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Developing a Design for Environment (DfE) Methodology in the Energy Sector of Siemens AG

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In the last two decades, Siemens AG Energy Sector has increasingly recognized sustainability as a business opportunity and as a result, has systematically and comprehensively built up the topic of environmental protection within its core functions. Environmental focus is quickly expanding beyond just industrial related activities to include product and supply related activities. It is becoming more about enabling strategic and inclusive decisions for product, process and solution alternatives. This paper aims to outline the evolution of a design for environment (DfE) methodology created for the various Divisions in the Energy Sector of Siemens AG. The methodology follows the international standards ISO 14006 and ISO/TR 14062 and has been reviewed by a number of professionals in the field, both internally and externally to the company. Preliminary feedback was gathered from various end users and an implementation plan has been created, identifying potential candidates for additional pilot studies. Challenges for the design and implementation of the new process are also discussed.

Recognizing sustainability as a fundamental responsibility and strategic business opportunity, Siemens AG Energy Sector is increasing its focus on product related environmental protection. Taking an integrated and lifecycle based approach, basic requirements are defined in a Siemens-wide standard on environmentally compatible product and system design. In order to assess and improve company products, there is also a growing use of product related environmental tools being used (e.g. environmental management system (EMS) according to ISO 14001, IT-based environmental reporting system, life cycle assessments (LCAs), environmental product declarations (EPDs), internet-hosted database for supplier substance declarations, etc.). Interest exists in developing an integrated method for implementing, monitoring, documenting and communicating product related environmental activities or improvements within the product lifecycle management (PLM). By doing so, it would ensure:

- Documentation and systemization of existing ecodesign practices
- Enhanced integration between ecodesign and the broader context of the product development and product lifecycle management processes
- A roadmap for continuous improvement

This paper will present the evolution of a (3 month) project that had the goal to develop, test and optimize a design for environment (DfE) method/process for the Energy Sector of Siemens AG. The new process is intended to be used by the various Divisions within the Energy Sector of the company, outlining a systematic and effective method for improving the integration of environment into other business functions (complimenting other essential design criteria) and overall, minimizing the environmental impacts of Siemens products throughout the product lifecycle. The first step involved creating a methodology based on the international standards ISO 14006 Guidelines for Incorporating Ecodesign and ISO/TR 14062 Integrating Environmental Aspects into Product Design and Development. The methodology is intended to run in parallel with the product portfolio management (PPM), product lifecycle management (PLM), supply chain management (SCM), and customer relationship management (CRM) Energy Sector processes. The second step involved testing the methodology with one engineering unit of the Fossil Division of the Energy Sector. A two-day workshop was held with the end users in order to gather feedback (for further revisions and optimization) and train on the concepts and requirements of the new process. The third and final step consisted of optimizing the methodology and recommending a process implementation plan. Outcomes of the workshop, challenges for the design and implementation of the new process are discussed, as well as a recommendation for future piloting.