



Control Number: 28980



Item Number: 82

Addendum StartPage: 0

DOCKET NO. 28980

**PETITION OF CENTERPOINT
ENERGY HOUSTON ELECTRIC, LLC
FOR FINDING THAT THE 40%
THRESHOLD UNDER PURA § 39.202(e)
HAS BEEN MET FOR SMALL
COMMERCIAL CUSTOMERS**

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PUBLIC UTILITY COMMISSION

OF TEXAS

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**CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC's
RESPONSE TO
CITY OF HOUSTON'S
FIRST REQUEST FOR INFORMATION**

Contact: James N. Purdue
CenterPoint Energy, Inc.
Telephone: (713) 207-7245
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December 16, 2003

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CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

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CITY OF HOUSTON

- Q.** Please refer to the last paragraph on page 9 of CenterPoint's petition. Does CenterPoint know if Oncor had any GLO customer contracts in its service territory? Also, how did CenterPoint determine that there were no GLO contracts in the AEP service areas?
- A.** From the information presented at the technical conference held on October 9, 2003, it is CenterPoint's understanding that the GLO serves end-use customers as a non-affiliated retail electric provider throughout the state and not just in the CenterPoint service territory. The referenced paragraph culminates a discussion of the need for a Protective Order that would allow a party to classify documents as "Highly Sensitive Protective Materials" and "Highly Sensitive Protected Materials, Category 3." It does not say that the GLO does not have any contracts with *customers* in the AEP service territories, but rather addresses the fact that, unlike RERS, the AEP companies do not have contracts with the GLO such as discussed in the previous paragraph on page 9 of the Petition.

Attachments: None

Sponsor: Harris S. Leven

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

DOCKET NO. 28980

CITY OF HOUSTON

Q. Has CenterPoint, or any of its predecessor companies, conducted load research or analyses to determine power factors for any of its customers? If so, please provide a copy of all such studies, reports, analyses, calculations, computer files, correspondence and other documents related to customer power factor.

A. Yes. See attached.

Attachments: KW vs KVA Demand Metering Study

Sponsor: James N. Purdue



Memorandum

To: J. N. Purdue

October 18, 1999

From: *RWC* R. W. Comfort

Subject: KW vs KVA Demand Metering

In preparation for the distribution rate case and in response to your question, "What would it cost if Reliant Energy HL&P were to meter MGS and LGS distribution customers based on KW demand instead of KVA demand," the following report has been prepared. If you have any questions, please call Richard Moffatt at 76710 or myself at 76616.

RHW RHM/kw vs kva memo 01.doc

Attachment

cc:

R. J. Klapper
C. S. Griffey
D. S. Hardcastle
R. L. Campbell
S. A. Matcek
W. L. Wheeler
T. E. Kiersz
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H. A. Daniels
P. X. Rocha
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A. C. Ahrens

KW vs KVA Demand Metering For MGS and LGS Distribution Customers

Introduction

The question has been asked "What would it cost if Reliant Energy HL&P were to meter MGS and LGS distribution customers based on KW demand instead of KVA demand?" This study develops a methodology to determine that cost. This study will look at the history of KVA demand metering at Reliant Energy HL&P and examine the current state of deregulation and its affect on tariffs. It will also examine the larger issues related to KVAR loading on the transmission system and the power factor requirements for system operation.

Background

Reliant Energy HL&P has traditionally metered and charged customers based on KVA demand since this is indicative of the load that customers present to the distribution and transmission system. A customer with a poor power factor will have a much higher KVA demand on the system for a given amount of power consumed. Even a small decrease in power factor, a drop from 98% to 90%, will result in an increase in KVA demand of 8.89%. See Attachment 1. This is reflected by a higher current flowing through the customer's service transformer and by a higher current flowing on the distribution circuit. As a result, there are increased requirements for distribution facilities, as well as increased line losses and voltage drop. By charging a customer for KVA demand, he will pay for the true impact that he imposes on the system. He will have an incentive to correct his power factor or pay for the higher demand accordingly.

Deregulation

As a result of deregulation, the distribution company (DISCO) is required to establish new tariffs that represent the cost of distribution service, which is separate from the cost of service for the generating companies (GENCO) and the cost of service for the transmission company (TRANSCO). The question becomes, what should those distribution tariffs look like? In the new deregulated world, the cost of service for the DISCO is not dependent upon the amount of energy delivered nor upon the number of customers connected (assuming each customer is charged appropriately for service connections), but is only dependent upon the KVA demand on the distribution system. Several other utilities use KW demand metering, but that does not account for the power factor of the load. At a given voltage, the metering could be simplified to only current metering, since that too represents the impact that the load has on the system. However, the voltage can vary several percent and the power that a customer uses versus what he is charged for could vary widely if the voltage is simply assumed. This could easily be resolved by using VA or KVA metering. Likewise, this same problem holds for KW demand metering if you assume an average power factor. This is resolved by using VA or KVA metering which does not assume a power factor.

VARs

The voltage on the transmission system and its ability to transmit power are directly tied to system power factor and the supply of VARs. As the transmission network is loaded to

increasingly high levels the requirement for VARS increases dramatically. This will become even more true in the future with the increase in power transfers across the transmission grid and with continuing load growth. In the deregulated world, who will provide the VARS? Generators prefer to minimize their VAR output since it reduces the amount of megawatts that they can produce. The transmission system needs VARS to transmit power. A low power factor on the transmission grid can lead to voltage collapse. Likewise, the distribution system is impacted by a poor power factor. Ultimately, the load itself has a certain VAR requirement. It is well known that the most effective place to provide VARS is at the location where they are needed, which is at the load. To depend on the generator or the transmission system to provide VARS for the distribution customer is extremely inefficient since that would have the additional affect of requiring even more VARS for voltage and transfer support, thus compounding the problem.

ISO Requirements

The ISO is looking for a 95% power factor on the high side of each distribution bus on the transmission network. How is that 95% going to be attained? Currently, Reliant Energy HL&P designs its system to maintain at least 98% power factor on the distribution system. This is on the low side of the substation transformer. This will result in at least 95% power factor on the high side of the substation transformer. The PUC rules that went into effect in April, 1999, state "if the eligible transmission customer is responsible for serving wholesale load, it shall maintain a power factor of 95% or greater at each point of interconnection." This specifically exempts retail transmission customers from a power factor requirement while applying the requirement to distribution companies. Who is going to provide the VARS that are required to maintain this power factor on the distribution system? There will need to be an accounting of these VARS and someone will need to pay for them. These issues are yet to be resolved. However, these issues have a significant impact on the DISCO tariff design.

LGS Power Factor Study

There are 1598 LGS customers which comprise a total peak load of 2,412,528 KVA. This compares to a total peak load for the entire distribution system of approximately 11,565,000 KVA in 1998. As shown in Attachment 2, these customers have been subdivided into 6 groups based on size. The power factor for these groups runs from 92.8% to 95.6%, with an overall average power factor of 93.3%. These values are based on the max single high peak demand value for each of the 1598 LGS customers. This LGS power factor has been established after many years of KVA demand metering by Reliant Energy HL&P. As a result, the vast majority of LGS customers have installed capacitors to improve their power factor. If KW demand metering were instituted, these customers would no longer have any incentive to install or maintain capacitors for power factor correction and their power factor would deteriorate over time. To determine the uncorrected power factor of these customers, an investigation of a test group was undertaken. As shown in Attachment 3, a sampling of LGS customers was established to get a variety of sizes, types (grocery, retail, office/hotel, hospital, manufacturing, research), and power factors. These customers were visited to identify the amount of capacitors, if any, that they had installed in their facilities. The test group currently has a corrected power factor of 93.4%, which closely matches the power factor of the entire LGS class. As the field check verified, the majority of the customers had capacitors, in all shapes and sizes. Based on

the nameplate ratings of the capacitors, the uncorrected KVAR and uncorrected KVA for each customer was calculated. As a group, the uncorrected power factor decreases to 78.4%. Individually, the uncorrected power factor for the test group ranges from 60.1% to 90.3%.

LGS Cost Analysis

The cost analysis is based on the installation of distribution line capacitors on both 12KV and 35 KV circuits to correct the uncorrected power factor for the LGS class to 93.3%. As shown on Attachment 4, this is done for an entire range of uncorrected power factors. The construction assumes: 1) using new poles for 1/3 of the installations and existing poles for 2/3 of the installations, 2) using a time clock as a control for each bank (some sort of control will be needed), 3) that half the KVARs at 12KV are supplied by 1200 KVAR banks and half by 600 KVAR banks, 4) that half the KVARs at 35KV are supplied by 1800 KVAR banks and half by 900 KVA banks, and 5) that 63.7% of the system is 12KV and 36.3% of the system is 35KV. Assuming an uncorrected power factor of 77.3%, 979,107 KVAR of capacitors would be required at a cost of \$6,634,089. Since these are all overhead capacitor banks, underground circuits would require additional consideration. At present, there are no capacitors on the underground circuits located in Downtown or in the Medical Center. The power factor on these circuits is solely dependent upon the capacitors installed by the customers. If the customers no longer put in capacitors, then the underground circuits would definitely need additional capacitors. To account for the added expense of capacitors installed in underground vaults, an additional 10% should be added to the base cost. This assumes that there is enough space in enough vaults to hold the needed capacitors for the underground circuits. This would bring the total to \$7,297,497.

