort of questions coming from

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different perspectives. I know -- I know you talked about load forecasts with Mr. Medrano a little bit. For planning purposes, how often does ERCOT update its various load forecasts?
A The long-term load forecast is -- I believe it's updated once a year.
Q And is it typical for ERCOT to -- at the beginning of each year after those load forecasts are updated -- to then go back and re-evaluate every project that's gone through RPG over the last year?
A No, that would be -- that would not be typical.
Q Do you know if the protocols provide a mechanism by which utilities or other market participants can modify an endorsed project?
A There is a mechanism in Protocol Section 3.11 that if a project -- there is a process to modify a project.
Q Let me ask you this: What is your role in the RPG process?
A In general, ERCOT facilitates the Regional Planning Group.
Q Okay. And you don't purport to speak on behalf of the ERCOT Board of Directors today. Is that fair?
A Yes. Correct.
Q Let me ask you just a couple of other

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questions. If you will refer to Exhibit 1, which is the study. And, again, I'm talking about some of these forecast issues I think. In particular, I'm looking at Page 4 right under Heading 2, Study Approach. The first -- the first sentence refers to a 2016 summer peak base case. What is that referring to?
A So that is the model of summer peak conditions for 2016 that we used for the study.
Q And is that -- for a study that was conducted in 2011, is that a typical -- the typical case you would have used?
A Yes, assuming we're studying the 2016 condition.
Q I guess just one other clarifying question. In the discussion you were having with Mr. Medrano about the South McAllen substation issue, you were referring one time -- in one response you were referring to the importance of the connectivity --
A Yes.
Q -- of connecting the new 345 system with the existing 138-kV system. Can you explain what you meant by that?
A When we ran our analysis, we found that making a 345 to 138-kV connection at South McAllen would relieve the overloads that we saw in the 2020 case, 2020

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model.
Q So you're just referring to the presence of a connection. Is there a way to improve or -- improve that connection -- or what goes into improving that connection?
A I'm not sure I understand your question.
Q Well, I guess what I'm trying to ask, so when you were referring to connectivity, you were just referring to the presence of a new connection?
A Correct.
Q You weren't referring to the quality of that connection, I guess, in contrast?
A I'm not sure what you mean by "quality."
Q I'll withdraw the question.
A Okay.
MR. GUY: I pass the witness.
MR. MEDRANO: I have a couple follow-ups if no one else does.
FURTHER EXAMINATION
BY MR. MEDRANO:
Q You were asked about the critical need of the project --
(Telephonic voice: Leaving the meeting)
Q (BY MR. MEDRANO) -- and you stated that part of the reason for that designation was the short time

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frame the line was needed for 2016. Correct?
A Correct.
Q That need for 2016 is connection of a 345-kV connection between North Edinburg and Loma Alta. Correct?
A That's correct.
Q The South McAllen connection is not needed for 2016. Correct?
A Correct.
Q You were asked a couple of questions about Figure 8 in terms of maintenance windows on Page 10 of the report. Do you recall?
A Yes.
Q Figure 8 demonstrates peak load during October of 2010 through September of 2011. Correct?
A Yes.
Q And I think you agreed with me earlier that 2011 was an outlier year as far as weather condition and peak load. Correct?
A Correct.
Q Would you agree that this profile would look considerably different in 2012 or 2013, shaped maybe similarly but lower?
A That's hard to speculate due to load growth.
Q But you'd agree that the questions you answered

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based on this Figure 8 on Page 10 were based on the outlier weather year of 2011. Correct?
A Correct.
Q You were asked a question about the transmission line that you explained was meant to sort of -- sort of kind of make the 2020 projection agnostic to the new 250-megawatt speculative load in Brownsville. Correct?
A Correct.
Q Why didn't you just model it without that 250-megawatt addition? Wouldn't that have been more accurate?
A I don't recall why we didn't model it that way. That may have been another way to perform the analysis.
Q May have been another way, but are you sure the results would have been the same without conducting the analysis?
A I cannot be positive without conducting the analysis that way.
Q You described the ERCOT stakeholder process at some length. Would you agree that the Public Utility Commission of Texas has denied projects that have been approved through the ERCOT process in the past?
A I can't recall -- off the top of my head I can't recall any projects that have gone through the RPG

