

**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 050045-EI
FLORIDA POWER & LIGHT COMPANY**

MARCH 22, 2005

**IN RE: PETITION FOR RATE INCREASE BY
FLORIDA POWER & LIGHT COMPANY**

TESTIMONY & EXHIBITS OF:

STEVEN P. HARRIS

DOCUMENT NUMBER-DATE

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF STEVEN P. HARRIS

DOCKET NO. 050045-EI

MARCH 22, 2005

Q. Please state your name and business address.

A. My name is Steven P. Harris. My business address is ABSG Consulting, Inc. (ABS Consulting), 1111 Broadway Street, Oakland, California 94607.

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

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

Q. Please describe your educational background and business experience.

A. I hold Bachelors and Masters degrees in engineering from the University of California at Berkeley. I am a licensed civil engineer in the State of

1 California. Over the past 22 years, I have conducted and supervised
2 independent risk and financial studies for public utilities, insurance companies
3 and other entities, both regulated and unregulated. My areas of expertise
4 include natural hazard risk analysis, operational risk analysis, risk profiling
5 and financial analysis, insurance loss analysis, loss prevention and control,
6 business continuity planning and risk transfer.
7

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

13 I have performed or supervised windstorm (tropical storm or hurricane) loss
14 and solvency analyses for utilities including Florida Power & Light (FPL or
15 the Company). Additionally, I have performed loss analyses for earthquake
16 hazard for utilities including the Los Angeles Department of Water and
17 Power, the California-Oregon Transmission Project, Big Rivers Electric and
18 Anchorage Municipal Light and Power.
19

20 For energy companies that have assets in a wide array of geographic locations,
21 I have performed or supervised multi-peril analyses for all natural hazards,
22 including earthquakes, windstorms and ice storms.
23
24

1 **Q. Are you sponsoring an exhibit in this case?**

2 A. Yes. It is comprised of the following two documents:

3 Document SPH-1 – Storm Loss Analysis

4 Document SPH-2 – Storm Reserve Solvency Analysis

5

6

PURPOSE AND SUMMARY

7 **Q. What is the purpose of your testimony?**

8 A. The purpose of my testimony is to present the results of ABS Consulting's
9 independent analyses of risk of uninsured loss to FPL assets. These studies
10 include storm loss analysis and storm reserve solvency analysis.

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

12 A. ABS Consulting performed two studies relative to the Storm Reserve: The
13 Storm Reserve Loss Analysis (the Loss Analysis), and The Storm Reserve
14 Solvency Analysis (the Solvency Analysis). The Loss Analysis is a
15 probabilistic storm analysis that uses proprietary software to develop an
16 estimate of the expected annual amount of uninsured windstorm losses to
17 which FPL is exposed. The Solvency Analysis is a dynamic financial
18 simulation analysis that evaluates the performance of the Storm Reserve in
19 terms of the expected balance of the Storm Reserve and the likelihood of
20 insolvency over a 5-year period, given the potential uninsured losses
21 determined from the Loss Analysis, at various annual accrual levels.

22 **Q. Please summarize the results of your analyses.**

23 A. The Loss Analysis concluded that the total expected annual uninsured cost to
24 FPL's system from all windstorms is estimated to be \$73.7 million. The

1 Solvency Analysis demonstrated that, assuming any negative Storm Reserve
2 balances would be recovered over a period of two years, an accrual level of
3 \$120 million would result in an expected Storm Reserve Balance of \$367
4 million and a probability of insolvency of 8% at the end of the five-year
5 simulation time horizon. Based on a \$120 million annual accrual and recovery
6 of any Storm Reserve deficit over a two-year period, there is also a 39%
7 chance that the Storm Reserve fund balance could be greater than \$500
8 million at the end of five years.

9

10 **LOSS ANALYSIS**

11 **Q. Please summarize the Loss Analysis.**

12 A. The Loss Analysis determined the expected magnitude of windstorm losses to
13 FPL's Transmission and Distribution (T&D) system over periods of one, three
14 and five years. Windstorm losses include costs associated with service
15 restoration and repair of FPL's T&D system as a result of hurricanes, tropical
16 storms and winter storms. Also included are estimates of the costs of pre-
17 positioning of personnel and equipment (staging) in anticipation of storm
18 restoration activities, windstorm insurance deductibles attributable to non-
19 T&D assets, and potential retrospective assessments associated with FPL's
20 insurance of its nuclear facilities.

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

22 A. USWINDTM is a probabilistic model designed to estimate damage and losses
23 due to the occurrence of hurricanes. EQECAT proprietary computer software
24 USWINDTM is one of only four models evaluated and determined acceptable

1 by the Florida Commission on Hurricane Loss Projection Methodology
2 (FCHLPM) for projecting hurricane loss costs.

3
4 Probabilistic Annual Damage & Loss is computed using the results of over
5 100,000 random variable storms. Annual damage and loss estimates are
6 developed for each individual site and aggregated to overall portfolio damage
7 and loss amounts. USWIND's™ climatological models are based on the
8 National Oceanic and Atmospheric Administration's (NOAA) National
9 Weather Service (NWS) Technical Reports.

10

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

14 **Q. Does USWIND™ take into account storm frequency and severity?**

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

18 **Q. Do the storm frequency assumptions include the possibility of having
19 multiple hurricane landfalls within Florida in any given year?**

20 A. Yes. The current version of USWIND™ does include the possibility of
21 having multiple hurricane landfalls within Florida in any given year, including
22 the impact of such landfalls on aggregate losses, consistent with the 2004
23 hurricane season.

24

1 **Q. Did the Loss Analysis take into account the frequency of storms during**
2 **the 2004 storm season?**

3 A. No. The storm database used by USWIND™ is a combination of historical
4 and random variable storms. NOAA/NWS must update the data set before
5 historical data becomes a part of the storm database used by USWIND™.
6 The version of USWIND™ utilizing the updated data set must, then, be
7 evaluated and approved by the FCHLPM. Information from the 2003 and
8 2004 hurricane seasons is likely to be incorporated into future versions of
9 USWIND™, consistent with scientific opinion and subject to review by the
10 FCHLPM and its Professional Team.

11 **Q. Do you expect the frequency of storms during 2004 will significantly**
12 **impact the frequency estimate?**

13 A. No. There could be a slight increase in the frequency estimate as a result of
14 including data points reflecting the 2004 storm season in the storm database.
15 Given the size of the storm database, however, the increase is not likely to be
16 large.

17 **Q. Did the 2004 storm season have any effect on the Loss Analysis?**

18 A. Yes. While the frequency and severity of the 2004 storm season has not yet
19 been incorporated into the USWIND™ model, FPL's costs of storm
20 restoration from the 2004 storm season was incorporated into the Loss
21 Analysis. The 2004 storm restoration costs provide additional data points on
22 the losses associated with specific levels of damage.

23

24

1 **Q. What were the results of the Loss Analysis?**

2 A. I concluded that the total expected annual uninsured cost to FPL's system
3 from all windstorms is estimated to be \$73.7 million.

4 **Q. Did the Loss Analysis include a projection for future inflation or future
5 system growth?**

6 A. No. The Loss Analysis conservatively assumes no future asset growth or
7 inflation. It is a snapshot of FPL's current assets. Given conservative
8 assumptions about system growth and inflation, the Storm Loss estimates may
9 be systematically biased toward low values. However, this is not a precise
10 science. The uncertainties represented by these assumptions are within the
11 overall uncertainties of the storm hazards. The expected annual loss estimate
12 reflects that FPL has had a significant increase in asset value at risk since
13 2000. FPL estimates that, for the period 2000 to 2004, there has been
14 approximately a 15% increase in the replacement value of the Company's
15 transmission and distribution assets. There has been no fundamental change
16 in the potential hazards to FPL's system during this same time period.

17 **Q. What does this expected annual loss estimate represent?**

18 A. The expected annual loss estimate represents the average annual cost
19 associated with damage to transmission and distribution assets, insurance
20 deductibles for damage to other assets, and service restoration activities
21 resulting from windstorms over a long period of time.

22

23

24

1 **Q. Is the Loss Analysis performed for FPL the same analysis performed for**
2 **insurance companies to price an insurance premium?**

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

9

10

SOLVENCY ANALYSIS

11 **Q. Please summarize the Solvency Analysis.**

12 A. ABS Consulting performed a dynamic financial simulation analysis of the
13 impact of the estimated windstorm losses on the FPL Storm Reserve for
14 specified levels of annual funding. The starting assumption for the Solvency
15 Analysis was a Storm Reserve balance of zero. This Solvency Analysis
16 performed 10,000 simulations of windstorm losses within the FPL service
17 territory, each covering a five-year period, to determine the effect of the
18 charges for loss on the Storm Reserve. Monte Carlo simulations were used to
19 generate loss samples consistent with the expected \$73.7 million annual Loss
20 Analysis results. The analysis provides the expected balance of the Storm
21 Reserve in each year of the simulation accounting for the annual accrual,
22 investment income, expenses, and losses using a financial model.

23

24

1 **Q. What is a Monte Carlo analysis?**

2 A. Monte Carlo analysis is a technique used to model multiple storm seasons and
3 simulate variable storm losses consistent with the results of the Loss Analysis.
4 Because storm seasons and losses are highly variable, 10,000 five-year
5 simulations are performed to estimate the performance of the Storm Reserve
6 with various accrual levels.

7 **Q. Are the results of the Loss Analysis incorporated in the Solvency
8 Analysis?**

9 A. Yes. Both the likelihoods and amounts of uninsured annual losses determined
10 in the Loss Analysis are used to simulate losses in each of the five years in the
11 Solvency Analysis in order to determine the likelihood of Fund insolvency.

12 **Q. Did the 2004 storm season affect the Solvency Analysis?**

13 A. Yes. The costs of FPL storm restoration activities from the 2004 storm season
14 are reflected in the Storm Loss Analysis and are included in the expected
15 annual losses. These results are inputs to the Solvency Analysis. Each year of
16 the five-year Storm Solvency analyses uses these projected losses to simulate
17 the cost of annual storm restoration from the Storm Reserve Fund. These costs
18 reflect past FPL storm restoration experience including those from the most
19 recent 2004 season.

20 **Q. Please describe the assumptions that were included in the Solvency
21 Analysis.**

22 A. All computations were performed with an initial Storm Reserve balance of
23 zero. Further, all results are shown in constant 2004 dollars. Investment
24 earnings were assumed to grow at a rate of 3.9%, and negative Storm Reserve

1 balances were assumed to be financed with an unlimited line of credit costing
2 4.5%. Also, the analysis performed included certain assumptions regarding
3 loss exposures. These include assumptions regarding storm frequency and
4 severity, future FPL system growth, and future increased cost for system
5 restoration due to inflation.

6 **Q. Please describe the assumptions regarding future FPL system growth.**

7 A. The analysis considered no future growth of the FPL customer base and
8 system assets. FPL estimates its customer base has grown by about 2% per
9 year for the period 1993 through 2003, and increased 2.6% in 2004.

10 **Q. Please describe the assumptions about future cost for system restoration
11 due to inflation.**

12 A. The analysis assumed that future system restoration cost would be at
13 comparable price levels to the present. Based on data from the Handy
14 Whitman Index, FPL estimates inflationary cost increases for new
15 transmission and distribution assets have increased at an average of 2.4% and
16 2.05%, respectively, per year over the past decade.

17 **Q. Please describe the overall impact of the assumptions made.**

18 A. Given these assumptions about system growth and inflation, the Storm Loss
19 estimates may be systematically biased toward low values of future assets at
20 risk. However, because the Solvency Analyses looks forward only five years,
21 this bias is expected to be small compared with the overall uncertainties of
22 future storm hazards. Any given year has some potential for hurricane damage
23 to the current asset base that could be much greater than any from the 2004
24 season.

1 Q. **Please summarize the results of the Solvency Analysis.**

2 A. Storm Reserve performance can be viewed in terms of the expected balance of
3 the Storm Reserve and the likelihood of insolvency occurring in any year of
4 the five-year period. Based on the simulated loss distributions, there is some
5 likelihood of the Storm Reserve becoming insolvent for each of the annual
6 accrual levels analyzed. Higher accrual levels will result in a lower probability
7 of Storm Reserve insolvency, and will have a higher probability of a positive
8 Storm Reserve balance at the end of the five year simulation period. If the
9 annual accrual levels are smaller, there is a much greater chance of
10 insolvency, especially in the early years. Even small losses in the first year
11 can cause insolvency since the Storm Reserve balance in the first year is only
12 equal to the annual accrual plus earnings.

