

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Resolution M-4792
November 19, 1998

RESOLUTION

REQUIRES UTILITIES TO PROVIDE INFORMATION TO THE COMMISSION REGARDING THEIR EFFORTS TO ACHIEVE READINESS WITH RESPECT TO THE YEAR 2000 PROBLEM, TO CERTIFY THAT THEY ARE READY BY NOVEMBER 1, 1999, AND TO DEVELOP CONTINGENCY PLANS TO ADDRESS YEAR 2000 PROBLEMS WHICH MAY NONETHELESS RESULT. REQUIRES CERTAIN UTILITIES TO PARTICIPATE IN INDUSTRY-WIDE YEAR 2000 EFFORTS AND TO PROVIDE INFORMATION SUBMITTED TO INDUSTRY GROUPS AND/OR TO THE SECURITIES AND EXCHANGE COMMISSION.

BACKGROUND

The California Public Utilities Commission ("CPUC" or "Commission") has regulatory authority over certain essential telecommunications, energy, water, and transportation services throughout California. Most of these essential services are interrelated. Disruption, even for a few hours, of one or more of these services can significantly and adversely affect many people, communities - or even the entire state - as well as daily commerce in California.

California, along with every other state, is facing the possibility of such disruptions unless providers of these essential services adequately address what has become known as the Year 2000 ("Y2K") issue. Many date-sensitive software programs, computers and embedded controls, processing and control systems are based on having date codes that accept only two digits as a year indicator (i.e. mm/dd/yy). The two-digit date convention assumes that the century is "19." Thus, 98 equals 1998 and 99 equals 1999. Thus, 00 may indicate to most computers the year 1900. When the calendar reaches January 1, 2000, these systems may produce nonsensical results, or shut down because they will read the date as 1900 rather than 2000. Many essential processes in providing public utility

services are automated and based on microprocessor and microcomputer controls and are programmed with dates for a variety of purposes. The Y2K problem, if not properly addressed, may affect the financial control, customer and shipper service, billing, and load forecasting systems, as well as the ability of the utilities to provide utility services, which could have serious health and safety implications. Illustrations of the potential magnitude of the Y2K problem may be found in each regulated industry. For instance: a five minute telephone call placed just before midnight on December 31, 1999, may be billed as a fifty-two million-minute call, lasting from 1900 to 1999 because of software inabilities to distinguish between the year 1900 and the year 2000.

Dates other than January 1, 2000, may also cause problems for unremediated computer systems. For instance, leap year calculations are complicated by the fact that the rules for leap year calculations suggest that a year is a leap year if it is divisible by four, but if it is divisible by 100 it is not a leap year. However, the year 2000 is a special case leap year which occurs only once every 400 years. Software programs and embedded systems must recognize this fact. Also, in order to write more efficient code, which allowed for the use of less memory, may date fields were used to provide special functionality. The most common date used for this was 9/9/99. This code was used in some applications to indicate "save this data item forever" or "remove this date item automatically after 30 days." The specific meaning for this code varies by organization and software application. The solution for 9/9/99 obviously cannot wait until the year 2000. Data entries which refer to September 9, 1999 will invoke this problem.

DISCUSSION

There are less than 450 days remaining until the year 2000. Numerous reports, including one study just released by the United States Senate Special Committee on the Year 2000 and another undertaken by the National Regulatory Research Institute, show utility companies lagging behind in their preparedness for the change in millennia. California has taken a leadership position on the Y2K issue, exemplified by Executive Order W-163-97 issued in October 1997. The Commission has coordinated its efforts with the state Department of Information Technology, which is managing a statewide effort ensure that essential services in all industries are maintained. While the Commission has already taken a number of steps to evaluate the readiness of California utilities with respect to the Y2K problem, as the immovable deadline approaches, the Commission has determined that the focus must change from technical compliance to actual business readiness. Pursuant to our authority under, e.g. Public Utilities Code § 451, 761, and 762, the Commission must seek to ensure that the utility industries remain ready to serve California ratepayers into the next century.

