

Consideration of Entergy New Orleans Inc. Utility Infrastructure Restoration Cost Funding For Damage From Hurricane Katrina

Evaluation and Recommendations
to the Louisiana Recovery Authority

October 11, 2006



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Section 1 - Overview » Electric and Gas System Damage from Hurricane Katrina

- On August 29, 2005, storm surges from Hurricane Katrina broke levees and floodwaters inundated the greater New Orleans area.
- In addition to the tragic loss of life and destruction of homes, personal property, businesses and governmental facilities, 100% of electric service to Entergy New Orleans Inc. (ENOI) system was disrupted.
- Gas service was maintained to the extent possible to enable the City's gas-fired generators supplying its water pumping stations to operate to drain the floodwaters.
- Extent of damage to the electric and gas system, in terms of percent of facilities damaged and customer service disrupted for an entire utility system serving a major metropolitan area is unprecedented in the United States.
- The vast majority of damage was as a result of flood damage, rather than direct damage from wind (although there was significant damage to the electric transmission and distribution system from winds).
- The level of damage to the system exceeded that of reasonable expectations of reserve funding that electric and gas utilities would maintain.
- The effects of the cost of system restoration on future utility retail customer rates is greatly exacerbated by an unprecedented loss of electric and gas customers who have either temporarily or, potentially permanently, relocated outside of the ENOI service territory due to the area's flood damage.

Section 1 - Overview » Electric and Gas Service Territory Inundation

Nearly all of ENOI's service territory north of the river was inundated



Green to blue represents 6 to 20 feet of flooding

Orange to yellow represents 0 to 5 feet flooding

The ENO electric system sustained extensive damage, with the greatest concentrations in areas that were the most heavily flooded

Transmission System

75% of transmission lines had structures that sustained significant structural damage

78 individual structures partially damaged or totally destroyed

12 out of 22 substations flooded, damaging critical equipment and disrupting service

Distribution System

Over 1700 poles and 3100 crossarms damaged

Approximately 2300 spans of conductor required replacement (estimated to be over 80 miles)

Downtown network vaults and padmounted transformers flooded and sustained unknown "loss of useful life"

As of August 30, 2006, the electric utility was serving slightly more than 40% of the customers served one year earlier

ENOI's electric system incurred significant wind and flooding damage



Example of distribution poles and pole-mounted transformer damage



Examples of substation flooding

Electric system incurred wide-spread damage and destruction



Example of major substation and transformer destruction

Service center (N.O. East) and substation inundation (inventory, vehicles, specialty equipment, etc)

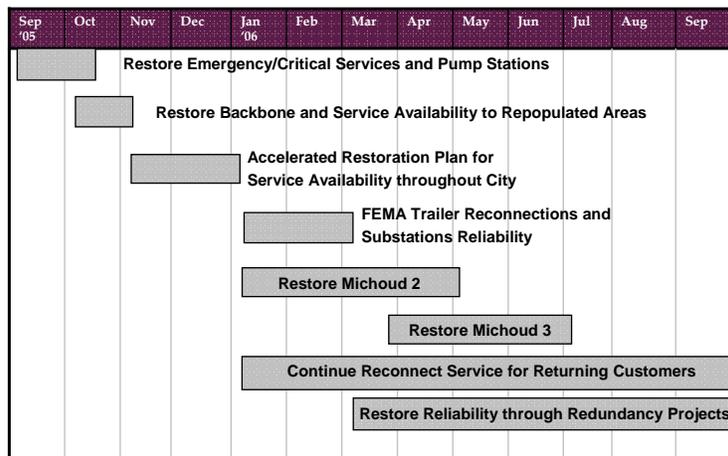


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Twelve months following Hurricane Katrina service is available throughout the ENOI electric service area



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**Electric service restored throughout service area
Timing of returning and new customers will drive future system reinforcements**

- **Electric service restored in a manner to expedite customers' return**
 - Service to critical loads was restored by mid-October 2005, following the removal of the flood waters
 - Service available to all occupied areas of the City end of 2005
- **Level of system redundancy has not returned to pre-Katrina levels due to significant reduction in density of load served in many areas.**
 - Current level of reliability has improved in recent months with reconnection of system to provide desired levels of operational efficiency
 - Extent of current substation capacity responsive to levels of load being served
- **Flooding has contributed to expected "loss of life" with key system equipment**
 - Downtown network protectors and transformers were flooded, while most restored to service, impact of submersion likely to reduce life expectancy (extent uncertain)
 - Pad-mounted transformers serving both commercial and residential customers experienced flooding
 - Impact of long-term submersion on underground cables expected to reduce operational life (extent uncertain)