13 Q. **Did you make a recommendation for FPL's annual level of accrual?**

14 A. No. My role is not to recommend an annual level of accrual. It is to present
15 probabilities to FPL regarding Storm Reserve solvency based on various
16 levels of annual accrual. There are large uncertainties associated with the
17 hurricane hazard and the specific storm outcomes have large variances. There
18 could be hurricane seasons with no loss at all and hurricane seasons with
19 hundreds of millions or even more than a billion dollars in losses. The
20 Solvency Analysis presents information about the likelihood of insolvency
21 that can be used to make decisions about the Storm Reserve.

22

23

1 **Q. Do you feel FPL's selection of a \$500 million target level for the Storm**
2 **Reserve is adequate?**

3 A. Based on the current value of FPL's T&D assets, a Storm Reserve balance of
4 \$500 million would be adequate to cover uninsured losses during most, but
5 not all, storm seasons.

6 **Q. Did you analyze a range of annual accrual levels in your evaluation?**

7 A. Yes. My evaluation included analyses of the likelihood of Storm Reserve
8 insolvency at the existing annual accrual level of \$20.3 million, and at the
9 annual accrual level of \$120 million selected by FPL, as well as at a \$150
10 million and \$170 million annual accrual level.

11 **Q. What is the likelihood of Storm Reserve insolvency at the current annual**
12 **accrual level of \$20.3 million?**

13 A. At the current annual accrual level of \$20.3 million, the likelihood of
14 insolvency occurring in any year over a five-year period is 79%. At an annual
15 accrual level of \$20.3 million, it is projected that the Storm Reserve would
16 have a deficit balance of \$277 million (\$277 million) at the end of five years,
17 without recovery of any negative Storm Reserve balances as they occur. With
18 recovery of any negative storm reserve balances over a two-year period, the
19 Storm Reserve balance is projected to be negative \$71 million (\$71 million) at
20 the end of five years.

21 **Q. What did your evaluation show with respect to a \$120 million accrual?**

22 A. At an annual accrual level of \$120 million, the likelihood of insolvency
23 occurring in any year over a five-year period is 33%. Because one of the
24 assumptions in the analysis was a beginning Storm Reserve balance of zero,

1 there is 33% likelihood of insolvency in any one of the five years regardless of
2 whether there is recovery of any negative Storm Reserve balances over a two-
3 year period. At an annual accrual level of \$120 million, the expected balance
4 of the Storm Reserve at the end of five years would be \$367 million with
5 recovery of negative storm balances over a two-year period, and \$256 million
6 without such recovery. There would be a probability of insolvency of 8% or
7 19% at the end of the five-year simulation time horizon with and without
8 recovery of negative balances respectively. Based on a \$120 million annual
9 accrual and recovery of any Storm Reserve deficit over a two-year period,
10 there is also a 39% chance that the Storm Reserve fund balance could be
11 greater than \$500 million at the end of five years.

12 **Q. If the target level of the Storm Reserve is \$500 million, what annual**
13 **accrual amount would be needed to achieve the target level during the**
14 **five-year period?**

15 A. The ABS Consulting Storm Reserve solvency analysis estimates that an
16 annual accrual level of \$150 million and two-year recovery of negative storm
17 reserve balances would be needed. Without recovery of negative storm
18 reserve balances, an annual accrual of \$170 million would be needed.

19 **Q. What is your conclusion with respect to the \$120 million annual level of**
20 **accrual selected by FPL?**

21 A. My analysis indicates that, with an expected annual loss of \$73.7 million, an
22 annual accrual of \$120 million and the ability to recover any negative Storm
23 Reserve Balances over a two-year period, the balance of the reserve at the end
24 of five years is expected to be \$367 million. There is a 33% chance that

1 uninsured storm losses will create a deficit in the Storm Reserve in any year of
2 the five-year period. Additionally, there is a 39% chance that the balance of
3 the Storm Reserve may exceed \$500 million.

4

5

CONCLUSION

6 **Q. Does this conclude your direct testimony?**

7 **A. Yes.**

8

Florida Power & Light

Storm Loss Analysis



March
2005



Storm Risk Profile

The following is a summary description of analyses performed by ABS Consulting for the Florida Power and Light Storm Loss, and is intended to be used solely by FPL and the Florida Public Service Commission for estimation of potential future FPL losses to the Storm Reserve Fund and the estimation of the performance of the Storm Reserve Fund.

OWNER	Florida Power & Light	
ASSETS	Transmission and Distribution (T & D) System consisting of : Transmission towers, and conductors; Distribution poles, transformers, conductors, and other assets	
LOCATION	All T & D assets located within the State of Florida	
ASSET VALUE	Normal replacement value is approximately \$ 11.8 billion, of which approximately 20% is transmission and 80% is distribution	
LOSS PERIL	Hurricane Windstorm (SSI 1 to 5), Tropical and Winter Storms, and Storm Staging Costs	
EXPECTED ANNUAL DAMAGE	\$73.7million	
1% AGGREGATE DAMAGE EXCEEDANCE VALUE	\$1,000 million (one year)	
AGGREGATE DAMAGE EXCEEDANCE PROBABILITIES	One Year	Five Years
\$100 million	17.0%	69.7%
\$350 million	5.5%	34.2%
\$500 million	3.5%	23.6%

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1. Storm Loss Analysis

Florida Power and Light Company's (FPL) transmission and distribution (T & D) systems are exposed to and in the past have sustained damage from hurricanes, tropical storms, and winter storms. The exposure of these assets to storm damage is described and potential losses are quantified in this report. Loss analyses were performed by ABS Consulting, using an advanced computer model simulation program USWIND™ developed by EQECAT, an ABS Group Company. All storm loss results which are presented here have been calculated using USWIND™ and the FPL T & D asset portfolio.

These exposures are 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 over 100,000 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 cost 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 FPL'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.

Storm Loss Analysis

FPL's non-T&D assets consist of fossil and nuclear power plants, buildings, substations and other miscellaneous assets and are also exposed to storm perils. These assets are covered by insurance policies with deductible retentions. The deductible exposures for these portfolios of assets were modeled to determine their loss expectancies and impacts on the Storm Reserve.

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

These analysis components are summarized herein.

2. Assets at Risk

2.1 Transmission and Distribution Assets

FPL's Transmission and Distribution (T & D) System assets consist of:

- Transmission towers, and conductors;
- Distribution poles, transformers,
- Conductors, lighting and
- Other miscellaneous assets.

The total normal replacement value of these assets is approximately \$11.8 billion, 20% of which is transmission and 80% distribution. Normal replacement value is the cost of replacing the assets under normal non-catastrophe conditions.

FPL's Transmission and Distribution assets are distributed unevenly across their Florida service territory, encompassing a large portion of the State. Table 2-1 shows the distribution values within Florida for the counties that make up 94% of the total, indicating a concentration of values in the southern portion of the state. Figures 2-1 shows a map of FPL's transmission structures while Figures 2-2 show a map of the distribution values indicating a similar concentration of values in south Florida Counties.

2. Assets at Risk

Table 2-1

DISTRIBUTION VALUES BY COUNTY, LARGEST COUNTIES

Distribution by County	Replacement Value
Dade	\$2,571,355,369
Palm Beach	\$1,627,626,595
Broward	\$1,588,151,250
Brevard	\$554,772,795
Lee	\$390,724,727
Sarasota	\$381,156,986
Volusia	\$352,470,588
St Lucie	\$282,420,873
Collier	\$261,422,693
Manatee	\$256,677,775
Charlotte	\$202,936,403
Martin	\$198,410,239
Indian River	\$131,685,818
St Johns	\$130,553,895
All others	\$599,828,521
Total	\$9,530,194,528

Table 2-2

Transmission Asset Replacement Value

	Replacement Value
Transmission Assets	\$2,309,324,855

2. Assets at Risk

2.2 Non-T&D Assets at Risk

FPL's non-T&D assets consist of fossil and nuclear power plants, buildings, substations and other miscellaneous assets. The total normal replacement value of these assets is approximately \$20 billion. Normal replacement value is the cost of replacing the assets under normal non-catastrophe conditions. Table 2-3 below, shows the percentage distribution between power plants, buildings and substations values.

Table 2-3
FPL Non T&D Asset Values

	\$(Thousands)	%
Fossil Power Plants	\$10,161,702	50%
Substations	\$ 3,490,377	17%
Buildings and misc. assets	\$1,087,986	5%
Nuclear Power Plants	\$5,717,253	28%
TOTAL	\$20,457,318	100%

FPL's assets are distributed unevenly across their service territory, encompassing a large portion of the state of Florida. These assets are geo-located located in the USWIND™ Storm model by latitude and longitude to capture the spatial distribution and concentration of these asset at risk.

The FPL non-T&D portfolio is insured for storm losses under three insurance policies, with three per occurrence deductibles. The deductible amounts represent self insured retentions by FPL and are modeled as exposures to the Storm Reserve. Two policies apply to Turkey Point and St. Lucie nuclear plant assets and have deductibles of \$1 million each. The third policy applies to the balance of insured property, buildings, fossil power plants and substations with an aggregate per occurrence deductible of \$25 million.

