

## VALUE/IMPACT STATEMENT

### 1. BACKGROUND

The licensee of a nuclear power plant is required by the Commission's regulations to provide for the design, reliability, qualification, and testability of the protection systems, systems that perform protection functions, and other systems that are essential to the operation of protection systems and the accomplishment of the protection functions. IEEE Std 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," is incorporated into the regulations and provides requirements and recommendations for the protection systems. IEEE Std 603-1980, "Criteria for Safety Systems for Nuclear Power Generating Stations," provides the same criteria as IEEE Std 279-1971 for protection systems, but it is expanded in scope and provides additional guidance by including criteria for protection system actuation functions and auxiliary systems. This regulatory guide endorses IEEE Std 603-1980 with appropriate supplements.

### 2. VALUE/IMPACT ASSESSMENT

#### 2.1 General

The guidance in IEEE Std 603-1980 for the design, reliability, qualification, and testability of the power, instrumentation, and control portions of safety-related systems is endorsed by this regulatory guide.

##### 2.1.1 Value

This action should result in more effective design, reliability, qualification, and testability of safety-related systems, including auxiliary supporting features. The guide establishes the NRC position as a national consensus standard and therefore reduces uncertainty as to what the staff considers acceptable.

##### 2.1.2 Impact

There should be no impact. IEEE Std 603 was developed with the intent that it would eventually supersede IEEE Std 279. Its scope includes the protection system as covered in IEEE Std 279, and it is further expanded to include power sources and actuation functions as well as protection systems. No new requirements are imposed with the expansion in scope. This expansion in scope is essentially covered by guidance provided in existing regulatory guides. For instance, Regulatory Guide 1.32, "Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants," endorses IEEE Std 308, which provides similar guidance for power sources. Regulatory Guide 1.53, "Application of the Single-Failure Criterion to Nuclear Power Plant Protection Systems," endorses IEEE Std 379 and provides similar guidance for meeting the single-failure criterion. Regulatory Guide 1.75, "Physical Independence of Electric Systems," endorses IEEE Std

384 and provides similar guidance for physical independence of redundant systems and equipment.

#### 2.2 Definitions

Regulatory Position 1 was included to show the relationship of the term "safety system" and the term "safety-related" as it pertains to systems, thus clarifying the term used in the standard.

##### 2.2.1 Value

The relationship should be clarified to eliminate the possibility of misunderstanding.

##### 2.2.2 Impact

There is no impact since no new requirements are imposed.

#### 2.3 Information Displays

Regulatory Position 2 was included to replace the guidance of IEEE Std 497-1977 with that of Regulatory Guide 1.97 as it pertains to display for manually controlled actions.

##### 2.3.1 Value

Regulatory Guide 1.97 was developed to provide the staff's position on display for manually controlled actions. The acceptability of all of the guidance of IEEE Std 497-1977 has not yet been determined by the staff—some of its provisions are at variance with staff recommendations, i.e., some ways of meeting the single failure criterion.

##### 2.3.2 Impact

There is no impact since no new requirements are imposed.

#### 2.4 Interaction

Regulatory Position 3 was included to correct a printing error.

##### 2.4.1 Value

The error should be corrected to enable proper understanding of the standard.

##### 2.4.2 Impact

There is no impact since no new requirements are imposed.

## 2.5 Interaction Chart

Regulatory Position 4 was included to replace a figure that was confusing. The figure addresses the decision process for applying the requirements of Section 6.3.1 of IEEE Std 603-1980.

### 2.5.1 Value

The new figure eliminates the confusion that was in the original figure and will aid the decision-making process.

### 2.5.2 Impact

There is no impact as the new chart was supplied by the group who authored IEEE Std 603-1980, and it imposes no new requirements.

## 2.6 References

Regulatory Position 5 was included to provide the staff position on the referenced national consensus standards in IEEE Std 603-1980.

### 2.6.1 Value

Regulatory Position 5 provides the user of the standard with the NRC staff position on using the standards listed as references.

### 2.6.2 Impact

There is no impact since no new requirements are imposed.

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