

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

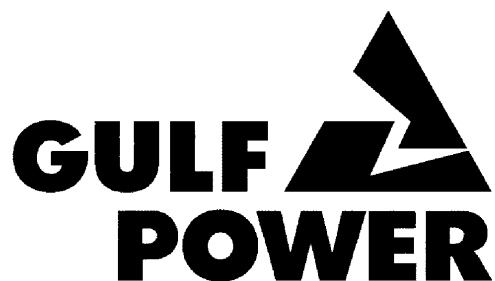
DOCKET NO. 060154-E1

TESTIMONY AND EXHIBIT

OF

STEVEN P. HARRIS

In Support of Storm-Recovery Financing



A SOUTHERN COMPANY

DOCUMENT NUMBER-DATE

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FPSC-COMMISSION CLERK

1 GULF POWER COMPANY
2 Before the Florida Public Service Commission
3 Prepared Direct Testimony of
4 Steven P. Harris
5 Docket No. 060154-E1
6 In Support of Storm Recovery financing
7 Date of Filing: February 22, 2006

8 Q. Please state your name and business address.

9 A. My name is Steven P. Harris. My business address is ABSG Consulting,
10 Inc. (ABS Consulting), 475 14th Street, Oakland, California 94612.

11 Q. By whom are you employed and what is your position?

12 A. I am a Vice President with ABS Consulting, an affiliated company of
13 EQECAT, Inc. both of which are subsidiaries of the ABS Group of
14 Companies, Inc. Together these two companies are leading global
15 providers of catastrophic risk management services, including software
16 and consulting, to major insurers, reinsurers, corporations, governments
17 and other financial institutions. In addition, these companies develop and
18 license catastrophic underwriting, pricing, risk management and risk
19 transfer models that are used extensively in the insurance industry. The
20 companies provide the financial, insurance and brokerage communities
21 with a science and technology-based source of independent quantitative
22 risk information. ABS Group acquired EQE International Inc. and
23 EQECAT, Inc. in January 2000.

24 Q. Please describe your educational background and business experience.

1 A. I hold Bachelors and Masters degrees in engineering from the University
2 of California at Berkeley. I am a licensed civil engineer in California. Over
3 the past 22 years, I have conducted and supervised independent risk and
4 financial studies for public utilities, insurance companies and other
5 entities, both regulated and unregulated. My areas of expertise include
6 natural hazard risk analysis, operational risk analysis, risk profiling and
7 financial analysis, insurance loss analysis, loss prevention and control,
8 business continuity planning and risk transfer.

9 A significant portion of my consulting experience has involved the
10 performance of multi-hazard risk studies, including earthquake, ice storm
11 and windstorm perils, for electric, water and telephone utility companies,
12 as well as insurance companies.

13 I have performed or supervised windstorm (tropical storm or
14 hurricane) loss and solvency analyses for utilities including Gulf Power
15 Company (Gulf or the Company). Additionally, I have performed loss
16 analyses for earthquake hazard for utilities including the Los Angeles
17 Department of Water and Power, the California-Oregon Transmission
18 Project, Big Rivers Electric and Anchorage Municipal Light and Power.

19 For energy companies that have assets in a wide array of
20 geographic locations, I have performed or supervised multi-peril analyses
21 for all natural hazards, including earthquakes, windstorms and ice storms.

22
23 Q. Are you sponsoring an exhibit in this case?

24 A. Yes. I have one exhibit consisting of two schedules to which I will refer.
25 This exhibit was prepared under my supervision and direction.

1 Counsel: We ask that Mr. Harris's Exhibit
2 consisting of two schedules be marked
3 as Exhibit No. _____(SPH-1)
4

5 Q. What is the purpose of your testimony?

6 A. The purpose of my testimony is to present the results of ABS Consulting's
7 independent analyses of risk of uninsured loss to Gulf's transmission and
8 distribution assets. The study includes storm loss analysis and Reserve
9 solvency analysis.

10

11 Q. Please briefly describe these studies performed for the Company.

12 A. ABS Consulting performed two analyses relative to the Gulf's Reserve: the
13 Hurricane Loss Analysis and the Reserve Solvency Analysis, which are
14 included as Schedule 1 of my exhibit. The Loss Analysis is a probabilistic
15 storm analysis that uses proprietary software to develop an estimate of the
16 expected annual amount of uninsured hurricane losses to which Gulf is
17 exposed. The Solvency Analysis is a dynamic financial simulation
18 analysis that evaluates the performance of the Reserve in terms of the
19 expected balance of the Reserve and the likelihood of insolvency over an
20 eight-year period, given the potential uninsured losses determined from
21 the Loss Analysis, at given initial Reserve balance and annual accrual
22 levels.

23

24 Q. Please summarize the results of your analyses.

1 A. The Loss Analysis concluded that the total expected annual uninsured
2 cost to Gulf's system from all hurricanes is estimated to be \$6.4 million
3 annually. The Solvency Analysis demonstrated that, assuming an \$80
4 million initial Reserve balance and an accrual level of \$3.5 million would
5 result in an expected Reserve Balance of \$63 million and a probability of
6 insolvency of 15% at the end of the eight-year simulation time horizon.
7

8 **LOSS ANALYSIS**

9 Q. Please explain the Loss Analysis you performed.

10 A. The Loss Analysis determined the expected magnitude of hurricane
11 losses to Gulf's transmission and distribution (T&D) system. Hurricane
12 losses include the Operations and Maintenance (O&M) portion of the cost,
13 exclusive of capital and nominal labor, associated with repair and/or
14 replacement of Gulf's T&D assets necessary to promptly restore service in
15 a post storm environment.
16

17 Q. Please describe the computer software used to perform the Loss Analysis.

18 A. USWINDTM is a probabilistic model designed to estimate damage and
19 losses due to the occurrence of hurricanes. EQECAT proprietary
20 computer software USWINDTM is one of only four models evaluated and
21 determined acceptable by the Florida Commission on Hurricane Loss
22 Projection Methodology (FCHLPM) for projecting hurricane loss costs.

23 Probabilistic Annual Damage & Loss is computed using the results
24 of over 100,000 random variable storms. Annual damage and loss
25 estimates are developed for each individual site and aggregated to overall

1 portfolio damage and loss amounts. USWIND's™ climatological models
2 are based on the National Oceanic and Atmospheric Administration's
3 (NOAA) National Weather Service (NWS) Technical Reports.

4 The version of USWIND™ currently reviewed by the FCHLPM
5 utilizes the FCHLPM's Official Storm Set of November 1, 2003, which
6 includes hurricanes affecting Florida during the period 1900 through 2002.

7
8 Q. Does USWIND™ take into account storm frequency and severity?

9 A. Yes. The analysis is based on storm frequency and severity distributions
10 developed from the entire 103-year historical record. Year-to-year
11 variability in storm frequency and severity distributions has not been
12 included.

13
14 Q. Do the storm frequency assumptions include the possibility of having
15 multiple hurricanes making landfall within Florida in any given year?

16 A. Yes. The current version of USWIND™ does include the possibility of
17 having multiple hurricane landfalls within Florida in any given year,
18 including the impact of such landfalls on aggregate losses, consistent with
19 the 2004-2005 hurricane seasons.

20
21 Q. Did the Loss Analysis take into account the frequency of storms during the
22 2004 and 2005 storm seasons?

23 A. No. The storm database used by USWIND™ is a combination of historical
24 and random variable storms. NOAA/NWS must update the data set
25 before historical data becomes a part of the storm database used by

1 USWIND™. The version of USWIND™ utilizing the updated data set
2 must, then, be evaluated and approved by the FCHLPM. Information from
3 the 2003 through 2005 hurricane seasons is likely to be incorporated into
4 future versions of USWIND™, consistent with scientific opinion and
5 subject to review by the FCHLPM and its professional team.

6

7 Q. Do you expect the frequency of storms during 2004-2005 will significantly
8 impact the frequency estimate?

9 A. No. There could be a slight increase in the frequency estimate as a result
10 of including data points reflecting the 2004-2005 storm seasons in the
11 storm database. Given the size of the storm database, however, the
12 increase is not likely to be large.

13

14 Q. Did the 2004-2005 storm seasons have any effect on the Loss Analysis?

15 A. Yes. While the frequency and severity of the 2004-2005 storm seasons
16 have not yet been incorporated into the USWIND™ model, Gulf's costs of
17 storm restoration from the 2004-2005 storm seasons were incorporated
18 into the Loss Analysis. The 2004-2005 storm restoration costs provide
19 data points on the losses associated with specific levels of damage.

20

21 Q. What were the results of the Loss Analysis?

22 A. I concluded that the total expected annual uninsured cost to Gulf's system
23 from all hurricanes is estimated to be \$6.4 million annually.

24

25 Q. What does this expected annual loss estimate represent?

1 A. The expected annual loss estimate represents the average annual cost
2 associated with damage to transmission and distribution assets, resulting
3 from hurricanes over a long period of time.

4
5 Q. Is the Loss Analysis performed for Gulf the same analysis performed for
6 insurance companies to price an insurance premium?