MGS Power Factor Study & Cost Analysis

As shown in Attachment 5, there are 623 MGS customers that have TMI tape meters as opposed to thermal demand meters. This group has a similar power factor profile as the LGS class. Therefore, the uncorrected power factor for the MGS class is assumed to be similar to the LGS class. A summary of all the MGS customers is shown in Attachment 6. There are a total of 194,399 MGS customers, which comprise a total load of 6,826,131 KVA. Using the same process that was used on the LGS class and assuming similar values for corrected and uncorrected power factor (93.4% and 77.4% respectively for MGS vs 93.3% and 77.3% for LGS), the MGS class will require capacitor installations to correct for 2,776,895 KVARs at a cost of \$18,815,280. See Attachment 7. No adder is required for underground circuits, since the majority of the load on underground circuits is LGS.

Capital Investment

The amount of capacitor construction that is needed is significant. For the LGS class, approximately 979 MVARs of capacitors will be needed and for the MGS class, approximately 2,777 MVARs of capacitor will be needed for a total of 3,756 MVARs. This is about the same as the amount of capacitors that are presently installed on the distribution system, which is approximately 3,785 MVARs. This is plausible since the MGS and LGS classes together comprise about 79% of the total distribution load. The costs that were calculated above are for

the initial capital cost of installation. The power factor for these customer classes would not deteriorate immediately, but rather a period of time, probably 4 to 5 years, so the capital costs would need to be spread over that time period, with an appropriate adder for inflation. Also, they do not include maintenance or depreciation.

Conclusion

This study has calculated a cost for power factor correction based on an average uncorrected power factor for LGS and MGS customers. The cost for LGS customers is \$7,297,497 and the cost for MGS customers is \$18,815,280, for a total of \$26,112,777. Some customers will have a power factor that is worse than the average and some better. This study assumes that the only mitigation that is required is the installation of distribution system capacitors. A consideration for larger service transformers has not been included. Also, the issue of meter cost has not been addressed. For LGS customers, this is not an issue since the existing TMI meters can measure both KW and KVA demand. However, all existing MGS meters measure KVA demand and would have to be changed to accommodate KW metering. That is approximately 194,399 meters. As discussed in this report, there are important factors to consider in the operation of both the electric distribution system and the transmission system. The design of the DISCO tariff needs to take these factors into consideration.

RHM / Oct 18, 1999 / KW vs KVA Metering 02a.doc

What is the effect on KVA demand when the power factor decreases?

	Power Factor Changes		Increase In KVA	Corrected				Uncorrected			
	From	To		KVA	KW	PF	Kvar	New KVA	KW	PF	Kvar
Test 1	0.980	0.900	8.89%	1000.0	980	0.980	199.0	1088.9	980	0.900	474.6
Test 2	0.980	0.850	15.29%	1000.0	980	0.980	199.0	1152.9	980	0.850	607.3
Test 3	0.933	0.773	20.70%	1050.4	980	0.933	378.0	1267.8	980	0.773	804.3
Test 4	0.980	0.773	26.78%	1000.0	980	0.980	199.0	1267.8	980	0.773	804.3

There is a dramatic increase in demand on the system.

Power Factors for LGS Rate Class - Summary

(Max single high peak)

KVA Range	Average Power Factor	Total KVA	No. of Accounts
400 - 1,000	0.932	475,954	706
1,000 - 1,500	0.928	408,874	367
1,500 - 2,000	0.924	270,968	169
2,000 - 5,000	0.929	813,123	296
5,000 - 10,000	0.951	309,670	50
10,000 +	0.956	133,939	10
Total	0.933	2,412,528	1598

lgs02.xls

Attachment 2

Sampling of LGS Customers

pf analysis 02.xls

Customer	Address	Type	Corrected				Uncorrected				
			KVA	KW	PF	Kvar	Caps	New Kvar	New KVA	New PF	KW
Rice	3102 Kirby	Grocery	561	482	0.859	287.0	0	287.0	561.0	0.859	482
Kmart	1431 W 20th	Retail	527	518	0.979	107.1	189	298.1	594.9	0.987	518
Bally's	2500 Dunstan	Other	531	520	0.979	107.5	140	247.5	575.9	0.903	520
Target	4323 San Felipe	Retail	581	559	0.962	158.4	180	338.4	653.4	0.955	559
Womens Hosp	7550 Fannin	Hospital	657	568	0.861	333.8	420	753.8	942.5	0.801	568
Huntingdon	2101 Kirby	Office, Hotel, Etc	850	770	0.811	558.4	0	558.4	850.0	0.811	770
Randalls	3131 W. Holcombe	Grocery	802	793	0.989	119.8	460	579.8	882.4	0.807	793
Interm Bank of Corn	5615 Kirby	Office, Hotel, Etc	900	863	0.959	255.4	270	525.4	1010.4	0.854	863
Tx A&M University	2121 W. Holcombe	Other	1096	941	0.859	561.9	0	561.9	1096.0	0.859	941
Fiesta Mart #11	4711 Airline	Grocery	1023	988	0.968	265.3	360	625.3	1169.3	0.845	988
Better Bags	6419 Toledo	Manufacturing	1110	1058	0.953	335.8	600	935.8	1412.4	0.749	1058
UT Health Science	6516 John Freeman	Hospital	1096	1078	0.984	197.8	640	837.8	1365.3	0.780	1078
Dillards #777	16517 SW Frwy	Retail	1239	1181	0.953	374.8	250	624.8	1338.0	0.884	1181
Harris Co Hosp Dist	2525 Hollyhall St	Hospital	1429	1241	0.868	708.5	0	708.5	1429.0	0.868	1241
Hyatt Regency Hotel	611 Clay	Office, Hotel, Etc	1534	1484	0.954	458.1	467.5	825.6	1732.1	0.845	1484
Houston Coca Cola	2800 Bissonnet	Manufacturing	2209	2078	0.940	754.9	2250	3004.9	3652.3	0.588	2078
Goodman Mfg	1501 Seaniest	Manufacturing	3381	2825	0.838	1857.8	1050	2907.8	4054.0	0.697	2825
Univ of Texas Cancer Ct	7777 Knight	Research	2968	2898	0.977	631.5	1200	1831.5	3428.2	0.845	2898
Univ Of Texas System	6723 Berther	Hospital	4544	4218	0.928	1690.1	1800	3490.1	5474.7	0.770	4218
FC Tower Property Part	1001 Fannin	Office, Hotel, Etc	6282	6172	0.982	1170.4	2925	4095.4	7407.2	0.833	6172
Subtotal			33418.0	31209.0	0.934	10931.8			39828.9	0.784	31209.0

Attachment 3

Cost Analysis For The Installation of Distribution Capacitors To Correct Power Factor For LGS Customers

						0.637	\$7.14	0.363	\$6.13	
	KVA	KW	PF	Kvar	Diff	12KV	12KV Caps	35KV	35KV Caps	Total
Existing	2,412,528	2,250,889	0.933	868,212						
Future	2,702,147	2,250,889	0.833	1,495,025	626,813	399,280	\$2,852,675	227,533	\$1,394,395	\$4,247,069
	2,734,980	2,250,889	0.823	1,553,582	685,370	436,581	\$3,119,171	248,789	\$1,524,559	\$4,643,830
	2,768,621	2,250,889	0.813	1,612,067	743,855	473,836	\$3,385,343	270,020	\$1,654,764	\$5,040,107
	2,803,099	2,250,889	0.803	1,670,588	802,376	511,114	\$3,651,676	291,263	\$1,784,949	\$5,436,625
	2,838,447	2,250,889	0.793	1,729,243	861,032	548,477	\$3,918,620	312,554	\$1,915,432	\$5,834,052
	2,874,698	2,250,889	0.783	1,788,125	919,913	585,984	\$4,186,593	333,928	\$2,046,418	\$6,233,011
	2,911,887	2,250,889	0.773	1,847,319	979,107	623,691	\$4,455,989	355,416	\$2,178,099	\$6,634,089
	2,950,051	2,250,889	0.763	1,906,908	1,038,696	661,650	\$4,727,186	377,047	\$2,310,661	\$7,037,847
	2,989,228	2,250,889	0.753	1,966,973	1,098,761	699,911	\$5,000,547	398,850	\$2,444,281	\$7,444,827
	3,029,460	2,250,889	0.743	2,027,591	1,159,380	738,525	\$5,276,424	420,855	\$2,579,130	\$7,855,555
	3,070,789	2,250,889	0.733	2,088,839	1,220,627	777,539	\$5,555,166	443,088	\$2,715,380	\$8,270,546

These costs are for the capital installation of distribution capacitors to improve the power factor to 0.933.

Assumes using existing poles for 2/3 of the installations and new poles for 1/3 of the installations.

Assumes time clock with each cap bank.

Assumes that half of the Kvars at 12KV are supplied by 1200 KVAR banks and half by 600 KVAR banks.

Assumes that half of the Kvars at 35KV are supplied by 1800 KVAR banks and half by 900 KVAR banks.

