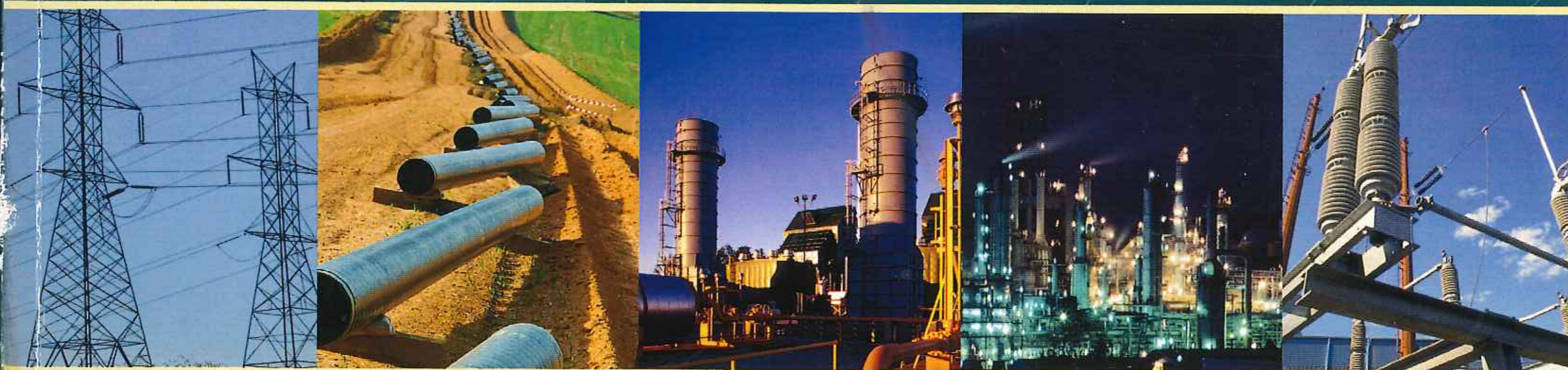

INTRODUCTION TO DEPRECIATION

For Public Utilities and Other Industries

Edison Electric Institute

Power by Association℠

Schedule JAR-D-13

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that the portion of the stub curve starting at about age 30 years, extending to 44 years, which stays above the empirical curve in the chart, may drop to match it as time goes on. In many cases, the amount of information contained in the lowest portion of the curve will contain very little information on which to base a decision. At times, only one or two retirement transactions will drive the shape of the "tail" of the curve.

Based on these considerations, the historical average service life for the property reflected by the specific graph in Chart 6-1 is 23 years, the same as that for the smooth empirical curve. In addition, the shape of the curve (called the "retirement dispersion curve") also yields important information, which will be discussed later.

The service life of a unit of property is the number of years elapsing from the time a unit of property is placed in service until it is removed or abandoned. Average service life for an account, then, is the average of the lives of all such units within a plant account.

The process of life estimation is complicated by the fact that average service life is just that, an average. It is the average service life of a group of units that may number anywhere from a hundred or so in one group to several million units in another group. Similar equipment in such groups does not always last the same length of time. One unit may fail in service after only six months of use, while another apparently identical unit may last for fifty years. As a practical matter, the equipment grouped in a plant account cannot possibly consist of identical units. Thus, it follows that the various units will be retired at dissimilar ages. This phenomenon of the various units within a group of similar, but not identical, units being retired at different ages is modeled with the "retirement dispersion." Further discussion of retirement dispersion will appear later.

Estimates of Future Life Characteristics

Before examining the statistical tools used to support estimates of lives and retirement dispersion patterns for a group of property, it is important to emphasize that such analysis is based on history, whereas life estimates for depreciation purposes are estimates of the future. As a result, the statistical analysis of historical data is useful as a tool only to the degree that the past will be representative of the future. In any depreciation study, the intended result is an estimate of *future* life characteristics for a group of property. Thus, it is critical that those conducting depreciation studies incorporate the appropriate judgment and information from subject matter experts in order to assess whether the results of analyses of historical data will be representative of the future.

As an example, a depreciation study that uses the methods described in this chapter may determine that the historical life analysis for electric FERC Account 370, Meters indicates that a 30-year average service life and a dispersion pattern as described by the R2 survivor curve is the best representation of the historical data. If meters are expected to experience similar life characteristics in the future as in the past, then this 30-R2 survivor curve may be a good life estimate for the account.

However, if the historical data will not be representative of future experience for meters, then the 30-R2 survivor curve estimate is no longer valid as an estimate of property currently in service. Instead, it may be determined throughout the course of conducting the depreciation study that the historical analysis consists of the statistical history of lives and retirement experience of electromechanical meters, which were robust units of property that had relatively long lives. The current population of meters in service today may instead be primarily solid state electric meters, which are subject to much higher failure rates, and are also perhaps subject to obsolescence as newer technologies emerge. These types of meters are not expected to remain in service as long as the earlier technology electromechanical meters. As a result, the life characteristics