2. Assets at Risk

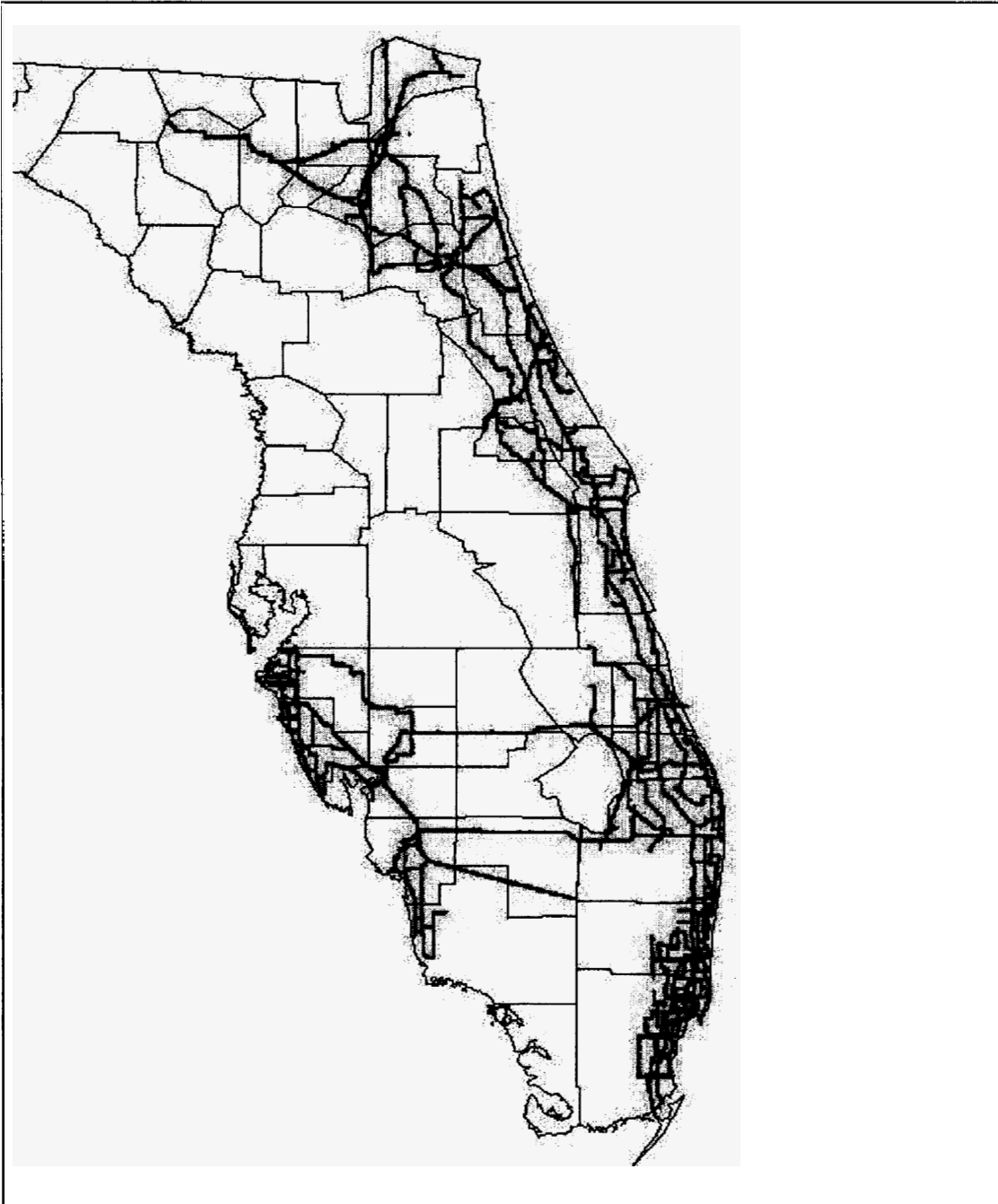


Figure 2-1: FPL Transmission Structures

2. Assets at Risk

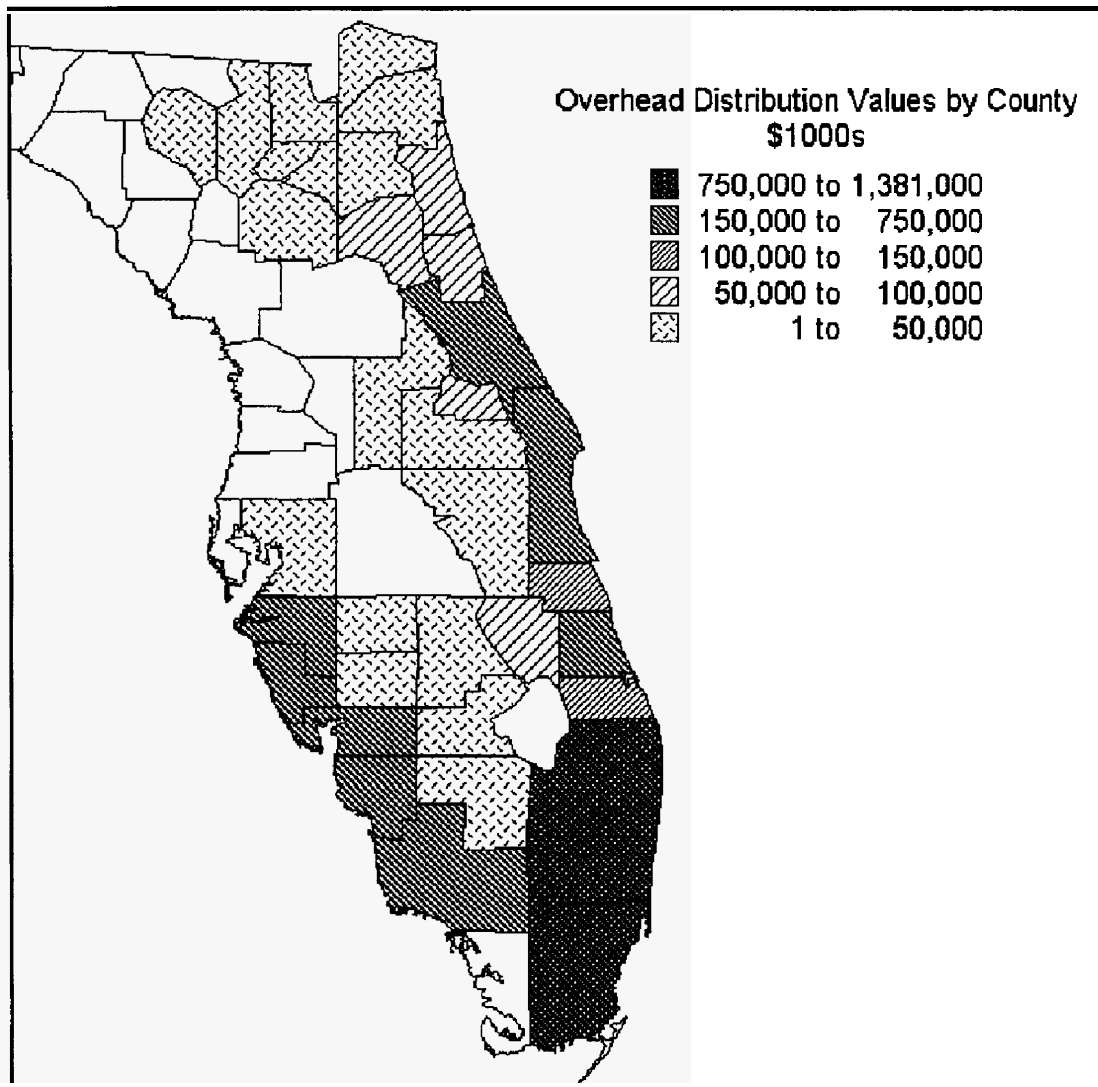


Figure 2-2: FPL Overhead Distribution Values

3. Windstorm Hazard in Florida

3.1 Hurricane Hazard

The historical record for hurricanes on the Gulf and Atlantic coasts of the United States consists of approximately 100 years for which reasonably accurate information is available. For example, since 1900, there have been 62 hurricanes SSI 1 or greater (see Table 3-1 for description of the Saffir-Simpson Intensity (SSI) scale) which have made landfall in the state of Florida. Going back further, written descriptions of storms are available, but it becomes increasingly difficult to estimate actual storm intensities and track locations in a reliable manner consistent with the later data. For this reason all hypothetical storms used in this analysis, as well as their corresponding frequencies, have been based only on hurricanes that have occurred since 1900.

Since the historical record is too sparse to simply extrapolate future hurricane landfall probabilities, a series of hypothetical storms was generated in the USWIND™ probabilistic storm data base, essentially "filling in" the gaps in the historical data. This provides an estimate of future potential storm locations (landfall), track, severity and frequency consistent with the observed historical data.

EQECAT developed its hurricane model (Reference 1), using the National Oceanic and Atmospheric Administration (NOAA) model as the base, to determine individual risk wind speeds. The NOAA model was designed to model only a few specific types of storms. While the eye of the hurricane follows the selected track, the EQECAT model uses up to a dozen different storm parameters to estimate wind speeds at all distances away from the eye. The version of USWIND currently certified by the Florida Commission on Hurricane Loss Projection Methodology (FCHLPM) is based in part on the Commission's Official Storm Set of November 1, 2003, which includes hurricanes affecting Florida during the period 1900 through 2002.

The hurricane intensities used for the analyses conform to basic NOAA information regarding hurricane intensity recurrence relationships corresponding to locations along the coast. Much of FPL's service territory includes the coastal area where many of these hurricanes have made landfall.

3 Windstorm Hazard in Florida

Table 3-1

THE SAFFIR-SIMPSON INTENSITY (SSI) SCALE
 (NOTE THAT WINDSPEEDS GIVEN ARE 1-MINUTE SUSTAINED)

Saffir-Simpson Intensity (SSI)	Central Pressure (mb)	Maximum Sustained Winds (mph)	Storm-Surge Height (ft)	Damage
1	≥ 980	74-95	4-5	Damage mainly to trees, shrubbery, and unanchored mobile homes
2	965-979	96-110	6-8	Some trees blown down; major damage to exposed mobile homes; some damage to roofs of buildings
3	945-964	111-130	9-12	Foliage removed from trees; large trees blown down; mobile homes destroyed; some structural damage to small buildings
4	920-944	131-155	13-18	All signs blown down; extensive damage to roofs, windows, and doors; complete destruction of mobile homes; flooding inland as far as 6 mi.; major damage to lower floors of structures near shore
	< 920	> 155	> 18	Severe damage to windows and doors; extensive damage to roofs of homes and industrial buildings; small buildings overturned and blown away; major damage to lower floors of all structures less than 15 ft. above sea level within 500m of shore

3.2 Tropical Storm Hazard

In addition to storms strong enough to be classified as hurricanes, Florida is exposed to the threat of tropical storms (one-minute sustained wind speeds between 39 and 74 mph). The frequency of tropical storms in Florida is approximately equal to that of hurricanes (note that the wind speed range associated with hurricanes is much wider, i.e. 74 mph to well over 155 mph).

EQECAT's tropical storm model was developed using methods very similar to those used to develop the hurricane model, generating a series of hypothetical storms representing the full range of tropical storms in terms of landfall location and track, severity, and frequency consistent with the observed historical data.

3 Windstorm Hazard in Florida

3.3 Winter Storm Hazard

On average, about 15 mid-latitude storms a year bring high winds to Florida, mainly during the winter. Most of these storms have winds only in the 40 to 50 mph gust range and thus have little effect. The more severe events, however, can cause losses on the same scale as a tropical storm or weak hurricane.

In assessing this hazard, historical windstorm data for the past 45 years was obtained from the National Climatic Data Center (NCDC). This data included gust wind speed observations for over 600 storms, at a network of over 300 stations. Several different aspects of the data were examined in order to construct a model for storm sizes, shapes, locations, and wind fields. The resulting winter storm hazard model provides a way to characterize the wind fields for the full range of possible winter storms, including location, severity, and frequency information.

4. Asset Vulnerabilities

Aerial transmission and distribution lines and structures have suffered damage in past hurricanes, tropical storms and winter storms. Damage patterns tend to be most severe in coastal areas due to a combination of wind and storm surge. Underground distribution lines in coastal regions have also been subject to storm damage. Damage to inland aerial lifelines tends to be less severe with greater contributions to damage from wind-borne debris. The types of wind-borne debris can include tree and tree limbs, and roofing materials as well as structure debris at higher wind speeds.

FPL aerial transmission and distribution structures are designed to sustain design-level hurricane winds. These design criteria specify design wind speeds for both transmission and distribution structures. Design criteria for transmission structures are microzoned, or segmented, into geographic areas that correspond to the expected wind hazard for the area. Distribution poles, on the other hand, are assumed to have one design standard for the entire service territory.

Vulnerability of T & D assets are based upon wind speeds and FPL provided damage data from hurricanes since 1992. Other vulnerabilities were developed using FPL-provided data on hurricane, tropical storm, and winter storm damage data, FPL design standards, and engineering judgments of the relative performance of the structures and material types.

Vulnerabilities of non-T&D assets are modeled using standard classes of commercial buildings and specialized utility infrastructure vulnerabilities in USWIND™.

5. Summary of Portfolio Analyses

ABS analyzed the FPL portfolio of transmission and distribution (T & D) assets and other non-T&D assets subject to a suite of probabilistic storms using the proprietary computer program, USWIND™. The probabilistic storm analyses provide non-exceedance probabilities over a range of loss levels while the scenario landfall storm series provides a damage distribution for selected storms at landfalls within the areas of FPL's highest asset concentrations.

5.1 Storm Probabilistic Analysis

The probabilistic loss analysis is performed using USWIND™. The hurricane hazard uses the USWIND™ probabilistic database which models the coastline in 10 mile segments and models more than 1,500 hypothetical storms for each segment. The net result is a stochastic storm database of more than 500,000 events that represents possible hurricanes affecting the eastern United States, along both the Gulf and the Atlantic coasts. Each hurricane in the database has been defined by associating a central pressure with a unique storm track. In addition, each hurricane is assigned an annual frequency of occurrence, which depends on the storm track location and the storm intensity as measured by central pressure.

Tropical and Winter storms are modeled, (Reference 2), using a set of approximately 250,000 and 150,000 additional events, representing the full range of potential storms affecting the Gulf and Atlantic coasts of the United States. As in the stochastic hurricane database, each tropical storm in the database has been defined by associating a central pressure with a unique storm track. In addition, each tropical storm is assigned an annual frequency of occurrence, which depends on the storm track location and the storm intensity as measured by central pressure. Loss expectancies from tropical and winter storms are based on the results from Reference 2 adjusted for current asset valuation of distribution assets at risk.

5. Summary of Portfolio Analysis

For each location in the portfolio, the wind speed is calculated, and based on the type of asset, the degree of damage is estimated. The result for each asset location is an estimate of the mean damage and associated uncertainty. Total portfolio damage, defined as expected (mean) damage, is the sum of the individual property's damage. Uncertainty of an individual asset's damage is calculated to determine the total portfolio damage uncertainty, taking into account correlation between assets. Knowledge of the total portfolio damage probabilistic distribution permits estimation of total portfolio damage with varying probability levels.

5.2 Other Storm Reserve Fund Exposures

In addition to transmission and distribution storm losses and non-T&D deductible exposures discussed above, Florida Power and Light Company's Storm Reserve Fund may be called upon for payment of uninsured losses resulting from other causes. These include

- Storm staging costs
- Retrospective insurance assessment from industry nuclear accidents and
- Losses in excess of insurance coverage from nuclear accidents at FPL plants.

Staging Costs for Non-Landfalling Storms

FPL monitors hurricane forecasts and arranges for the pre-positioning of personnel and equipment, "staging", in anticipation of post hurricane storm restoration activities. These decisions are made in advance of hurricane landfall. On occasion, these staging decisions are taken and actual hurricane landfall occurs outside FPL's service territory. The central issue with staging costs is the probability that hurricane forecasts (where and at what intensity) may differ from actual hurricane landfalls.

A model for staging costs was developed in 2000 using staging cost and decision information provided by FPL. The input parameters to the model are: forecasted landfall location (milepost), forecasted intensity (wind speed), and actual landfall location (milepost), actual intensity (wind speed). Staging costs are only calculated for situations in which the forecasted landfall is within FPL's service territory, and the actual landfall is not within FPL's service territory. For these situations, the staging costs are determined

5. Summary of Portfolio Analysis

on the basis of the forecasted landfall location and intensity, based on staging cost information provided by FPL. For all other situations, the staging cost is assumed to be zero.

The expected annual storm staging cost estimates are based on the 2000 results and have been updated to reflect FPL recent hurricane experience and costs associated with these staging decisions. The expected annual staging cost were estimated to be \$3.5 millions per year.