Letters were sent earlier this year to CPUC-regulated utilities and companies requesting confirmation of their Y2K plan, preparation, and timetable for readiness. Response has generally been very good. For instance, some of the larger utilities have advised the Commission that they have commenced implementing solutions to this problem by creating dedicated program offices which have carried out analysis of systems requiring remediation and have begun to install new equipment and software. We are informed that California's municipal and public utilities, under the direction of their respective managing boards, are similarly addressing this issue.

While the Commission views the Year 2000 issue as a managerial problem and its solution as a managerial decision, the Commission is concerned about the adequacy and reasonableness of such solutions, and wants to ensure that solutions are implemented not only by the largest utilities but by all of the entities under our jurisdiction. Thus the Commission is taking action today to formally require responses from each utility with respect to potential Y2K problems.

We understand that under generally accepted industry standards, to be considered Year 2000 compliant, a device or system must:

- Handle date information before, during and after January 1, 2000, including but not limited to accepting date input, providing date output, and performing calculations on dates or portions of dates;
- Function accurately and without interruption before, during and after January 1, 2000 without any change in operations associated with the advent of the new century;
- Respond to two-digit year input in a way that resolves the ambiguity as to century in a disclosed, defined and predetermined manner;
- Store and provide output of date information in ways that are unambiguous as to century; and
- Accurately determine and process 2000 as a leap year.

This definition can be applied to all systems and components where dates are gathered or manipulated; hardware, software, embedded systems, facilities infrastructure; to any suppliers of goods, commodities, or services; and to any business partners.

We further understand that under generally accepted industry standards, a device or system is considered to be Year 2000 ready where, after study and analysis, it is determined to be suitable for continued use into the year 2000 even though it is not fully compliant. For instance, a company may find that after analyzing a critical system, the only problem found is a report that will show 1900 as the report date, when the actual year will be 2000. Suppose the estimate to repair this problem is approximately 4 staff months. If the report is only used internally, the decision may be made to let the error occur and make all recipients aware of the problem. Since this scenario violates one of the requirements of year 2000 compliancy, but is deemed suitable for use into 2000, the system is classified as year 2000 ready.

Utilities should use the definitions of "Year 2000 compliant" and "Year 2000 ready" set forth above in providing their responses to the attached checklist and survey.

While every effort should be expended to prevent service disruptions, utilities must have plans for response to unforeseen or unpreventable disruptions, minor or major. As awareness of the scope of potential Y2K problems increases, it would be unrealistic to assume that all Y2K problems will be resolved. Utility service providers must begin to raise questions of "what if" and to prepare for those potential outcomes. Disaster preparedness is one component, but other contingency plans can contribute to the protection of the public welfare. For example, the Federal Reserve recently announced that it would increase the amount of cash available in the economy near the end of 1999 in case people began to withdraw cash from banks in fear of being unable to withdraw funds from ATM machines. It marks the first time in history that the Fed has planned for a nationwide demand for extra cash. If Y2K problems are extensive, the Fed has also announced its capability to put additional cash into the system by ordering extra shifts at its regional banks, print larger denominations of currency, and slow the retirement of worn currency. The need for specific utility contingency plans will become more apparent after utilities complete the assessment and testing phases of their implementation plans. Some contingency planning can begin now. For example, electric utilities should consider contingency planning for fuel supply fairly early.

The Commission is committed to providing the public with information regarding the Y2K readiness of California utilities. To that end, the Commission has begun to publish information pertaining to Y2K readiness on its web site, www.cpuc.ca.gov. Additional material will be published on the web-site in the weeks and months to come. In addition, consumers may contact the Commission staff by telephone or in writing for such information.