7 A. Yes. The natural hazards loss modeling and analysis would be similar for
8 an insurance company, electric utility, or other entity. The expected
9 annual loss is also known as the "Pure Premium," which when insurance
10 is available is the insurance premium level needed to pay just the
11 expected losses. Insurance companies add their expenses and profit
12 margin to the Pure Premium to develop the premium charged to
13 customers.

14
15

SOLVENCY ANALYSIS

16 Q. Please explain the Solvency Analysis you performed.

17 A. ABS Consulting performed a dynamic financial simulation analysis of the
18 impact of the estimated windstorm losses on Gulf's Reserve for the
19 specified initial Reserve balance and level of annual funding. The starting
20 assumption for the Solvency Analysis was a Reserve balance of \$80
21 million. This Solvency Analysis performed 10,000 simulations of
22 windstorm losses within the Gulf service territory, each covering an eight-
23 year period, to determine the effect of the charges for loss on the Reserve.
24 Monte Carlo simulations were used to generate loss samples consistent
25 with the expected \$6.4 million annual Loss Analysis results. The analysis

1 provides the expected balance of the Reserve in each year of the
2 simulation accounting for the annual accrual, investment income,
3 expenses, and losses using a financial model.
4

5 Q. What is a Monte Carlo analysis?

6 A. Monte Carlo analysis is a technique used to model multiple storm seasons
7 and simulate variable storm losses consistent with the results of the Loss
8 Analysis. Because storm seasons and losses are highly variable, 10,000
9 eight-year simulations are performed to estimate the performance of the
10 Reserve with the given balance and accrual levels.
11

12 Q. Are the results of the Loss Analysis incorporated in the Solvency
13 Analysis?

14 A. Yes. Both the likelihoods and amounts of uninsured annual losses
15 determined in the Loss Analysis are used to simulate losses in each of the
16 eight years in the Solvency Analysis in order to determine the likelihood of
17 insolvency.
18

19 Q. Did the 2004-2005 storm seasons affect the Solvency Analysis?

20 A. Yes. The costs of Gulf's storm restoration activities from the 2004-2005
21 storm seasons are reflected in the Loss Analysis and are included in the
22 expected annual losses. These results are inputs to the Solvency
23 Analysis. Each year of the eight-year Solvency analyses uses these
24 projected losses to simulate the cost of annual storm restoration from the

1 Reserve fund. These costs reflect past Gulf storm restoration experience
2 including those from the most recent 2004-2005 seasons.

3

4 Q. Please describe the assumptions that were included in the Solvency
5 Analysis.

6 A. Solvency computations were performed with an initial Reserve balance of
7 \$80 million and an annual accrual of \$3.5 million. Further, all results are
8 shown in constant 2005 dollars. Investment earnings were assumed to
9 earn at a rate of 2.76%, and negative Reserve balances were assumed to
10 be financed with an unlimited line of credit costing 7.95%. Also, the
11 analysis performed included certain assumptions regarding loss
12 exposures. These include assumptions regarding storm frequency and
13 severity, future Gulf system growth, and future increased cost for system
14 restoration due to inflation.

15

16 Q. Please describe the assumptions regarding future Gulf system growth and
17 future cost for system restoration due to inflation.

18 A. The analysis considered future growth of the Gulf customer base, inflation
19 of system assets and future system restoration cost at a combined rate
20 4% per year.

21

22 Q. Did you make a recommendation for a specific Reserve level?

23 A. No. My role is not to recommend a Reserve level. It is to present
24 probabilities to Gulf regarding Reserve solvency based on various
25 financial assumptions. There are large uncertainties associated with the

1 hurricane hazard and the specific storm outcomes have large variances.
2 There could be hurricane seasons with no loss at all and hurricane
3 seasons with hundreds of millions in losses. The Solvency Analysis
4 presents information about the likelihood of insolvency that can be used to
5 make decisions about the Reserve.

6
7 Q. Please summarize the results of the Solvency Analysis.

8 A. The Reserve performance can be viewed in terms of the expected
9 balance of the Reserve and the likelihood of insolvency occurring in any
10 year of the eight-year period. Based on an initial Reserve balance of
11 \$80 million and an annual accrual of \$3.5 million, the expected balance of
12 the Reserve at the end of eight years is \$63 million and there is a 15%
13 chance of insolvency during this period.

14
15 Q. The Company's request for an additional \$70 million is expected to result
16 in a reserve level of approximately \$80 million at the time the bonds are
17 issued. Based upon your analyses, is this a reasonable reserve level?

18 A. Yes. Schedule 2 of my exhibit shows the frequency-weighted average
19 transmission and distribution storm damages from single storms that are
20 rated Category 3 and 4 on the Saffir-Simpson Intensity (SSI) Scale that
21 could make landfall within ten nautical miles of the specified milepost
22 (horizontal or x axis) in or near Gulf's service territory. These damage
23 amounts are based upon the values in my Schedule 1, Figure 2-4 and
24 Figure 2-5. As shown in Schedule 2, the initial reserve balance of \$80
25 million and the expected value at the end of eight years of \$63 million

1 would cover most but not all single SSI-3 T&D storm damages based
2 upon the landfall locations as shown on page 1 of 2. These Reserve
3 levels would cover only some SSI-4 T&D storm damages as shown on
4 page 2 of 2.

5 In summary, based on the current value of Gulf's T&D assets, an
6 initial Reserve balance of \$80 million would be adequate to cover the
7 uninsured T&D storm losses for some, but not all storms.

8

9 Q. Does this conclude your direct testimony?

10 A. Yes.

11

12

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25

AFFIDAVIT

STATE OF CALIFORNIA)
)
COUNTY OF ALAMEDA)

Docket No. _____

Before me the undersigned authority, personally appeared Steven P. Harris, who being first duly sworn, deposes, and says that the foregoing testimony is true and correct to the best of his knowledge, information, and belief.

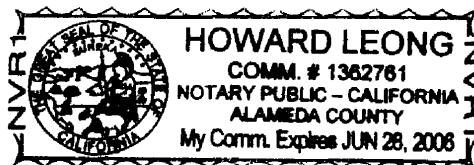


Steven P. Harris

Sworn to and subscribed before me this 17 day of February, 2006.



Notary Public

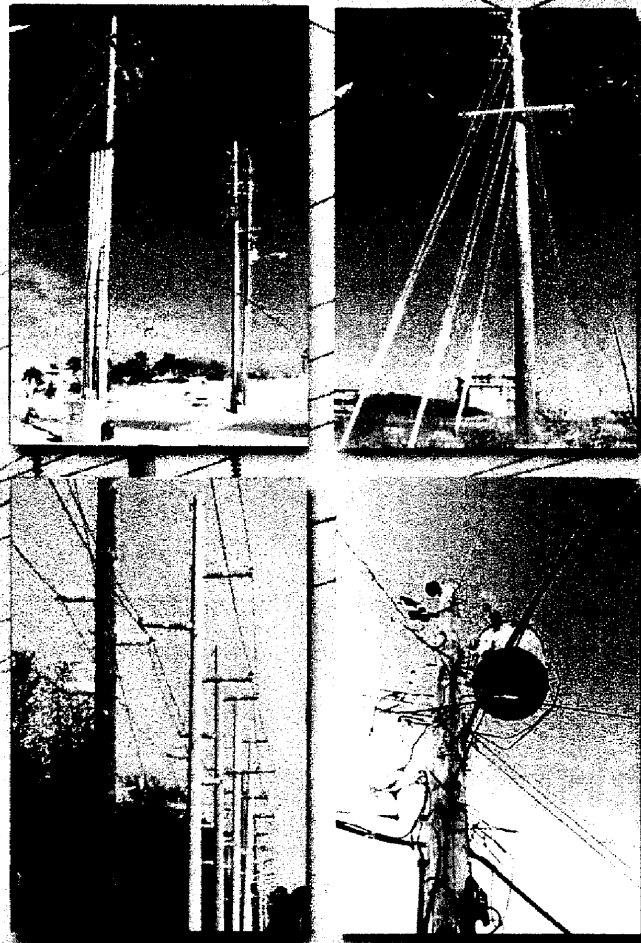




Florida Public Service Commission
Docket No. _____
GULF POWER COMPANY
Witness: Steven P. Harris
Exhibit No. ____ (SPH-1)
Schedule 1
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Gulf Power Company

Hurricane Loss and Reserve Solvency Analyses



ABS Consulting



February
2006

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DISCLAIMER

THE RECIPIENT OF THIS CONFIDENTIAL "RISK PROFILE MEMORANDUM" RECOGNIZES THE INHERENT RISKS THAT ARE ATTENDANT WITH THE RISK ANALYSIS WHICH IS THE SUBJECT OF THIS MEMORANDUM. IN PERFORMING ITS PROFESSIONAL SERVICES, ABSG CONSULTING (ABS CONSULTING) HAS PERFORMED IN A WORKMANLIKE MANNER CONSISTENT WITH INDUSTRY STANDARDS.