The flooding of the gas distribution system disrupts service and heavily damages system facilities

City Gates	Distribution System
12 out of 13 operational city gates experience damage	Approximately 60% of gas distribution system flooded
Metering and system control heavily damaged at many city gates	Salt water infiltrated and critically damaged cast iron and steel distribution pipelines
Some city gates suffered damage to piping and equipment support	Over 4 million gallons of water removed from low pressure distribution system
	Over 80% of gas meters and regulators were rendered inoperable with many damaged

As of August 30, 2006, the gas utility was serving slightly less than 40% of the customers served one year earlier

The ENOI gas system incurred immediate above ground, and latent long-term underground facility damage



ENOI's City Gate No. 7 (one of several points of delivery for gas supply from intrastate pipelines to ENOI distribution system) was heavily damaged



Distribution system experienced numerous broken high pressure gas mains under water

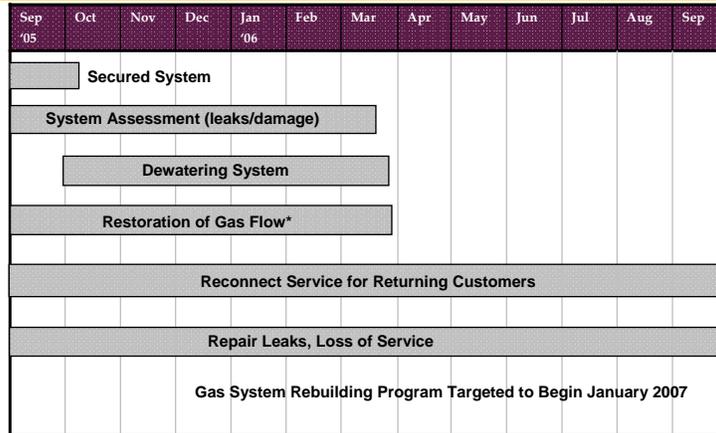
Damage from flooding has led to plans for rebuilding 844 miles of gas distribution system mains

	System Mileage	Mileage to be Replaced	% of System to be Replaced
High pressure Steel	700	310	44
Low Pressure Steel	326	277	85
Low Pressure Cast Iron	324	257	79
High/Low Pressure Plastic	145	---	---
Total	1495	844	56

Installation of high pressure plastic distribution mains to replace damaged steel and cast iron mains is estimated to cost \$450,000/mile (incl. service lines to customer locations)

Section 1 - Overview » Gas System Restoration Timeline

Service restoration is nearly complete*, to be followed by rebuild of over half of the gas distribution system mains



*Gas service has been restored to all areas except Lake Catherine and portions of the 9th Ward and Lakeview.

Section 1 - Overview » Gas Utility Effectively met Challenges Delivered by Extensive Flooding

With gas system restoration essentially complete, the focus now is on addressing the longer-term results of system flooding

- Gas service restored for all areas except Lake Catherine and small areas within 9th Ward and Lakeview
- Effects of system flooding after one year contribute to high level of service outages, primarily the result of residual water in system
 - Water continues to be removed from both ENOI lines and customer lines
 - The complete elimination of water from system is required to gain desired level of service
 - Timing for water removal likely to exceed the three years experienced with Hurricane Betsy
- Combination of salt water and silt contribute highly corrosive condition
 - Both cast iron and steel piped attacked
 - Loss of effective cathodic protection system for approximately 9 months allowed for further loss of pipe life
- Damage to gas mains undergoing extensive monitoring
 - Quarterly sampling of pipe condition
 - Annual leak surveys
- Rebuild of flooded gas mains (844 miles) will begin when funding becomes available
 - Latest projection is for start in 1Q 2007
 - Heightened levels of preventive maintenance will be required prior to rebuild of system
 - Plans for rebuild includes replacement of service lines when new plastic mains installed
 - Rebuild program targeted to involve 40-60 miles of main per year vs. traditional level of 3-5 miles per year

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Section 2 – Program Objectives » Utility Infrastructure Restoration and Recovery»

Utility infrastructure funding is a key building block to the rebuilding of New Orleans in the wake of the devastation of Katrina