FINDINGS OF FACT

1. The Y2K issue, if not properly addressed, has the potential to cause serious disruptions in essential utility services to California ratepayers, which may affect the public health, safety, and welfare.
2. Commission oversight can enhance the utility response to the Y2K issue and public confidence in that response.
3. To be considered Year 2000 compliant, a device or system must:
 - Handle date information before, during and after January 1, 2000, including but not limited to accepting date input, providing date output, and performing calculations on dates or portions of dates;
 - Function accurately and without interruption before, during and after January 1, 2000 without any change in operations associated with the advent of the new century;
 - Respond to two-digit year input in a way that resolves the ambiguity as to century in a disclosed, defined and predetermined manner;
 - Store and provide output of date information in ways that are unambiguous as to century; and
 - Accurately determine and process 2000 as a leap year.
4. A device or system is considered to be Year 2000 ready where, after study and analysis, it is determined to be suitable for continued use into the year 2000 even though it is not fully compliant. For instance, a company may find that after analyzing a critical system, the only problem found is a report that will show 1900 as the report date, when the actual year will be 2000. Suppose the estimate to repair this problem is approximately 4 staff months. If the report is only used internally, the decision may be made to let the error occur and make all recipients aware of the problem. Since this scenario violates one of the requirements of year 2000 compliancy, but is deemed suitable for use into 2000, the system is classified as year 2000 ready.
5. There is a reasonable probability that some level of Y2K problems will occur even with the best of utility and Commission efforts to address the Y2K issue. Thus, utilities should prepare contingency plans to address Y2K problems which may develop.

CONCLUSIONS OF LAW

1. The Commission should exercise its jurisdiction to require utilities to respond to the Year 2000 problem, report on their progress to the Commission, certify to the Commission no later than November 1, 1999, that all essential service delivery systems under their control are Y2K compliant or Y2K ready, and develop and report to the Commission contingency plans to address Y2K problems which may nonetheless ensue.
2. Prompt enforcement action should be taken against utilities which fail to respond to the attached checklist and survey and otherwise comply with the Commission's orders with respect to Y2K issues.

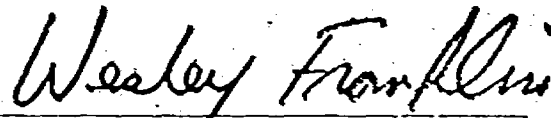
ORDER

1. All investor-owned utilities subject to the Commission's jurisdiction shall comply with each of the following. For the purpose of these ordering paragraphs "utility" is defined to include rail transit agencies and heavy commuter rail operations. Vessel Common Carriers and Passenger Stage Corporations are excluded. The Executive Director shall advise California's municipal and public utilities of the Commission's efforts in this regard by transmitting a copy of this Resolution to them.
2. Each utility shall prioritize its Y2K efforts to address safety and reliability of service delivery systems ahead of billing and other administrative systems.
3. Each utility shall respond to the checklist and survey attached hereto as Exhibit I not later than December 15, 1998. Failure to respond in a timely manner may result in the imposition of fines or other penalties.
4. Each utility shall provide the Commission with quarterly updates of its responses to the checklist and survey. Quarterly updates shall be due on March 15, 1999, September 15, 1999, December 15, 1999, and March 15, 2000. The Commission may require subsequent additional updates.
5. Each telephone and energy utility shall participate in regional and industry-based Y2K efforts. For example, electric utilities shall participate in NRC, NERC and WSCC efforts, and the EPRI Year 2000 Embedded Systems Project. Not later than December 15, 1998, each telephone and energy utility shall: (a) advise the Commission of existing regional and industry Y2K efforts, and advise the Commission of which such effort(s) the utility is participating in; and (b) provide copies to the Commission of any responses submitted to regional or industry-based Y2K efforts. Future submissions to

such efforts shall be provided to the Commission contemporaneously with submission to the regional or industry-based Y2K effort.