Assumes that 63.7% of the system is 12KV and 36.3% of the system is 35KV.

Assumes 21% D100 overhead.

Assumes overhead cap banks.

Underground circuits in the Downtown and Medical Center Area may require additional consideration.

pf analysis 01.xls

Attachment 4

Power Factors for MGS Rate Class - TMI Meters Only

KVA Range	Total KVA	Total KW	Average Power Factor	No. of Customers
0 - 50	148	120	80.9	6
50 - 200	4,570	3,992	87.3	35
200 - 400	23,904	22,091	92.4	79
400 - 1000	247,830	233,633	94.3	377
1000+	250,802	232,682	92.8	126
Total	527,254	492,518	93.4	623

MGS PF - TMI only 01.xls

Attachment 5

Power Factors For MGS Rate Class - Summary

KVA RANGE	TOTAL KVA	TOTAL KWh	NO. OF ACCTS
0-50	1,445,533	3,962,808,408	167,451
51-100	952,102	2,445,251,150	13,463
101-150	564,686	1,494,894,811	4,572
151-200	403,834	1,075,913,311	2,325
201-250	347,333	926,178,992	1,548
251-300	299,259	848,283,799	1,083
301-350	231,893	674,016,216	714
351-400	221,159	654,927,344	590
401-450	234,072	732,457,876	553
451-500	214,275	650,318,013	449
501-550	170,523	505,880,102	324
551-600	162,542	499,078,626	282
601-650	127,313	358,889,833	204
651-700	115,239	326,065,654	171
701-750	86,915	236,907,623	120
751-800	82,200	205,631,782	106
801-850	54,357	143,664,744	66
851-900	74,567	183,084,190	85
901-950	33,260	88,402,336	36
951-1000	44,775	111,968,121	46
1001-2000	222,275	481,165,550	173
2001+	738,019	157,044,327	38
Total	6,826,131	16,762,632,808	194,399

MGS PF - Summary 01.xls

Attachment 6

Cost Analysis For The Installation of Distribution Capacitors To Correct Power Factor For MGS Customers

	KVA	KW	PF	Kvar	Diff	12KV	12KV Caps	35KV	35KV Caps	Total
Existing	6,826,131	6,375,606	0.934	2,438,792						
Future	7,644,612	6,375,606	0.834	4,218,025	1,779,233	1,133,371	\$8,097,423	645,861	\$3,958,042	\$12,055,465
	7,737,386	6,375,606	0.824	4,383,924	1,945,132	1,239,049	\$8,852,442	706,083	\$4,327,097	\$13,179,540
	7,832,440	6,375,606	0.814	4,549,589	2,110,797	1,344,578	\$9,606,397	766,219	\$4,695,633	\$14,302,030
	7,929,859	6,375,606	0.804	4,715,326	2,276,534	1,450,152	\$10,360,678	826,382	\$5,064,327	\$15,425,005
	8,029,731	6,375,606	0.794	4,881,416	2,442,624	1,555,951	\$11,116,565	886,672	\$5,433,807	\$16,550,372
	8,132,151	6,375,606	0.784	5,048,121	2,609,328	1,662,142	\$11,875,251	947,186	\$5,804,654	\$17,679,905
	8,237,218	6,375,606	0.774	5,215,687	2,776,895	1,768,882	\$12,637,860	1,008,013	\$6,177,420	\$18,815,280
	8,345,034	6,375,606	0.764	5,384,352	2,945,559	1,876,321	\$13,405,464	1,069,238	\$6,552,627	\$19,958,091
	8,455,711	6,375,606	0.754	5,554,340	3,115,548	1,984,604	\$14,179,095	1,130,944	\$6,930,780	\$21,109,875
	8,569,363	6,375,606	0.744	5,725,874	3,287,082	2,093,871	\$14,959,757	1,193,211	\$7,312,369	\$22,272,126
	8,686,112	6,375,606	0.734	5,899,168	3,460,376	2,204,260	\$15,748,434	1,256,117	\$7,697,876	\$23,446,310

These costs are for the capital installation of distribution capacitors to improve the power factor to 0.934.
 Assumes using existing poles for 2/3 of the installations and new poles for 1/3 of the installations.
 Assumes time clock with each cap bank
 Assumes that half of the Kvars at 12KV are supplied by 1200 KVAR banks and half by 600 KVAR banks.
 Assumes that half of the Kvars at 35KV are supplied by 1800 KVAR banks and half by 900 KVAR banks.
 Assumes that 63.7% of the system is 12KV and 36.3% of the system is 35KV.
 Assumes 21% D100 overhead.
 Assumes overhead cap banks.
 Underground circuits in the Downtown and Medical Center Area do not require any additional consideration for MGS customers.

pf analysis 03.xls

Attachment 7

15

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC**DOCKET NO. 28980****CITY OF HOUSTON**

Q. Does CenterPoint, or any of its predecessor companies, have customer metering that measures two of the following three amounts: (1) kW, (2) kVa, or (3) RkVa. If so, provide the meter readings for the most recent 12 months.

A. Yes, CenterPoint's IDR meters measure kW and RkVa.
For each ESI ID the highest 15 minute interval kVa and Power Factor, calculated from the metered kW and RkVa, is retained in CenterPoint's billing system each month. The monthly peak kVA and Power Factor is voluminous and confidential and has been provided for each ESI ID with an IDR meter in electronic form to the propounding party.
The average monthly Power Factor, based on the highest 15 minute kVa interval for each IDR metered customer, is summarized below.

<u>Month</u>	<u>Average Monthly Power Factor</u>
January	92.0
February	92.1
March	92.0
April	91.3
May	90.6
June	90.4
July	89.9
August	89.9
September	89.9
October	90.2
November	90.5
December	91.4

Attachments: None

Sponsor: James N. Purdue

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

DOCKET NO. 28980

CITY OF HOUSTON

- Q.** What is the basis for the 90% average power factor assumption used by CenterPoint in its threshold calculations? Provide a copy of all studies, analyses, correspondence, industry standards, or other documents relied upon in determining the 90% power factor assumption.
- A.** The 90% power factor assumption is based in part on the study provided in response to COH1-2 and analysis CenterPoint Energy performed in the late 1960's and early 1970's regarding Power Factor for which the reports are no longer available. Additionally, ERCOT is using a 90% Power Factor for the profiling/settlement of ESI Ids on Centerpoint Energy's delivery system.

Attachments: None

Sponsor: James N. Purdue

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

DOCKET NO. 28980

CITY OF HOUSTON

Q. Please provide a copy of all contracts between Texas Genco and the GLO.

A. See attached.

Attachments:

1. Assignment of Easements
2. ME870072 – Fuel and natural gas easement across Clear Creek
3. ME870073 – Fuel and natural gas easement across Robinson Bayou
4. LC93019 – Easement at PH Robinson
5. ME960003 – Easement at WA Parish

Sponsor: James N. Purdue

DKT 28980
ATTACHMENT 1

BAKER BOTTS LLP

ONE SHELL PLAZA
910 LOUISIANA
HOUSTON, TEXAS
77002-4995
713.229.1234
FAX 713.229.1522

AUSTIN
BAKU
DALLAS
HOUSTON
LONDON
NEW YORK
RIYADH
WASHINGTON

January 15, 2003

CENTERPOINT ENERGY HOUSTON ELECTRIC
(Mortgage Property Description)
001747.4066

Writer's Direct Information
TEL: 713.229-8213
FAX 713.229-1522

Via Courier

Janice Morris
Texas Genco, LP
12301 Kurland Dr.
Houston, Texas 77034

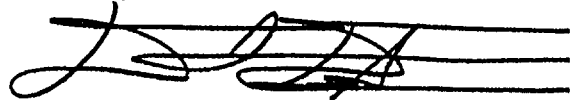
Re: Assignment and Assumption Agreement for Miscellaneous Land Office
Easements Nos. ME870072, ME870073, ME960003 and Commercial
Lease LC930019

Dear Ms. Morris:

Enclosed, please find the Assignment and Assumption Agreement to and the related correspondence regarding the easements that Texas Genco, LP has with the Texas General Land Office.

As always, feel free to call Laura Medina or myself should you need anything further. Laura's direct extension is 713-229-1667 and mine is 713-225-8213.