Nuclear Exposures

FPL Storm Reserve exposures due to property damage and third party liabilities could arise from two sources:

- Nuclear accidents at FPL's four nuclear units located at Turkey Point and at St. Lucie and
- Nuclear accidents at plants in nuclear mutual insurance pools

Storm Reserve Fund obligations could result from these exposures as a result of mutual insurance obligation retrospective assessments ("Retros") or as a result of low probability events and losses in excess of insurance coverage. Potential financial exposures to the Storm Reserve were developed in Reference 2 using nuclear industry studies that provide the frequency and severity of nuclear accidents. Estimates of the frequency and the expected annual losses from these events are very low in comparison with storm related exposures. These exposures are included in estimates of the Expected Annual Losses below, but have not been included in the Storm Solvency Analyses due to their extremely low likelihoods.

Given the annual frequency and the portfolio loss for each asset class and peril, a probabilistic database of losses is developed. By manipulating this database, various loss non-exceedance distributions are generated. The expected annual exposures to FPL's Storm Reserve Fund from these sources are shown below:

5. Summary of Portfolio Analysis

Table 5-1
 Expected Annual Losses to Storm Reserve

Expected Annual Losses	\$ (Millions)	Comments
Transmission & Distribution Assets - Hurricane Peril and Tropical Storms	63.2	SS 1 through 5 Sustained wind speeds of 39-74 Mph
Distribution Assets - Winter Storms	1.2	Gust wind speeds of 40-50 Mph
Storm Staging Costs	3.5	FPL Pre-storm mobilization
Non T&D Assets - Hurricane and Tropical Storm Peril	5.8	Losses arising from payment of deductibles on insurance policies
Retrospective Assessments from industry nuclear accidents ¹	0.5	Property and third-party liability assessments from mutual insurers
Losses in excess of insurance from FPL nuclear accidents ¹	0.5	Property losses to FPL nuclear plants in excess of insurance
Totals	\$74.7	

Note 1: These losses are not included in the Storm Reserve Solvency Analyses (Reference 3).

5. Summary of Portfolio Analysis

5.3 Aggregate Damage Exceedance for One, Three, and Five years

Aggregate damage exceedance calculations are developed on 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, Transmission and Distribution (T & D) losses, insurance deductibles paid on non-T & D assets as well as storm staging costs, is 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 FPL assets and the computer program USWIND™. A summary of the analysis is presented in Table 5-2 which show the aggregate damage (i.e. deductible is "0") exceedance probability for three time periods: one, three and five years for damage layers between zero and over one billion dollars.

For each damage layer shown, the probability of damage exceeding a specified value is shown. For example, the probability of damage exceeding \$500 million in one year is 3.5%, while it is 12.6% and 23.6% for a three and five year period. The analysis calculates the probability of damage from all storms and aggregates the total, resulting in increasing exceedance probabilities for the three and five year periods when compared to the one year value.

Table 5-2 also shows, for each damage layer, the contribution of that layer to the expected annual damage of \$73.7 million, which is the annual damage calculated from all storms with varying severity and frequency and staging costs. The expected annual damage represents the damage to T & D and other assets on an annual basis over a long period of time.

For the example given above, the contribution to the \$73.7 million expected annual damage in the \$300 to \$350 million layer is \$3.7 million for the one year period. For the 3 year and 5 year periods, the contribution to the expected damage over the period is provided for each layer.

These Aggregate Damage Exceedance results are inputs to the Storm Reserve Solvency Analysis (Reference 3).

5. Summary of Portfolio Analysis

Table 5-2

**FLORIDA POWER & LIGHT
AGGREGATE DAMAGE EXCEEDANCE PROBABILITIES
AND EXPECTED ANNUAL DAMAGE BY LAYER**

Damage Layer (\$millions)	1 year		3 year		5 year	
	Exceedance Probability	Expected Annual Damage (\$000)	Exceedance Probability	Expected Annual Damage (\$000)	Exceedance Probability	Expected Annual Damage (\$000)
0	58.4%	\$4,888	92.7%	\$1,947	98.4%	\$720
50	24.9%	\$5,612	62.1%	\$3,596	82.9%	\$1,972
100	17.0%	\$4,992	47.4%	\$3,620	69.7%	\$2,391
150	13.0%	\$4,817	38.6%	\$4,120	60.0%	\$2,814
200	10.2%	\$4,640	31.5%	\$3,988	52.0%	\$3,157
250	8.1%	\$3,943	26.2%	\$3,718	44.9%	\$3,334
300	6.7%	\$3,667	22.1%	\$3,493	38.9%	\$3,032
350	5.5%	\$2,941	18.9%	\$2,954	34.2%	\$3,202
400	4.7%	\$2,848	16.5%	\$3,249	29.9%	\$2,770
450	4.1%	\$2,618	14.2%	\$2,476	26.7%	\$2,890
500	3.5%	\$2,476	12.6%	\$2,949	23.6%	\$2,787
550	3.0%	\$2,179	10.9%	\$2,135	21.0%	\$2,453
600	2.7%	\$2,311	9.8%	\$2,395	18.8%	\$2,271
650	2.3%	\$1,487	8.7%	\$2,197	17.0%	\$2,693
700	2.1%	\$1,899	7.7%	\$2,122	15.0%	\$2,025
750	1.8%	\$1,720	6.8%	\$1,910	13.6%	\$2,019
800	1.6%	\$1,403	6.1%	\$1,896	12.3%	\$2,122
850	1.4%	\$532	5.4%	\$1,340	11.0%	\$1,434
900	1.4%	\$1,566	4.9%	\$1,261	10.2%	\$1,959
950	1.2%	\$1,656	4.5%	\$1,496	9.1%	\$1,816
1,000	1.0%	\$1,852	4.1%	\$2,517	8.2%	\$3,020
All Else	0.8%	\$13,666	3.3%	\$18,330	6.8%	\$22,831
Total		\$73,712		\$73,712		\$73,712

6. Hurricane Landfall Analyses for SSI Ranges

In order to provide further insight into FPL's risk profile, the full set of stochastic hurricane events were analyzed by landfall for five storm intensities, SSI 1 through 5. The storm series are located begin in the areas of highest asset concentration, and high storm frequency and severity in south Florida. The landfall locations are at mile posts 1430 through 1770. Figure 6-1 illustrates the landfall locations. These mile posts extend north from Dade County at approximately 10 mile intervals.

The full set of stochastic storms within each SSI category was analyzed on FPL'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 6-2 through 6-5 provide these results graphically.



Figure 6-1: Storm Landfall Mile Posts

9. Landfall Analyses for SSI Ranges

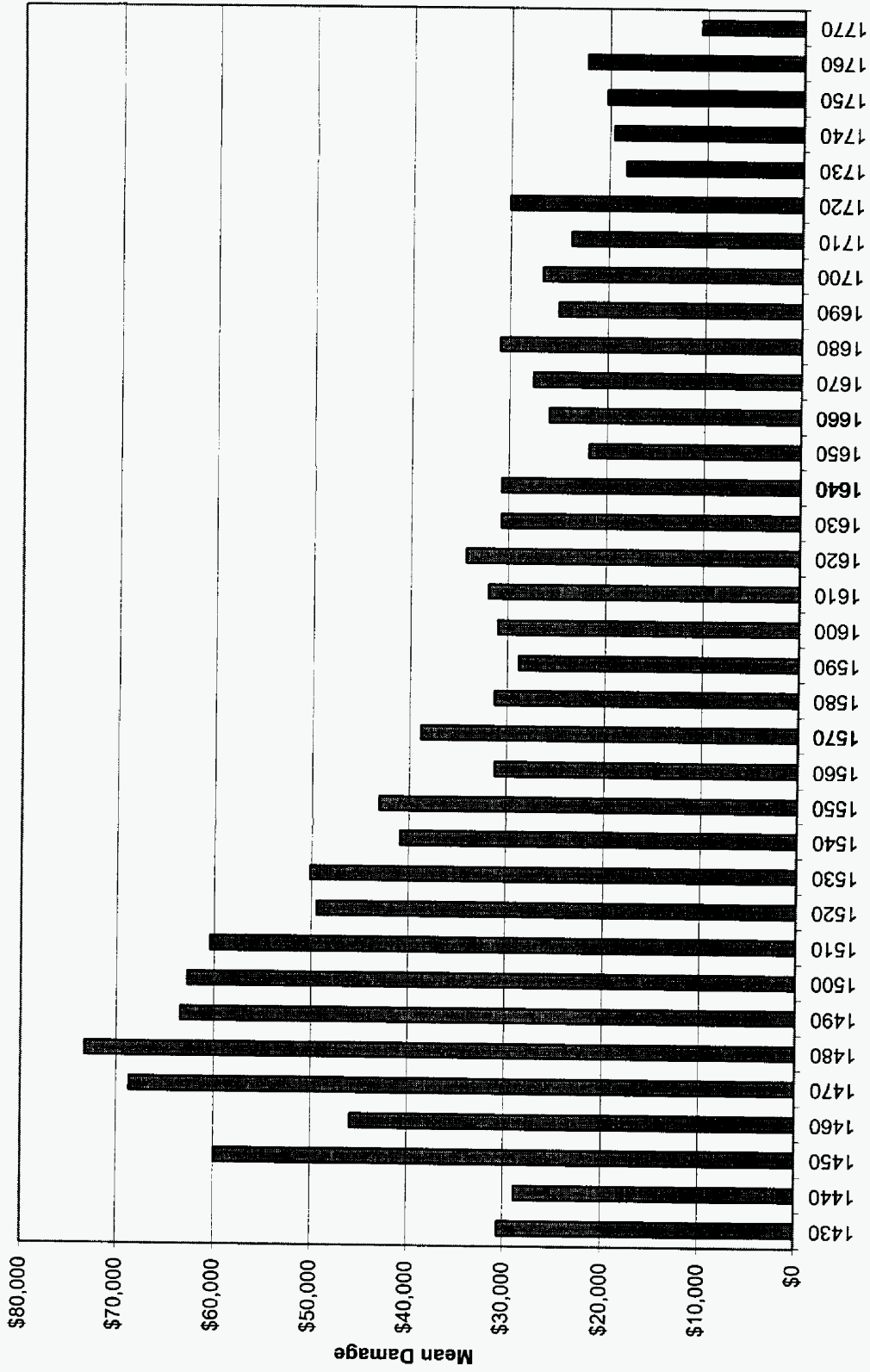


Figure 6-2: Frequency Weighted Average Transmission & Distribution Damage from SSI 1 Landfalls

6. Landfall Analyses for SSI Ranges

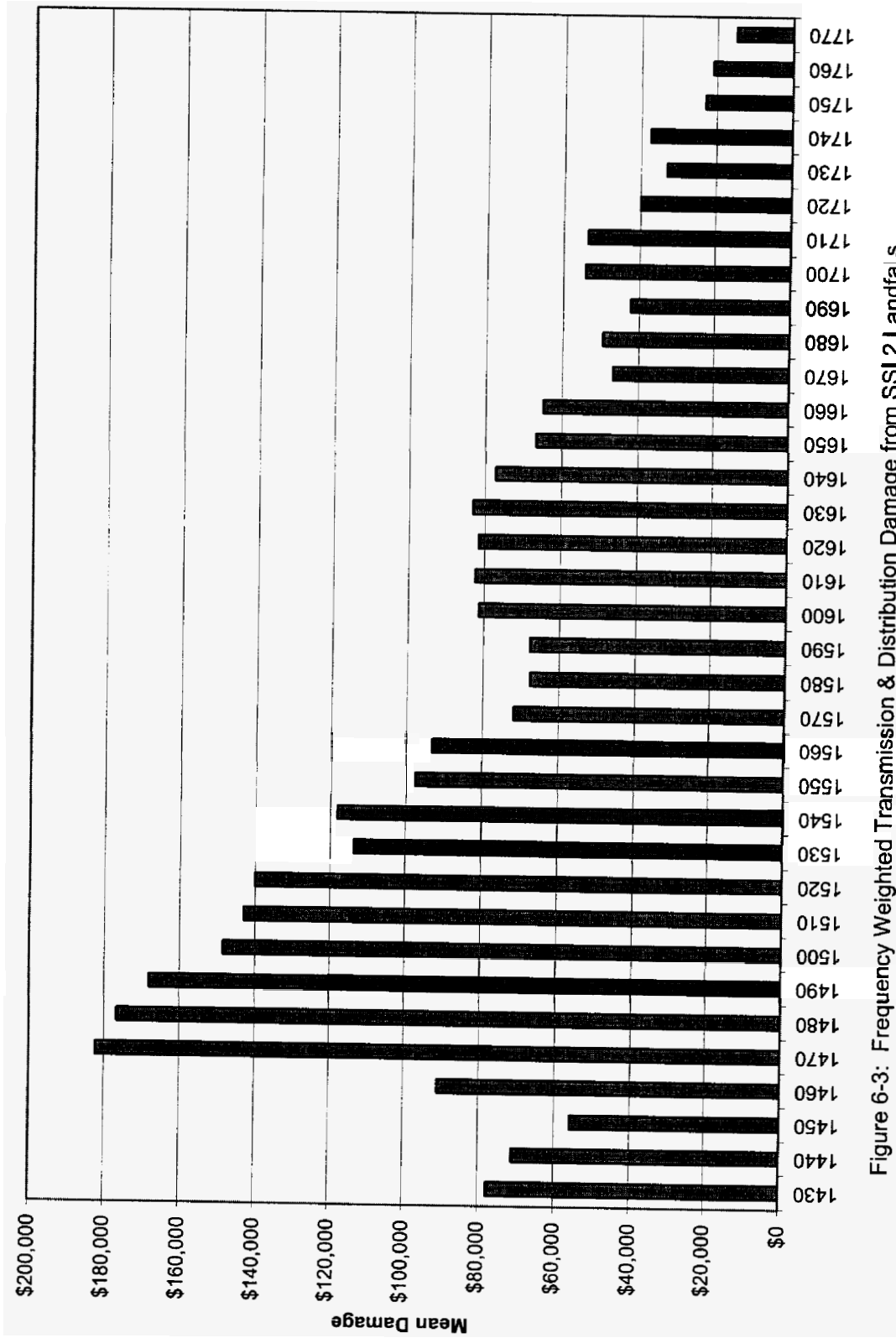


Figure 6-3: Frequency Weighted Transmission & Distribution Damage from SSI 2 Landfalls

