#### State of Florida



# Hublic Serbice Commission

CAPITAL CIRCLE OFFICE CENTER ● 2540 SHUMARD OAK BOULEVARD TALLAHASSEE, FLORIDA 32399-0850

### -M-E-M-O-R-A-N-D-U-M-

DATE:

JULY 25, 2002

TO:

DIVISION OF DIRECTOR. ADMINISTRATIVE SERVICES (BAYÓ) COMMISSION

FROM:

office of the general counsel (moore) M

HEWITT D. LEE,

DIVISION OF ECONOMIC REGULATION (BREMAN,

MATLOCK, MCNULTY)

RE:

DOCKET NO. 011351-EI - PROPOSED REVISIONS TO RULE 25-6.044, F.A.C., CONTINUITY OF SERVICE, AND RULE 25-6.0455, F.A.C., ANNUAL DISTRIBUTION SERVICE RELIABILITY REPORT

THE

AGENDA:

AUGUST 6, 2002 - REGULAR AGENDA -RULE PROPOSAL

INTERESTED PERSONS MAY PARTICIPATE

PROPOSAL MAY BE DEFERRED RULE STATUS:

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\GCL\WP\011351.RCM

#### CASE BACKGROUND

In 1997, the Commission determined that an investigation into electric utilities' reliability and quality of service was necessary because the number of customer complaints had increased. The investigation revealed that the existing reporting requirements were not sufficient to adequately assess the reliability and quality of service provided. A three-year trial period was established to explore and identify the additional information that would be necessary to better track reliability and quality of service and to measure improvements. The trial period ended March 1, 2001, when the utilities filed their annual distribution reliability reports pursuant to Rule 25-6.0455.

Staff reported the results of the three-year trial to Commissioners at the June 11, 2001, Internal Affairs Meeting. The Commission directed the investor-owned electric utilities to continue reporting the information and for staff to initiate changes to the current reporting rules. Staff conducted rule development workshops on September 26, 2001, and February 21, 2002. Representatives of each of the five investor-owned electric utilities required to comply with the rules--Florida Power and Light Company, Florida Power Corporation, Tampa Electric Company, DOCUMENT NUMBER - DATE

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Gulf Power Company, and Florida Public Utilities Company-participated in the workshops as did the Office of Public Counsel. Attending at least one workshop were representatives of Lee Electric Cooperative, Seminole Electric Cooperative, Lakeland Electric, City of Tallahassee, Orlando Utilities Commission, and Florida Electric Cooperative Association.

#### DISCUSSION OF ISSUES

**ISSUE 1:** Should the Commission propose revisions to Rules 25-6.044 and 25-6.0455, F.A.C., governing investor-owned electric utility continuity of service and the annual distribution service reliability report?

#### **RECOMMENDATION:** Yes.

STAFF ANALYSIS: The recommended revisions to Rules 25-6.044 and 25-6.0455, F.A.C., codify the requirement to report certain indices and information that were reported to the Commission during the three-year trial period, but which are not required by existing rules. The reports will require information that has been found to be valuable in assessing distribution reliability and changes in quality of service. The new distribution service reliability indices are those defined by the Institute of Electrical and Electronics Engineers, Inc. (IEEE), and are widely used by electric utilities throughout the country to gauge distribution service reliability. This additional information to be furnished on new reporting forms will provide the Commission with more consistently prepared as well as comparative data.

rules implement sections 366.03, 366.04(2)(c)&(f), 366.04(5), and 366.05(1)&(7), Florida Statutes. Section 366.03 requires each public utility to furnish reasonably sufficient, adequate, and efficient service. The cited provisions of section 366.04 give the Commission power over electric utilities for the purpose of requiring electric power reliability and reports, and jurisdiction to assure an adequate and reliable source of energy in Subsection 366.05(1) gives the Commission the power to prescribe standards of quality and measurements, and service rules to be observed by each public utility. Subsection 366.05(7) gives the Commission the power to require reports from all electric utilities to assure the development of adequate and reliable energy grids. The results of the trial conducted over the past four years demonstrates that the information required by the revised rules will enable the Commission to better track reliability and quality of service and to better measure improvements. Better measurement and reporting has also led to improvements in reliability. addition, the information required by the recommended rules will

improve the Commission's ability to give consideration to "the efficiency, sufficiency, and adequacy of the facilities provided and the services rendered" in setting the utilities' rates, as authorized by section 366.041, Florida Statutes.