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A SIGNIFICANT AMOUNT OF UNCERTAINTY EXISTS IN KEY ANALYSIS PARAMETERS THAT CAN ONLY BE ESTIMATED. PARTICULARLY, SUCH UNCERTAINTIES EXIST IN, BUT ARE NOT LIMITED TO: STORM SEVERITY AND LOCATIONS; ASSET VULNERABILITIES, REPLACEMENT COSTS, AND OTHER COMPUTATIONAL PARAMETERS, ANY OF WHICH ALONE CAN CAUSE ESTIMATED LOSSES TO BE SIGNIFICANTLY DIFFERENT THAN LOSSES SUSTAINED IN SPECIFIC EVENTS.

Risk Profile

The following is a summary description of analyses performed by ABS Consulting of Gulf Power Company's (Gulf) storm loss exposure and Reserve solvency. This report is intended to be used solely by Gulf and the Florida Public Service Commission for estimation of potential future Gulf losses to the Reserve and the estimation of the performance of the Reserve fund.

OWNER	Gulf Power Company	
ASSETS	Transmission and Distribution (T & D) System consisting of: Transmission towers, and conductors; Distribution poles, transformers, conductors, lighting and other miscellaneous assets	
LOCATION	All T & D assets located within State of Florida	
ASSET VALUE	Normal replacement value is approximately \$ 1.8 billion, of which approximately 25% is transmission and 75% is distribution	
LOSS PERIL	Hurricane Windstorm (SSI 1 to 5)	
EXPECTED ANNUAL DAMAGE	\$6.4 million	
1% AGGREGATE DAMAGE EXCEEDANCE VALUE	\$125 million (one year)	
	RESERVE PERFORMANCE	
Storm Fund Initial Balance	Expected Fund Balance at 8 years	Probability of Insolvency within 8 years
\$80 million	\$63 million	15%

1. Hurricane Loss Analysis

Gulf Power (Gulf) transmission and distribution (T & D) systems are exposed to and in the past have sustained damage from hurricanes. The exposure of these assets to hurricane damage is described and potential losses are quantified. Loss analyses were performed by ABS Consulting, using an advanced computer model simulation program USWIND™ developed by EQECAT, an ABS Group Company. All results which are presented here have been calculated using USWIND, and the Gulf provided T & D asset portfolio data.

The hurricane exposure is analyzed from a probabilistic approach, which considers the full range of potential storm characteristics and corresponding losses. Probabilistic analyses identify the probability of damage exceeding a specific dollar amount. USWIND™ is a probabilistic model designed to estimate damage and losses due to the occurrence of hurricanes. EQECAT proprietary computer software USWIND is one of only four models evaluated and determined acceptable by the Florida Commission on Hurricane Loss Projection Methodology (FCHLPM) for projecting hurricane loss costs (Reference 1).

Probabilistic Annual Damage & Loss is computed using the results of thousands of random variable storms. Annual damage and loss estimates are developed for each individual site and aggregated to overall portfolio damage and loss amounts. Damage is defined as the Operations and Maintenance (O&M) portion of the cost, exclusive of capital and nominal labor, associated with repair and/or replacement of T & D assets necessary to promptly restore service in a post storm environment. This cost is typically larger than the costs associated with scheduled repair and replacement programs.

Factors considered in the analysis include the location of Gulf's overhead and underground T & D assets, the probability of storms of different intensities and/or landfall points impacting those assets, the vulnerability of those assets to storm damage, and the costs to repair assets and restore electrical service.

Transmission and Distribution asset data are provided in the Tables 1-1 and 1-2 below. Distribution asset values are shown in Figure 1-1.

1. Hurricane Loss Analysis

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Table 1-1
Distribution Asset Replacement Values by County

County	Replacement Value
Escambia	\$479,746,894
Santa Rosa	\$278,411,444
Okaloosa	\$236,430,006
Bay	\$228,189,305
Washington	\$69,418,366
Walton	\$59,874,984
Holmes	\$20,168,270
Jackson	\$11,728,531
Gadsden	\$187,595
Total	\$1,384,155,396

Table 1-2
Transmission Asset Replacement Value

	Replacement Value
Total	\$455,479,998

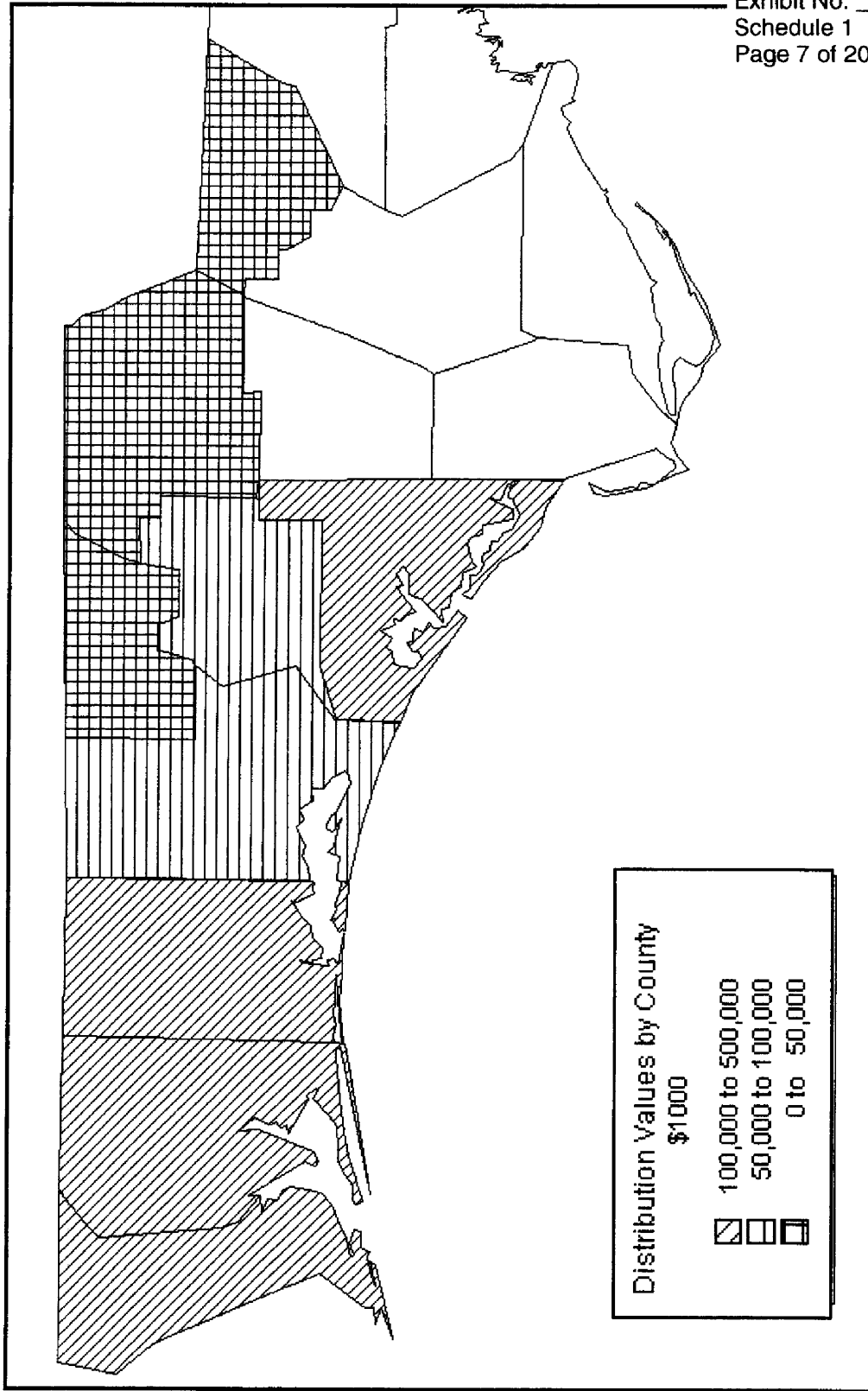


Figure 1-1: Distribution Asset Values by County

Transmission and Distribution Asset Vulnerabilities

The Gulf loss history from the 2004 Hurricane Ivan and 2005 Hurricane Dennis were considered in the calibration of the storm loss model. These hurricanes provide data on recent storm recovery costs from moderate intensity events. The 2004-05 storm loss experience includes the effects of many factors including the post hurricane costs of labor, mutual aid and other factors associated with the storm restoration process utilized by Gulf Power. The 2004-05 loss history is believed to be most reflective of the current Gulf storm restoration practices and cost experience.

Loss Estimation Methodology

The basic components of the hurricane risk analysis include:

- **Assets at risk:** define and locate
- **Storm hazard:** apply probabilistic storm model for the region
- **Asset vulnerabilities:** severity (wind speed) versus damage
- **Portfolio Analysis:** probabilistic analysis -damage/ loss

Aggregate Damage Exceedance and Expected Annual Damage

A probabilistic database of losses is developed using the storm hazard, assets at risk and their vulnerabilities. For each hurricane, the center, shape, geographical orientation, track and wind speeds were defined. The wind field for each storm is integrated with the asset vulnerability and the asset locations to compute the damage. The annual frequency and the portfolio damage for each simulated hurricane is determined. By manipulating this database of thousands of hurricane losses, various loss exceedance or non-exceedance distributions are generated.

