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NOT ADMITTED IN D.C.

December 10, 1990

Hand Delivery

Mr. Samuel J. Chilk  
Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attn: Docketing and Service Branch

Re: Comments on Draft NRC Policy Statement  
on Possible Safety Impacts of Economic  
Performance Incentives, 55 Federal  
Register 43231, October 26, 1990

Dear Mr. Chilk:

The attached comments on the NRC's draft policy statement regarding "Possible Safety Impacts of Economic Performance Incentives" are submitted on behalf of Arizona Public Service Company, Houston Lighting & Power Company, Illinois Power Company, Iowa Electric Light & Power Company, and Texas Utilities Electric Company.

In considering these comments, please recognize that these licensees are committed to safety in plant operation and maintenance regardless of any incentive programs that are applied to their nuclear plants. These licensees are generally encouraged by the draft policy statement, but they request that the Commission bolster its position in some areas and that the statement refrain from making judgments on the economic benefits of economic performance incentives. They are also concerned that NRC might impose additional and unnecessary reporting requirements. More detailed comments are attached.

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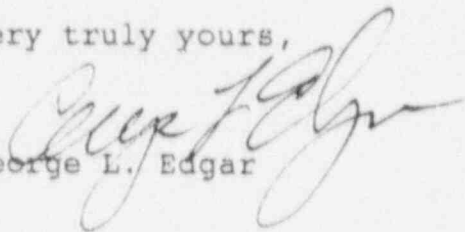
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NEWMAN & HOLTZINGER, P.C.

Mr. Samuel J. Chilk  
December 10, 1990  
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Should you wish to discuss these comments or require any further information please do not hesitate to call or write me.

Very truly yours,

  
George L. Edgar

Enclosure

BEFORE THE  
NUCLEAR REGULATORY COMMISSION

Comments on the Draft NRC Policy Statement Regarding  
Possible Safety Impacts of Economic Performance Incentives,  
(50 Federal Register 43,231, October 26, 1990)

submitted by

Arizona Public Service Company,  
Houston Lighting & Power Company, Illinois Power Company,  
Iowa Electric Light & Power Company, and  
Texas Utilities Electric Company

We believe that Economic Performance Incentive (EPI) programs are generally unnecessary and may be undesirable. As a matter of policy, the Commission should only support EPI programs--if at all--if they can be shown to promote safety and certainly not when they contain incentives that may detract from it. At the present time there is no empirical evidence to suggest that EPI programs have positive effects upon operational safety, and some such programs contain features that have the potential to encourage practices that might jeopardize safety. Consequently, the Commission should not support these programs in its policy statement.

We agree with many of the concerns described in the draft policy statement. In particular, we concur that EPI program which include sharp thresholds for rewards and penalties or base incentives on performance over short periods of time can be detrimental to safety and long-term reliability. We also share the NRC's concern that the use of Systematic Assessment of License Performance (SALP) scores and other NRC performance measures as the basis for economic incentives is inappropriate.

However, there are certain respects in which the draft policy statement does not fully address the potential overall

impact upon safety of EPI programs. Also, some of the statements regarding the economic effects of EPI programs are unsupported and appear to be outside the scope of the NRC's regulatory purview. These comments--and other specific comments on the draft policy statement--are presented more fully below.

A. Overall Safety Impact of Economic Performance Incentives

The draft policy statement states that improved operational performance "can be encouraged by economic performance incentives" and "can be conducive to improving both safety and economic performance." No empirical data is cited to support this statement, and there is good reason to conclude that these programs have little--if any--positive effect on safety.

Current safety and economic regulations applicable to nuclear power plants already provide extremely strong incentives for good operational performance without EPI programs, including: potential loss of revenue when units must be shut down because of operating problems; possible disallowance of expenses incurred for replacement power; financial consequences of adverse public utility commission (PUC) reviews of operating and outage costs; effects on utility stock prices and cost of capital; and the prospect of NRC fines, orders, or other regulatory actions. In general, we believe that these existing mechanisms provide an appropriate balance of safety and economic incentives. Thus, even if an EPI program were structured to properly encourage both safety and economic performance, it would be unlikely to have any significant additional positive effect.

As a practical matter, the manner in which plant personnel respond to EPI programs is not likely to improve operational safety. A responsible nuclear plant manager confronting a safety-significant decision will focus on safe plant operations and is unlikely to be unduly influenced by the need to meet performance goals included in an EPI program. There is no reason, however, to create the possibility that this could occur. To assure that safety issues remain of overriding importance to NRC licensees, the Commission--as a matter of policy--should not support programs containing incentives that could divert attention from safety.