The following is a section-by-section summary of the recommended revisions:

#### Rule 25-6.044 Continuity of Service

Subsection (1) provides definitions of service reliability terms used in Part IV of Chapter 25-6, F.A.C. The recommended changes revise existing definitions and add definitions of terms to reflect the terms and methods used by the electric distribution industry to measure and improve distribution service reliability. Definitions of the new reliability indices include System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), Momentary Average Interruption Frequency Index (MAIFIe), and Customers Experiencing More than Five Interruptions (CEMI5). Staff believes that a cut-off of five interruptions is appropriate for reporting the number of customers experiencing interruptions in a specified area of service for a given period of time (CEMI), because staff's experience shows that at this level of interruptions, enough data has usually been collected to analyze and determine what corrective action is needed.

Subsection (2) requires utilities to keep a record of the cause of service interruptions according to specified categories of causes, and to further identify each outage as occurring on overhead or underground distribution lines. The recommended change requires utilities to maintain records of major categories of causes of outage events determined and recorded in a standard manner throughout the utility. It also requires recording of outage events as planned or unplanned, and the point of origination, such as distribution substation equipment, and system reliability and continuity of service data necessary for the development of the reports filed under Rule 25-6.0455(1) as revised.

Subsection (4) requires utilities to minimize the inconvenience to customers when service is necessarily interrupted or curtailed for prolonged periods and for the purpose of working on the system, and to provide adequate notice to affected customers whenever practicable. The recommended change requires utilities to maintain a copy of their procedures for providing notice with the Division of Economic Regulation.

Subsection (5) limits the applicability of Rule 25-6.044 to customers other than those receiving service under interruptible rate classifications. Staff recommends changing this so that the

rule does not apply to interruptible rate customers where the curtailment or interruption of service occurs pursuant to the affected customer's service agreement.

#### Rule 25-6.0455 Annual Distribution Service Reliability Report

Subsection (1) currently requires each utility to file a written Distribution Service Reliability Report covering the preceding year with the Commission's Division of Electric and Gas by March 1st of each year. The recommended rule updates the division name to the Division of Economic Regulation. Paragraphs (1) (a) through (1) (d) prescribe the contents of the annual report.

Paragraph (a) currently only requires each utility to report its total number of service interruptions (N) and average length of service interruptions (L-Bar) in its Distribution Service Reliability Report. This provision is renumbered as (1)(a) and is modified to require reporting of not only N and L-Bar but also to require the number of outage events to be categorized by cause. Additionally, the rule would require these data and analyses to be recorded on Form PSC/ECR 102-1, entitled "Outage Events".

Paragraph (1) (b) requires each utility to identify its primary circuits with the highest number of feeder breaker interruptions. For each such circuit, the utility must report the identification number or name, substation origin, general location, number of customers in each service class served, number of outage events (N), average duration of outage events (L-bar), average service restoration time (CAIDI), whether the same circuit is being reported for the second consecutive year, the number of times the circuit was reported in the past five years, and the date corrective action was completed. These data and analyses are to be recorded on Form PSC/ECR 102-2, entitled "Three Percent Feeder List".

Paragraph (1)(c) is added to require each utility to report its reliability indices, including SAIDI, CAIDI, SAIFI, MAIFIe, and CEMI5 for its system and for each district or service area into which its system may be divided. These data and analyses are to be recorded on Form PSC/ECR 102-3, entitled "System Reliability Indices".

Paragraph (1)(d) is added to require each utility to include the calculations for each index and measure of distribution reliability that is reported.

Subsection (2) is a new provision that permits the utility to exclude certain outage events from the Annual Distribution Reliability Report, expanding the number of exclusions permitted by existing Rule 25-6.044(1)(a). Utilities may exclude outage events caused by one or more of the following: planned interruptions, a

storm named by the National Hurricane Center, a tornado recorded by the National Weather Service, ice on lines, a planned load management event, an electric generation disturbance, an electric transmission system disturbance, or an extreme weather or fire event causing activation of the county emergency operation center.

