

Project Title	Nebraska Public Power District Energy Management System Upgrade Strategy Assessment
Contracting Agency	Nebraska Public Power District (NPPD)
Project Organization	Prime Contractor: Energy Consulting International, Inc. The work was performed by Savu C. Savulescu
Summary	<p>The project aimed at developing an unbiased strategic assessment of the Doniphan Control Center's EMS upgrade strategy. In order to set the stage, ECI started with the presentations <i>Obsolescence in Utility Information Systems -- Part A: Impact of Computer Architectures on SCADA/EMS Performance and Portability</i>, and, respectively, <i>Obsolescence in Utility Information Systems -- Part B: What it is and how to avoid it</i>. These presentations are unique in the industry and can help SCADA/EMS experts to understand how the IT trends and advances impact the performance, permanence and other attributes of a utility information system. Then, a thorough review of NPPD's existing supervision and control facilities was performed, which was followed by an EMS Vendor Workshop in Doniphan. On this background, the strengths and weaknesses of the major Vendors were assessed and a gap analysis was performed to help identify the strategic NPPD IT objectives for this undertaking. Both technology and process alternatives were defined and evaluated, and, on this basis, a set of final recommendations were developed.</p>
Background	<p>The current NPPD Doniphan Control Center SCADA/EMS is the result of the 2008 upgrade of the Siemens SINAUT platform that was originally installed in 1998 and upgraded in 2003 - 2004. The 1998 solution itself constituted, at that time, a replacement of a 1991 system implemented by the now defunct CDC (Control Data Corporation). Throughout all these evolutionary steps, the Doniphan Control Center SCADA/EMS has been using primarily IBM RISC processors, from the RISC 6000 installed originally by CDC to the POWER servers deployed by Siemens in 2008. The system is equipped with state-of-the-art cyber security facilities and performs a broad range of advanced real-time and study-mode applications. In addition to its tradition of keeping the supervision and control facilities continuously up-to-date, NPPD undertook this EMS upgrade assessment study because of the need to deploy a computer/operating system platform that (a) would provide enough room to grow; and (b) could be maintained/updated for the foreseeable future, to the maximum possible extent, without the intervention of the original EMS Vendor.</p>
Objectives	<p>The project objectives were formulated by NPPD in the RFP No. 11037 and encompassed:</p> <ul style="list-style-type: none">▪ Developing an unbiased strategic assessment of the Doniphan Control Center's Energy Management System (EMS) upgrade strategy▪ Providing information of what is available in the marketplace, and

- Identifying and evaluating the District's options in determining the best EMS upgrade strategy for the District.

Scope of Work

The scope of work was also specified in the RFP and included the following activities:

- Activity 1 - On-Site Review of Existing EMS
- Activity 2 - Data Gathering
- Activity 3 - EMS Vendor Workshop
- Activity 4 - Gap Analysis and Requirements Definition
- Activity 5 - Alternatives Analysis
- Activity 6 - Recommendations.

Both the project goals and the scope of work were fully met and exceeded. As part of this consulting assignment, ECI prepared the following reports:

- Energy Management System Upgrade Strategy Assessment: Questionnaire submitted to Nebraska Public Power District by Energy Consulting International, Inc. on June 8, 2011
- Energy Management System Upgrade Strategy Assessment: Task B: Current Status Review Technical Memorandum -- Submitted to Nebraska Public Power District by Energy Consulting International, Inc. on July 7, 2011
- Power Architecture and POWER System IBM Servers: An Overview, Compiled by Savu C. Savulescu from Wikipedia and IBM Documentation Sources Available in Public Domain, August 10, 2011
- Energy Management System Upgrade Strategy Assessment: Task D: Requirements Document -- Submitted to Nebraska Public Power District by Energy Consulting International, Inc. Final Version dated September 12, 2011. Updated on October 21, 2011
- Energy Management System Upgrade Strategy Assessment: Talking Points Memo for Task E: Analysis of Alternatives Workshop - Final revision submitted to Nebraska Public Power District by Energy Consulting International, Inc. on October 5, 2011
- Energy Management System Upgrade Strategy Assessment: Final Recommendations and Final Report - Final revision submitted to Nebraska Public Power District by Energy Consulting International, Inc. on October 28, 2011
- Energy Management System Upgrade Strategy Assessment: Executive Summary - Final revision submitted to Nebraska Public Power District by Energy Consulting International, Inc. on October 28, 2011

Furthermore, the following slide presentations were also conducted:

- **Obsolescence in Utility Information Systems -- Part A: Impact of Computer Architectures on SCADA/EMS Performance and Portability**, presented in Doniphan on June 20, 2011
- **Obsolescence in Utility Information Systems -- Part B: What it is and how to avoid it**, presented in Doniphan on June 20, 2011
- **Nebraska Public Power District Energy Management System Upgrade Strategy Assessment Project: Gap Analysis Workshop**, presented in Doniphan on September 13, 2011

in addition, of course, to the slide presentations prepared as a background for the five project meetings in Doniphan, NE.

Period of Performance June 2011 – October 2011