- Restoration of utility service is a critical step to protect and maintain public health and safety
- Returning reliable and affordable electric and gas utility service is a prerequisite to the rebuilding of New Orleans' neighborhoods and businesses
- ENOI has undertaken significant system restoration and rebuilding during a period in which as recently as August 2006, it has less than half of its pre-Katrina customers
- The costs to restore the system, combined with an unprecedented loss of utility retail customers drove ENOI to file for Chapter 11 bankruptcy protection in September 2005
- Sources of outside funding are necessary to fund restoration costs incurred and those that are planned for the near-future to support the rebuilding of New Orleans
- The utility infrastructure restoration program will protect residential and business utility customers from bearing the majority of utility infrastructure restoration and rebuilding costs
- The LRA has limited funds available due to competing funding needs created by hurricane Katrina. Costs properly incurred that are within a reasonable funding allocation in excess of insurance proceeds, and which would otherwise be passed on to utility ratepayers with limited resources to rebuild in New Orleans are targeted for funding in the LRA's utility infrastructure restoration funding program

LRA allocation of CDBG funding will limit future increases in ENOI electric and gas utility rates to New Orleans utility customers

- Determination of retail rates for electric and gas service for Entergy New Orleans is the regulatory responsibility of the City of New Orleans.
- ENOI has filed, and the City of New Orleans is considering, cost recovery and associated rate adjustments addressing incurred system restoration costs, reduced customer count, expected gas distribution system rebuild requirements and future storm reserve requirements.
- System restoration costs that are deemed appropriate by the City of New Orleans are expected to become the obligation of ENOI retail utility customers unless other sources of funding are obtained for cost recovery.
- Consequently, every dollar of CDBG funds allocated by the LRA to ENOI for system restoration costs is expected to reduce rate increases that would otherwise be passed on to ratepayers.

Economic assessments of the effects of Katrina acknowledge the importance of utility service to the rebuilding of the economy to the State of Louisiana¹

- Repopulation of New Orleans and associated recovery is needed for Louisiana, the Gulf Coast and the U.S. as a nation:
 - New Orleans metropolitan statistical area (MSA) is over 1/3 of Louisiana's population and revenue (in pre-Katrina condition)
 - New Orleans is a strategic port for US and associated world commerce
 - New Orleans and So. Louisiana are key to energy needs of the nation due to servicing of Gulf oil/gas operations, petroleum refining and related operations
- Return of electric and gas service and affordability of service is a primary need for return of residents and businesses

¹ Economic Analysis of Electricity and Natural Gas and the New Orleans Economy, Dr. J.A. Richardson, Alumni Prof. of Economics, Louisiana State University; "The Task at Hand – Housing Needs and Recovery Perspectives in the Post Katrina and Rita Era", Greg Rigamer – GCR Associates, Inc; "The New Orleans Economy", Timothy P. Ryan, Chancellor, University of New Orleans

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Section 3 – CDBG Eligibility » Source of Reimbursement Authority by LRA

Federal regulations for Community Development Block Grant funds provide guidance for ENOI system restoration cost eligibility

Code of Federal Regulations, Title 24, Section 570.201 (Basic eligible activities) related to CDBG funding states:

CDBG funds may be used for the following activities:

“(1) Privately owned utilities. CDBG funds may be used to acquire, construct, reconstruct, rehabilitate, or install the distribution lines and facilities of privately owned utilities, including the placing underground of new or existing distribution facilities and lines” (emphasis added)

This definition has been interpreted to include both electric and gas facilities, including generation facilities required to deliver electricity over the distribution lines, which is reinforced by the following Louisiana Revised Statute 45:859, excerpted below:

“The restoration and rebuilding of electric and gas utilities as a result of a natural disaster is hereby recognized to be a valid purpose in the best interests of the citizens and businesses of the state”

Section 3 – CDBG Eligibility » General Categories of Restoration Costs

General categories for restoration costs ENOI has incurred or has budgeted include, but is not limited to:

Electric System	Gas System	Other or Common
<ul style="list-style-type: none"> • Distribution overhead lines • Distribution underground lines • Substations and voltage conversion equipment • Transmission lines • Meter repairs & replacements • Interim system configuring • Debris/vegetation removal • Inventory replenishment • Control equipment 	<ul style="list-style-type: none"> • System condition assessment • Partial system shutdown • Dewatering • City gate repairs & replacements • Valve, meter & regulator replacement • Pressure conversion equipment repairs • Inventory replenishment • Special equip/tool replacement 	<ul style="list-style-type: none"> • Temporary office space to replace inundated locations • Temp. staff relocation • Logistics during emergency • Communications • Temporary staging areas • Facilities clean up • Security • Admin. building repairs • Customer care center repairs • Vehicle repair & replacement • Maintenance facilities

This list is representative of a more detailed list of equipment replaced, actions taken, forces deployed, and property and facilities repaired which was provided by ENOI and reviewed by Navigant Consulting in preparing this report.