Subsection (3) is added to authorize utilities to submit requests to exclude outage events that are not specifically provided for in recommended Rule 25-6.0455(2). The rule provides that the Commission will approve the request if the utility demonstrates that the outage could not reasonably have been prevented by the utility and that the event was not within the utility's control. Such requests must be submitted to the Division of Economic Regulation within 30 days of the outage event for which an exclusion is being requested. The rule further requires staff to submit a recommendation to the Commission within 60 days from the date the request is filed.

#### Statement of Estimated Regulatory Costs:

All of the investor-owned electric utilities except Florida Public Utilities Company (FPUC) report that they can comply with the recommended rule requirements with minimal incremental costs. Based on a very preliminary study, FPUC estimated that it would require an additional investment of \$4 million to collect the data for the MAIFI and CEMI5 indices as well as additional annual recurring costs of \$250,000 to operate and maintain the necessary The four other utilities affected reported they will systems. have minimal incremental transactional costs to comply with the rule. FPUC and the other utilities proposed lower cost alternatives which are described in the attached Statement of Estimated Regulatory Costs. Staff, however, does not believe that the alternatives will sufficiently improve accountability or provide adequate information about the reliability of the utilities' distribution systems, and thus will not enable the Commission to accomplish the objective of ensuring adequate and reliable service.

**ISSUE 2:** If no request for hearing or comments are filed, should the proposed rule be filed for adoption with the Secretary of State and the docket be closed?

**RECOMMENDATION:** Yes, the docket should be closed if no requests for hearing or comments are filed.

**STAFF ANALYSIS:** Unless comments or requests for hearing are filed, the proposed rule may be filed with the Secretary of State without further Commission action. The docket may then be closed.

#### Attachments:

A - Recommended Rules 25-6.044 and 25-6.0455

B - Statement of Estimated Regulatory Costs

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#### 25-6.044 Continuity of Service.

(1) Definitions applicable to this part:

- (a) "Area of Service." A geographic area where a utility provides retail electric service. An Area of Service can be the entire system, a district, or a region into which a utility divides its system. "Service Interruption". An unplanned interruption of electric service greater than or equal to one minute due to a malfunction on the distribution system or a distribution-related outage caused by events on the utility's side of customer meters which is triggered by load management restoration. The term does not include interruptions due to momentary circuit breaker operations, hurricanes, tornados, ice on lines, planned load management, or electrical disturbances on the generation or transmission system.
- (b) "Average Duration of Outage Events (L-Bar)." The sum of each Outage Event Duration for all Outage Events occurring during a given time period, divided by the Number of Outage Events over the same time period within a specific Area of Service. "Customer Interruption Duration" (L). The time interval, in minutes, between the time when a utility first becomes aware of a service interruption and the time of restoration of service to a customer affected by that service interruption.
  - (c) <u>"Customer Average Interruption Duration Index (CAIDI)."</u>

CODING: Words <u>underlined</u> are additions; words in <del>struck</del> through type are deletions from existing law.

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The average time to restore service to interrupted retail customers within a specified Area of Service over a given period of time. It is determined by dividing the sum of Customer Minutes of Interruption by the total number of Service Interruptions for the respective Area of Service. "System Interruption Time". The total customer minutes of service interruption experienced on a utility's system during a given time period, determined by summing the total minutes of Customer Interruption Duration for all interruptions during that time period. The total minutes of Customer Interruption Duration for each customer affected by that individual interruption (estimated if actual data is not available).

- (d) "Customers Experiencing More Than Five Interruptions (CEMI5)." The number of retail customers that sustain more than five Service Interruptions for a specified Area of Service over a given period of time. "Number of Service Interruptions (N)." The sum of service interruptions for the entire distribution system, or whichever portion of the distribution system which is being reviewed.
- (e) <u>"Customer Minutes of Interruption (CMI)."</u> For a given

  Outage Event, CMI is the sum of each affected retail customer's

  Service Interruption Duration. "Average length of a Service

Interruption (L-Bar)." The time interval, in minutes, between the time when the utility first becomes aware of a service interruption and restoration of service to the last customer affected by that service interruption, summed for all service interruptions occurring during a given time period, and divided by the Number of Service Interruptions in the same time period.