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that were denied by the Public Utility Commission.
Q When did you say you started working for ERCOT again?
A January of 2004.
Q 2004. So you were here through the CREZ process. Correct?
A Yes.
Q Do you recall the Commission denied one of the CREZ lines that had been approved through the ERCOT process?
MR. McGRATH: Objection; form.
MR. MEDRANO: Clarify?
MR. McGRATH: It wasn't approved through the ERCOT process. It was approved through the CREZ.
A That's right. It was not approved through the Regional Planning Group process.
Q (BY MR. MEDRANO) Very well. Do you recall that there was a rule for economic needed transmission lines as approved through the ERCOT process?
A Yes.
Q Do you recall that the Commission did not approve that rule?
A The Commission -- I don't want to get -- I don't want to -- on a technicality here, but the Commission -- I don't think that they did not approve

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that rule. I think that they came up with a rulemaking that effectively lead to ERCOT removing that rule from our criteria.
Q But they did not approve the rule in the manner the ERCOT stakeholders approved it. Correct?
A The rule -- I think I agree with that.
MR. MEDRANO: I pass the witness.
MR. PAYNE: I'll ask one. Robert Payne.
FURTHER EXAMINATION
BY MR. PAYNE:
Q I'm just curious. In the ERCOT grid, is there anyplace in Texas that has a buried transmission cable that is still in use, say, longer than ten miles across land? Don't count across bays or anything like that.
A Longer then ten miles?
Q Just arbitrary ten miles, you know, longer lengths.
UNIDENTIFIED SPEAKER: Sorry. The question is not audible on the phone.
MR. MEDRANO: Can you turn that microphone on? Press the button on the bottom.
MR. PAYNE: I hate to try to have to answer that. Is this on?
MR. MEDRANO: (Nodded)
MR. McGRATH: (Nodded)

Q (BY MR. PAYNE) The question was simply is there anyplace on the ERCOT grid where a transmission line, high capacity, 138-kV or larger transmission line in Texas, that is a buried transmission line longer than, say, ten miles across land, not counting across bays or gulfs?

A I'm aware that there are underground transmission lines in ERCOT. Off the top of my head, I don't know if there are any that are longer than ten miles.

Q Are they -- do you know anything about them, when they were constructed, if they are still in use and they are part of the ERCOT grid is just what I was trying to get to?

A I think there are some. I know that there are some that are in use recently constructed. There's one in downtown Houston, a 138-kV line. There's a -- mid-2000s there was a 345-kV line in Dallas that was constructed underground.

MR. PAYNE: Thank you.

MR. MEDRANO: Any other questions?

(No response)

MR. MEDRANO: I believe we're concluded.

(Deposition concluded at 4:22 p.m.)

CHANGES AND SIGNATURE

WITNESS NAME: JEFF BILLO DATE: 08/29/13

PAGE LINE CHANGE REASON

I, JEFF BILLO, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

JEFF BILLO

Job No. 112354

THE STATE OF _____)

COUNTY OF _____)

Before me, _____, on this day personally appeared JEFF BILLO, known to me or proved to me on the oath of _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this _____ day of _____ 2013.

NOTARY PUBLIC IN AND FOR THE STATE OF _____

My Commission Expires: _____

SOAH DOCKET NO. 473-13-5207
PUC DOCKET NO. 41606

JOINT APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE NORTH EDINBURG TO LOMA ALTA DOUBLE-CIRCUIT 345-KV TRANSMISSION LINE IN HIDALGO AND CAMERON COUNTIES, TEXAS) STATE OFFICE OF ADMINISTRATIVE HEARINGS

REPORTER'S CERTIFICATION
ORAL DEPOSITION OF JEFF BILLO
August 29, 2013

I, Kim Pence, Certified Shorthand Reporter in and for the State of Texas, hereby certify to the following:

That the witness, JEFF BILLO, was duly sworn and that the transcript of the deposition is a true record of the testimony given by the witness;

That the deposition transcript was duly submitted on August 30, 2013 to the attorney for the witness for examination, signature, and return to me by September 11, 2013;

That pursuant to information given to the deposition officer at the time said testimony was taken,

the following includes all parties of record and the amount of time used by each party at the time of the deposition:

Mr. Andres Medrano (1h58m)
Attorney for Landowners, et al.
Mr. Kerry McGrath (29m)
Mr. Jerry Huerta (no time)
Mr. Mark Held (no time)
Attorneys for ETT, LLC
Mr. James Guy (7m)
Mr. John Scharbach (no time)
Ms. Alicia Rigler (no time)
Attorneys for Sharyland Utilities
Mr. Robert Payne (2m)
Attorney for Robert Payne
Ms. Eileen McPhee (no time)
Attorney for City of McAllen
Mr. Patrick Rezmik (no time)
Attorney for Rhodes Alliance, et al.
Mr. John Zerwas (no time)
Mr. Jacob Lawler (no time)
Attorneys for The Public Interest
Mr. Richard Crozier (no time)
Attorney for the Public Utility Board of Brownsville
Mr. Patrick Peters (no time)
Attorney for ERCOT
Mr. Christopher Boswell (no time)
Attorney for Thomas and Martha McClemore, et al.
Mr. Rene Ruiz (no time)
Attorney for Mil Encinos, Ltd., et al.
Ms. Earnesta Taylor (no time)
Attorney for A. Duda Entities, et al.
Mr. Angel Herrera, Jr. (no time)
Attorney for Angel Herrera, Sr.
Mr. Michael Boldt (no time)
Attorney for Valley Race Park, LLC
Ms. Elizabeth Sandoval Cantu (no time)
Attorney for Delia Lubin, et al.
Mr. Jim Aycock (no time)
Attorney for Fidelity Exploration & Production Company

I further certify that I am neither counsel

for, related to, nor employed by any of the parties in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of this action.

Certified to by me on this 30th day of August 2013.

KIM PENCE, CSR
Certified Shorthand Reporter
CSR No. 4595 - Expires 12/31/13
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Job No. 112354

SOAH DOCKET NO. 473-13-5207

PUC DOCKET NO. 41606

JOINT APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC AND SHARYLAND UTILITIES TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE NORTH EDINBURG TO LOMA ALTA DOUBLE-CIRCUIT 345-KV TRANSMISSION LINE IN HIDALGO AND CAMERON COUNTIES, TEXAS	)	STATE OFFICE OF ADMINISTRATIVE HEARINGS

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ORAL DEPOSITION OF JEFF BILLO

August 29, 2013

I, Kim Pence, Certified Shorthand Reporter in and for the State of Texas, hereby certify to the following:

That the witness, JEFF BILLO, was duly sworn and that the transcript of the deposition is a true record of the testimony given by the witness;

That the deposition transcript was duly submitted on August 30, 2013 to the attorney for the witness for examination, signature, and return to me by September 11, 2013;

That pursuant to information given to the deposition officer at the time said testimony was taken,

the following includes all parties of record and the amount of time used by each party at the time of the deposition:

Mr. Andres Medrano (1h58m)
Attorney for Landowners, et al.
Mr. Kerry McGrath (29m)
Mr. Jerry Huerta (no time)
Mr. Mark Held (no time)
Attorneys for ETT, LLC
Mr. James Guy (7m)
Mr. John Scharbach (no time)
Ms. Alicia Rigler (no time)
Attorneys for Sharyland Utilities
Mr. Robert Payne (2m)
Attorney for Robert Payne
Ms. Eileen McPhee (no time)
Attorney for City of McAllen
Mr. Patrick Reznik (no time)
Attorney for Rhodes Alliance, et al.
Mr. John Zerwas (no time)
Mr. Jacob Lawler (no time)
Attorneys for The Public Interest
Mr. Richard Crozier (no time)
Attorney for the Public Utility Board of Brownsville
Mr. Patrick Peters (no time)
Attorney for ERCOT
Mr. Christopher Boswell (no time)
Attorney for Thomas and Martha McClemore, et al.
Mr. Rene Ruiz (no time)
Attorney for Mil Encinos, Ltd., et al.
Ms. Earnesta Taylor (no time)
Attorney for A. Duda Entities, et al.
Mr. Angel Herrera, Jr. (no time)
Attorney for Angel Herrera, Sr.
Mr. Michael Boldt (no time)
Attorney for Valley Race Park, LLC
Ms. Elizabeth Sandoval Cantu (no time)
Attorney for Delia Lubin, et al.
Mr. Jim Aycock (no time)
Attorney for Fidelity Exploration & Production Company

I further certify that I am neither counsel

for, related to, nor employed by any of the parties in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of this action.

Certified to by me on this 30th day of August 2013.