6. Landfall Analyses for SSI Ranges

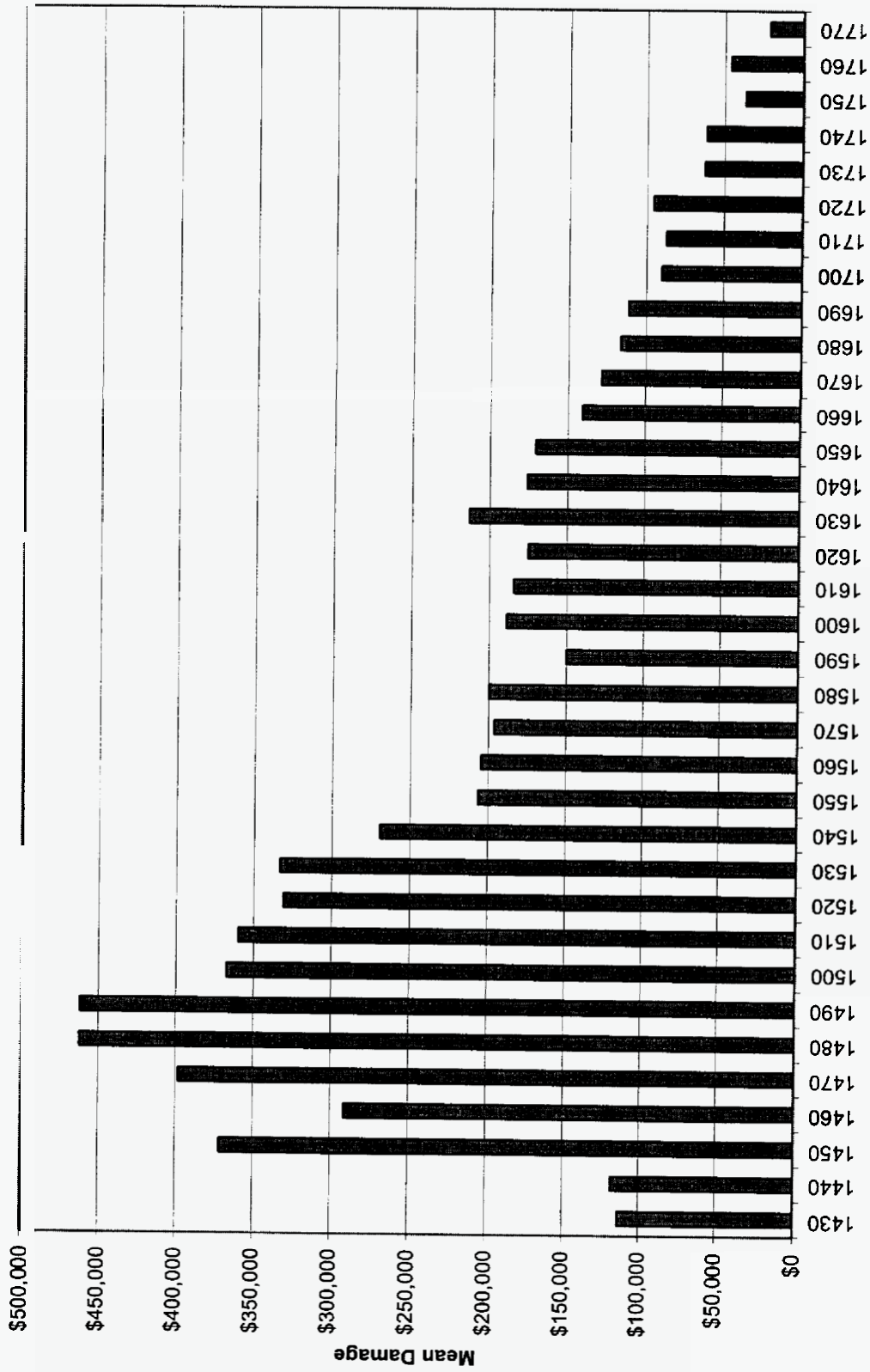


Figure 6-4: Frequency Weighted Transmission & Distribution Damage from SSI 3 Landfalls

6. Landfall Analyses for SSI Ranges

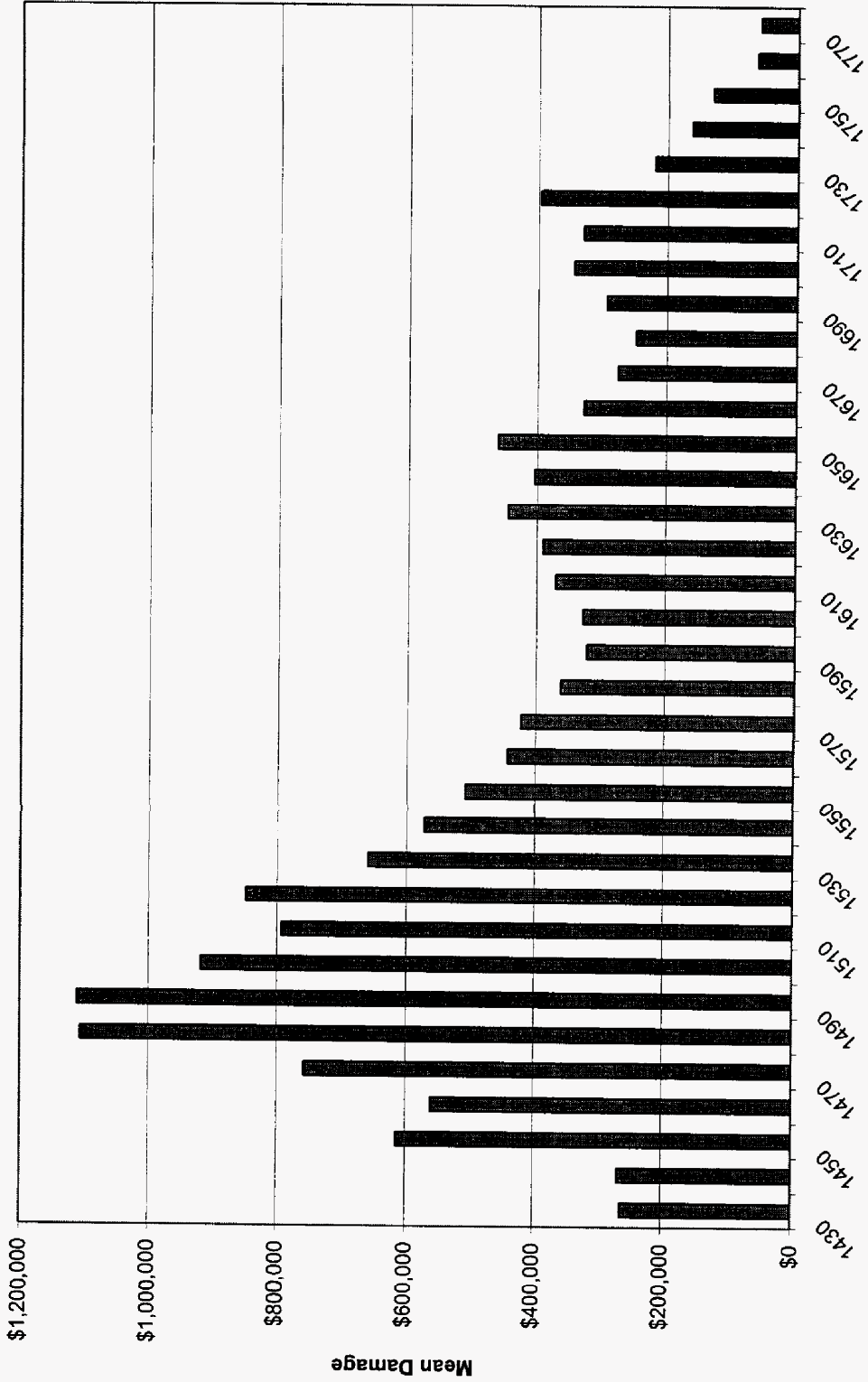


Figure 6-5: Frequency Weighted Transmission & Distribution Damage from SSI 4 Landfalls

6. Landfall Analyses for SSI Ranges

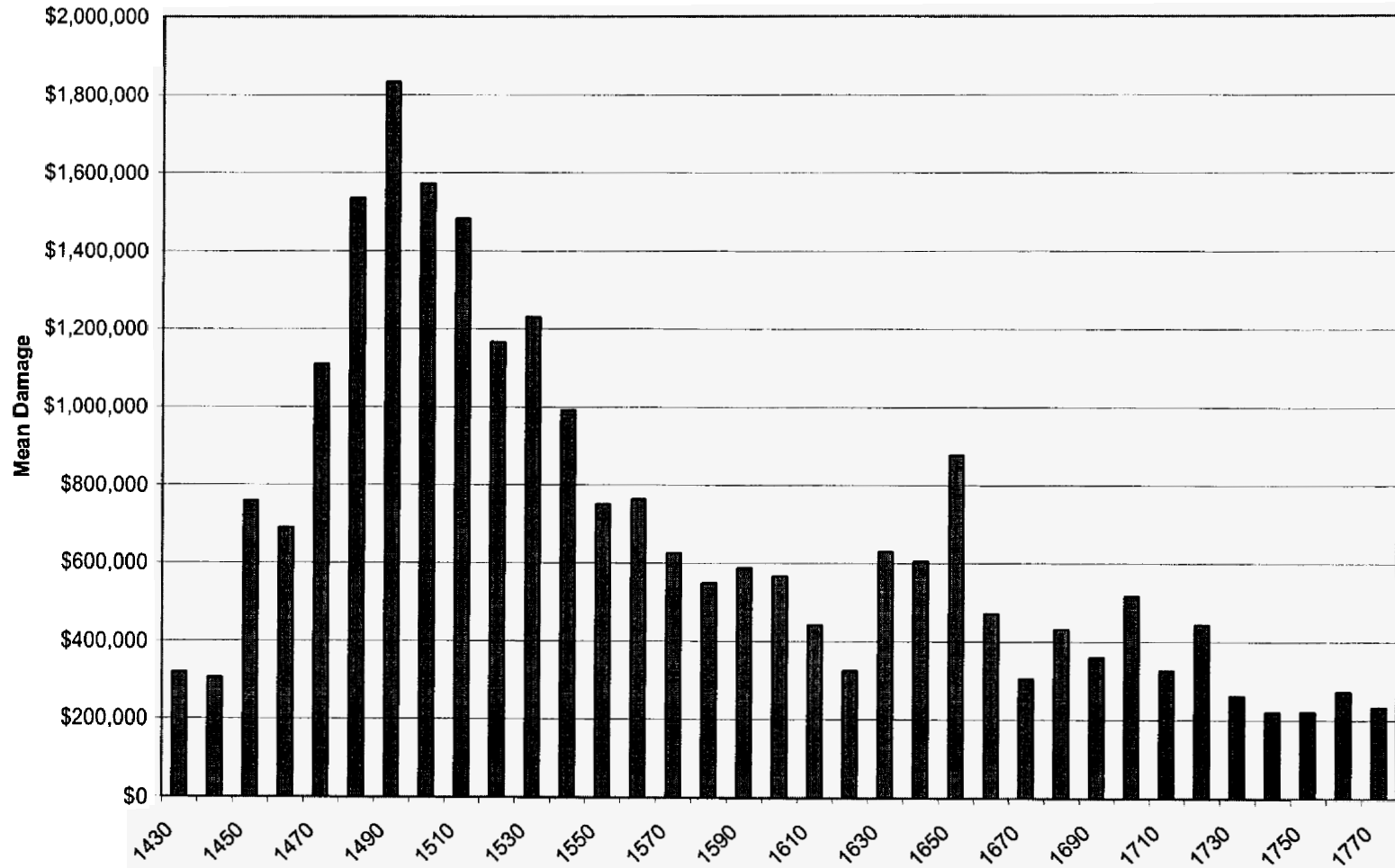


Figure 6-6: Frequency Weighted Transmission & Distribution Damage from SSI 5 Landfalls

7. References

1. "Florida Commission on Hurricane Loss Projection Methodology", EQECAT, an ABS Group Company, February 2004.
2. "Florida Power & Light, Transmission and Distribution Assets, Hurricane Risk Profile Memorandum", EQE International, May 2000.
3. "Florida Power & Light, Storm Reserve Solvency Analysis", ABS Consulting, May 2005.



