

Control Number: 32182



Item Number: 244

Addendum StartPage: 0

PROJECT NO. 32182

PUC INVESTIGATION OF METHODS TO \$IMPROVE ELECTRIC AND TELECOM\$INFRASTRUCTURE TO MINIMIZE\$LONG TERM OUTAGES AND\$RESTORATION COSTS ASSOCIATED\$WITH GULF COAST HURRICANES\$\$



TEXAS-NEW MEXICO POWER COMPANY

Update On Inventory of Transmission Lines Located Within 50 Miles of Gulf Coast and Estimated Cost to Bring Transmission Lines to Current NESC Wind-Loading Standards

Contact:

Tony Thompson Regulatory Policy Texas-New Mexico Power Company 469-484-8590 tony.thompson@pnmresources.com

744

TNMP has a total of 207.6 miles of transmission lines in Galveston and Brazoria Counties that are located within 50 miles of the Texas coast. In recent years TNMP has constructed or rebuilt 47.6 miles of transmission lines during the normal course of business to serve new load or generation. All of these lines meet the current NESC wind-loading standards. The estimated cost to bring the rest of the transmission system into compliance with the current NESC wind-loading standard is \$100,270,514.

This cost estimate is based on the actual cost on rebuilding TNMP's Freeway Park-Dickinson transmission line. The following assumptions were made when preparing the estimate:

- Only structures are replaced. No conductor is replaced.
- The Freeway Park-Dickinson transmission line was rebuilt in 2006. This cost was increased by 3% per year to account for inflation.
- Increases in material costs due to other factors were not considered.
- Transmission lines are de-energized for structure replacement. If it is required for lines remain energized during structure replacement, costs would increase significantly.

The following table is a breakdown of the estimated costs by voltage level and location of less than 10 miles from the coast and between 10 and 50 miles from the cost.

TNMP Transmission Lines									
< 10 Miles from Coast									
	Total Miles	Non-Wind Standard Miles	Hardening Cost Estimate						
138 kV	15.4	11.7	\$ 6,588,964						
69 kV	13.0	10.4	\$ 5,856,857						
Subtotal	28.4	22.1	\$ 12,445,821						
10 to 50 Miles	from Coast								
Non-Wind Hardening Standard Cost Total Miles Miles Estimate									
138 kV	149.2	108.2	\$ 71,408,600						
69 kV	30.0	29.2	\$ 16,416,094						
Subtotal	179.2	137.4	\$ 87,824,693						
Total	207.6	159.5	\$ 100,270,514						

During Hurricane Ike TNMP received only minor damage to the transmission system. Six structures on the 69 kV system were replaced and repairs made to two 138 kV structures. Although there was almost a total outage of the transmission system during the storm, all transmission lines were back in service or ready for service by Tuesday, September 16.

The following table is an inventory of all TNMP transmission lines in those two counties along with construction type and the estimated cost of upgrading the line

TNMP Transmission Lines < 10 Miles from Coast									
Line Section	Voltage (kV)	Line Rating (MVA)	Wire Rating (MVA)	Length (Miles)	Conductor	Construction Type	Hardening Cost Estimate		
Tejas to Comanche	138	379	379	1.0	2-636 ACSR	Steel Lattice Tower			
Tejas to Greenbelt	138	379	379	0.7	2-636 ACSR	Steel Lattice Tower			
Comanche to Amoco	138	379	379	1.0	2-636 ACSR	H-Frame Wood Pole	563,159		
Comanche to Cherokee	138	382	382	0.5	795 ACSS	Single Steel Pole			
Amoco Oil to Greenbelt 1	138	717	734	0.1	2-1590 ACSR	Single Steel Pole			
Amoco Oil to Greenbelt 2	138	717	734	0.1	2-1590 ACSR	Single Steel Pole			
Amoco to Apache	138	379	379	4.1	2-636 ACSR	Steel Lattice Tower & H- Frame Wood Pole	2,308,953		
Amoco to Cherokee	138	382	382	1.3	795 ACSS	Single Steel Pole			
Heights to Choctaw Tap	138	100	102	3.8	636 AAC	Single Wood Pole	2,140,005		
Heights to Northside Tap	138	96	102	2.5	636 AAC	Single Wood Pole	1,407,898		
Terminal to Marathon Oil	138	109	109	0.3	795 ACSR	Single Wood Pole	168,948		
Amoco to Terminal	69	143	192	1.0	795 ACSS	Single Concrete Pole			
Amoco to Grant Ave.	69	100	102	1.0	636 AAC	Single Wood Pole	563,159		
Bayview to Terminal	69	100	102	1.2	636 AAC	Single Concrete Pole & Single Wood Pole	394,212		
Bayview to Texas City Main	69	100	102	1.2	636 AAC	Single Concrete Pole & Single Wood Pole	394,212		
Marathon Oil to Choctaw	69	109	109	0.3	795 ACSR	Single Steel Pole	-		