The frequencies and computed damage for all hurricanes are combined to calculate the expected annual loss and the annual aggregate exceedance relations.

Aggregate damage exceedance calculations are developed by keeping a running total of damage from ***all possible events*** in a given time period. At the end of each time period, the aggregate damage for all events is then determined by probabilistically summing the damage distribution from each event, taking into account the event frequency. The process considers the probability of having zero events, one event, two events, etc. during the time period.

A series of probabilistic analyses were performed, using the vulnerability curves derived for Gulf assets and the computer program USWIND™. A summary of the analysis is presented in Table 1-3, which shows the aggregate damage (i.e. deductible is "0") exceedance probability for damage layers between zero and over \$250 million dollars.

For each damage layer shown, the probability of damage exceeding a specified value is shown. For example, the probability of damage exceeding \$100 million in one year is 1.4%. The analysis calculates the probability of damage from all storms and aggregates the total.

Table 1-3 provides the aggregate damage exceedance probabilities for the Gulf T & D assets analyzed for a series of layers. Each layer has a layer amount of \$10 million, except for the final layer which represents all damage \$250 million and greater. The value in the first column, labeled Damage Layer, is the attachment point for each layer, with the exception of the last layer, for which the attachment point is \$250 million.

The second column of the table, labeled 1 year Exceedance Probability, provides the 1-year modeled probability of penetrating each layer, i.e. the probability that the total damage from all events in a 1 year period will exceed the attachment point of the layer.

The expected annual damage (EAD) and exposure to Gulf's Reserve from hurricanes is \$6.4 million. This value represents the average damage from all simulated storms. The EAD is not expected to occur each and every year. Some years will have no damage from hurricanes, some years will have small amounts of damage and a few years will have large amounts of damage. The EAD represents the average of all storm years over a long period of time.

Table 1-3
GULF POWER T & D ASSETS
AGGREGATE DAMAGE EXCEEDANCE PROBABILITIES

Damage Layer	1 Year
(\$millions)	Exceedance Probability
0 (\geq .01)	30.9%
10	13.0%
20	6.6%
30	4.7%
40	3.8%
50	3.1%
60	2.6%
70	2.2%
80	1.9%
90	1.6%
100	1.4%
110	1.2%
120	1.1%
130	0.9%
140	0.8%
150	0.7%
160	0.6%
170	0.6%
180	0.5%
190	0.4%
200	0.4%
210	0.4%
220	0.3%
230	0.3%
240	0.3%
>250	0.2%

2. Hurricane Landfall Analyses for SSI Ranges

In order to provide further insight into Gulf's risk profile, the full set of stochastic hurricane events were analyzed by landfall for four storm intensities, SSI 1 through 4. The landfall locations are at mile posts 800 through 1000. Figure 2-1 illustrates the landfall locations. These mile posts extend east from Pascagoula, MS to Apalachicola, FL at approximately 10 mile intervals.

The full set of stochastic storms within each SSI category was analyzed on Gulf's T&D portfolio. For each milepost and SSI category, the frequency-weighted average damage was computed from all stochastic storms making landfall within 10 nautical miles of a given milepost and within that SSI category. Figures 2-2 through 2-5 provide these results graphically.

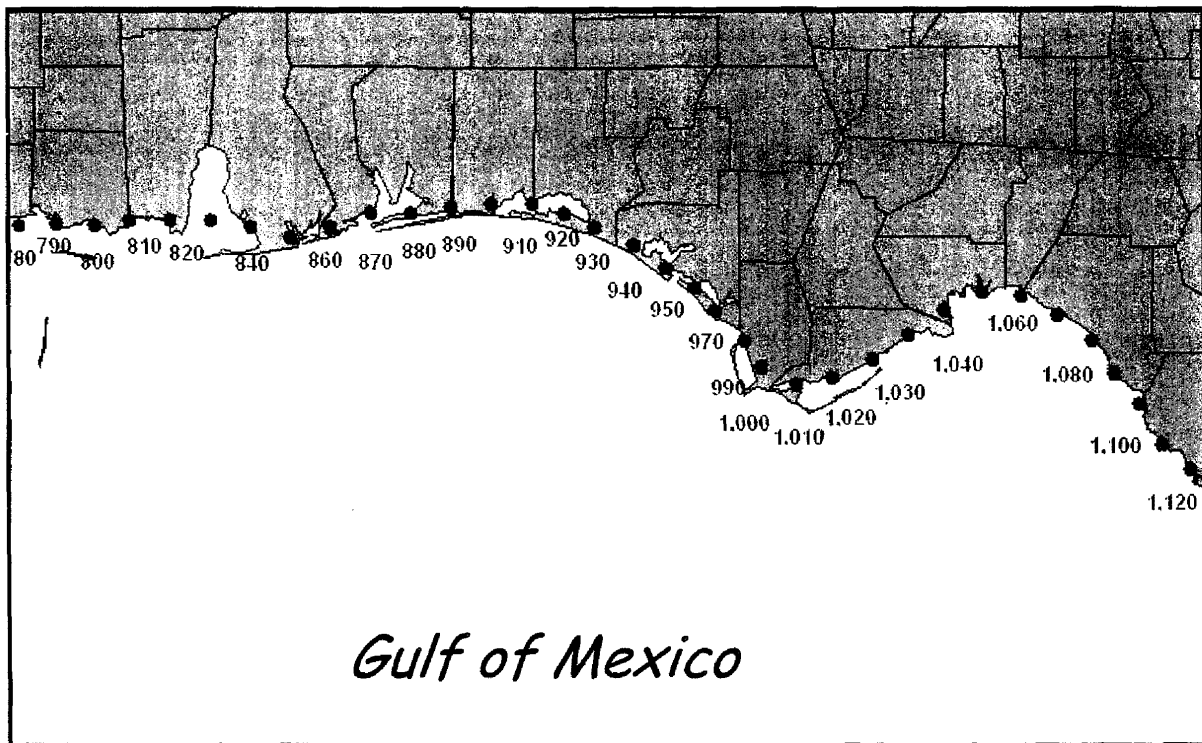


Figure 2-1: Storm Landfall Mile Post

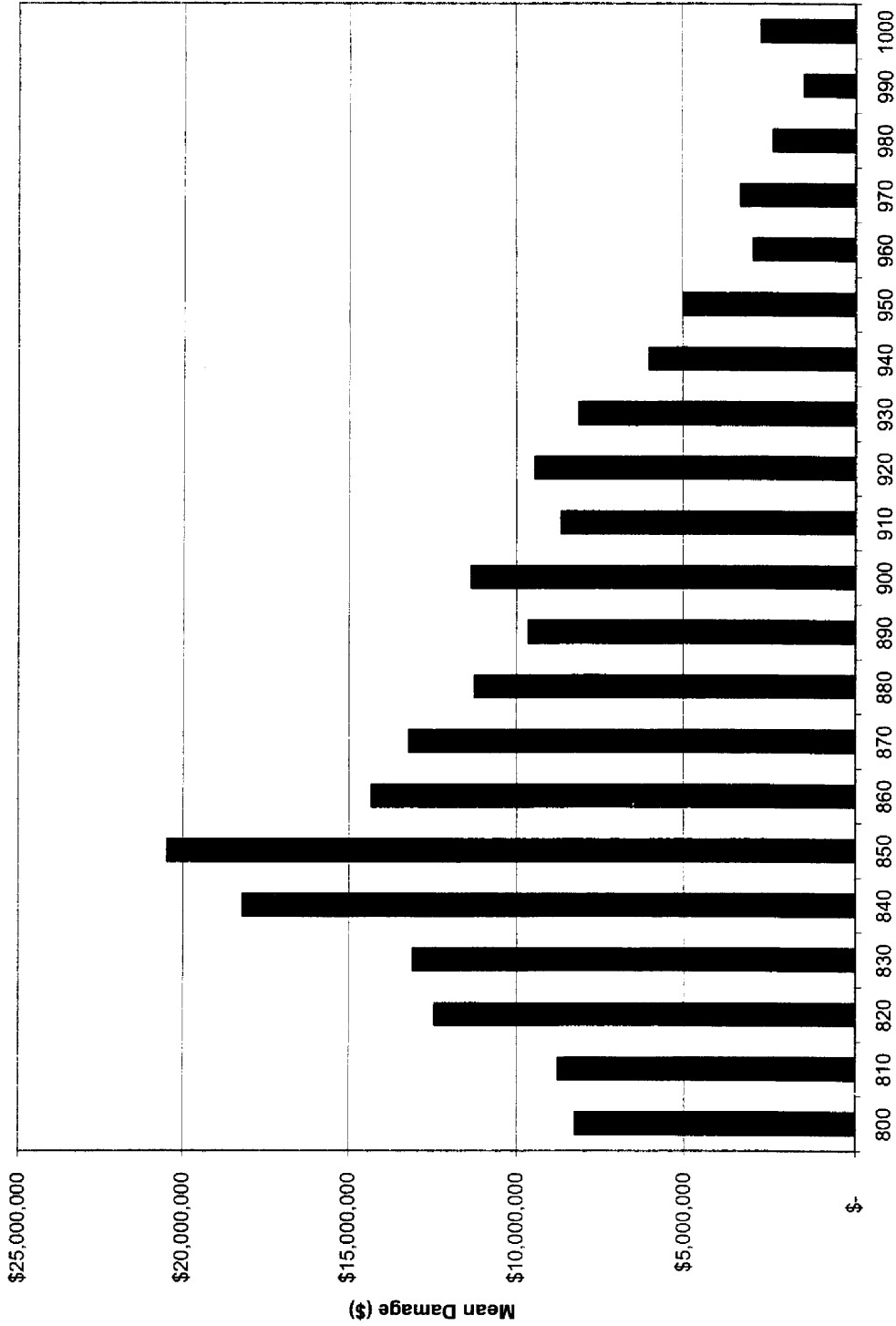


Figure 2-2: Frequency Weighted Average Transmission & Distribution Damage from SSI 1 Landfalls

