

## 1 Scope

This technical report is provided for the benefit of design engineers and ultimately fossil-power plant operators. By following this technical report, the developer of Electronic Screen Displays will

- a) provide clear and efficient communication between the user and the distributed control system, SCADA and/or PLC based system with HMI;
- b) accomplish display design based on the user's needs that are based on an assessment of planned control-operator functions to be performed; and
- c) provide a display design to obtain timely access to required information and controls in a logical structure convenient to the user.

The display structure and organization, including access time to make appropriate control adjustments, should provide for operator response comparable to that of non-display-based, human-machine interface systems. To meet this requirement, the display structure must be developed using

- a) clearly designed display accessing techniques;
- b) a set of well-structured display relationships, predictable and familiar to the user;
- c) standard display formats to increase speed of access to items within a display;
- d) logical grouping of functions and tasks that minimize memorization of elements or results from previous displays;
- e) separation of overview graphics to simplify control graphics, preventing a "cluttering" of information and facilitating quicker display updates;
- f) as few levels as possible going from the overview display to the detail displays; and
- g) consistent use of colors, patterns, symbols, shapes, etc. throughout the entire set of graphics.

Input from plant operating personnel in all phases of Electronic Screen Display development is critical to the development of effective displays. It is even recommended to have plant operating personnel build many of the graphics to ensure a sense of ownership by operations personnel.

This technical report will address the following issues relating to Electronic Screen Display development: Display structure Display elements Display access Operator entry techniques Display types Control applications Format standards Alarm management Display organization Work station ergonomics Coding conventions

Recognizing the substantial volumes of technical reports on the topic of Electronic Screen Display development, the intent of this report is to provide a summary/overview of the important considerations that apply in the development of effective Electronic Screen Displays. For additional detailed guidance, please refer to Annex A — References.