- (f) "Momentary Average Interruption Event Frequency Index (MAIFIe)." The average number of Momentary Interruption Events recorded on primary circuits for a specified Area of Service over a given period of time.
- (g) "Momentary Interruption." The complete loss of voltage for less than one minute. This does not include short duration phenomena causing waveform distortion.
- (h) "Momentary Interruption Event." One or more Momentary Interruptions recorded by the operation of a utility distribution interrupting device within a five minute period. For example, two or three operations of a primary circuit breaker within a five minute period that did not result in a Service Interruption is one Momentary Interruption Event.
- (i) "Number of Customers Served (C)." The sum of all retail customers on the last day of a given time period within a specific Area of Service.
  - (j) "Number of Outage Events (N)." The sum of Outage Events

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for an Area of Service over a specified period of time.

- (k) "Outage Event." An occurrence that results in one or more individual retail customer Service Interruptions.
- (1) "Outage Event Duration (L)." The time interval, in minutes, between the time when a utility first becomes aware of an Outage Event and the time of restoration of service to the last retail customer affected by that Outage Event.
- (m) "Service Interruption." The complete loss of voltage of at least one minute to a retail customer.
- (n) "Service Interruption Duration." The time interval, in minutes, between the time a utility first becomes aware of a Service Interruption and the time of restoration of service to that retail customer.
- (o) "System Average Interruption Duration Index (SAIDI)."

  The average minutes of Service Interruption Duration per retail customer served within a specified Area of Service over a given period of time. It is determined by dividing the total Customer Minutes of Interruption by the total Number of Customers Served for the respective Area of Service.
- (p) "System Average Interruption Frequency Index (SAIFI)."

  The average number of Service Interruptions per retail customer within a specified Area of Service over a given period of time. It is determined by dividing the sum of Service Interruptions by the

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total Number of Customers Served for the respective Area of Service.

- (q) Planned Service Interruption." A Service Interruption initiated by the utility to perform necessary scheduled activities, such as maintenance, infrastructure improvements, new construction due to customer growth. Customers are typically notified in advance of these events.
- Each utility shall keep a record of its system reliability and continuity of service data, customers' Service Interruption notifications, and other data necessary for the reports filed under these rules. The utility shall record each Outage Event as planned or unplanned and shall identify the point of origination such as generation facility, transmission line, transmission substation equipment, or distribution equipment. The cause of each Outage event shall be determined and recorded in a standardized manner throughout the utility. The date and time of the Outage Event and the number of Service Interruptions for the Outage Event shall also be recorded the cause of each Service Interruption, and shall categorize the cause as one or more of the following: lightning, tree or limb contacting line, animal, line downed by vehicle, dig-in, substation outage, line transformer failure, salt spray on insulator, and corrosion, other, or unknown, and shall further identify whether the initiating event occurred on

overhead or underground distribution lines.

- (3) Each utility shall make all reasonable efforts to prevent interruptions of service and when such interruptions occur shall attempt to restore service within the shortest time practicable consistent with safety.
- (4) When the service is necessarily interrupted or curtailed for prolonged periods and for the purpose of working on the system, it shall be done at a time which, when at all practicable, will result incause the least inconvenience to customers and all such scheduled interruptions shall be preceded by reasonableadequate notice whenever practicable to affected customers. Each utility shall maintain a current copy of its noticing procedures with the Division of Economic Regulation.
- (5) The provisions of this rule shall not apply to a curtailment or an interruption of service to customers receiving service under interruptible rate classifications when the curtailment or interruption of service occurs pursuant to the affected retail customer's service agreement.

21 Specific Authority: 366.05(1), F.S.

Law Implemented: 366.03, 366.04(2)(c), 366.04(5), 366.05, F S.

History: New 7/29/69, formerly 25-6.44, amended 02/25/93,\_\_\_\_\_.

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#### 25-6.0455 Annual Distribution Service Reliability Report.