Sincerely,



Dean J. Donarumo
Legal Assistant Clerk

cc: Ted Long (with enclosures)
Laura Medina (without enclosures)
Greg N. Martin (without enclosures)
Stacey Tilley (without enclosures)

RECEIVED

JAN 15 2003

ENVIRONMENTAL UNIT

20

Upon Recordation, please return to:

Laura Medina rm 3027
 Baker Botts L.L.P.
 910 Louisiana
 Houston, TX 77002-4995

The State of Texas



Austin, Texas

ASSIGNMENT AND ASSUMPTION AGREEMENT

STATE OF TEXAS

§

§ KNOW ALL BY THESE PRESENTS:

COUNTIES OF FORT BEND, HARRIS & GALVESTON

§

WHEREAS, the State of Texas, acting by and through the Commissioner of the General Land Office, on behalf of the Permanent School Fund (the "Grantor"), granted to Houston Lighting & Power Company, who through a succession of name changes and mergers is now known as CenterPoint Energy Houston Electric, LLC, a Texas limited liability company, herein called "Assignor", the right to use certain real property located in Fort Bend, Harris and Galveston Counties, Texas, and more particularly described in Exhibit 1 (the "Premises"), reference being here made to the Easements for all purposes; and

WHEREAS, Assignor desires to assign its interest as "Grantee" under the aforesaid Easements to Texas Genco, LP, a Texas limited partnership, hereinafter referred to as "Assignee", and Assignee agrees to such assignment and shall assume the duties of Grantee under the Easements;

NOW, THEREFORE, in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Assignor hereby sells, assigns and transfers unto Assignee, to have and to hold, all of Assignor's interest in and to the Easements for the remainder of the Easements term (the "Assignment Period"), effective August 31, 2002, (the "Effective Date").
2. As of the Effective Date, Assignee hereby accepts this Assignment and assumes and agrees to perform the covenants, duties and obligations of "Grantee" pursuant to the Easements; and Assignee shall be fully liable for the performance of such covenants, duties and obligations. It is agreed that the liability of Assignor and Assignee is joint and several and may be enforced against either Assignee or Assignor without any notice to, demand upon, proceeding against or judgment against the other.
3. ASSIGNEE HAS INSPECTED THE PHYSICAL AND TOPOGRAPHIC CONDITION OF THE PREMISES (INCLUDING THE IMPROVEMENTS LOCATED THEREON, IF ANY) AND ACCEPTS SAME "AS IS" IN ITS EXISTING PHYSICAL AND TOPOGRAPHIC CONDITION. AS A MATERIAL PART OF THE CONSIDERATION FOR THIS ASSIGNMENT, ASSIGNEE AND THE GRANTOR AGREE THAT ASSIGNEE IS TAKING THE PREMISES "AS IS" WITH ANY AND ALL LATENT AND PATENT DEFECTS AND THAT THERE IS NO WARRANTY BY THE GRANTOR THAT THE PREMISES ARE FIT FOR A PARTICULAR PURPOSE. ASSIGNEE ACKNOWLEDGES THAT IT IS NOT RELYING UPON ANY REPRESENTATION, STATEMENT OR OTHER ASSERTION BY THE GRANTOR WITH RESPECT TO THE PREMISES' CONDITION, BUT IS RELYING UPON ITS EXAMINATION OF THE PREMISES. ASSIGNEE TAKES THE PREMISES WITH THE EXPRESS UNDERSTANDING THAT THERE ARE NO EXPRESS OR IMPLIED WARRANTIES, AND THE GRANTOR DISCLAIMS ANY AND ALL WARRANTIES OF

HABITABILITY, MERCHANTABILITY, SUITABILITY, FITNESS FOR ANY PURPOSE, AND ANY OTHER WARRANTY WHATSOEVER NOT EXPRESSLY SET FORTH IN THESE EASEMENTS. THE GRANTOR AND ASSIGNEE HEREBY AGREE AND ACKNOWLEDGE THAT THE USE OF THE TERMS "GRANT" AND/OR "CONVEY" IN NO WAY IMPLIES THAT THESE EASEMENTS ARE FREE OF LIENS, ENCUMBRANCES AND/OR PRIOR RIGHTS. ASSIGNEE IS HEREBY PUT ON NOTICE THAT ANY PRIOR GRANT AND/OR ENCUMBRANCE MAY BE OF RECORD AND ASSIGNEE IS ADVISED TO EXAMINE THE RECORDS IN THE ARCHIVES AND RECORDS DIVISION OF THE GENERAL LAND OFFICE, 1700 NORTH CONGRESS AVENUE, AUSTIN, TEXAS 78701-1495, AND ALL OTHER LAND TITLE RECORDS OF THE COUNTY IN WHICH THE PREMISES ARE LOCATED.

4. THE GRANTOR HEREBY CONSENTS TO THIS ASSIGNMENT WITH THE EXPRESS UNDERSTANDING THAT THIS ASSIGNMENT SHALL NOT RELIEVE ASSIGNOR OF LIABILITY FOR THE PERFORMANCE OF THE COVENANTS, DUTIES AND OBLIGATIONS OF GRANTEE UNDER SAID EASEMENTS, INCLUDING LIABILITY FOR THE FULL AMOUNT OF RENTAL AND ANY ADDITIONAL CONSIDERATION, PROVIDED TO BE PAID BY GRANTEE TO THE GRANTOR PURSUANT TO SAID EASEMENTS, AND SUCH LIABILITY SHALL CONTINUE REGARDLESS OF FURTHER ASSIGNMENTS OR TRANSFERS OF THE EASEMENTS, WHETHER OR NOT ASSIGNOR RECEIVED NOTICE OR CONSENTED TO FURTHER ASSIGNMENTS OR TRANSFERS. HOWEVER, ANY SUM PAID BY ASSIGNEE TO THE GRANTOR SHALL BE CREDITED TO ASSIGNOR FOR THE AFORESAID OBLIGATIONS.

5. If Assignor has sold, or sells, to Assignee any property that the Grantor has a statutory landlord's lien on or that the Grantor was granted an express contractual lien and security interest in under the Easements, then it is hereby agreed that liens and security interests held by the Grantor shall be prior and superior to any lien or security interest of Assignor until such time as all of the covenants, duties and obligations of Grantee under the Easements have been fully performed.

6. Assignor hereby releases and relinquishes any and all claims to any sum paid to the Grantor with respect to the Premises, whether as rent, future rent, or other consideration. Assignor acknowledges and agrees that the Grantor has fully performed all of its covenants, duties and obligations accruing under the Easements and does hereby release the Grantor from any and all claims for non-performance.

7. Assignor will, promptly upon execution of this instrument, pay to the Grantor the sum of Two Hundred and NO/100 Dollars (\$200.00) as an Assignment Fee if not submitted previously.

8. Any notice to be given under the terms of the Easements or this Assignment shall be in writing and shall either be delivered by hand or sent by U. S. Registered or Certified Mail, adequate postage prepaid, if for the Grantor, to it at the Notice Address stated in the Easements; if for Assignee, to it at P.O. Box 61867, Houston, Texas 77208-1867. Either party's address may be changed from time to time by such party by giving notice as provided above, except that the Premises may not be used by Assignee as the notice address. No change of address of either party shall be binding on the other party until notice of such change of address is given as herein provided. A post office receipt for registration of such notice or signed return receipt shall be conclusive that such notice was delivered in due course of mail if mailed as provided above.

9. Except as otherwise specifically provided herein, all of the terms and provisions of the Easements shall remain in full force and effect during the Assignment Period. All defined terms used herein shall have the same meaning as when used in the Easements unless otherwise indicated herein.

10. In the event any provision of this Agreement is more restrictive than any administrative rule promulgated by the General Land Office, this Agreement shall control.

EXECUTED in multiple counterparts, each of which shall have the effect of an original.

Assignor: CenterPoint Energy Houston Electric, LLC

[Signature]
Authorized Signature for Current Easements Holder

Rufus S. Scott

Printed Name

Vice President

Title

November 12, 2002

Date of Signature

ACKNOWLEDGMENT

STATE OF TEXAS

COUNTY OF HARRIS

This instrument was acknowledged before me on the 12th day of November, 2002, by

Rufus S. Scott, Vice President of CenterPoint Energy Houston Electric, LLC
(Title) (Company Name)

a Texas limited liability company, on behalf of the limited liability company
(State) (Business entity type) (Business entity type)



ROSE SHIELDS
NOTARY PUBLIC, STATE OF TEXAS
MY COMMISSION EXPIRES
JAN. 19, 2003

Rose Shields
Notary Public, State of Texas

My commission expires: 01/19/03

Assignee: Texas Genco, LP

[Signature]
Authorized Signature for New Easements Holder

By: Texas Genco GP, LLC, its General Partner

Rufus S. Scott

Printed Name

Vice President

Title

November 12, 2002

Date of Signature

ACKNOWLEDGMENT

STATE OF TEXAS

COUNTY OF HARRIS

This instrument was acknowledged before me on the 12th day of November, 2002, by

Rufus S. Scott, Vice President of Texas Genco GP, LLC a Texas limited liability company,
(Title) (Company Name)

as General Partner of Texas Genco, LP,
a Texas limited partnership, on behalf of the limited liability company and limited partnership.
(State) (Business entity type) (Business entity type)



ROSE SHIELDS
NOTARY PUBLIC, STATE OF TEXAS
MY COMMISSION EXPIRES
JAN. 19, 2003

Rose Shields
Notary Public, State of Texas

My commission expires: 01/19/03

THE UNDERSIGNED, as Grantor in the above-described Easements, subject to the conditions stated in Paragraph 4 above, does hereby consent to the assignment of the said instrument as specified above.

IN TESTIMONY WHEREOF, witness my hand and Seal of Office.