2. Landfall Analyses for SSI Ranges

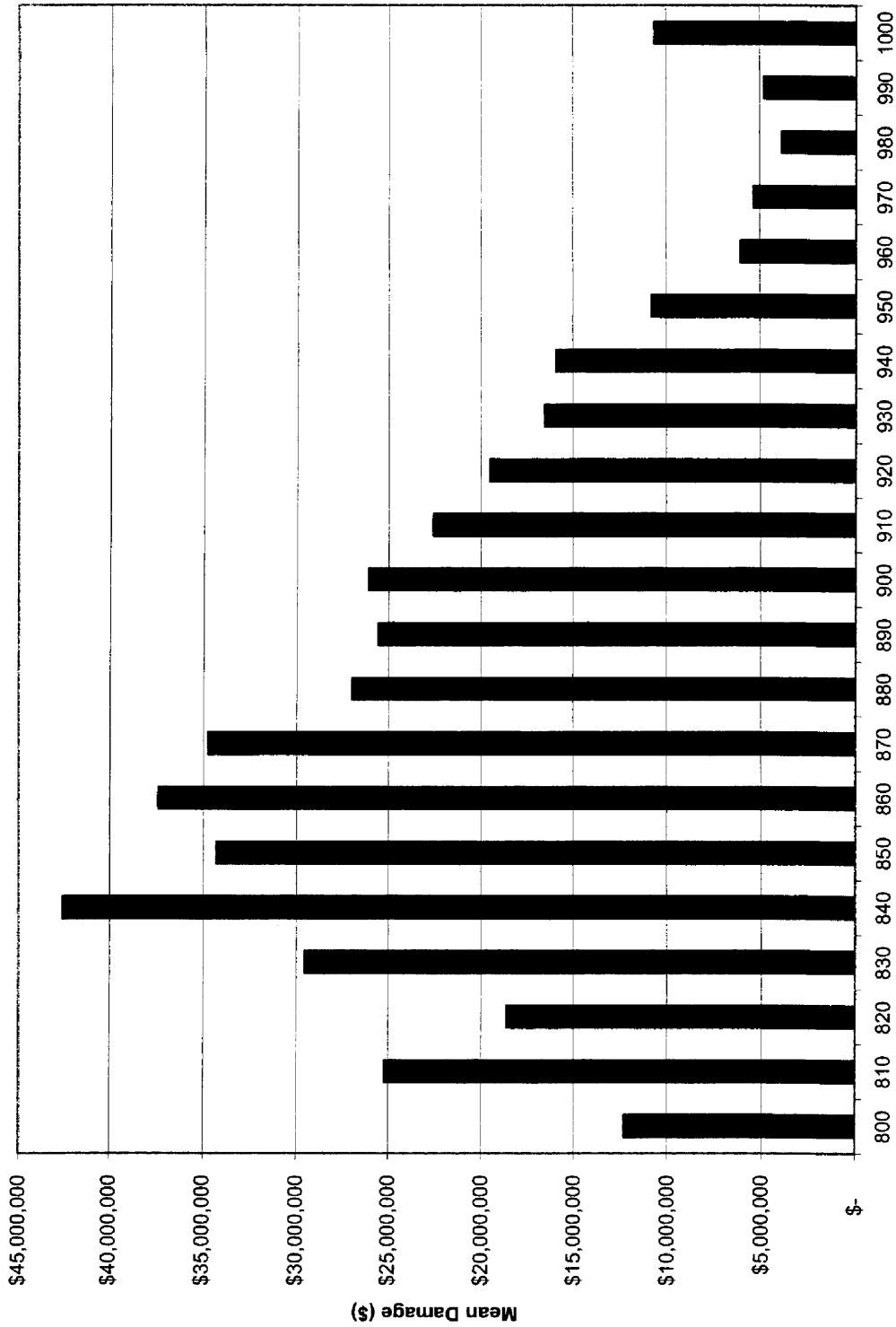


Figure 2-3: Frequency Weighted Average Transmission & Distribution Damage from SSI 2 Landfalls

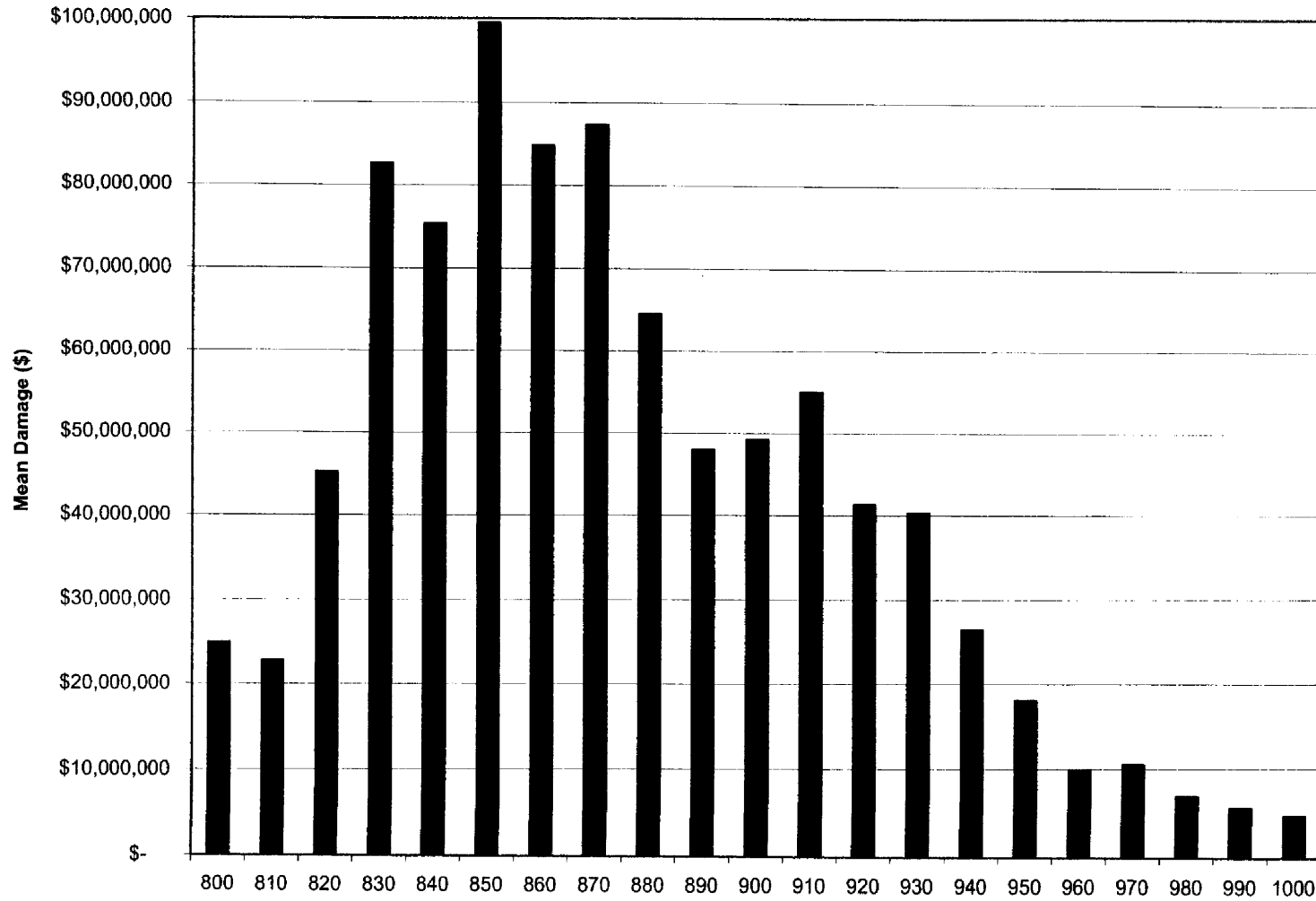


Figure 2-4: Frequency Weighted Average Transmission & Distribution Damage from SSI 3 Landfalls

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2. Landfall Analyses for SSI Ranges