Kim Pence

KIM PENCE, CSR
Certified Shorthand Reporter
CSR No. 4595 - Expires 12/31/13

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CHANGES AND SIGNATURE

WITNESS NAME: JEFF BILLO DATE: 08/29/13

PAGE	LINE	CHANGE	REASON
10	21	"TDL" to "TPL"	Correction
20	10	"Under contingency"	Should be two words
20	17	"load is not projected"	Correction
21	3	"contingent" to "contingency"	correction
41	1	"terming" to "terminating"	Correction
62	15	"in" to "and"	Correction
82	17	insert "outage" before coordination	Missing word

I, JEFF BILLO, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

JEFF BILLO
Job No. 112354

THE STATE OF Texas)
COUNTY OF Travis)

Before me, Jeff Billo, on this day personally appeared JEFF BILLO, known to me or proved to me on the oath of personally known or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this 9th day of September 2013.

TISA WILKINS
My Commission Expires
April 4, 2017

NOTARY PUBLIC IN AND FOR
THE STATE OF Texas

My Commission Expires: 4-24-17

ERCOT

ERCOT Independent Review of the Sharyland and BPUB Cross Valley Project

Version 1.0

EXHIBIT

AUG 2 9 2013

Bill 1 KP

Document Revisions

Date	Version	Description	Author(s)
12/19/2011	1.0	Final	Audrey Zhou, Prabhu Gnanam, Jeff Billo

Table of Contents

1. Introduction

The Brownsville area is located at the southernmost portion of the Lower Rio Grande Valley (LRGV) area in the ERCOT system along the international border with Mexico. There are three (3) electric utilities that have service areas in Brownsville and surrounding areas. The bulk of the electrical service inside the city is supplied by Brownsville Public Utilities Board (BPUB), the city-owned, non-profit utility. The other distribution service providers are American Electric Power – Texas Central Company and Magic Valley Electric Cooperative.

Currently, the load is primarily served by four 138 kV lines and the Silas Ray natural gas and oil-fired plant owned and operated by BPUB. The total generation capability of the Silas Ray power plant is approximately 120 megawatts. One of the units is sixty (60) years old. Figure 1 shows the east LRGV area of the ERCOT system including the Brownsville area.

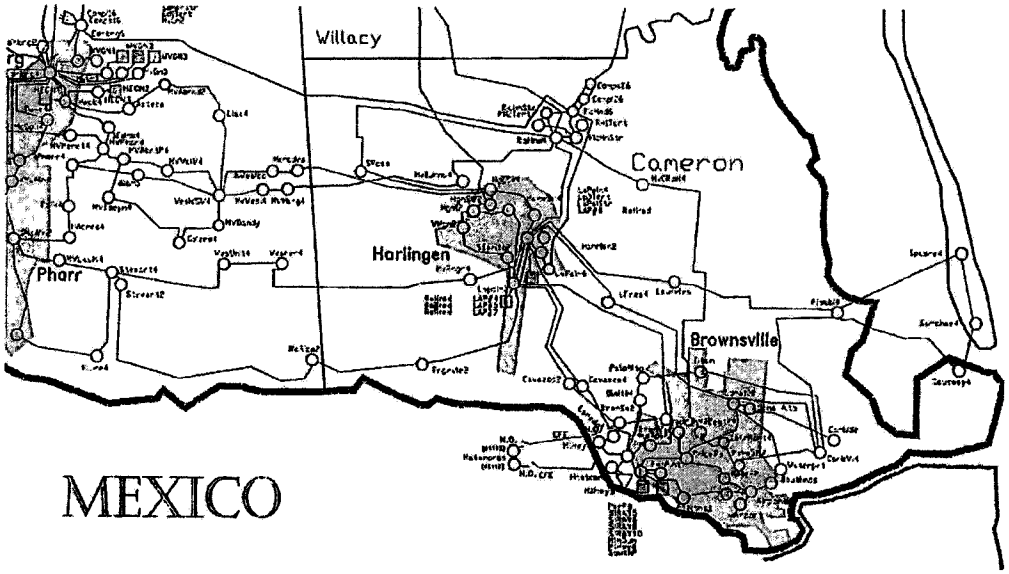

Figure 1: Map of east Lower Rio Grande Valley area

Brownsville is the 16th largest city in Texas. Due to its proximity to the Gulf of Mexico and being at the southern edge of the ERCOT system, the area has experienced multiple storm related forced outages and rolling blackouts in the past. Additionally, the transmission utilities in the area have experienced difficulty in taking lines out for maintenance due to the reliance on only one power plant and a limited number of transmission circuits to support the area.