GRANTOR:
THE STATE OF TEXAS

By: David Dewhurst
David Dewhurst
Commissioner, General Land Office

Date: 11-24-2002

APPROVED:

Contents: TW

Legal: DAI

Deputy: W

Executive: CS

Exhibit 1

List of Easements

Assigned to Texas Genco, LP
by CenterPoint Energy Houston Electric, LLC
per Agreements effective August 31, 2002

The Easements are summarized as follows:

<u>State Archive File No.</u>	<u>County</u>
ME870072	Galveston and Harris
ME870073	Galveston
ME960003	Fort Bend
LC930019	Galveston

Ret.
can Donarumo 3103D
Bater Botts L.L.P.
Le Shell Plaza
10 Louisiana
DUSTON TX
77002-4995

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Dianne Wilson

2002 DEC 04 04:31 PM 2002133017
AN \$15.00
DIANNE WILSON, COUNTY CLERK
FORT BEND COUNTY, TEXAS

DKT 28980
ATTACHMENT 2

The State of Texas



Austin, Texas

EXTENSION OF EASEMENT

Extension of Miscellaneous Easement ME870072

STATE OF TEXAS

COUNTY(IES) OF GALVESTON AND HARRIS

This is an extension of Miscellaneous Easement ME870072 and any amendments thereto (collectively, the Easement), in which the State of Texas, acting by and through Garry Mauro, Commissioner of the Texas General Land Office (Grantor), granted certain rights to Houston Lighting & Power Company whose address is P. O. Box 1700, Houston, TX 77251-1700 (as "Grantee") for the construction, operation and maintenance of structures on State-owned lands, described as follows:

A 50-foot-wide right-of-way for one (1) 12.75 inch O.D. pipeline for the purpose of transporting fuel oil and natural gas on or across , Clear Creek, Galveston and Harris County(ies), Texas.

WHEREAS, Grantor has reviewed the information contained in the official Archives and Records Division file for Miscellaneous Easement ME870072 and such review indicates that Grantee has complied with material terms and conditions of the Easement; and

WHEREAS, the Easement has been automatically extended and renewed pursuant to Section 4 contained therein;

NOW, THEREFORE, Grantor and Grantee agree as follows:

1. The Easement term is extended for a period of ten (10) years, beginning on August 1, 1997, and ending on August 1, 2007.
2. The consideration for the extension of the Easement is Two Hundred Fifty And 00/100 Dollars (\$250.00).
3. Subsequent extensions of the Easement are not automatic and will be subject to the rules and policies of the General Land Office in effect at the time of Grantee's application for a Miscellaneous Easement, including, without limitation, use of the then standard easement form.
4. Grantee is responsible for recording this Extension of Easement with the Galveston and Harris County Clerk's Office and providing proof of said recording to Grantor within sixty (60) days from the date this extension is signed by the Commissioner of the Texas General Land Office.

5. Nothing set forth herein constitutes a waiver of Grantor's rights under the Easement in the event Grantee has materially defaulted thereunder.
6. The Easement prohibits assignment, sublease or any other transfer without the prior written consent of Grantor.
7. Except as amended or modified herein, all terms and conditions of the Easement remain in full force and effect.

IN TESTIMONY WHEREOF, witness my hand and the Seal of the Texas General Land Office, effective August 1, 1997.

THE STATE OF TEXAS

By:

Garry Mauro

GARRY MAURO

Commissioner, Texas General Land Office

APPROVED:

Contents:

Dep. Comm:

Sr. Deputy:

Executive:

Km
GP
SR

Date:

July 2, 1997

HOUSTON LIGHTING & POWER COMPANY

By:

James C. Hoskins
(Signature)

JAMES C. Hoskins
(Print Name)

Manager / land & R.O.W. Div.
(Title)

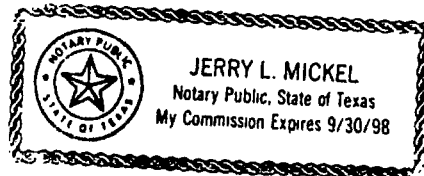
JUNE 20, 1997
(Date)

This Extension of Easement was acknowledged before me this 20th day of June, 1997, by JAMES C. Hoskins on behalf of Houston Lighting & Power Company.

Jerry L. Mickel
Notary Public in and for the State of Texas

JERRY L. MICKEL
(Print Name)

My commission expires on 9/30/98



DKT 28980
ATTACHMENT 3

The State of Texas



Austin, Texas

EXTENSION OF EASEMENT

Extension of Miscellaneous Easement ME870073

STATE OF TEXAS

COUNTY(IES) OF GALVESTON

This is an extension of Miscellaneous Easement ME870073 and any amendments thereto (collectively, the Easement), in which the State of Texas, acting by and through Garry Mauro, Commissioner of the Texas General Land Office (Grantor), granted certain rights to Houston Lighting & Power Company whose address is P. O. Box 1700, Houston, TX 77251-1700 (as "Grantee") for the construction, operation and maintenance of structures on State-owned lands, described as follows:

A 50-foot-wide right-of-way for one (1) 12.75 inch O.D. pipeline for the purpose of transporting fuel oil and gas on or across, Robinson Bayou, Galveston County(ies), Texas.

WHEREAS, Grantor has reviewed the information contained in the official Archives and Records Division file for Miscellaneous Easement ME870073 and such review indicates that Grantee has complied with material terms and conditions of the Easement; and

WHEREAS, the Easement has been automatically extended and renewed pursuant to Section 4 contained therein;

NOW, THEREFORE, Grantor and Grantee agree as follows:

1. The Easement term is extended for a period of ten (10) years, beginning on August 1, 1997, and ending on August 1, 2007.
2. The consideration for the extension of the Easement is Two Hundred Fifty And 00/100 Dollars (\$250.00).
3. Subsequent extensions of the Easement are not automatic and will be subject to the rules and policies of the General Land Office in effect at the time of Grantee's application for a Miscellaneous Easement, including, without limitation, use of the then standard easement form.
4. Grantee is responsible for recording this Extension of Easement with the Galveston County Clerk's Office and providing proof of said recording to Grantor within sixty (60) days from the date this extension is signed by the Commissioner of the Texas General Land Office.

5. Nothing set forth herein constitutes a waiver of Grantor's rights under the Easement in the event Grantee has materially defaulted thereunder.
6. The Easement prohibits assignment, sublease or any other transfer without the prior written consent of Grantor.
7. Except as amended or modified herein, all terms and conditions of the Easement remain in full force and effect.

IN TESTIMONY WHEREOF, witness my hand and the Seal of the Texas General Land Office, effective August 1, 1997.

THE STATE OF TEXAS

By:

Garry Mauro
GARRY MAURO
Commissioner, Texas General Land Office

APPROVED:

Contents:

Dep. Comm:

Sr. Deputy:

Executive:

Date:

July 2, 1997

HOUSTON LIGHTING & POWER COMPANY

By:

James C. Hoskins II
(Signature)

JAMES C. HOSKINS II
(Print Name)

MANAGER / LAND & R.O.W. Div.
(Title)

JUNE 20, 1997
(Date)

This Extension of Easement was acknowledged before me this 20th day of June, 1997, by JAMES C. HOSKINS II on behalf of Houston Lighting & Power Company.

Jerry L. Mickel
Notary Public in and for the State of Texas

JERRY L. MICKEL
(Print Name)

My commission expires on 9/30/98



DKT 28980
ATTACHMENT 4

The State of Texas



Austin, Texas

COASTAL EASEMENT

NO. LC-93-019

(Formerly CE-86-171)

STATE OF TEXAS

§

KNOW ALL BY THESE PRESENTS:

COUNTY OF GALVESTON

§

§

This Coastal Easement (hereinafter the "Easement") is granted by virtue of the authority granted by Chapter 33, TEX. NAT. RES. CODE, V.C.T.A., and all amendments thereto; 31 Texas Administrative Code Chapters 1 and 155 and all amendments thereto; and subject to all rules and regulations promulgated by the Commissioner of the Texas General Land Office and/or the School Land Board pursuant thereto and all other applicable statutes.

Article I. Premises

Section 1.01. In consideration of the mutual covenants and agreements set forth in this Easement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the School Land Board of the State of Texas ("Grantor") does hereby grant to **Houston Lighting & Power Company, a Texas Corporation ("Grantee")**, whose address is **P.O. Box 1700, Houston, Texas 77251**, the right to dredge 269,060 square feet of State-owned submerged land in Dickinson Bay, State Tract No. 354, San Leon, Galveston County, Texas, described by location maps attached hereto as Exhibits "A" and "B" and incorporated herein by reference for all purposes (the "Premises").

Grantee represents that the Premises are located adjacent to property owned by Grantee, which property is identified as follows:

A 246.92 acre tract of land out of the Amos Edwards Survey, Abstract Number 10, and the Branch T. Masterson Survey, Abstract Number 642, Galveston County, Texas and conveyed by E.W. Barnett, Trustee of Harris County, Texas to Houston Lighting & Power Company by deed executed July 8, 1960, and recorded in Book 1399, Page 397-399, Deed records of Galveston County, Texas.