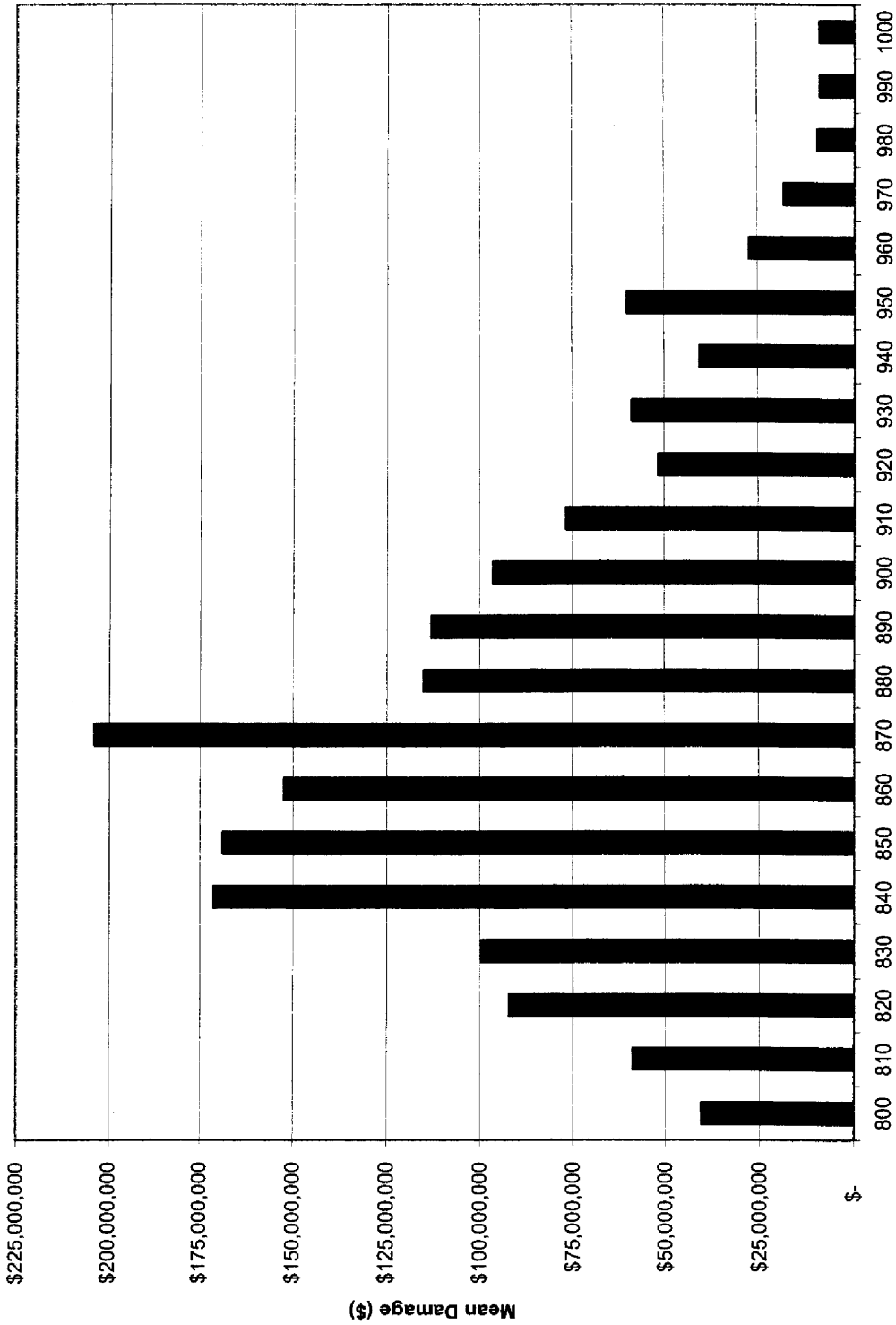


Figure 2-5: Frequency Weighted Average Transmission & Distribution Damage from SSI 4 Landfalls

3. Reserve Solvency Analysis

A probabilistic analysis of losses from hurricanes was performed for Gulf Power (Gulf) to determine their potential impact on the Reserve fund.

Analysis

The Reserve solvency analysis consisted of performing 10,000 iterations of hurricane loss simulations within the Gulf service territory, each covering an 8-year period, to determine the effect of the charges for damage on the Gulf Reserve. Monte Carlo simulations were used to generate damage samples for the analysis. The analysis provides an estimate of the Reserve assets in each year of the simulation, accounting for the annual accrual, expenses, fund earnings when balances are positive, borrowing costs when fund balances are negative and storm damage using a dynamic financial model.

Assumptions

The analysis performed included the following assumptions:

- Computations are performed on an after tax basis.
- All results are shown in constant 2005 Reserve dollars.
- An initial Reserve balance of \$80 million.
- Annual Reserve accruals of \$3.5 million were assumed in the analysis.
- Negative Reserve balances are assumed to be financed with an unlimited line of credit costing 7.95% after tax.
- Positive Reserve balances are assumed to earn at an annual after tax rate of 2.76%.

The analysis results for the case analyzed are shown in Table 2-1 below. The results show the Annual Reserve Accrual amount, the mean (expected) Reserve fund balance as well as the probability that the Reserve fund balance will be negative in any one or more of the five years of the simulated time horizon.

Table 3-1
GULF POWER T & D
RESERVE FUND ACCRUALS AND
PROBABILITY OF RESERVE FUND INSOLVENCY

Initial Reserve Balance	Annual Reserve Accrual	Expected Reserve Balance at end of 8 years	Probability of Insolvency within 8 years
(\$ millions)	(\$ millions)	(\$ millions)	%
\$80	\$3.5	\$63	15%

Figure 3-1 below shows the results of the Reserve fund solvency analysis. These results show the mean (expected) Reserve fund balance as well as the 5th and 95th percentiles.

For example, given an initial Reserve balance of \$80million and an Annual Accrual of \$3.5 million, Figure 3-1 illustrates the expected performance of the Reserve. The Reserve has a mean (expected) Balance of \$63 at the end of the eight year period. The 5th percentile and 95th percentile 5 year ending Reserve Balances are \$130 million and negative \$(141) million respectively. The Reserve fund has a 15% chance of insolvency in one or more years of the eight year simulation.

The first year of each simulation begins with a \$80 million Reserve balance. The first year's annual accrual will bring the reserve balance to \$83.5 million. Table 1-3, shows that the likelihood of storm damage exceeding \$80 million in a single year is 1.9%.

The accrual of \$3.5 million is less than the Expected Annual Damage from storms of \$6.4 million. Therefore with each passing year, the Reserve ending balance has a decreasing likelihood of accumulating surpluses. The expected (mean) Reserve balance declines gradually over the eight year simulation to \$63 million at eight years reflecting the annual accrual less than the expected annual damage. At the end of eight years, the likelihood of storm damage in excess of \$63 million is about 2.5%.