- (1) Each utility shall file a written Distribution Service Reliability Report with the Director of the Commission's Division of Economic Regulation Electric and Gas on or before March 1st of each year, forcovering the preceding calendar year. The report shall contain the following information:
- (a) the utility's total number of <u>Outage Events service</u> interruptions—(N), categorized by cause <u>for the highest 10 causes</u> of <u>Outage Events as specified in Rule 25-6.044</u>, and the <u>Average Duration of Outage Events average length of service interruptions experienced (L-Bar), and Average Service Restoration Time (CAIDI).

  The utility shall record these data and analyses on Form PSC/ECR 102-1, entitled "Outage Events" which may be obtained from the Division of Economic Regulation, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, 850/413-6900;—</u>
- (b) identification of the three percent of the utility's Primary Circuits (feeders) feeders with the highest number of feeder breaker interruptions. For each primary circuit so Each feeder shall be identified the utility shall report the primary circuit identification by its number or name, substation origin, and general location, as well as the estimated number of affected customers by in each service class served by the feeder circuit, Number of Outage Events as well as the number of service

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interruptions (N), Average Duration of Outage Events and average length of service interruption (L-Bar), Average Service Restoration Time (CAIDI), whether the same circuit is being reported for the second consecutive year, the number of years the primary circuit was reported on the "Three Percent Feeder List" in the past five years, and the corrective action date of completion for the feeder.

The utility shall record these data and analyses on Form PSC/ECR 102-2, entitled "Three Percent Feeder List" which may be obtained from the Division of Economic Regulation, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, 850/413-6900;

- (c) the reliability indices SAIDI, CAIDI, SAIFI, MAIFIE, and CEMIS for its system and for each district or region into which its system may be divided. The utility shall record these data and analyses on Form PSC/ECR 102-3, entitled "System Reliability Indices" which may be obtained from the Division of Economic Regulation, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, 850/413-6900;
- (d) the calculations for each of the required indices and measures of distribution reliability;
- (2) A utility may exclude from the Annual Distribution

  Service Reliability Report the Outage Events directly caused by one

  or more of the following: planned interruptions, a storm named by

  the National Hurricane Center, a tornado recorded by the National

DATE: July 25, 2002 2 Weather Service, ice on lines, a planned load management event, an 3 electric generation disturbance, an electric transmission system 4 disturbance, or an extreme weather or fire event causing activation 5 of the county emergency operation center. 6 (3) A utility may submit a request to exclude an Outage Event 7 from the Annual Distribution Service Reliability Report that is not 8 specifically provided for in Rule 25-6.0455(2). Such a request 9 must be submitted to the Division of Economic Regulation within 30 10 days of the Outage Event for which an exclusion is being requested. 11 A staff recommendation will be submitted to the Commission within 12 60 days from the date the request is filed. The Commission will 13 approve the request if the utility is able to demonstrate that the 14 outage was not within the utility's control, and that the utility 15 could not reasonably have prevented the outage. 16 Specific Authority: 366.05(1), F.S. 17 Law Implemented: 366.03, 366.04(2)(c)&(f), 366.04(5), 366.05, 18 366.05(7), F.S. 19 History: New 02/25/93, amended 20 21 22 23 24 25

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Primary Causes of Outage Events								
Utility Name Year								
Cause (a)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)					
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2.								
3.								
4.								
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10.								
All Other Causes								
System Totals								

Form PSC/ECR 102-1

	3 Percent Feeder List												
Utility NameYear													
			Number of Customers										
Primary Circuit Id. No. or Name (a)	Sub- station Origin (b)	Location (c)	Residential (d)	Commercial (e)	Industrial (f)	Other (g)	Total (h)	Outage Events "N" (i)	Avg Duration "L-Bar" (j)	CAIDI (k)	Listed Last Year? (I)	No. of Years in the Last 5 (m)	Corrective Action Completion Date (n)
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Form PSC/ECR 102-2

Service Reliability Indices							
Utility Name		Year					
District or Service Area (a)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)		
System Averages							

Form PSC/ECR 102-3

#### <u>MEMORANDUM</u>

May 30, 2002

TO:

DIVISION OF APPEALS (MOORE)