Section 1.02. GRANTEE HAS INSPECTED THE PHYSICAL AND TOPOGRAPHIC CONDITION OF THE PREMISES AND ACCEPTS SAME "AS IS" IN ITS EXISTING PHYSICAL AND TOPOGRAPHIC CONDITION, GRANTOR DISCLAIMS ANY AND ALL WARRANTIES OF HABITABILITY, FITNESS FOR ANY PURPOSE, AND ANY OTHER EXPRESS OR IMPLIED WARRANTY NOT EXPRESSLY SET FORTH IN THIS EASEMENT. GRANTOR AND GRANTEE HEREBY AGREE AND ACKNOWLEDGE THAT THE USE OF THE TERM "GRANT" AND/OR THE TERM "CONVEY" IN NO WAY IMPLIES THAT THIS EASEMENT IS FREE OF LIENS, ENCUMBRANCES AND/OR PRIOR RIGHTS. GRANTEE IS HEREBY PUT ON NOTICE THAT ANY PRIOR GRANT AND/OR ENCUMBRANCE IS OF RECORD AND MAY BE EXAMINED IN THE ARCHIVES AND RECORDS DIVISION OF THE TEXAS GENERAL LAND OFFICE, 1700 NORTH CONGRESS AVENUE, AUSTIN, TEXAS, 78701.

Article II. Term

Section 2.01. This Easement is for a total period of Twenty (20) years beginning on the 1st Day of December, 1993, and terminating on the 30th Day of November, 2013, unless earlier terminated as provided in this Easement.

Article III. Consideration

Section 3.01. As consideration for the granting of this Easement, Grantee agrees to pay Grantor as a use fee ("Fee") the following sums: a) Thirteen Thousand Four Hundred Fifty-three and 00/100 Dollars (\$13,453.00) for the first "Easement Year" (as such phrase is hereinafter defined), and b) Two Thousand Six Hundred Ninety and 60/100 Dollars (\$2,690.60) for each of the Easement Years Two (2) through Twenty (20), for a total of Sixty Four Thousand Five Hundred Seventy-four and 40/100 Dollars (\$64,574.40). The Fee shall be due and payable on or before the first day of each Easement Year.

Section 3.02. For the purposes of this Easement, the phrase "Easement Year" shall, in the case of the first Easement Year, mean the period which commences with the commencement date and

terminates on the three hundred sixty-fifth (365th) day thereafter. Each subsequent Easement Year shall contain a period of twelve (12) full calendar months commencing on the date following the last day of the first Easement Year, and commencing with each subsequent annual anniversary date of such day.

Section 3.03. The Fee and any other sums hereunder provided to be paid by Grantee shall be due and payable by Grantee without demand, deduction, abatement or off-set. Past due Fees and other past due payments shall bear interest from maturity at the rate of 10 percent (10%) per annum from the date when due until actually paid, as provided in Section 51.301, TEX. NAT. RES. CODE (Vernon 1978). Failure of Grantee to make a payment on or before the date the same becomes due shall, at the option of Grantor, make all payments due and payable immediately.

Article IV. Taxes

Section 4.01. Grantee shall, as further consideration for this Easement, pay and discharge "Taxes" (as hereinafter defined) each calendar year (or portion thereof) of this Easement. For the purposes of this Easement, the term "Taxes" shall mean and refer to all taxes, assessments, impositions, levies, charges, excises, fees, licenses and other sums (whether now existing or hereafter arising, whether foreseen or unforeseen and whether under the present system of real estate taxation or some other system), which during the term of this Easement may be levied, assessed, charged or imposed by any governmental authority or other taxing authority or accrue on the Premises and any improvements or other property thereon, whether belonging to Grantor or Grantee, or to which either of them may become liable in relation thereto. The term "Taxes" shall also include all penalties, interest and other charges payable by reason of any delay or failure or refusal of Grantee to make timely payments as required pursuant to this Section 4.01.

Section 4.02. Grantee agrees to and shall protect and hold harmless Grantor and the Premises from liability for any and all Taxes, together with any interest, penalties or other sums thereby imposed, and from any sale or other proceeding to enforce payment thereof.

Section 4.03. Grantee agrees to pay all Taxes directly to the applicable taxing authority not less than fifteen (15) days prior to the date of delinquency thereof.

Article V. Use of Premises

Section 5.01. Grantee shall have the right to use the Premises solely for dredging and maintenance dredging. Grantee shall not

use the Premises for any other purpose without obtaining the prior written consent of Grantor, which consent may be granted or withheld by Grantor in it's sole discretion.

Section 5.02. Grantee, at its own expense, will comply with all federal, State, municipal and other laws, codes, ordinances, rules and regulations applicable to the Premises; will install, remove and alter such equipment and facilities in, and make such alterations to, the Premises as may be necessary so to comply; will comply with such regulations as Grantor may promulgate regarding sanitation, cleanliness and other health and/or environmental matters, including, without limitation, removal of garbage, trash and other waste. Grantee will not make any unlawful use of the Premises or permit any unlawful use thereof. Grantee's activities at the Premises will not restrict or prevent other persons or entities from navigating open, navigable waters located thereon.

Section 5.03. Grantee shall use the highest degree of care and all proper safeguards to prevent pollution of air and water in and around the Premises. In the event of pollution, Grantee shall use all means at its disposal to recapture all pollutants which have escaped and shall be responsible for all damage to public and private property caused thereby.

Article VI. Construction by Grantee

Section 6.01. Other than the dredging authorized by this Easement, Grantee shall make no further alterations, additions or changes in the Premises without the prior written consent of Grantor.

Article VII. Repair and Maintenance

Section 7.01. Grantor shall have no duty to repair or maintain the Premises or any improvements placed at or constituting any portion of the Premises. Grantor will not be liable for any damage or injury, fatal or nonfatal, resulting from any damage, defect or disrepair of any improvements placed at or constituting any portion of the Premises. Grantor shall not have any duty to make any replacement of any such improvements.

Article VIII. Assignment/Subletting

Section 8.01. Grantee shall not assign this Easement or sublease the Premises or any part thereof or mortgage, pledge or hypothecate its interest or grant any concession or license within the Premises without the express prior written consent of Grantor; and any attempt to do any of the foregoing shall be void and of no effect.

Article IX. Insurance and Indemnity

Section 9.01. Except as to only injury, death or property damage proximately caused by the sole negligence of Grantor, Grantor's agents, contractors and employees for which Grantor is legally liable, Grantee agrees to indemnify and hold Grantor and Grantor's officers, agents and employees harmless from all losses, claims, suits, actions, damages and liability (including costs and expenses of defending against all of the aforesaid) arising (or alleged to arise) from any act or omission of Grantee or Grantee's agents, employees, assignees, sublessees, contractors, customers or invitees, or arising from any injury to or death of any person or persons or damage to or destruction of the property of any person or persons occurring in or about the Premises, and Grantee assumes responsibility for the condition of the Premises. Grantee agrees to use and occupy the Premises at its own risk, and hereby releases Grantor and its agents from all claims for any damage or injury to the full extent permitted by law. Grantee shall be responsible for the safety and well being of Grantee's employees and invitees, and Grantee agrees to indemnify and hold Grantor harmless from all losses, claims, suits, actions, damages and liabilities (including costs and expenses of defending against the aforesaid) arising (or alleged to arise) from any injury, death or damage or loss of Grantee, its employees and invitees.

Section 9.02. Grantee shall maintain in full force and effect at all time during the term of this easement: (i) public liability insurance in a minimum amount of One Million and NO/100 Dollars (\$1,000,000.00) combined single limit, and (ii) environmental liability insurance in a minimum amount of Five Million and NO/100 Dollars (\$5,000,000.00) insuring Grantee's operations hereunder, which policies shall name Grantor as an additional insured. Such policies shall be non-cancellable with respect to Grantor except upon (30) days written notice to Grantor. Certificates of all such insurance shall be delivered by Grantee to the Grantor upon execution of this Easement.

Notwithstanding anything hereinbefore to the contrary, for as long as Grantee maintains a net worth of not less than Forty Million and NO/100 Dollars (\$40,000,000.00), as determined by generally accepted accounting principles consistently applied ("Minimum Acceptable Net Worth"), and subject to the provisions of this Section, Grantee may elect to self-insure. Grantee shall provide Grantor with a copy of its most recent Form 10-K upon execution hereof stipulating Grantee's net worth and, thereafter each calendar year on or before the anniversary date of this easement. In the event that Grantee's net worth ever falls below Minimum Acceptable Net Worth, then upon fifteen (15) days written demand from Grantor, Grantee shall purchase all coverage required by this Section and shall maintain such coverage in continuous effect for the balance of the term of this Easement, it being agreed that in the event Grantee shall not hereafter have any further right to

self-insure even though Grantee's net worth may thereafter increase above the Minimum Acceptable Net Worth.

Article X. Encumbrance of Premises

Section 10.01. The Premises shall not be deemed in any way pledged or mortgaged by this Easement nor by any other agreement executed in connection with this Easement, and the State of Texas, by execution of this Easement, shall not in any manner lend its credit to any private corporation, association, partnership or other person in connection with the execution of this Easement.

Section 10.02. Grantor and Grantee shall execute and deliver to each other, at such time or times as either Grantor or Grantee may request, a certificate stating:

- A. Whether or not the Easement is in full force and effect;
- B. Whether or not the Easement has been modified or amended in any respect, and submitting copies of such modifications or amendments, if any;
- C. Whether or not there are any existing defaults under this Easement to the knowledge of the party executing the certificate, and specifying the nature of such defaults, if any; and
- D. Such other information as may be reasonably requested.