3. Reserve Solvency Analysis

Gulf Power Reserve Solvency Analyses

Annual Accrual = \$3,500,000
 Initial Balance = \$80,000,000

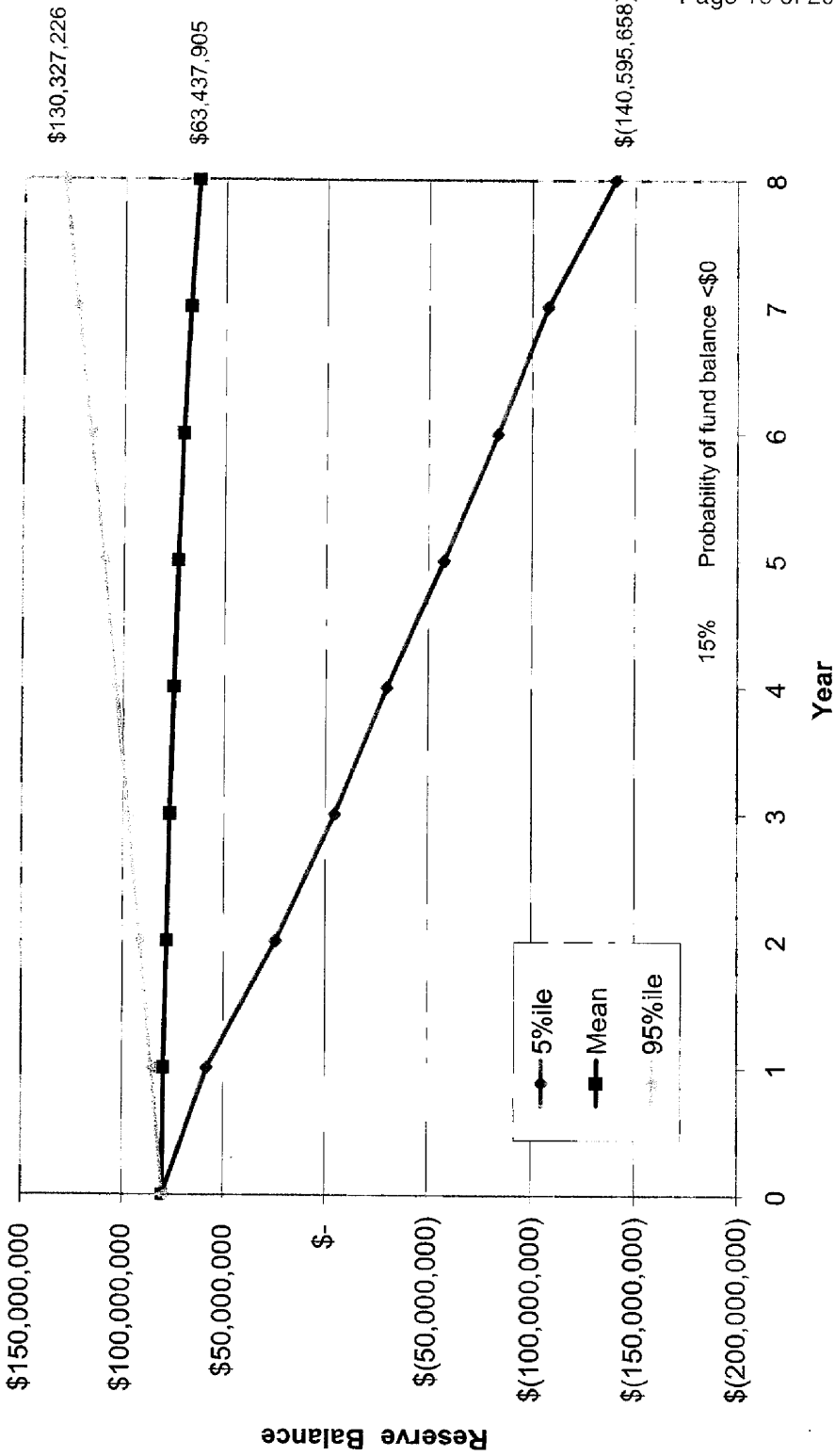


Figure 3-1: Reserve Solvency Analysis Results: \$80 million Initial Balance, \$3.5 million Annual Accrual

Florida Public Service Commission
Docket No. _____

GULF POWER COMPANY

Witness: Steven P. Harris

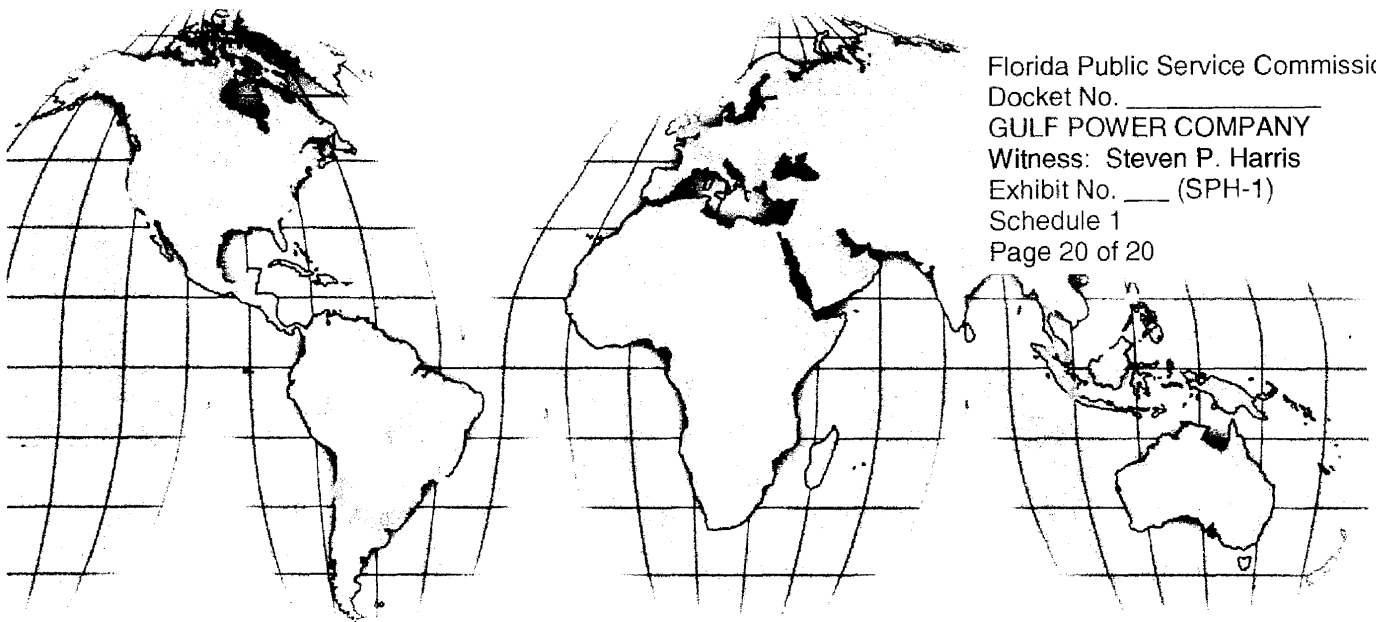
Exhibit No. ____ (SPH-1)

Schedule 1

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Macae, Brasil
 55-24-2763-7018
 Fax 55-24-2773-5997

Rio de Janeiro, Brasil
 55-21-2-518-3535
 Fax 55-21-2-516-1613

Sao Paulo, Brasil
 55-11-3846-8611
 Fax 55-11-3846-8511

Valparaiso, Chile
 56-32-253743
 Fax 56-32-210510

Poza Rica, Mexico
 Tel/Fax 52-782-824-8673

Reynosa, Mexico
 52-899-920-2642
 Fax 51-899-920-1484

Ciudad del Carmen, Mexico
 52-938-382-8719
 Fax 52-938-382-8724

Mexico City, Mexico
 52-55-5511-4240
 Fax 52-55-5525-6294

Monterrey, Mexico
 52-81-8319-0290
 Fax 52-81-8319-0291

Veracruz, Mexico
 Tel 52-229-932-1333
 Fax 52-229-932-4294

Villahermosa, Mexico
 52-993-316-7252
 Fax 52-993-316-0176

Caracas, Venezuela
 58-212-959-8996
 Fax 58-212-959-3929

Sofia, Bulgaria
 359-2-9632049
 Fax 359-2-669025

Paris, France
33-1-44-79-01-01
Fax 33-1-44-79-01-05

Frankfurt, Germany
49-6192-979104
Fax 49-6192-979105

Piraeus, Greece
 30-10-429-3804
 Fax 30-10-429-3809

Genoa, Italy
 39-010-251-2090
 Fax 39-010-251-2895

Rotterdam, The Netherlands
 31-10-206-0779
 Fax 31-10-412-0199

Vizcaya, Spain
 34-94-464-0444
 Fax 34-94-464-6293

Aberdeen, UK
 44-1224-579200
 Fax 44-1224-579259

London, UK
44-207-377-4501
Fax 44-207-377-4575

Warrington, UK
44-1925-287300
Fax 44-1925-287303

Navi Mumbai, India
 91-22-757-8780
 Fax 91-22-757-8784

New Delhi, India 110 019,
 Tel/Fax 91-98-103-08951

Jakarta, Indonesia
 65-6270-8663
 Fax 65-6270-9987

Tokyo, Japan
81-3-3830-3480
Fax 81-3-3830-3481

Yokohama, Japan
 81-45-451-1161
 Fax 81-45-451-2775

Pusan, Korea
 82-51-852-4661
 Fax 82-51-852-4660

Seoul, Korea
 822-2-552-4661
 Fax 52-2-552-4960

Kuala Lumpur, Malaysia
 603-79822455
 Fax 603-79813910

Shanghai, PRC
 86-21-6876-9266
 Fax 86-21-6876-9255

Manila, Philippines
 63-2-610-0424
 Fax 63-2-815-2427

Taiwan, Republic of China
 886-7-271-3463
 Fax 886-7-241-4583

Singapore, Singapore
 65-6270-8663
 Fax 65-6270-9987
 (EOE), 65-6779-3375
 Fax 65-6779-3620