6. Each utility which is required by the Securities and Exchange Commission ("SEC") to report to the SEC on Y2K issues shall provide copies to the Commission of all such information it has provided to the SEC not later than December 15, 1998, and shall provide any and all additional such information to the Commission contemporaneously with submission to the SEC.
7. Each utility shall certify to the Commission not later than November 1, 1999, that all of its essential service delivery systems are Y2K compliant or Y2K ready. The certification should provide that all new systems, software and equipment purchased or implemented thereafter will be compliant as well.
8. Each utility shall develop contingency plans to address Y2K problems which may ensue, and report such contingency plans to the Commission not later than July 1, 1999. A utility may report updated contingency plans to the Commission when the utility provides the certification required by Ordering Paragraph No. 7.

I certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting of November 19, 1998, the following Commissioners approved it:



WESLEY M. FRANKLIN
Executive Director

RICHARD A. BILAS
President
P. GREGORY CONLON
JESSIE J. KNIGHT, JR.
HENRY M. DUQUE
JOSIAH L. NEEPER
Commissioners

EXHIBIT 1

**California Public Utilities Commission
Year 2000 Program Assessment Checklist & Survey for Jurisdictional Companies¹**

Company Name: _____
Address: _____
Type of Utility: _____
Utility No. _____
Name of individual with primary responsibility for addressing the Year 2000 problem in your company: _____
Title: _____
Address: _____
Telephone No.: _____
Fax No.: _____
Email address: _____

**PLEASE DIRECT YOUR RESPONSES TO THE APPROPRIATE INDUSTRY
DIVISION AT THE CPUC, ATTENTION Y2K COORDINATOR**

Preliminary Questions

- If the company's **ONLY** computerized systems are related to billing or other administrative tasks, please check this box , **STOP HERE** and return this page.
- If the company has computerized service delivery systems under its control, please complete the remainder of this survey. For the purposes of this question, include embedded systems necessary to delivery of the utility services you provide. If you do not know whether you have embedded systems necessary to delivery of the utility services you provide, please complete the remainder of this survey.

I certify that the responses provided to this survey are true and correct, and that I have the authority to represent the company on these issues.

By: _____
Title: _____
Company: _____

¹ Modeled primarily on the U.S. GAO's Year 2000 Program Assessment Checklist

For each question below which requires a "yes" or "no" answer, please check the corresponding box if your answer is "yes". For questions which require an additional response, please provide your responses on separate sheets of paper.

Awareness

- Has the company defined and documented the potential impact of the Year 2000 problem? Please provide a summary of these efforts to the CPUC.
- Has the company conducted a Year 2000 awareness campaign with respect to:
 - Employees?
 - Customers?
 - Vendors?

Please summarize your efforts and provide the CPUC with copies of sample documentation relating to any such awareness campaign which could be helpful to an evaluation of your effort.

- Has the company assessed the adequacy of its program management policies, capabilities, and practices, including configuration management, program and project management, and quality assurance?
- Has the company developed and documented a Year 2000 strategy? Please summarize your strategy.
- Is the Year 2000 strategy supported by executive management?
- Has the company established an executive management council or committee to guide the Year 2000 program?
- Has a program manager been appointed and a Year 2000 program office been established and staffed? Who is the manager and what is his/her title and level in the company? How many employees and contractors are dedicated to this effort?
- When did you begin your effort to become Year 2000 compliant and what is your estimated completion date for your compliance plan?
- Summarize the resources you anticipate will be necessary for your company to remedy your Year 2000 issues.
- Has the company identified technical and management points of contacts in core business areas?

- Does your particular industry have an organization that is providing Y2K guidance and information? If so, please identify the organization.

Assessment

- Has the company defined Year 2000 compliance? Please provide your definition. Describe what tests or standards your company uses to determine "Y2K compliant" status.
- Has the company defined Year 2000 readiness? Please provide your definition. Describe what tests or standards your company uses to determine "Y2K ready" status.
- Do you (or does your parent company) have a Year 2000 Compliance statement? If so, please attach. If not, do you plan to have one in the future? When?
- What is the date at which you expect to be fully Year 2000 ready?
- What is the date at which you expect to be fully Year 2000 compliant?
- Has the company identified core business areas and processes?
- Has the company assessed the severity of potential impact of Year 2000-induced failures for core business areas and processes? Please describe such potential impacts and the respective severity of each.
- Has the company conducted a comprehensive enterprise-wide inventory of its information systems?