The aforesaid certificate(s) shall be delivered to Grantor or Grantee, as the case may be, promptly upon written receipt of such request. Failure by Grantee to timely deliver such certificate(s) shall constitute an Event of Default hereunder and entitle Grantor to exercise any remedies permitted under the terms of this Easement without the necessity of further notice to Grantee (notwithstanding any provision to the contrary contained in Article XII).

Article XI. Default and Remedies

Section 11.01. Each of the following acts or omissions of Grantee or occurrences shall constitute an "Event of Default":

- (a) Failure or refusal by Grantee to timely pay the Fee or any other sum when due hereunder;
- (b) Failure or refusal by Grantee to comply with the obligations of Grantee set forth in Article V of this Easement;
- (c) Failure or refusal by Grantee to timely perform or observe any other covenant, duty or obligation of Grantee under this Easement; provided, however, notwithstanding the occurrence of

such Event of Default, Grantor shall not be entitled to exercise any of the remedies provided for in this Easement or by law unless such Event of Default continues beyond the expiration of thirty (30) days following notice to Grantee of such Event of Default;

(d) The entry of a decree or order for relief by a court having jurisdiction over Grantee or any guarantor of Grantee's obligations hereunder in an involuntary case under the federal bankruptcy laws, as now or hereafter constituted, or any other applicable federal or State bankruptcy, insolvency or other similar law, or appointing a receiver, liquidator, assignee, custodian, trustee, sequestrator (or similar official) of Grantee or any guarantor of Grantee's obligation hereunder or for any substantial part of either of said parties' property, or ordering the winding-up or liquidation of either of said parties' affairs;

(e) The commencement by Grantee or any guarantor of Grantee's obligations hereunder of a voluntary case under the federal bankruptcy laws, as now constituted or hereafter amended, or any other applicable federal or State bankruptcy, insolvency or other similar law, or the consent by either of said parties to the appointment of a receiver, liquidator, assignee, trustee, custodian, sequestrator (or other similar official) of any substantial part of the property of Grantee or any guarantor of Grantee's obligations hereunder, or to the taking possession of any such property by any such functionary or the making of any assignment for the benefit of creditors by either Grantee or any guarantor of Grantee's obligations hereunder, or the failure of Grantee or any guarantor of Grantee's obligations hereunder generally to pay its debts as such debts become due, or the taking of corporate action by any corporate Grantee or any corporate guarantor of Grantee's obligations hereunder in furtherance of any of the foregoing.

Section 11.02. This Easement and the term and estate hereby granted hereby made are subject to the limitation that if and whenever any Event of Default shall occur, after such notice, if any, as is provided in Section 11.01. Grantor may, at its option, in addition to all other rights and remedies given hereunder or by law or equity, forfeit this Easement by sending written notice of such forfeiture by United States Mail to the last known address of Grantee in the files of the Asset Management Division of the General Land Office, in which event, this Easement shall terminate and Grantee shall immediately surrender possession of the Premises to Grantor (and termination shall not prejudice the rights of Grantor for any claim of payments due).

Section 11.03. In the event of any default by Grantor, prior to taking any action, Grantee will give Grantor written notice specifying such default with particularity, and Grantor shall thereupon have a reasonable period, but in no event less than thirty (30) days, in which to commence to cure any such default.

Unless and until Grantor fails so to commence to cure any default after such notice or having so commenced thereafter fails to exercise reasonable diligence to complete such curing, Grantee shall not have any remedy or cause of action by reason thereof. All obligations of Grantor hereunder will be construed as covenants, not conditions; and all such obligations will be binding upon Grantor only during the period of its possession of the Premises and not thereafter.

Article XII. Notice

Section 12.01. Any notice which may or shall be given under the terms of this Easement shall be in writing and shall be either delivered by hand or sent by United States Registered or Certified Mail, adequate postage prepaid, if for Grantee to Deputy Commissioner, Resource and Asset Management, addressed to his attention, 1700 North Congress Avenue, Austin, Texas 78701, if for Grantee, to it at P.O. Box 1700, Houston, Texas 77251. Either party's address may be changed from time to time by such party by giving notice as provided above, except that the Premises may not be used by Lessee as the sole notice address. No change of address of either party shall be binding on the other party until notice of such change of address is given as herein provided. A post office receipt for registration of such notice or signed return receipt shall be conclusive that such notice was delivered in due course of mail if mailed as provided above. For purposes of the calculation of various time periods referred to herein, notice delivered by hand shall be deemed received when delivered to the place for giving notice to a party referred to above and notice mailed in the manner provided above shall be deemed completed upon the earlier to occur to (i) actual receipt as indicated on the signed return receipt, or (ii) three (3) days after posting as herein provided.

Article XIII. Non-Waiver

Section 13.01. Neither acceptance of the Fee (or any portion thereof) or any other sums payable by Grantee hereunder (or any portion thereof) by Grantor nor failure by Grantor to complain of any action, non-action or default of Grantee shall constitute a waiver as to any breach of any covenant or condition of Grantee contained herein nor a waiver of any of Grantor's rights hereunder. Waiver by Grantor of any right for any default of Grantee shall not constitute a waiver of any right for either a prior or subsequent default of the same obligation or for any prior or subsequent default of any other obligation. No right or remedy of Grantor hereunder or covenant, duty or obligation of Grantee hereunder shall be deemed waived by Grantor unless such waiver be in writing, signed by Grantor.

Article XIV. Terminology and Miscellaneous

Section 14.01. With respect to terminology in this Easement, each number (singular or plural) shall include all numbers, and each gender (male, female or neuter) shall include all genders. If any provision of this Easement shall ever be held to be invalid or unenforceable, such invalidity or unenforceability shall not affect any other provisions of the Easement, but such other provisions shall continue in full force and effect.

Section 14.02. The titles of the Articles in this Easement shall have no effect and shall neither limit nor amplify the provisions of the Easement itself. This Easement shall be binding upon and shall accrue to the benefit of Grantor, its successors and assigns, Grantee, its successors and assigns (or heirs, executors, administrators and assigns, as the case may be); however, this clause does not constitute a consent by Grantor to any assignment by Grantee, but instead refers only to those instances in which an assignment by Grantee is hereafter made in strict compliance with Article VIII above, or in the case of a deceased natural person Grantee, refers to the instances previously referred to in this sentence and also circumstances in which title to Grantee's estate under this Easement passes, after the demise of Grantee, pursuant to Grantee's will or the laws of intestate succession. The words "hereof," "herein," "hereunder," "hereinafter" and the like refer to this entire instrument, not just to the specific article, section or paragraph in which such words appear.

Section 14.03. In all instances where Grantee is required hereunder to pay any sum or do any act at a particular indicated time or within an indicated period, it is understood that time is of the essence.

Section 14.04. All monetary obligations of Grantor and Grantee (including, without limitation, any monetary obligation of Grantor or Grantee for damages for any breach of the respective covenants, duties or obligations of Grantor or Grantee hereunder) are performable exclusively in Austin, Travis County, Texas.

Article XV. Entire Agreement

Section 15.01. This instrument consisting of sixteen (16) pages and constitutes the entire agreement between Grantor and Grantee; no prior written or prior or contemporaneous oral promises or representations shall be binding. This Easement shall become effective only upon execution of all parties hereto and delivery of a fully executed counterpart hereof by Grantor to Grantee. This Easement shall not be amended, changed or extended except by written instrument signed by both parties hereto.

IN TESTIMONY WHEREOF witness my hand and the seal of the Texas General Land Office this the 9th day of February, 1994.

GRANTOR

School Land Board

By: Garry Mauro
Garry Mauro
Commissioner, General Land Office
Chairman, School Land Board

APPROVED

CONTENT JNC
DEPUTY COMM. CRA
SR. DEPUTY COMM. SP
EXECUTIVE JL

GRANTEE

Houston Lighting and Power Company

By: David G. Tees

Print Name: David G. Tees
Vice-President,
Title: Energy Production

Exhibit "C", Page 1 of 2

LESSEE

Houston Lighting & Power Company

By: David G. Tees

Vice-President,

Title: Energy ProductionPrinted Name: David G. Tees

STATE OF TEXAS

HARRIS

X ~~GALVESTON~~ COUNTY

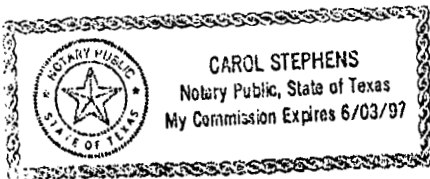
This memorandum of Coastal Easement Number LC 93-019 was
 acknowledged before me on January 31, ~~1993~~ 1994

by David G. Tees, on behalf of Houston Lighting &
 Power Company.

Carol Stephens
 Notary Public in and for the
 State of Texas

CAROL STEPHENS
 (Print Name)

My commission expires 6/3/97



MEMORANDUM OF COASTAL EASEMENT

STATE OF TEXAS

COUNTY OF GALVESTON

This Memorandum of Coastal Easement is made on the 9th day of Feb, 1994, to record the agreement heretofore entered by the State of Texas, acting by and through the General Land Office (the "State") and Houston Lighting and Power Company ("Grantee"), which affects certain lands in Galveston County, Texas.