Choctaw Tap to	69	10	9		109		0.3	79	5 ACSR		Single Steel		-
Choctaw													
Tap to Texas City Main	69	10	0		102		0.5	6	36 AAC	S	Single Wood Pole		281,580
Texas City Main to Northside Tap	69	10	00		102		1.1	6	36 AAC	S	Single Wood Pole		619,475
Northside Tap to Northside	69	4:	3		43		1.8	4	/0 ACSR	S	Single Wood Pole		1,013,687
La Marque- Praxair Tap- Grant Ave.	69	9.	1		91		2.7	6	636 AAC	S	Single Wood Pole		1,520,530
Grant Ave. to ARCO	69	1!	9	43			1.3	4	4/0 ACSR		Single Wood Pole		732,107
Grant Ave. to Liquid Carbonic	69	29	9	62			0.3	3	336 AAC		Single Wood Pole		168,948
Liquid Carbonic to Marathon PL	69	4:	3		43		0.3	4	/0 ACSR	S	Single Wood Pole		168,948
138 kV							15.4						6,588,964
69 kV							13.0						5,856,857
Total Transmi	ssion Miles	< 10 Mile	es				28.4						12,445,821
					0								
INMP Transr		es 10 to	50 MII	es t	rom Coast								Hardening
Line Section	Voltage (kV)	e Li	ne Rati (MVA)	ng	Wire Rati (MVA)	ng	Lengt (Miles	:h \$)	Conducto	or	Construction Type	1	Cost Estimate
ISP to PH Robinson	138		478		663 (200	C) 4.7			2-636 ACSS		Single Concrete Pole		
ISP to	138		478		663 (200	C)	4.5		2-636		Single Concrete Pole & Steel		

Greenbelt

Greenbelt to

Caddo

Caddo to

Apache

Caddo to

Heights 1

Caddo to

Heights 2

717

379

717

717

138

138

138

138

768 (200C)

379

768 (200C)

768 (200C)

ACSS

2-795

ACSS

2-636

ACSR

2-795

ACSS

2-795

ACSS

0.6

0.2

2.1

1.0

Lattice Tower. Single Steel

Pole

Single Steel

Pole

Single Steel

Pole

Single Steel

Pole

Heights to Freeway Park	138	478	768 (200C)	3.1	2-795 ACSS	Single Concrete Pole	
Heights to PH Robinson	138	421	421	9.3	2-636 ACSR	H-Frame Wood Pole	5,237,382
Heights to Northside	138	43	43	3.4	4/0 ACSR	Single Wood Pole	1,914,742
Heights to Texas City Water	138	72	92	0.7	636 AAC	Single Wood Pole	394,212
Freeway Park to Dickinson	138	287	329	6.2	636 ACSS	Single Concrete Pole & Steel Lattice Tower	
Freeway Park to Alvin	138	207	210	17.3	636 ACSR	H-Frame Wood Pole	9,742,656
Freeway Park to PH Robinson	138	287	379	7.2	2-636 ACSR	H-Frame Wood Pole	4,054,747
Dickinson to League City	138	190	190	3.6	636 ACSR	H-Frame Wood Pole	2,027,373
South Shore to League City	138	218	218	4.9	795 ACSR	H-Frame Wood Pole	2,759,481
South Shore to PH Robinson	138	218	218	5.6	795 ACSR	H-Frame Wood Pole	3,153,692
League City to Magnolia	138	210	210	3.6	636 ACSR	H-Frame Wood Pole	2,027,373
Magnolia to Seminole	138	190	190	3.3	636 ACSR	H-Frame Wood Pole	1,858,426
Friendswood to Seminole	138	190	190	2.9	636 ACSR	H-Frame Wood Pole	1,633,162
Friendswood to Hastings	138	190	190	7.3	636 ACSR	H-Frame Wood Pole	4,111,063
Hastings to Alvin	138	190	190	4.0	636 ACSR	H-Frame Wood Pole	2,252,637
West Columbia Main to West Columbia Local	138	190	190	0.8	636 ACSR	H-Frame Wood Pole	450,527
West Columbia Main to Brazoria	138	201	218	9.5	795 ACSR/SD	H-Frame Wood Pole	5,350,013
West Columbia Main to SCLP 1	138	379	379	9.5	2-636 ACSR	Single Steel Pole	5,350,013