Section 3 – CDBG Eligibility » Actual System Restoration Costs to be Reimbursed Will Be Audited

CDBG funds allocated now by the LRA will be subject to audit against actual expenditures by ENOI and insurance proceeds application prior to final disbursement



Important step for input to ENOI restructuring plan for bankruptcy court, along with electric and gas rate decision by City of New Orleans as regulatory entity

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Section 4 - CDBG Funding Level Considerations » ENOI's Request of Sept 2006 is \$592 Million

Entergy New Orleans, Inc Storm Restoration & Related Costs Request Including Assumed Available Insurance Proceeds (\$Millions)

	Cost incurred as of 8/31/06	Sep 06 thru Mar 07	Cumulative Through Q1 07	Apr07 - 2017	Total
Distribution Lines, incl underground	102.0	6.5	108.5		108.5
Transmission Lines	9.4	-	9.4		9.4
Generation - Non-Nuclear	10.5	4.3	14.8		14.8
Distribution & Transmission Subs	6.9	4.6	11.5	2.4	13.9
Gas (T & D only)	28.3	11.8	40.1	70.9	111.0
Gas Rebuild	-	-	-	355.0	355.0
Other:	12.5	12.6	25.1		25.1
Total Storm Restoration	169.7	39.8	209.5	428.3	637.7
Electric & Gas Uncollectibles	21.6	-	21.6	-	21.6
Restoration & uncollectibles	191.3	39.8	231.1	428.3	659.3
Total Revenue Losses		194.0			194.0
Credits to Storm Costs:		-			-
Insurance Reimbursement	-	-		(250.0)	(250.0)
Early Settlement of Gas Hedges	(4.4)	-			(4.4)
SERI Refund	(7.0)	-			(7.0)
Total Credits to Storm Costs	(11.4)	-			(11.4)
Total Overall Storm Estimates	179.9	233.8		178.3	592.0

To select a CDBG funding level, the LRA should consider estimated system restoration costs to be incurred as of key restoration and ENOI utility system regulatory milestones

- 8/31/06 is date of most recent actual restoration-related costs released by ENOI
- 12/31/06 is end of an ENOI rate year, bankruptcy plan of reorganization is to be filed with bankruptcy court by that date
- 3/31/07 (end of Q 1 2007) is near the time the City of New Orleans would be expected to establish the levels of the Storm Cost Rider adjustment to rates. By this time, most all electric system restoration work is expected to be done, and after this date the long-term gas distribution system flood water-corroded pipe system is expected to begin. (costs not included in this proposed allocation of CDBG funds)

Estimated ENOI System Restoration Costs Incurred As Of Key Milestones (\$000s)

Cost Category	8/31/06	12/31/06	3/31/2007
Electric System	136,000	150,000	159,000
Gas System	34,000	40,000	51,000
Total	170,000	190,000	210,000

LRA CDBG funding would be net of available ENOI insurance proceeds – assumptions are required to estimate potential insurance effects

- ENOI indicates an estimated \$250 million of insurance coverage may be available to cover its Katrina system damage to applicable categories of electric and gas system restoration/replacement costs
- Further information is needed, but Navigant Consulting assumes most of the electric transmission and distribution lines will have little or no commercial insurance coverage. Electric system insurance coverage is assumed to apply primarily to electric substations and electric generation property, leaving most of the electric distribution lines and transmission lines to funding from CDBG or other sources.
- The \$250 million assumed coverage is illustratively applied in the following table to ENOI's actual and projected future restoration/replacement costs (including pro rata allocation of "Other" costs estimated by ENOI) associated with the damage to the following utility facility elements:
 - Electric system substations
 - Non-nuclear generating equipment/facilities
 - Gas system transmission and distribution facilities (T&D)
 - ENOI's planned gas distribution system rebuild to replace salt water contaminated cast iron and steel pipe with polyethylene pipe

Section 4 - CDBG Funding Level Considerations » Illustrative Allocation of Insurance Proceeds

Illustrative insurance proceeds allocated using assumed categories of insured coverage and Base Case of CDBG funding (\$ Millions)

Note: Insurance coverage by category is only an assumption. Actual allocation requires detailed coverage analysis

System Cost Category	Restoration Cost Estimate (Incl. "Other" Alloc.)	Assumed Base Case Pro rata Insurance Proceeds Allocation (1)	Net Uncovered Costs After Assumed Insurance	Base Case LRA CDBG Funding	Illustrative Resultant Net Uncovered Restoration Costs After Insurance & CDBG Funding
Electric System					
Electric T&D Lines	129	0	129		
Substations	15	8	8		
Generation	16	8	8		
Subtotal Electric System	161	16	145		
Gas System					
Gas T&D	122	60	62		
Gas Rebuild	355	175	181		
Subtotal Gas System	477	235	242		
Total Electric & Gas	638	250	388	200	188