In addition, most EPI programs do not provide incentives designed to promote safety; typically, they reward keeping the plant operating at full power. As a consequence, a licensee might be influenced by an EPI program when making a judgment whether or not to continue operation or reduce power in a case where the safety considerations are not obviously compelling. As noted in the draft policy statement, EPI programs can "encourage, directly or indirectly, the adoption of actions designed to maximize performance at the expense of plant safety (public health and safety)." Accordingly, these programs may be a distraction from the overall goal of safe, reliable operation rather than an aid to it.

For these reasons, the Commission should not endorse the imposition of EPI programs, but rather should discourage their use in the absence of any clear evidence that they promote



safety. The NRC's policy statement on EPI programs should reflect this position.

B. Economic Effects of EPI Programs

The draft policy statement notes that EPI programs "can play an important role in improving the economic performance of electric power plants" (emphasis added). No specific basis is provided for this statement. In fact, EPI programs may sometimes have negative economic impacts since they encourage plant operation at full power levels--in order to increase capacity factor--even when, on a system wide basis, this may not be the most economically efficient practice. Furthermore, the matter of economic performance per se beyond the regulatory purview of the NRC. Accordingly, statements addressing the purported economic benefits of EPI programs are outside the proper scope of the policy statement and should not be included in it.

C. Potential Adverse Impacts of Certain EPI Program Features on Plant Operation and Public Health and Safety

The draft policy statement describes several features that can render an EPI program potentially deleterious to plant reliability and safety. These include sharp thresholds for rewards and penalties, performance measurements covering short time intervals, and inappropriate use of Systematic Assessment of Licensee Performance (SALP) scores or other NRC performance measures as a basis for rewards or penalties.

We agree that these features may be adverse to safety. However, we also believe that the policy statement could more

fully describe the nature of the problems presented by these features. Also, there are some other features that have the potential for adverse safety impacts if included in an EPI program.

1. Sharp Thresholds for Rewards and Penalties

The draft policy statement notes: "A sharp threshold provides an incentive to continue plant operation to achieve a target capacity factor to avoid the large replacement power cost or to earn a substantial reward. This type of incentive could divert attention from safe plant operation." This summary is correct, but certain additional points should be mentioned. Sharp penalties or rewards based on small changes in performance are likely to be especially adverse to safety if they are routinely encountered, *i.e.*, the performance levels which trigger penalties or rewards are within the normal range of expected performance for the nuclear plant. A reasonably broad "null zone" or "dead band" of acceptable performance in which no rewards or penalties are incurred can help prevent these thresholds from having an adverse effect by assuring that most day-to-day safety and maintenance decisions are not clouded by the prospect that they may cause penalties or rewards.

The policy statement assumes that the sharp thresholds will be tied to capacity factor or some equivalent overall measure of performance. The effects of thresholds can be even more adverse if they are tied to more specific measures (*e.g.*, number of scrams, size of maintenance work backlog). In such

cases, sharp thresholds can provide strong incentives to manage a plant so that those particular measures "look good," even if overall safety and reliability are not improved.

2. Measurement of Performance Over Short Time Intervals

The policy statement notes that measurement of performance over too-short time periods may divert attention from long-term safety and reliability, but also concludes that "long-term measurements tend to make the two goals [safety and economic goals] complementary." As with overly sharp thresholds, short measurement periods can couple individual operational decisions (such as a decision whether to shut down) with significant economic effects. This problem is magnified when the performance measurement period is not long enough to account for normal fluctuations in performance due to refueling outages, weather, or other periodic events which may influence performance. In such cases, the EPI program may force management to regularly confront the prospect that a prudent safety decision will result in a penalty. Also, short measurement periods may compel management to focus too narrowly on curtailing the length of maintenance outages or preventive maintenance programs that cause down time in order to achieve short term performance goals, thus compromising long term safety and reliability. To attempt to balance appropriately short and long-term safety and reliability and to account for normal performance fluctuations, performance measures should be averaged over a period of at least five years (3-4 refueling outages), which is longer than current EPI



programs employ (see NUREG/CR-5509, "Incentive Regulation of Nuclear Power Plants by State Public Utility Commissions," December 1989).

Even the use of a five-year period, however, would not reflect the true goal of safe, reliable operation over the whole life of the plant. Though an improvement over current EPI measurement periods, the use of a five-year period still represents a compromise with the goal of long-term safety and reliability.