Figure 2 depicts the historical summer and winter peak demand levels for the BPUB area over the past two decades. The Brownsville area has experienced high population and economic growth and consequently high electric load growth rates. In addition to the normal load growth, BPUB has also projected new industrial load of 250 MW in the 2014 timeframe near the Port of Brownsville. While this 250 MW does not reflect a specific end-use consumer, it reflects BPUB's estimate of the load that could be added at this location if sufficient transmission capacity was available to serve it, based on

previous economic development activity and prior industrial load interconnection requests received by BPUB. Figure 3 shows the projected BPUB summer and winter load growth with the expected industrial load assumed to start in 2014.

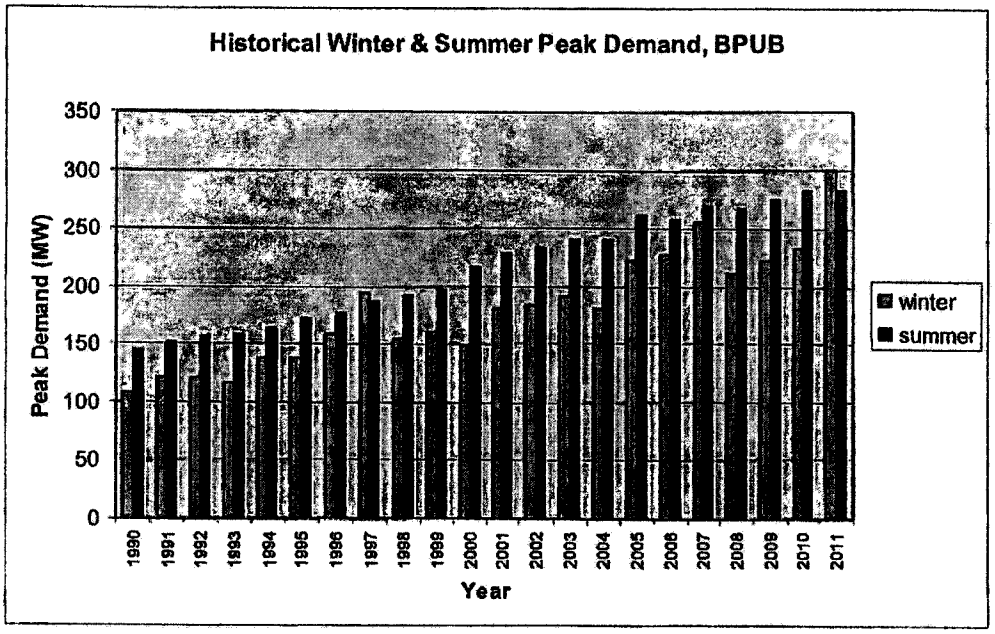

Figure 2: Historical BPUB Summer & Winter Peak Demand, 1990-2011

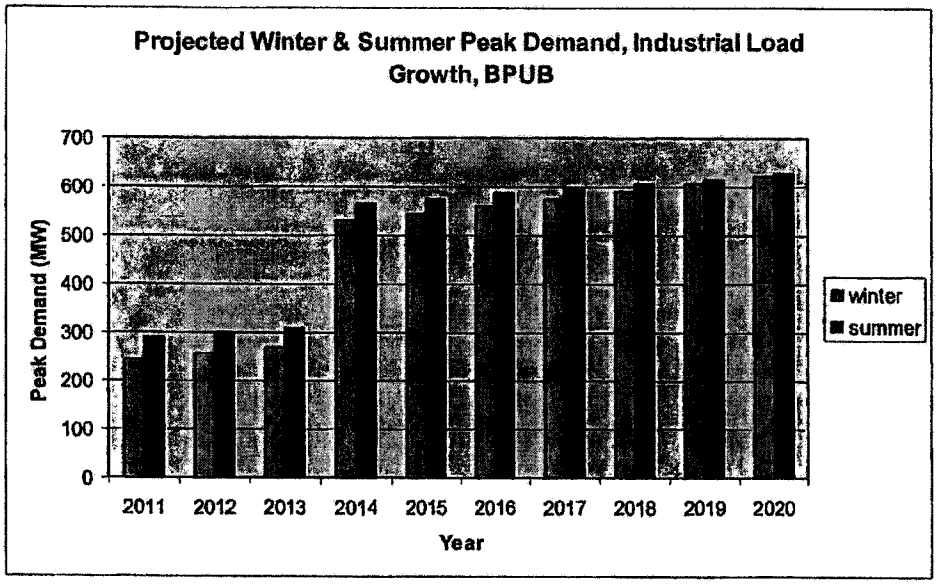

Figure 3: Projected BPUB Summer & Winter Peak Demand with the 250 MW industrial load addition in 2014

In order to provide transmission infrastructure that meets ERCOT reliability criteria and supports BPUB's projected load including industrial load additions of 250 MW, Sharyland Utilities (Sharyland) and BPUB proposed the following improvements:

- Construct a new 345 kV bus at the existing Loma Alta station with one (1) 345/138 kV autotransformer
- Construct a new 345kV transmission line from the existing 345 kV La Palma station to a new 345 kV Loma Alta bus (~14 miles)
- Construct a new 345 kV transmission line from the new 345 kV Loma Alta bus to a new 345 kV bus at the existing Frontera station across the LRGV (~ 59 miles)

ERCOT analyzed the system needs and reviewed the proposed project along with several other alternative projects.

2. Study Approach

The Steady State Working Group (SSWG) 2016 summer peak base case (updated in April 2011) was modified to reflect updated information related to the study area, and the resulting study case was evaluated to determine if there were any reliability criteria exceedances in the east LRGV and Brownsville area.