FROM:

DIVISION OF ECONOMIC REGULATION (HEWITT)

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SUBJECT:

STATEMENT OF ESTIMATED REGULATORY COSTS FOR PROPOSED

AMENDMENTS TO RULES 25-6.044, CONTINUITY OF SERVICE, F.A.C., AND

25-6.0455, ELECTRIC SERVICE RELIABILITY, DOCKET NO. 011351-EI

### SUMMARY OF THE RULE

Rules 25-6.044, Continuity of Service, and 25-6.0455, Electric Service Reliability, F.A.C., provide definitions, require investor-owned electric utilities (IOUs) to keep records of the cause of service interruptions, identify outages as to overhead or underground distribution lines, minimize customer inconvenience, and make outage reports.

The proposed amendments would revise and add definitions of terms used by the electric distribution industry to measure and improve service reliability, add reporting requirements, and add new reporting forms.

## ESTIMATED NUMBER OF ENTITIES REQUIRED TO COMPLY AND GENERAL DESCRIPTION OF INDIVIDUALS AFFECTED

There are five investor-owned electric utility companies operating in Florida. Each would have to comply with the proposed rule amendments.

# RULE IMPLEMENTATION AND ENFORCEMENT COST AND IMPACT ON REVENUES FOR THE AGENCY AND OTHER STATE AND LOCAL GOVERNMENT ENTITIES

The Public Service Commission and other state entities are not expected to experience implementation costs other than the costs associated with promulgating a proposed rule. Existing Commission staff would continue to handle the monitoring and review of IOU compliance and reports.

Local government entities should have no additional costs or impacts.

### ESTIMATED TRANSACTIONAL COSTS TO INDIVIDUALS AND ENTITIES

Most of the IOUs affected reported they would have minimal incremental transactional costs to comply with the proposed rule. Although most of the IOUs now collect much of the service outage data currently, there could be some minimal additional cost to report the information on the new PSC

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forms but for one company, significant additional cost to collect the data. The level of accuracy may vary between companies because of the different systems and processes utilized by each company, but the reported results should not be materially affected.

Florida Public Utilities Company (FPUC) Marianna Division, reported that Momentary Average Interruption Event Frequency Index (MAIFI) or Customers Experiencing More than Five Interruptions (CEMI5) data cannot be provided with their present system. Based on a very preliminary study, FPUC estimated that there would be an initial cost of \$1.5 million for a Supervisory Control and Data Acquisition (SCADA) system to capture data for MAIFIs. Another \$2.5 million would be required to complete the conversion of paper maps into a Geographic Information System computer based mapping system detailed to the customer level, implementing an Automated Outage Management System, and linking both systems together to capture data for CEMI5. There would be an estimated \$250,000 per year in recurring cost to operate and maintain SCADA, Mapping, and Outage Systems.

FPUC believes that the \$4 million in additional investment to provide the two indices would represent an increase of 13% in their rate base without any significant benefit to their approximately 26,000 electric customers.

The other IOUs, from indications at staff workshops, already have data collection systems in place to provide the proposed information reporting.

### IMPACT ON SMALL BUSINESSES, SMALL CITIES, OR SMALL COUNTIES

Small businesses, small cities, and small counties would not be adversely affected.

#### **ALTERNATIVE METHODS**

FPUC proposed two possible alternatives. FPUC stated that either would allow it and its customers to avoid the dramatic increase in their costs. Option 1: adopt the IOU "Strawman Proposal" and give FPUC an exclusion on MAIFI. Option 2: adopt the proposed rule amendments and give FPUC an exclusion on MAIFI and CEM5. Although these options would eliminate the possible increase in both the rate base and operating costs of FPUC, the intent of the rule would not be met.

The other affected IOUs also believe that their "Strawman" proposal represents a lower cost alternative method of accomplishing the requirements of the proposed rule. However, the "Strawman" proposal basically would just require System Average Interruption Duration Index reporting which does not have frequency nor duration of outages. Thus, some of the basic reporting requirements of the rule would not be met as well as the intended accountability and standards for maintaining the reliability of their systems.

Cc: Mary Bane
Hurd Reeves
Jim Bremen