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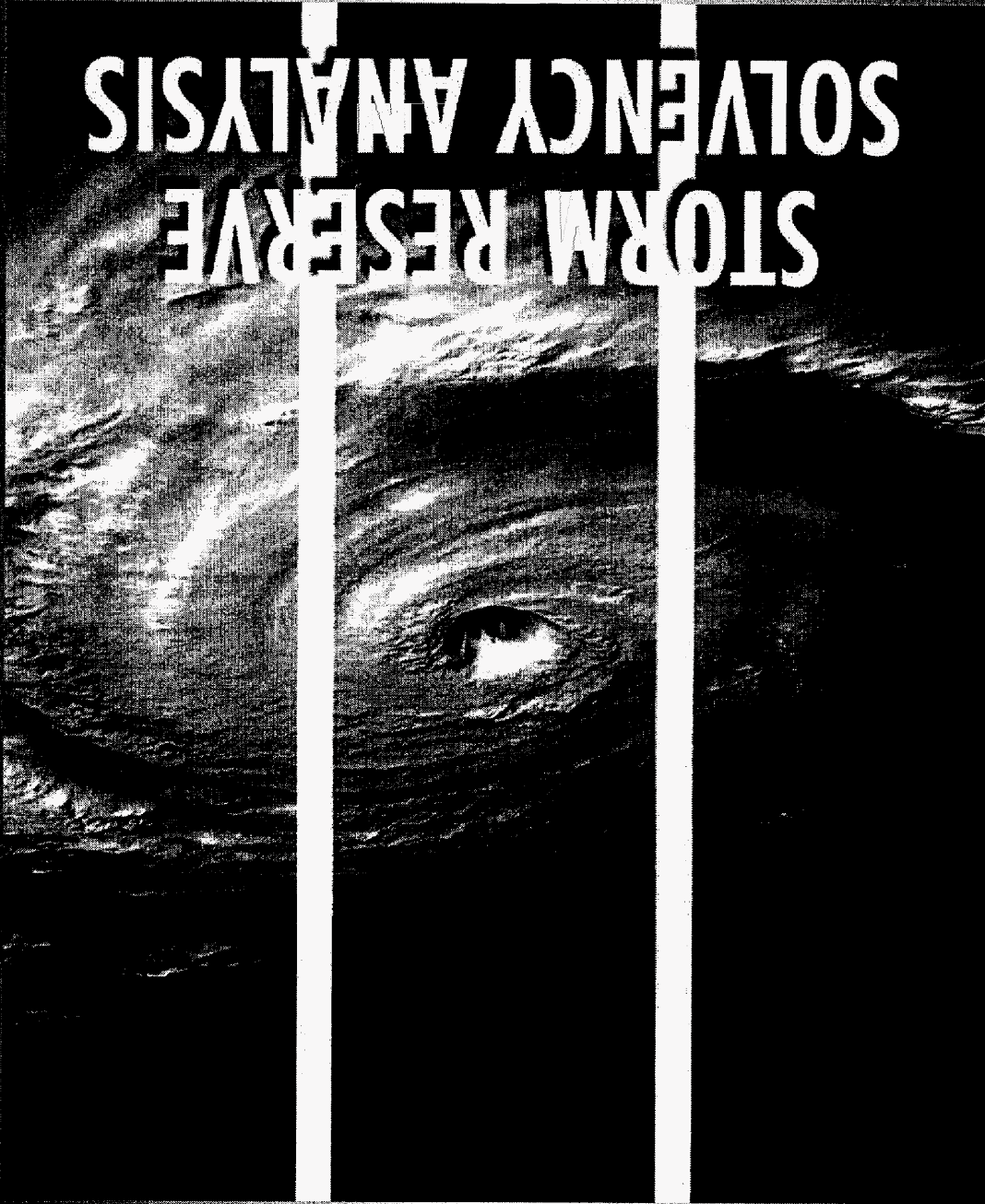


March
2005



ABS Consulting

STORM RESERVE SOLVENCY ANALYSIS



Florida Power & Light

Docket No. 050045-EI
S. Harris Exhibit No. _____
Document SPH-2, Page 1 of 16
Solvency Analysis

Storm Reserve Fund Risk Profile

The following is a summary description of analyses performed by ABS Consulting for the Florida Power and Light Storm Reserve, and is intended to be used solely by FPL and the Florida Public Service Commission for estimation of potential future FPL losses to the Storm Reserve Fund and the estimation of the performance of the Storm Reserve Fund.

OWNER	Florida Power & Light	
ASSETS	Transmission and Distribution (T & D) System consisting of : Transmission towers, and conductors; Distribution poles, transformers, conductors, and other assets	
LOCATION	All T & D assets located within the State of Florida	
ASSET VALUE	Normal replacement value is approximately \$ 11.8 billion, of which approximately 20% is transmission and 80% is distribution	
LOSS PERIL	Hurricane Windstorm (SSI 1 to 5), Tropical and Winter Storms, and Storm Staging Costs	
EXPECTED ANNUAL DAMAGE	\$73.7million	
1% AGGREGATE DAMAGE EXCEEDANCE VALUE	\$1,000 million (one year)	
AGGREGATE DAMAGE EXCEEDANCE PROBABILITIES	One Year	Five Years
\$100 million	17.0%	69.7%
\$350 million	5.5%	34.2%
\$500 million	3.5%	23.6%
Storm Fund Annual Accrual	Expected Fund Balance at 5 years	Probability of Insolvency within 5 years
\$120 million	\$256 to \$367 million	31%

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1. Storm Reserve Solvency Analysis

A probabilistic analysis of losses from hurricanes was performed for Florida Power & Light to determine their potential impact on the Storm Reserve Fund. The analysis included Transmission and Distribution (T & D) losses, insurance deductibles paid on non-T & D assets as well as storm staging costs. The total expected annual uninsured costs from hurricanes, tropical and winter storm, insurance deductibles and storm staging costs is estimated to be \$73.7 million as described in the Storm Loss Analyses Report (Reference 1) and summarized in the "Storm Reserve Fund Risk Profile" on page ii.

The expected annual loss estimate represents the average annual cost associated with repair of hurricane damage and service restoration over a long period of time. The expected annual loss is also known as the "Pure Premium," which is the insurance premium level needed to pay just the expected losses. Insurance companies add their expense cost and profit margin to the Pure Premium to develop the premium charged to customers.

1.1 Analysis

The analysis provides an estimate of the Storm Reserve assets in each year of the simulation, accounting for the annual accruals, investment income, expenses, and losses using a dynamic financial model. The Storm Reserve Solvency Analysis consisted of performing 10,000 iterations of hurricane loss simulations within the FPL service territory, each covering a five-year period, to determine the effect of the charges for losses to the FPL Storm Reserve. Monte Carlo simulations were used to generate loss samples for the analysis.

The storm losses were probabilistically generated using EQECAT's USWIND™ hurricane Model (Reference 1). The USWIND™ probabilistic loss analysis calculated the losses to FP&L for a comprehensive set of hypothetically possible storms. The basis for such an analysis was the USWIND™ probabilistic database, which is a finely

1. Storm Reserve Solvency Analysis

segmented set of hypothetical storms affecting the Gulf and Atlantic coasts of the United States.

The hypothetical hurricane and tropical storm database was developed by dividing the United States Gulf and Atlantic coastline into 10-mile segments and modeling more than 1,500 hypothetical hurricanes and approximately 750 hypothetical tropical storms for each segment. The net result is a stochastic storm database more than 750,000 hurricane and tropical storm events. In addition, each stochastic event is assigned an annual frequency of occurrence based on the storm track location and the storm intensity as measured by central pressure. A database of approximately 500,000 stochastic winter storm events was developed by a different process, through a simulation based on an analysis of historical winter storm wind fields.

Based on the annual frequency and the loss estimate for each stochastic event, a probabilistic database of losses was developed. From this database, various loss-exceedance distributions was statistically generated. For this analysis, an annual aggregate loss distribution was generated by combining all of the losses to FPL's Transmission and Distribution (T & D) assets, as well as insurance deductibles for non T & D assets and anticipated staging costs, calculated on the basis of the stochastic event sets described above. The expected annual loss calculated was \$73.7 million.

The Storm Reserve Solvency Analysis consisted of performing Monte Carlo simulations to generate loss samples consistent with the loss-exceedance distribution. Each loss sample has an equal likelihood of occurrence, and the annual probability of nonexceedance for the samples ranged from 0 to 0.9999. Since the annual aggregate loss distribution was used, the possibility that more than one storm in a given year may affect the Storm Reserve was included in the analysis.

The next step was to use a "Random Walk" technique to generate 10,000 sequences of five years' duration each. In each random walk, a sequence of five loss samples was selected from the loss distribution, resulting in one hypothetical set of occurrences, or random walk, for the five-year period. This process is repeated 10,000 times to generate the 10,000 Random Walks of five years' duration each for the analysis. The sampling was done in such a manner that each year has a unique and statistically independent set of loss points, yet for each of the five years all the 10,000 damage points are equally likely.

1. Storm Reserve Solvency Analysis

1.2 Analysis Assumptions

The analysis performed included the following assumptions

- All computations were performed with an initial Storm Reserve balance of zero.
- All results are shown in constant 2004 dollars.
- Investment earnings were assumed to grow at a rate of 3.9%.
- Negative Storm Reserve balances are assumed to be financed with an unlimited line of credit costing 4.5%.

1.3 Analysis Results

Annual accruals of \$20.3 million and \$120 million were analyzed. The annual accrual cases of \$20.3 million and \$120 million were analyzed with two assumptions for years where the Storm Reserve balances becomes negative due to storm losses; these are:

1. No recovery of negative Storm Reserve Fund balances occurs and
2. Recovery of negative Storm Reserve Fund balances is possible over 2 years.

In years when storm losses exceed the Reserve Fund balance, the fund becomes insolvent and has a negative balance. In cases where no recovery of these negative balances was assumed, the deficit was covered by borrowing funds (at a rate of 4.5%) and the annual year accruals are the only sources to pay down this debt and restore the fund to positive balances. The other cases analyzed assumed that in any year that the Storm Reserve became negative, the deficit was covered by borrowing funds and the negative balance would be recovered over the following two-year period.

Two other cases were analyzed. These were \$150 million with a two-year recovery of negative balances and \$170 million with no recovery of negative balances.

Results for these accrual cases are shown in Figures 1-1 through 1-6. The results show the mean (expected) Storm Reserve Fund balance as well as the 5th and 95th percentiles. The results from these simulation results are also shown in Table 1-1 and include the mean (expected) values of the Fund balance, probabilities of insolvency

1. Storm Reserve Solvency Analysis

during the five-year period, probabilities of insolvency at the end of the five-year period, and the probability of the Fund balance exceeding \$500 million.

For the \$120 million annual accrual cases (Figures 1-1 and 1-2), the mean Storm Reserve balance ranges from \$256 to \$367 million depending on recovery of negative fund balances. The Reserve has about a 31% probability of having a balance less than zero in any year of the five-year time interval of the simulation. The probability of the fund insolvency during the five-year interval is due mainly to the starting balance of zero. The probability of insolvency at the end of the five-year simulation is 8% for the case with a 2-year recovery of negative balances and 19% for the case with no recovery of negative balances.

Even small losses in the first year can cause insolvency since the Storm Reserve balance in the first year is only equal to the accrual of \$120 million plus earnings. The one-year probability of annual storm losses that exceed \$120 million is approximately 15% (See the "Storm Reserve Fund Risk Profile", Page ii; the \$100 million exceedance probability of 17%). This means that on average, the five-year simulations have about a 15% probability of insolvency in the first year). Overall, the likelihood of insolvency some time within the five-year simulation is 31%, coming mostly from the initial years with low balances.