3. Inappropriate Use of SALP Scores and Other Performance Indicators

We agree with the policy statement's discussion of the problems attendant to using SALP scores as a basis for EPI programs. The policy statement also notes that the use of other NRC performance indicators in EPI programs may be inappropriate but does not provide specific examples. Indicators that could encourage less-than-optimum safety practices if used as the basis for economic incentives include:

- Number of Scrams - may discourage shutdown of reactor when otherwise prudent from a safety standpoint.
- Forced Outage Rate - may lead to delaying shutdowns so that outages can be counted as planned.
- Indicators Based on Number and Types of LERs - may encourage underreporting or miscategorization.

These same types of problems are inherent in the use of some other performance indicators, such as INPO plant ratings or performance indicators. For example, to keep maintenance backlogs low, a utility may be discouraged from writing new

maintenance work requests. Training time might be cut back to keep overtime down. Equipment replacements may be postponed in order to meet outage schedules. In general, the problem with using these types of indicators is that their significance is unclear without further analysis. Automatically allotting rewards or penalties based on such indicators can encourage practices that move the numbers in the direction that will achieve rewards and avoid penalties, even if the practice may detract from overall safety and reliability.

4. Performance Measures that Can Affect  
Individuals' Decisions

Performance measures that tie economic consequences to the actions of individual personnel should also be avoided. In such cases, personnel may be reluctant to be responsible for an action that causes an economic penalty to the company. For example, if an operator knows that an economic penalty will be incurred if a forced outage takes place, he may be reluctant to decide to shut the plant down. It is unrealistic to assume that utility managers and operators making day-to-day decisions will be unaware of or able to ignore completely the effects of incentives. The existence of such incentives can only be a burden to management in its efforts to keep personnel focused on safety and reliability. This concern is heightened when short performance measurement periods and sharp thresholds are used (see above).

5. Penalties of Undue Magnitude; Construction Cost  
Disallowances; Force Majeure

The size of penalties under EPI programs should be limited so that they do not impair the financial ability of a utility to operate and maintain its plant safely. Even if an EPI program does not include sharp thresholds for rewards and penalties, extended shutdowns could cause penalties to accumulate to an amount so large that the financial health of the utility might be impaired. To avoid this, the total amount of penalties should be capped at a level that will preserve the wherewithal to ensure safe and reliable operation and will not unduly penalize the utility for taking necessary safety actions such as an extended outage for equipment repair or replacement.

Additionally, the NRC Staff has expressed concern that some State regulatory commissions have identified construction cost disallowances as economic performance incentives (see SECY-90-288). The potential for disallowance of construction costs associated with the start-up of a new plant could encourage a licensee to reduce the total cost of its plant by eliminating discretionary safety-enhancing modifications or postponing them until after start-up. Additionally, the disallowance of construction costs could reduce post-start-up revenues so that while the licensee would be able to sustain adequate safety levels, fewer funds would be available to take optional measures that might enhance safety. The policy statement should reflect these concerns.

To avoid undue adverse financial impact on the utility resulting from events beyond its control, an EPI program should

include force majeure provisions. Performance problems due to catastrophic weather or other natural events, regulatory changes, unforeseeable major equipment failures, and other causes beyond the reasonable control of the utility should be exempted from incurring penalties. This will avoid depriving the utility of resources at the time they are most needed for safe operation, and prevent penalties from accruing when management practices have not justified them.

6. Conclusion

We suggest that the policy statement's discussion of particular types of EPI features that may be deleterious to safety be expanded to cover the additional points brought out above. Additionally, we suggest that the NRC not encourage the imposition of these programs. They are generally unnecessary, redundant, and have the potential to distract management time, attention, and resources away from their proper focus--safe and conservative plant operation.

D. Utility Reporting of Penalties and New or Substantially Modified EPI Programs

The draft policy statement states that the NRC will be requesting licensees to report penalties assessed through EPI programs as they occur. We oppose the imposition of this unnecessary reporting requirement. The NRC will gain no additional information from the reporting of penalties, because such penalties are triggered by indicators and other information reported to the NRC in the normal course of operation. This is true without regard to whether the NRC believes that an EPI

program might be adverse to safety. An ongoing reporting requirement for penalties incurred under EPI programs will waste both NRC and licensee resources with no discernable benefit to safety.

Additionally, the draft policy statement notes that licensees might be requested to report to the NRC whenever State commissions are developing or revising EPI programs. We suggest that this extra reporting requirement not be imposed upon licensees. Until new EPI programs or revisions have received sufficient consideration by State commissions to constitute formal proposals, licensee reports would not be particularly meaningful, and could tend to hinder open dialogue between licensees and State commissions. When new or substantially changed EPI programs are formally proposed, their details will be readily available for the NRC to analyze, since the NRC will be performing periodic surveys of State regulatory commissions and fostering the free exchange of information with them. Redundant requirements for reporting by licensees would be an unnecessary burden.