There are two existing wind plants (Penascal and Gulf Wind) and two planned wind plant additions (Magic Valley Wind Project and Los Vientos) in the study area. Based on 2010 coastal wind output data, it was decided to set the dispatch of the wind plants in the area to 10% of their capacity for the study. This value was near the 10^{th} percentile output for high load hours which, although conservative, seemed appropriate given the lack of history for Texas coastal wind plant data and the low number of plants with operational history. The Railroad DC tie was assumed to be set at zero export and import for the extent of this study.

The SSWG 2016 summer peak base case was modified with the following changes to create the 2016 study case:

- Add a new 163 mile, single circuit 345 kV line from Laredo Lobo to Rio Bravo to North Edinburg with 50% series compensation
- Reconductor the existing Lon Hill-Nelson Sharpe-Ajo-Rio Hondo 345 kV line and Lon Hill-North Edinburg 345 kV line to 1988/2426 MVA normal/emergency rating
- Upgrade the South McAllen to Las Milpas to Stewart Road 138 kV line to 395/476 MVA normal/emergency rating (identified as Reliability Project in 2011 Five-Year Transmission Plan)
- The dispatch of the Penascal, Gulf Wind, Magic Valley Wind Project and Los Vientos wind plants were set at 10% of their capacity
- Silas Ray Unit 5 (10 MW) was turned off in the model for the extent of the analysis because it was decided to not count on the availability of this unit to solve the local reliability constraints for the timeframe of this study due to its age (~60 years) and technology (small gas steam, non-reheat).

- All other generation in the LRGV was set at maximum output with the exception of the hydro powered units which were left at their base case output

During the course of the RPG review of this project, RPG members did not come to a consensus about whether it was appropriate to plan the system based on the inclusion of the potential 250 MW industrial load additions in Brownsville (modeled at the Loma Alta substation). However, based on BPUB's account of historical load interconnection requests at the Port of Brownsville that have been unfulfilled due to limited transmission capacity, ERCOT agreed to perform a sensitivity study to evaluate the system needs with and without the 250 MW load additions.

The evaluation consisted of AC contingency analysis in accordance with NERC and ERCOT criteria. Several transmission improvement options were studied in order to resolve the reliability criteria exceedances found in the 2016 study case. An additional sensitivity analysis was performed using a 2020 summer peak case to allow the longer-term needs of the area to be taken into account in the current decision.