West Columbia Main to SCLP 2	138	379	379	9.1	2-636 ACSR	Single Steel Pole	5,124,750
West Columbia- TNMP to West Columbia- CenterPoint 1	138	382	436	0.2	2-795 ACSR	H-Frame Wood Pole	95,737
West Columbia- TNMP to West Columbia- CenterPoint 2	138	382	436	0.2	2-795 ACSR	H-Frame Wood Pole	84,474
West Columbia Local to Angleton	138	201	218	14.1	795 ACSR/SD	H-Frame Wood Pole	7,912,388
Angleton to Brazoria	138	212	218	10.4	795 ACSR/SD	H-Frame Wood Pole	5,873,752
Texas City Water to Intercity	69	72	92	0.8	636 AAC	Single Wood Pole	450,527
Intercity to La Marque	69	72	75	1.3	2-1/0 CU	Single Wood Pole	732,107
La Marque to Carbide	69	43	92	1.2	636 AAC	Single Wood Pole	675,791
Carbide to Linde	69	43	92	0.1	636 AAC	Single Wood Pole	56,316
Brazoria to Dow Pump	69	36	43	2.4	4/0 ACSR	H-Frame Wood Pole	1,351,582
Brazoria to Clemens Tap	69	63	63	0.8	336 ACSR	H-Frame Wood Pole	450,527
Clemens Tap to Clemens	69	63	63	5.3	336 ACSR	Single Wood Pole	2,984,744
Clemens Tap to Sweeney	69	63	63	6.2	336 ACSR	H-Frame Wood Pole	3,491,588
Sweeney to Old Ocean	69	63	63	4.1	336 ACSR	H-Frame Wood Pole	2,308,953
Phillips #2 to Phillips #3	69	190	190	0.3	2-636 ACSR	Single Wood Pole	168,948
Phillips #2 to TNMP Phillips 2	69	143	190	0.2	2-636 ACSR	Single Wood Pole	112,632
Phillips #3 to TNMP Phillips 3	69	79	79	0.1	477 ACSR	Single Wood Pole	28,158

Old Ocean to Hilcorp 1	69	24	43	1.9	4/0 ACSR	Single Wood Pole	1,070,003
Old Ocean to Hilcorp 2	69	24	43	1.8	4/0 ACSR	Single Wood Pole	1,013,687
Old Ocean to TNMP Phillips #5	69	96	218	1.0	2-795 ACSR	H-Frame Wood Pole	563,159
Old Ocean to SPLC Switch	69	143	190	0.9	2-636 ACSR	H-Frame Wood Pole	506,843
TNMP Phillips #5 to TNMP Phillips #2	69	143	190	0.1	2-636 ACSR	Single Steel Pole	
SCLP Switch to TNMP Phillips #2	69	143	190	0.2	2-636 ACSR	Single Steel Pole	
SCLP Switch to TNMP Phillips #3	69	143	190	0.5	2-636 ACSR	Single Steel Pole	
TNP Philp #3 to Philp Origin PL	69	29	43	0.6	4/0 ACSR	Single Wood Pole	337,896
Philp Origin PL to Philp Tank	69	43	43	0.2	4/0 ACSR	Single Wood Pole	112,632
138 kV				149.2			71,408,600
69 kV				30.0			16,416,094
Tota	Total Transmission Miles 10 to 50 Miles						87,824,693
	207.6			100,270,514			