The company has

- system inventory listing components and interfaces for each system
- comprehensive plan to identify and eliminate obsolete code
- Has the company developed a comprehensive list of automated systems?

The company's list identifies

- links to core business areas or processes
- platforms, languages, and database management systems
- operating system software and utilities

- telecommunications*
 - internal and external interfaces*
 - owners*
 - the availability and adequacy of source code and associated documentation*
- Has the company analyzed its automated systems and identified for each system?
- non-repairable items (lack of source code or documentation)
 - conversion or replacement resources required for each platform, application, database management system, archives utility, or interface
- Has the company prioritized its system conversion and replacement program?
- The company's prioritization process includes*
- service delivery systems prioritized ahead of billing and administrative systems*
 - ranking by business impact*
 - ranking by anticipated failure date*
 - identification of applications, databases, archives, and interfaces that cannot be converted because of resource and time constraints*
- Has the company established Year 2000 project teams for business areas and major systems?
- Has the company developed a Year 2000 program plan? If so, please provide the CPUC with a copy of the plan.
- The company's program plan includes*
- schedules for all tasks and phases*
 - master conversion and replacement schedule*
 - assessment and selection of outsourcing options*
 - assignment of conversion or replacement projects to project teams*
 - risk assessment*
 - contingency plans for all systems*
- Has the company identified and mobilized required resources and capabilities? Please describe.
- Has the company developed validation strategies and testing plans for all converted or replaced systems and their components?

- Has the company analyzed and identified requirements for a Year 2000 test facility?
- Has the company identified and acquired Year 2000 tools?
- Has the company considered implementation scheduling issues?

The company's program plan addresses

- where conversion will take place (data center or off-site location)*
- time needed to place converted systems into production*
- conversion of backup or archived data*

- In priority order identify the top twenty hardware and the top twenty software systems for whose operation your company is responsible that directly and immediately support the utility services you offer.
- For each of the systems identified in response to the prior question, provide your company's assessment of its Year 2000 compliance, identify components of the systems that are internally produced and those that are not internally produced.
- For each of the systems identified in response to the prior question that are not assessed as Year 2000 compliant, set forth your schedule for (a) initiating remediation or replacement; (b) unit testing of compliance; (c) internal system integration testing for compliance; and (d) where appropriate, testing with interconnecting utilities. Explain the transactions that will be used in conducting those tests. Identify any systems which you intend to make Year 2000 ready but do not intend to make Year 2000 compliant, and explain why. Of these systems, identify the systems which are currently year 2000 ready, and set forth your schedule for making the remaining systems year 2000 ready.
- For each of the systems identified in response to the prior question that are not assessed as Year 2000 compliant or Year 2000 ready, set forth your schedule for (a) developing contingency plans in case remediation plans are delayed or fail, including failure just before or after the change in date to the year 2000, and including the leap year date of February 29, 2000; and (b) testing of those contingency plans.
- Has the company addressed interface and data exchange issues?

The company has

- analyzed dependencies on data provided by other organizations*
- contacted all entities with whom it exchanges data*
- identified the need for data bridges or filters*

- made contingency plans if no data are received from external sources*
- made plans to determine that incoming data are valid*
- developed contingency plans to handle invalid data*

- In assessing potential Y2K problems, which of the following best describes the anticipated impact for your utility operations? (check one) please add additional information where appropriate:
 - We will identify and correct all Y2K problems before Jan. 1, 2000.
 - We will be 100% compliant and/or ready sometime after Jan. 1, 2000 with no significant disruptions to service or billing.
 - We will be 100% compliant and/or ready sometime after Jan. 1, 2000 with some significant disruptions to service or billing.
 - We will be 100% compliant and/or ready sometime after Jan. 1, 2000 but our assessment is not accurate enough to identify all problems that may significantly affect service or billing.
 - We are not following a compliance plan that calls for prior assessment of potential Y2K problems.