W I T N E S S E T H

That for and in consideration of the mutual promises and undertakings recited therein, the parties have executed Coastal Easement No. LC-93-019 (the "Easement"), an original of which is in the the records of the General Land Office. The Grantee has been granted the use of certain submerged land located in the Dickinson Bay, State Tract No. 354, Galveston County, Texas, being more particularly described in said Easement and in Exhibit "A" attached hereto and incorporated herein by reference. The adjacent littoral property of Grantee is described in said Easement attached hereto and incorporated herein by reference.

The real property encumbered by the grant to Grantee contains approximately 269,060 square feet. The term of the grant is for a period of twenty (20) years, which term commenced on December 1, 1993 and shall terminate on November 30, 2013 unless earlier terminated as provided in the agreement.

The Easement sets forth Grantee's limited right to use and occupy the property described in Exhibits "A" and "B" of the Easement for the purpose of dredging a portion of the Leased Premises.

The Easement is not assignable without the prior written consent of the State. Use of state property without the requisite consent may subject the user to the assessment of a civil penalty of \$200.00 per day, as provided in Chapter 33 of the Natural Resources Code, and/or a penalty of up to \$1,000.00 per day as provided in Chapter 51 of the Natural Resources Code.

IN TESTIMONY WHEREOF, witness my hand and the seal of the General Land Office, executed as of the date written above.

THE STATE OF TEXAS

By: Garry Mauro

Garry Mauro
Texas General Land Office
and Chairman, School Land Board

APPROVED

CONTENT JWCDEPUTY COMM. JLSR. DEPUTY COMM. SMEXECUTIVE JL

DKT 28980
ATTACHMENT 5

The State of Texas



Austin, Texas

MISCELLANEOUS EASEMENT ME No. 960003

STATE OF TEXAS

§

KNOW ALL BY THESE PRESENTS:

COUNTY OF FORT BEND

§

§

This Miscellaneous Easement, ME No. 960003 ("the Agreement"), is granted by virtue of the authority granted in Section 51.291, et seq., TEX. NAT. RES. CODE ANN. (Vernon Supp. 1996), 31 TEX. ADMIN. CODE §13.11, et seq., and all other applicable statutes and rules, as the same may be amended from time to time, and is subject to all applicable regulations promulgated from time to time.

ARTICLE I. PARTIES

1.01. In consideration of the mutual covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the STATE OF TEXAS, acting by and through Garry Mauro, Commissioner of the General Land Office, on behalf of the Permanent School Fund of the State of Texas (the "STATE"), hereby grants to **Houston Lighting & Power Company**, whose address is P. O. Box 1700, Houston, Texas 77251-1700, (713) 228-9211 ("HL&P"), a non-exclusive easement for the purposes identified in Article V.

ARTICLE II. PREMISES

2.01. The easement is located across Permanent School Fund land in Fort Bend County, Texas, described as follows:

Adjacent to littoral property known as the residue of a 172.022-acre tract out of the Thomas Barnett League, A-7, in Fort Bend County, Texas, recorded in Vol. 1109, Page 486 in the

Deed Records of said County and State, and a 70-acre tract out of a 301-acre tract out of the Horatio Chriesman League, A-18, Fort Bend County, Texas, recorded in Volume 392, Page 290 in said Deed Records. The easement is a right-of-way 544.67 rods long and 100 feet wide being 50 feet either side of a centerline formed by the Improvements (as hereinafter defined), as constructed (the "Premises").

The Premises are further described or depicted on the Vicinity Map attached hereto as Exhibit A, the survey plat attached hereto as Exhibit B, collectively incorporated by reference for all purposes.

2.02. HL&P acknowledges and agrees that when the Improvements (as hereinafter defined) are placed on the Premises, the location of such Improvements within the easement shall thereby become fixed at such location and shall not be changed except by an amendment to this Agreement signed by both parties hereto and subject to any approval by any other governmental agency with jurisdiction over same.

2.03. HL&P HAS INSPECTED THE PHYSICAL AND TOPOGRAPHIC CONDITION OF THE PREMISES AND ACCEPTS THE SAME "AS IS", IN ITS EXISTING PHYSICAL AND TOPOGRAPHIC CONDITION. THE STATE DISCLAIMS ANY AND ALL WARRANTIES OF HABITABILITY, MERCHANTABILITY, SUITABILITY, FITNESS FOR ANY PURPOSE, AND ANY OTHER WARRANTY WHATSOEVER NOT EXPRESSLY SET FORTH IN THIS AGREEMENT. THE STATE AND HL&P HEREBY AGREE AND ACKNOWLEDGE THAT THE USE OF THE TERM "GRANT" IN NO WAY IMPLIES THAT THIS EASEMENT IS FREE OF LIENS, ENCUMBRANCES AND/OR PRIOR RIGHTS. NOTICE IS HEREBY GIVEN TO HL&P THAT ANY PRIOR GRANT AND/OR ENCUMBRANCE MAY BE OF RECORD AND HL&P IS ADVISED TO EXAMINE THE RECORDS IN THE ARCHIVES AND RECORDS DIVISION OF THE TEXAS GENERAL LAND OFFICE, 1700 NORTH CONGRESS AVENUE, AUSTIN, TEXAS 78701, AND ALL OTHER LAND TITLE RECORDS OF THE COUNTY IN WHICH THE PREMISES ARE LOCATED.

ARTICLE III. TERM

3.01. This Agreement is for a period of Twenty (20) years, beginning on April 1, 1996, and ending on March 31, 2016, unless renewed, amended, or sooner terminated as authorized by law or as set forth herein.

3.02. Provided that HL&P has complied with all provisions of this Agreement to the complete satisfaction of the STATE, HL&P shall have the right to extend and renew this Agreement for an additional term of Twenty (20) years by taking the following actions:

- (i) not later than one hundred eighty (180) days prior to expiration of the term of this Agreement, provide written notice to the STATE of HL&P's intent to renew the Agreement;
- (ii) complete and submit to the STATE for approval, an application for renewal within thirty (30) days following receipt of the application;
- (iii) pay the applicable renewal fee, pursuant to the rate schedule in effect at the time of renewal; and
- (iv) if required by the STATE, provide documentation of the location of the Improvements and, if applicable, a burial survey.

STATE and HL&P acknowledge and agree that HL&P shall have no right to renew this Agreement pursuant to 31 TEX. ADMIN. CODE §13.17(c) and (d).

ARTICLE IV. CONSIDERATION AND TAXES

4.01.A. As consideration ("Consideration") for the granting of this easement, HL&P agrees to pay the STATE (payable to the Commissioner of the Texas General Land Office at Austin, Texas) the sum of Ten Thousand and NO/100 Dollars (\$10,000.00).

B. Past due Consideration and other past due payments shall bear interest from maturity at the rate of ten percent (10%) per annum from the date when due until actually paid, as provided in Section 51.301, TEX. NAT. RES. CODE ANN. (Vernon 1978). Failure of HL&P to make a payment on or before the date the same becomes due shall, at the STATE's option, make all payments due and payable immediately.

4.02. In addition to the above, HL&P shall pay and discharge any and all taxes, general and special assessments, and other charges which during the term of this Agreement may be levied on or assessed against the Premises or the Improvements constructed thereon, provided such taxes result from HL&P's use of this easement. HL&P shall pay such taxes, charges, and assessments not less than five (5) days prior to the date of delinquency thereof directly to the authority or official charged with the collection thereof. HL&P shall have the right in good faith at its sole cost and expense to contest any such taxes, charges, and assessments, and shall be obligated to pay the contested amount only if and when finally determined to be owed.

4.03. HL&P agrees to and shall protect and hold the STATE harmless from liability for any and all such taxes, charges, and assessments, together with any penalties and interest thereon, and from any sale or other proceeding to enforce payment thereof.

ARTICLE V. USE OF THE PREMISES

5.01. HL&P and HL&P's employees, contractors, and agents shall have the right to use the Premises for a right-of-way to construct, maintain, operate, inspect, and repair a rail spur bridge to provide the W.A. Parish Electric Generating Station with an alternative rail transportation route for coal used to fuel the generating plant (the "Improvements"). HL&P shall not use the Premises for any other purpose without first obtaining written consent of the STATE, which consent may be granted or withheld in the STATE's sole discretion. HL&P shall construct and/or install the Improvements in accordance with the construction guidelines and techniques specified on Exhibit C.

5.02.A. The STATE and HL&P hereby acknowledge and agree that each shall have reciprocal rights of ingress and egress to and from the Premises across contiguous or adjacent Permanent School Fund land or land owned by HL&P, provided in the exercise of this right the STATE and HL&P agree not to unreasonably interfere with the other party's (or that party's agent's, assignee's, or designee's) use of its property. HL&P shall have the right of ingress and egress for the purposes of constructing maintaining, operating, inspecting, and repairing the Improvements and such right is not granted for any other purpose. HL&P and the STATE mutually agree to use contiguous or adjacent Permanent School Fund land or land owned by HL&P, respectively, only to the extent and for the length of time necessary to provide access to and from the Premises. Notwithstanding any other provisions to the contrary, no easement is created by this Section 5.02; instead, a