Bangkok, Thailand
 66-2-6811334
 Fax 66-2-681-1338

Muscat, Oman
 968-597950/592461
 Fax 968-597934

Doha, Qatar
 974-44-13106
 Fax 974-44-13118

Dammam, Saudi Arabia
 966-3-847-3232 X235-237
 Fax 966-3-847-3131

Abu Dhabi, UAE
 971-2-6347181
 Fax 971-2-6331152

Dubai, UAE
 971-4-355-6541
 Fax 971-4-351-7188

JCP Geologists, Inc.
 Fremont, CA
 510-580-2000
 Fax 800-329-9527

Irvine, CA
 714-734-4242
 Fax 714-734-4252

Oakland, CA
510-817-3100
Fax 510-633-1050

Rockville, MD
301-921-2300
Fax 301-921-0373

Evergreen, CO
303-674-2990
Fax 303-674-8183

Bethesda, MD
 301-907-9100
 Fax 301-907-0050

Knoxville, TN
 865-966-5232
 Fax 865-966-5287

Memphis, TN
 901-312-9144
 Fax 901-312-9145

Houston, TX
 281-877-6100
 Fax 281-877-6701

[Clear Lake] Houston, TX
 281-480-3800
 Fax 281-480-0070

San Antonio, TX
 210-495-5195
 Fax 210-495-5134

Salt Lake City, UT
 801-333-7676
 Fax 801-333-7677

Richland, WA
 509-943-8823
 Fax 509-943-8825

Seattle, WA
 206-623-7232
 Fax 206-624-9268

Stillington, PA
 610-796-9080
 Fax 610-796-9081

St. Louis, MO
 314-994-7007
 Fax 314-994-0722

Stratham, NH
 603-778-1144
 Fax 603-778-7495

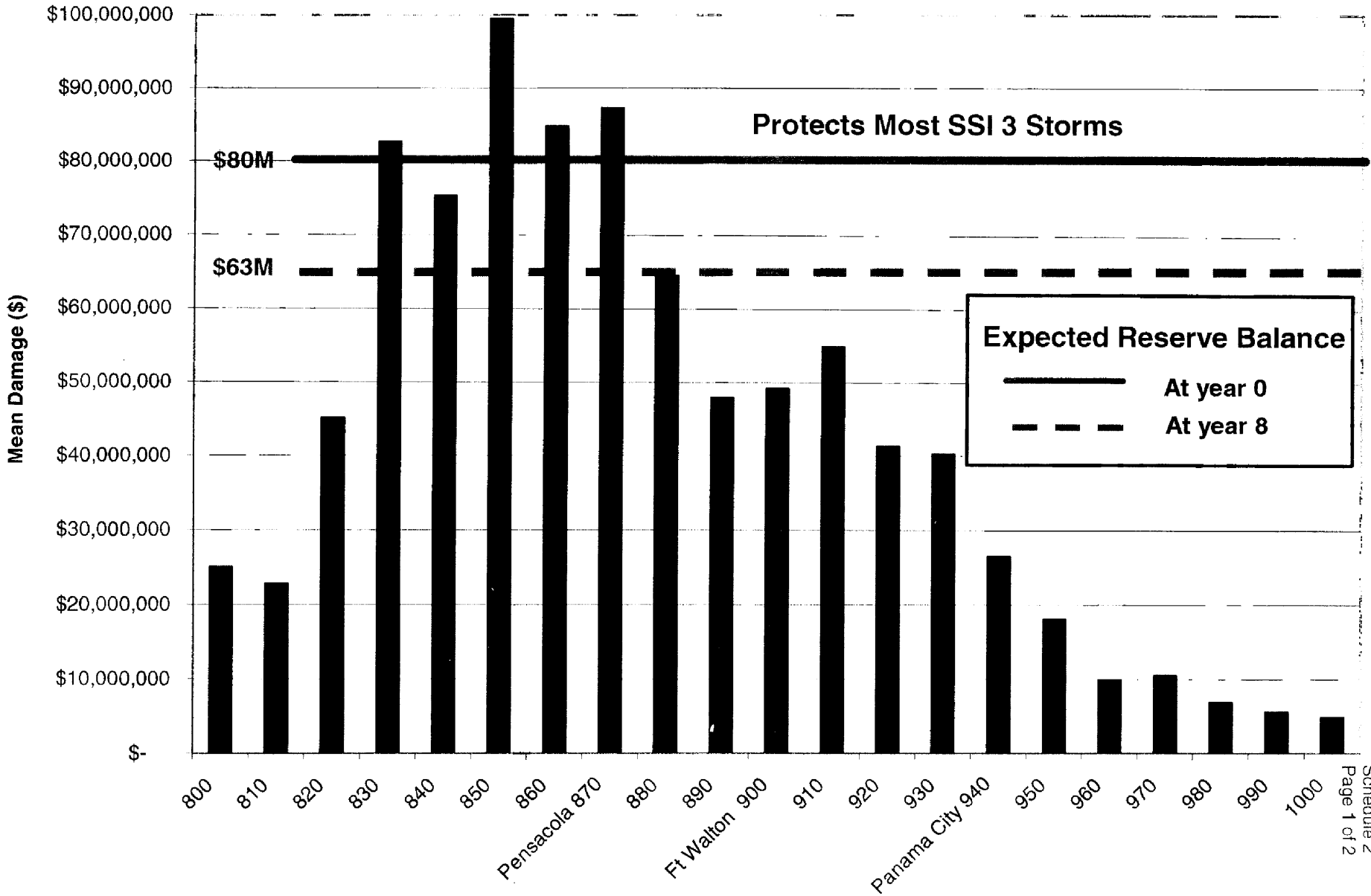
Wilmington, DE
302-239-7310
Fax 302-239-0306

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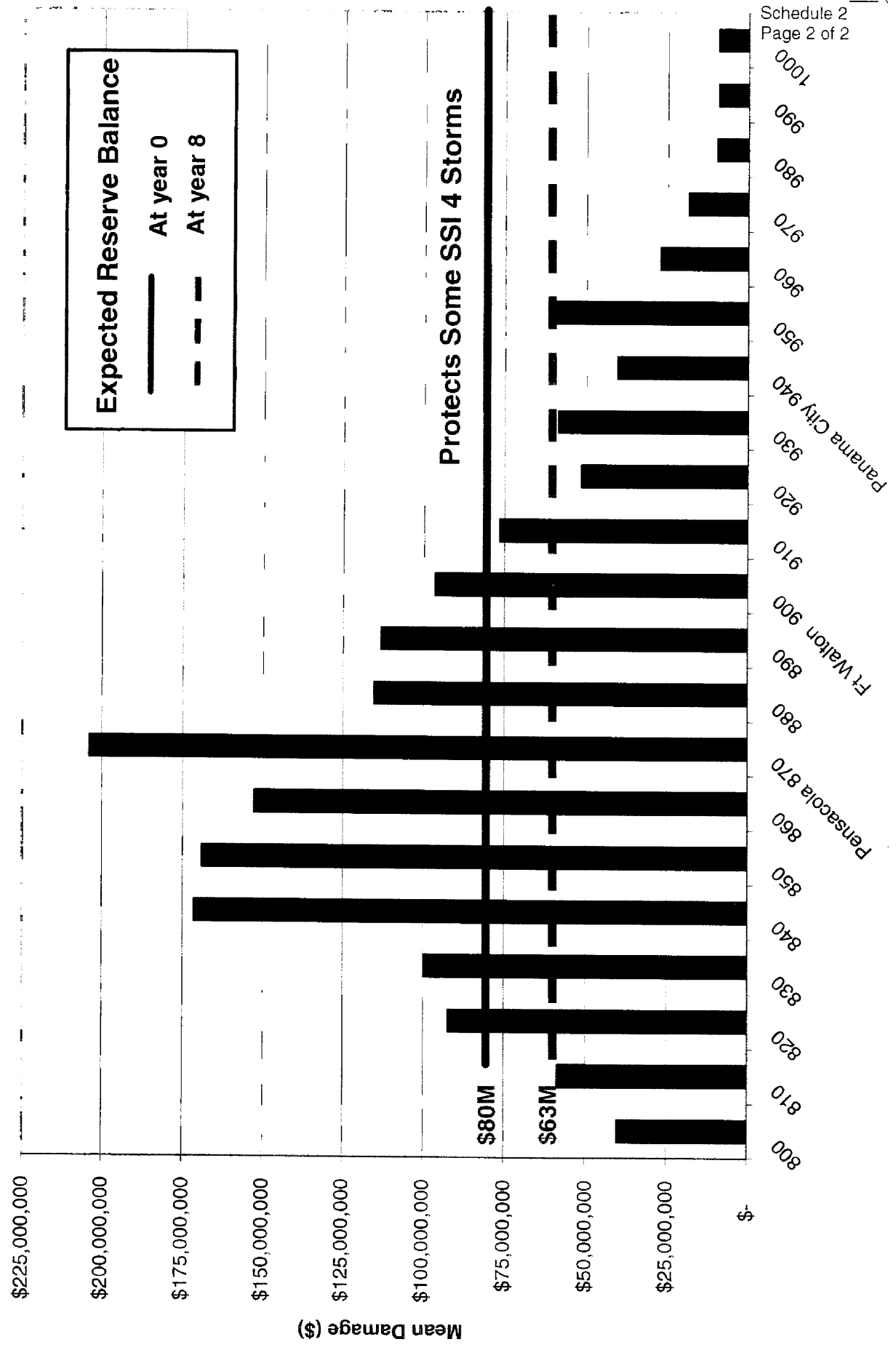


ABS PLAZA
 16855 NORTHCHASE DRIVE
 HOUSTON TEXAS 77060
 P 281.877.6100 F 281.877.6701

www.absc consulting.com
 info@absc consulting.com



**Protection afforded by \$80m Initial Balance and \$3.5m Annual Accrual
Against Potential T&D Storms Damage from a single SSI 3 Landfall at Milepost**



**Protection afforded by \$80m Initial Balance and \$3.5m Annual Accrual
 Against Potential T&D Storms Damage from a single SSI 4 Landfall at Milepost**