- What is your plan for monitoring for potential problems after January 1, 2000?

- Has the company initiated the development of contingency plans for critical systems? Please provide a copy of your contingency plan.

- Does the impact assessment document identify Year 2000 vulnerable systems and processes outside the traditional information resource management area that may affect the company's operations? Please provide the CPUC with documentation of such identified impacts.

The assessment document addresses the impact of potential Year 2000 induced failure of

- telecommunication systems, including telephone and data networks switching equipment*
- building infrastructure*

Renovation

- Is the company meeting its budget and schedule in the conversion of targeted applications, platforms, databases, archives, or interfaces?

- Is the company meeting its budget and schedule in developing bridges and filters to handle non-conforming data?

- Is the company meeting its budget and schedule in the replacement of targeted applications and system components?
- Is the company documenting all code and system modifications and using configuration management to control changes?
- Is the company scheduling unit, integration, and system tests?
- Is the company meeting its budget and schedule in eliminating targeted applications and system components?
- Is the company communicating the changes to its information systems to all internal and external users?
- Is the company tracking the conversion and replacement process and collecting and using project metrics to manage the conversion and replacement process?
- Is the company sharing information among Year 2000 projects?

The company is disseminating

- "lessons learned"*
- best practices*
- What actions remain to be taken for your computer hardware to be fully Year 2000 compliant?
- What actions remain to be taken in order for your infrastructure to be fully Year 2000 compliant?
- What actions have you taken to identify and test embedded chips within your infrastructure?
- What specific embedded chip Year 2000 problems have you found and in what way could they affect the services you provide?

Validation

- Has the company developed and documented test and validation plans for each converted or replaced application or system component?
- Has the company developed and documented a strategy for testing contractor-converted or replaced applications or system components?

- Has the company implemented a Year 2000 test facility?
- Has the company implemented automated test tools and scripts?
- Has the company performed unit, integration, and system tests on each converted or replaced component

The company's testing procedures include the following types of tests

- regression*
- performance*
- stress*
- forward and backward time*
- Is the company tracking the testing and validation process and collecting and using test metrics to manage the testing activities?
- Has the company initiated acceptance tests?

Implementation

- Has the company defined its transition environment and procedures?
- Has the company developed and documented a schedule for the implementation of all converted or replaced applications and system components?
- Has the company resolved data exchange issues and intercompany concerns? Has the company dealt with database and archive conversion?
- Has the company completed acceptance testing?
- Has the company implemented contingency plans?
- Has the company updated or developed disaster recovery plans?
- Has the company reintegrated the converted and replaced systems and related databases into the production environment?

Program and Project Management

- Has the company established a Year 2000 program management structure?

The company has

- appointed a Year 2000 program manager and established a Year 2000 program team*
- identified technical and management representatives from each core business area*

- Based on the assessment of its program management capabilities, has the company developed and implemented policies, guidelines, and procedures to manage a major program?

The company's policies, guidelines, and procedures include

- configuration management*
- quality assurance*
- risk management*
- project scheduling and tracking*
- metrics*
- budgeting*

- Is the company monitoring the Year 2000 program to ensure that projects are following required policies and procedures for configuration management, project scheduling and tracking, and metrics?

- Have you addressed Y2K compliance and/or readiness with external suppliers, contractors, and other business partners or vendors?

- Have you determined if your suppliers and vendors are Year 2000 compliant and/or year 2000 ready? If no, why not? If yes and your suppliers and vendors are not Year 2000 compliant, what negative impact can this have on your provision of utility service?

- What facilities and equipment have vendors certified as Year 2000 compliant?

- What facilities and equipment have vendors certified as Year 2000 ready?