3. Study Case Evaluation

ERCOT performed a power flow AC contingency analysis on the 2016 summer peak study case to find reliability issues that did not meet the NERC or ERCOT planning criteria. The results of the power flow analysis indicated that the worst single contingency is the loss of a 138 kV line combined with the loss of the largest generator[1] in the Brownsville area. For this contingency, there are several thermal overloads under pre-contingency and post-contingency conditions even in the case without the 250 MW load additions. Figure 4 shows the thermal overloads observed in the Brownsville area without the 250 MW load additions. The resulting overloads cannot be relieved by redispatch of the generation in the LRGV area. There were no voltage violations under base case or contingency. The results of this analysis are listed below:

2016 Summer Peak Reliability Results without the new 250 MW load:

Pre-contingency overloads:

- Rio Hondo – East Rio Hondo 138 kV line (108.9% of normal rating)

Post-contingency overloads (except overflow in base case):

- La Palma – Cavazos line 138 kV (114.8% of contingency rating)
- La Palma – Los Fresnos 138 kV line (109.3% of contingency rating)
- Military Highway – Cavazos 138 kV line (107.6% of contingency rating)

[1] The loss of generator is modeled as the loss of combined cycle train in the Silas Ray plant.

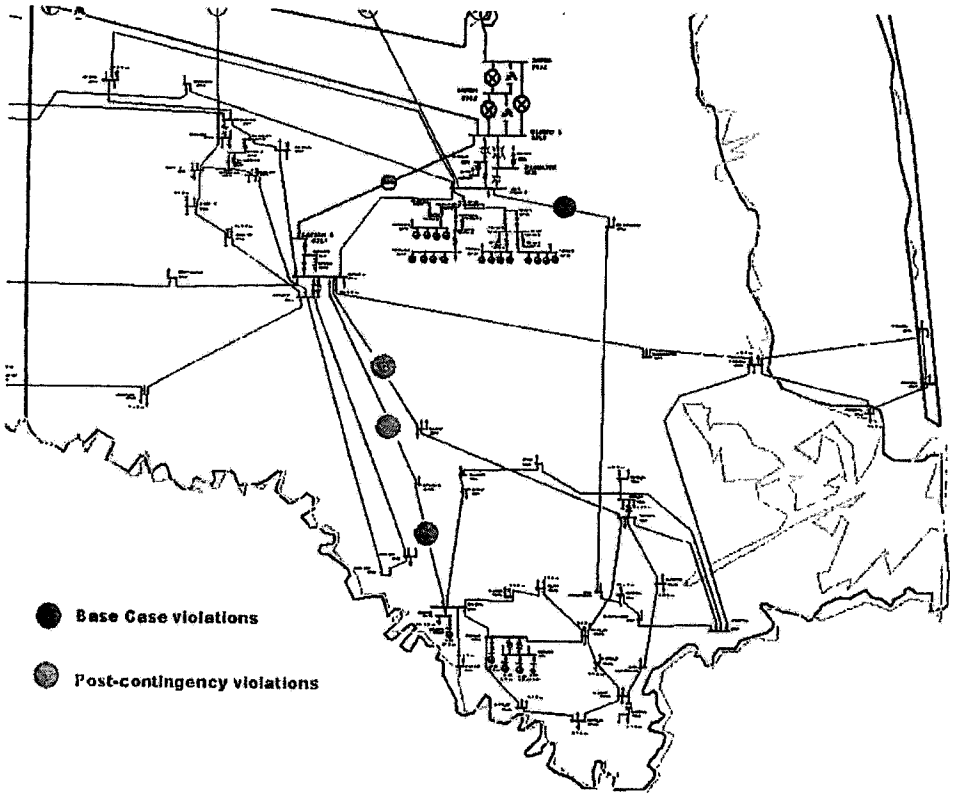

Figure 4: 2016 Thermal overloads in Brownsville area without 250 MW load

This analysis was repeated on a case that included the 250 MW load additions. Figure 5 shows the thermal overloads observed in the Brownsville area with the 250 MW load additions. There were no voltage violations under base case or contingency. The results of this analysis are listed below:

2016 Summer Peak Reliability analysis including the new 250 MW load

Pre-contingency overloads:

- Rio Hondo – East Rio Hondo 138 kV line (152.7% of normal rating)
- East Rio Hondo – Central Avenue Sub 138 kV line (141.4% of normal rating)
- La Palma – Los Fresnos 138 kV line (124.3% of normal rating)
- La Palma – Cavazos line 138 kV (115.0% of normal rating)
- Loma Alta – Los Fresnos 138 kV line (108.8% of normal rating)
- Military Highway – Cavazos 138 kV line (108.0% of normal rating)