The current accrual level case of \$20.3 million has an even greater likelihood of insolvency in the initial year since the first year ending balance is only \$20.3 million. The case where no negative balances are recovered has a mean Storm Reserve balance of (\$277) million and has about a 78% probability of having a balance less than zero within the five year time interval of the simulation (See Figure 1-3). When recovery of negative years storm balances occurs over a two year period, the mean Storm Reserve balance is (\$71) million (See Figure 1-4).

Two other cases were also analyzed. These were a \$150 million annual accrual with a two-year recovery of negative balances and a \$170 million annual accrual with no recovery of negative balances. These cases are shown in Figures 1-5 and 1-6. Both cases have mean values of the Reserve Fund balance that exceed \$500 million. These cases also have smaller probabilities of insolvency over the simulation period than cases with lower annual accruals.

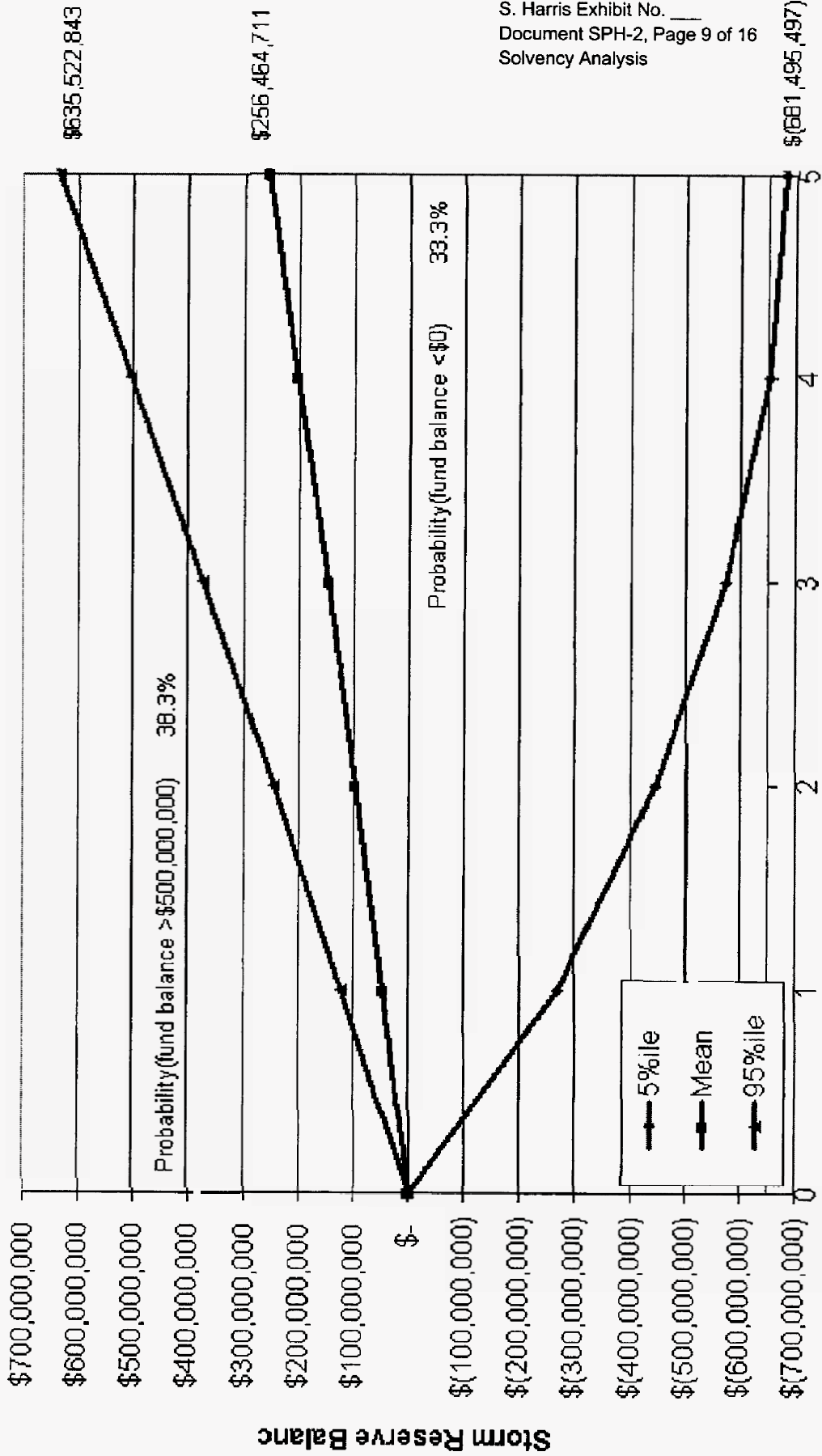
1. Storm Reserve Solvency Analysis

Table 1-1:
Storm Reserve Fund Analysis Case Results

Annual Accrual	Loss recovery	Mean (Expected) Fund Balance at 5 years (\$ millions)	Probability of insolvency within 5 years	Probability of insolvency at the end of year 5	Probability of Fund Balance in excess of \$500 million in 5 years
\$120 million	No recovery	\$256	33%	19%	38%
\$120 million	2 year recovery	\$367	34%	8%	39%
\$ 20.3 million	No recovery	(\$277)	79%	70%	0%
\$ 20.3 million	2 year recovery	(\$71)	79%	48%	0%
\$150 million	2 year recovery	\$513	28%	6%	66%
\$170 million	No recovery	\$526	24%	11%	74%

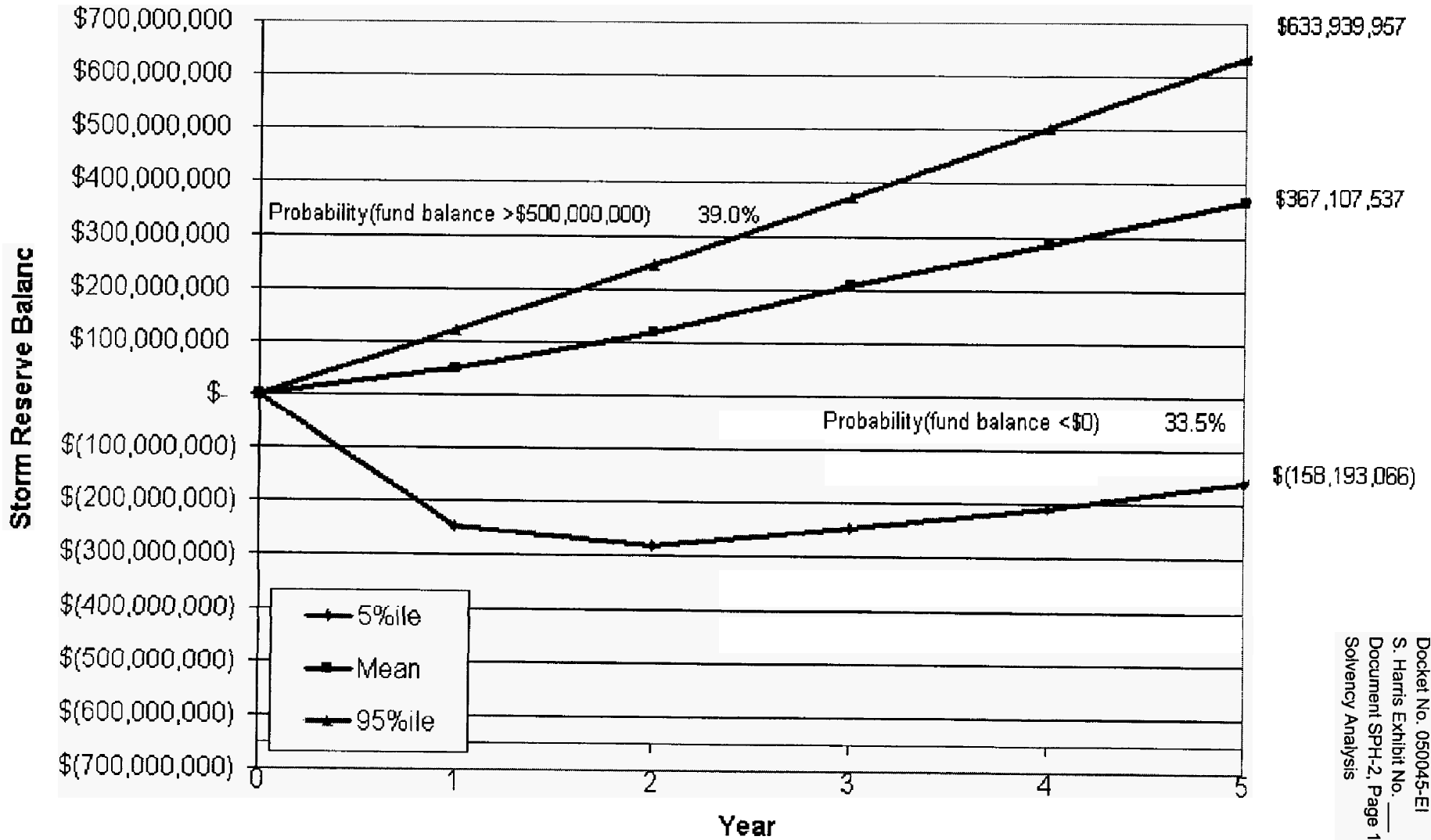
1. Storm Reserve Solvency Analysis

Figure 1-1: Storm Solvency Analyses Results
 \$120 million annual accrual, no recovery of negative fund balances



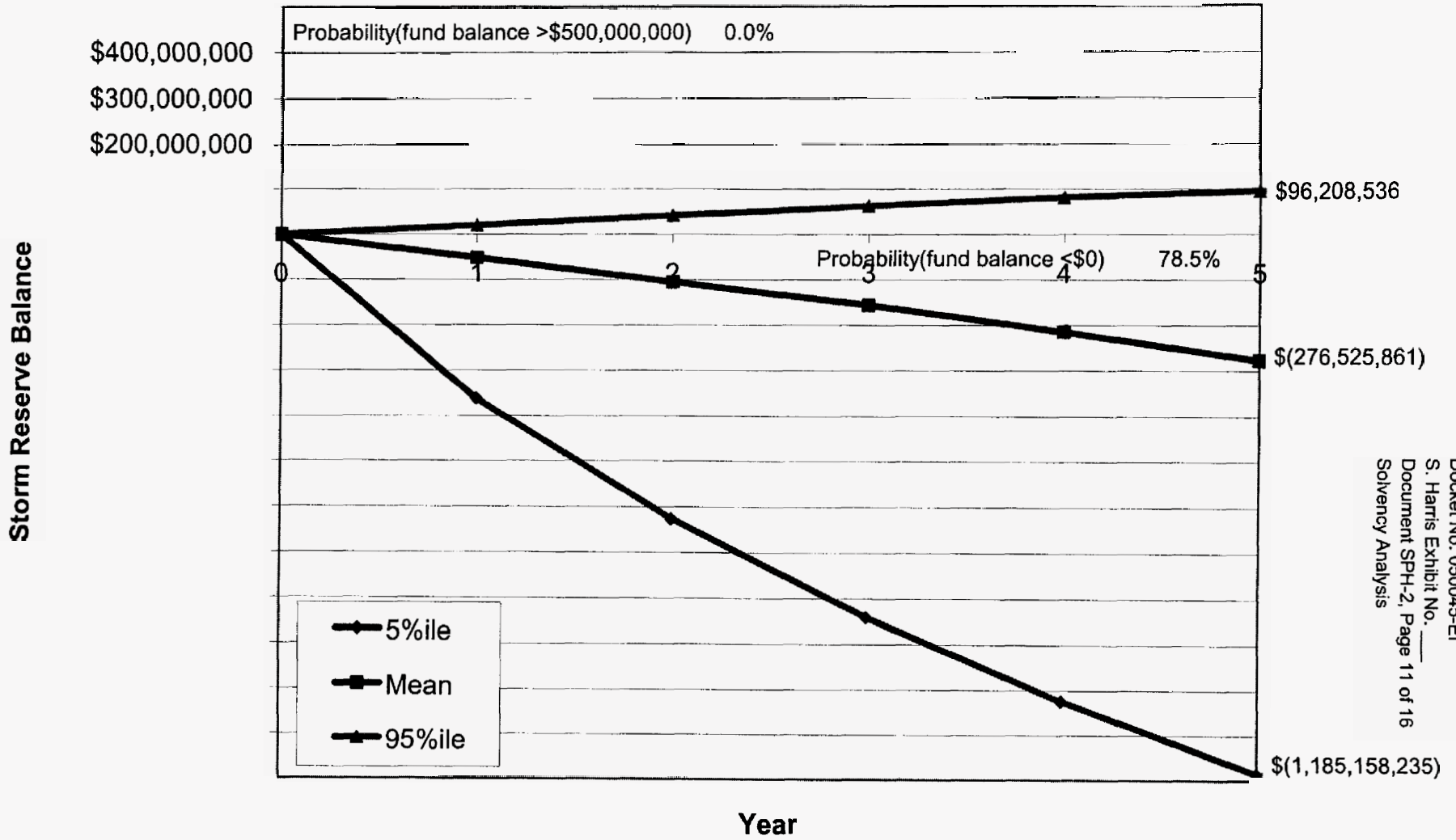
1. Storm Reserve Solvency Analysis

Figure 1-2: Storm Solvency Analyses
 \$120 million annual accrual, 2 year recovery of negative fund balances