Allocation of LRA funding among Electric and Gas and for cost categories within systems could be determined later based upon need and availability of added funds from other sources

Note 1) \$250 million in proceeds assumed allocated pro rata to damage levels by cost category

Subtotals may not add due to rounding

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Section 4 - CDBG Funding Level Considerations » Significant Unrecovered Costs Will Remain

Prior table shows estimated restoration costs exceed the sum of ENOI's estimate of insurance proceeds and available CDBG funds

- Excluding ENOI's prior unrecovered costs due to loss of customers, at ~\$640 million of system restoration and replacement costs and ENOI's estimated \$250 million of insurance proceeds, even if the estimated end of Q1 2007 restoration cost levels were funded by a \$200 million CDBG allocation, estimated restoration costs would exceed available non-utility rate funding sources by nearly \$190 million
- In addition to the shortfall in restoration cost funding, based on ENOI's September 2006 CDBG funding update, approximately \$194 million in past incurred electric and gas system costs unrecovered from customer rates and a net \$10 million in uncollectible customer accounts are left unfunded

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Section 5 - Effect of Restoration Cost Funding on Utility Base Rates

CDBG Funding Reduces Rate Increases Attributable to Storm Restoration Costs

Funding Level 1 - Costs through August 2006	Description	Electric Storm Repair	Gas Storm Repair	Total
		\$000s	\$000s	\$000s
	CDBG Funding Level	136,000	34,000	170,000
	Avoided Increase in Revenue Requirement	15,910	4,442	20,352

Funding Level 2 - Costs through March December 2006	Description	Electric Storm Repair	Gas Storm Repair	Total
		\$000s	\$000s	\$000s
	CDBG Funding Level	150,000	40,000	190,000
	Avoided Increase in Revenue Requirement	17,799	4,947	22,746

Funding Level 3 - Costs through March 2007	Description	Electric Storm Repair	Gas Storm Repair	Total
		\$000s	\$000s	\$000s
	CDBG Funding Level	159,000	51,000	210,000
	Avoided Increase in Revenue Requirement	19,689	5,452	25,141

• Without funding from LRA or other sources the ENOI Storm Rider seeks to recover:

- All system rebuild costs through rate increases
- The current storm rider seeks to recover approximately \$140 million of costs consisting of costs incurred through March 31, 2006

• Any funding from the LRA will reduce the need for ENOI to pass through such costs to the ratepayer

• In each potential Funding Level tied to the respective restoration cost milestones, ENOI is expected to seek an increase in utility rates in the following approximate percentages without CDBG funding:

	Electric	Gas
Funding Level 1 (\$170 million)	11%	31%
Funding Level 2 (\$190 million)	12%	35%
Funding Level 3 (\$210 million)	14%	38%

• Additional analyses are necessary to determine the final allocation between electric and gas and the effects of deferred income tax and O&M expenses

A CDBG Allocation Between \$190 million and \$210 million is warranted

- CDBG funding between \$190 million and \$210 million (the estimated end of 2006 and end of Q1 2007 milestone system restoration cost levels) is consistent with system needs
- Most of the balance of restoration costs expected to be incurred after Q1 2007 are for gas system rebuilding to address flood water-induced pipe corrosion
- Other sources of funding beyond that available to the LRA from the current balance of CDBG funds will be needed to fund the estimated \$355 million gas system rebuild due to the pipe corrosion caused by flooding.
- The actual requirements for the gas rebuild will depend upon levels of corrosion experienced. Estimates are likely to be refined over time, enabling separate federal or other sources of funding to be sought on a different schedule than the immediate needs of restoration funding.
- It is reasonable to assume that ENOI will seek, dollar for dollar, a future adjustment of the Storm Cost Rider for verified and proper restoration costs incurred above the level of CDBG funds. Any approved Storm Cost Rider levels will become a part of future customer utility rates.
- The level of restoration costs for the electric and gas system will be influenced by the timing and rate of returning population and associated utility customers. Timing of actual CDBG funding disbursement from allocated costs will likely vary from ENOI's estimated rate of cost incurrence for that reason, among others.
- The LRA should maintain flexibility in the ultimate allocation of funds between electric and gas and among the system subcomponents of costs for whatever level of funding it selects to match the uncertainty of the exact timing and components of system restoration required to meet service needs

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