

Preface

The initial development and ongoing revisions of the *Department of Energy Systems Engineering Methodology (SEM)*, first published in March 1996, are performed as part of a continuing effort to improve the quality, performance, and productivity of Departmental information systems. DOE Federal and contractor personnel are involved in the evolution of the document as contributors or reviewers.

The key changes for Version 3 include alignment to all of the Level 3 key process areas of the Software Capability Maturity Model (CMM-SW) developed by the Software Engineering Institute at Carnegie Mellon University, and revisions to bring it up to date with guidance changes in the DOE Information Technology (IT) environment since the 1999 update (version 2). The revisions were reviewed by a SEM Change Control Board composed of members of the DOE Software Quality & Systems Engineering staff. To summarize, the major enhancements include:

- \$ A renaming of the *Department of Energy Software Engineering Methodology (SEM)* to the *Department of Energy Systems Engineering Methodology (SEM)*, the *DOE Systems Development Lifecycle (SDLC) for Information Technology Investments*. This includes revisions throughout to focus not only on software but all IT projects.
- \$ A mapping of the SEI CMM-SW Level 2 and 3 criteria to the SEM, available on the Software Quality & Systems Engineering web site.
- \$ Renaming and updating of the Programming Stage to the Construction Stage.
- \$ Revision of the planning questionnaire for a “total systems approach” to a project.
- \$ Repagination and combination of the SEM files to enhance electronic reading of the document.
- \$ The conversion of the appendixes for Structured Walkthroughs, In-Stage Assessments, and Stage Exits from SEM appendixes to stand-alone documents available on the Software Quality & Systems Engineering web site.
- \$ Greater emphasis on risk management and performance measures
- \$ Updated information on the DOE Enterprise Architecture.