1. Storm Reserve Solvency Analysis

Figure 1-3: Storm Solvency Analyses,
\$20.3 million annual accrual, no recovery of negative fund balances



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1. Storm Reserve Solvency Analysis

Figure 1-4: Storm Solvency Analyses,
\$20.3 million annual accrual, 2 year recovery of negative fund balances

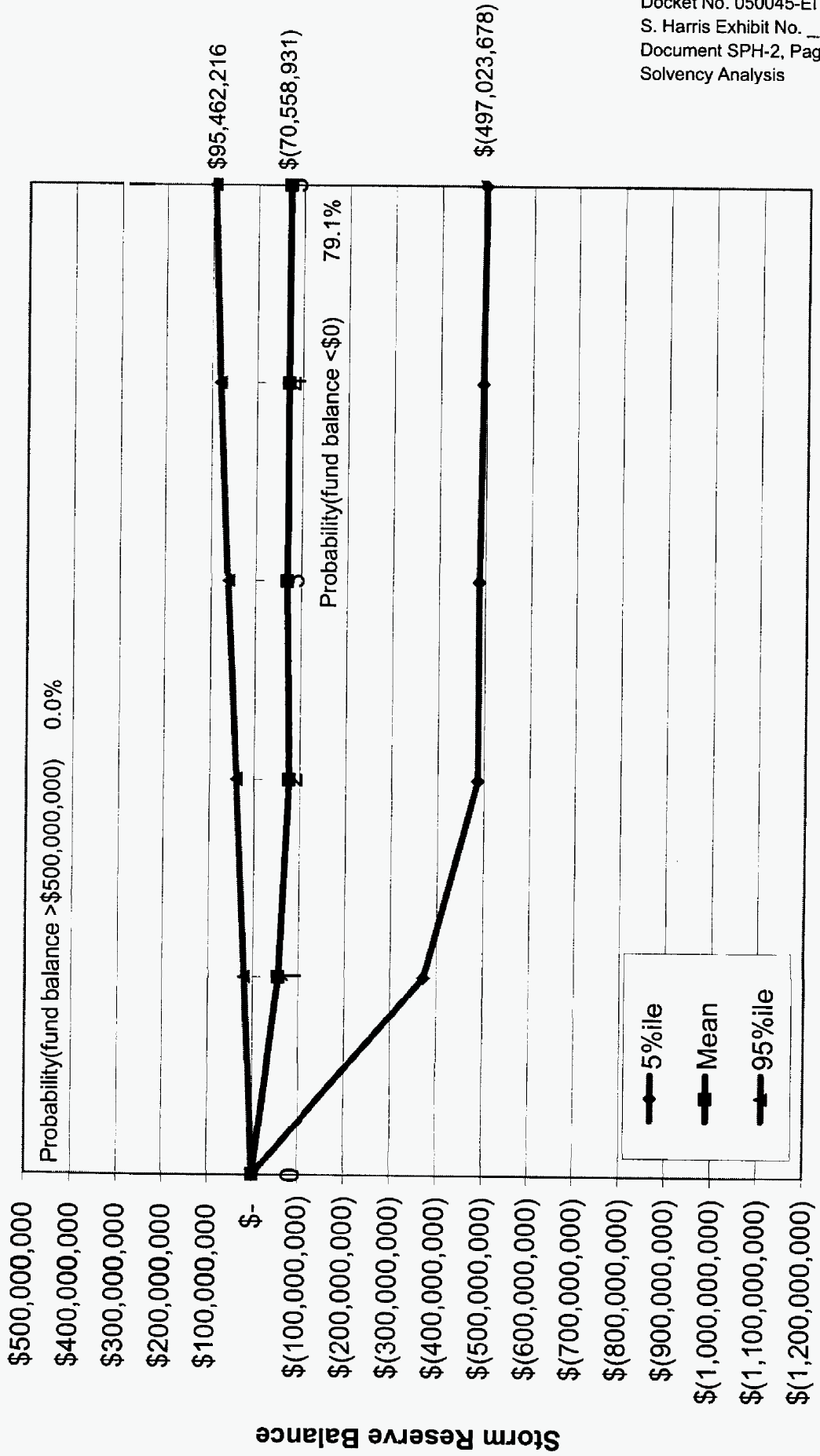
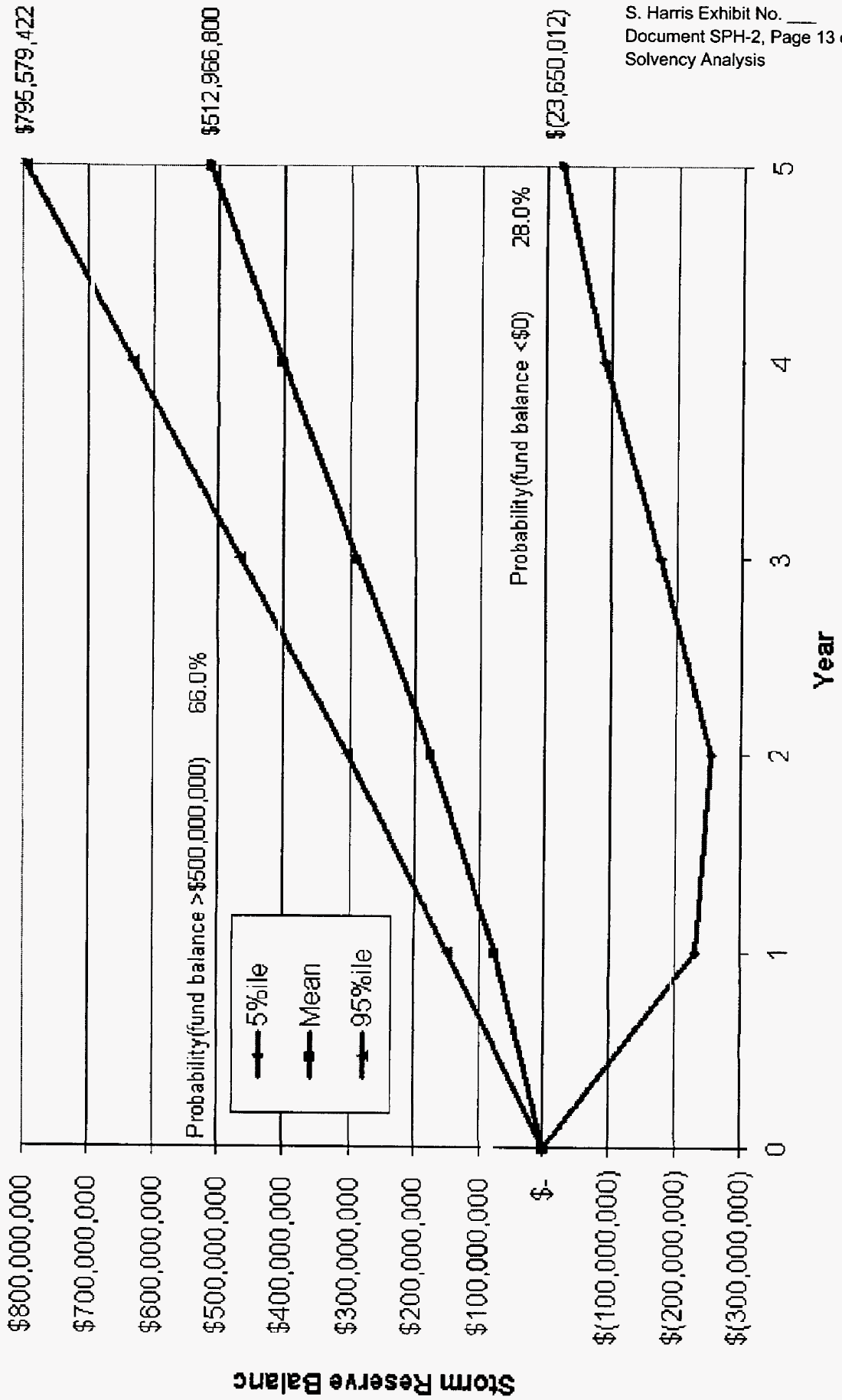
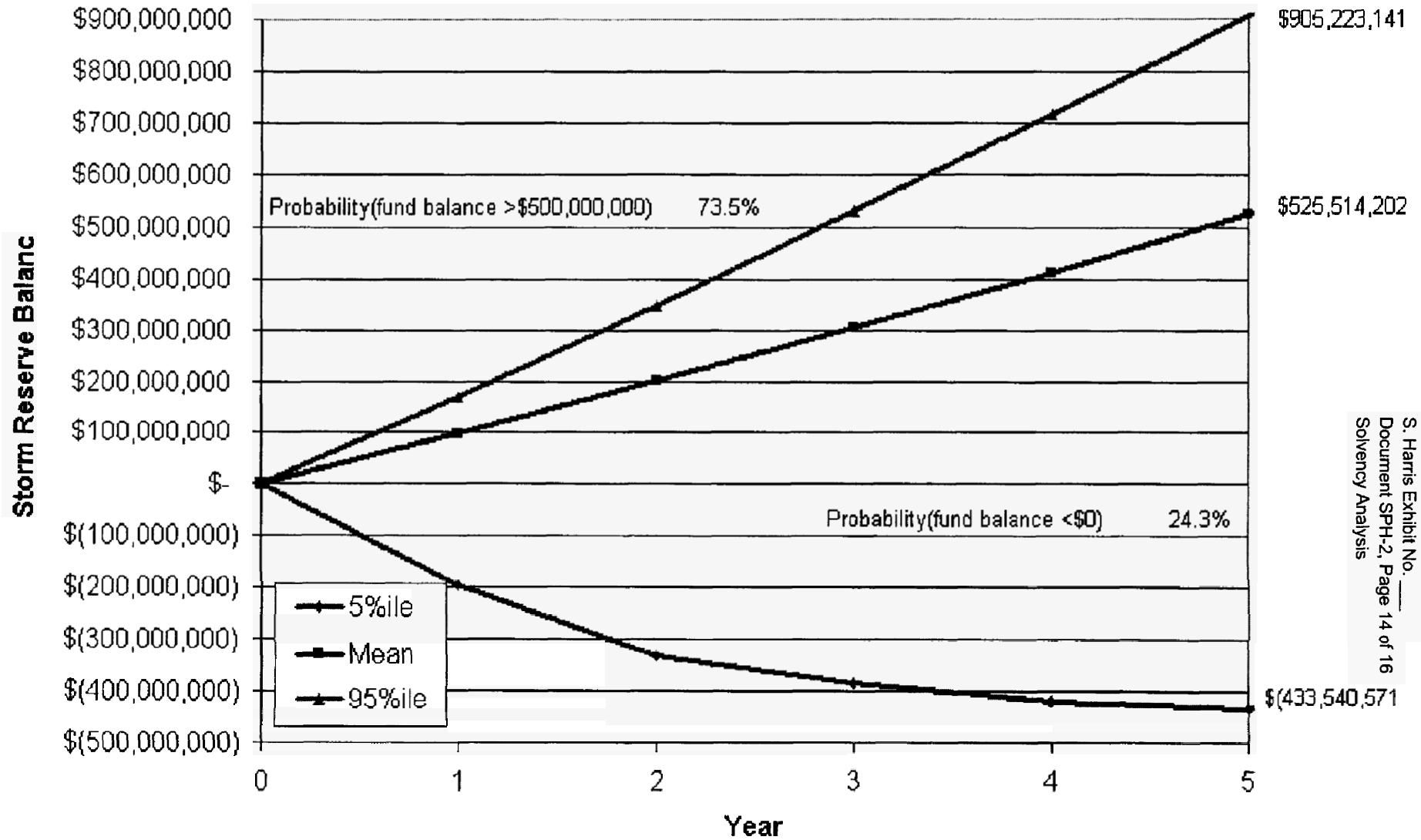


Figure 1-5: Storm Solvency Analyses, \$150 million annual accrual, 2 year recovery of negative fund balances



1. Storm Reserve Solvency Analysis

Figure 1-6: Storm Solvency Analyses,
\$170 million annual accrual, no recovery of negative fund balances



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2. References

1. "Florida Power& Light, Storm Loss Analysis", ABS Consulting, May 20005



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