

Project Title Feasibility Study, Bidding Documents and Bid Evaluation Methodology for the SCADA/EMS, Market System, Communications Backbone and Metering Management System of the National Load Dispatch Center, Vietnam Electricity

Contracting Agency National Load Dispatch Center (NLDC), Vietnam Electricity (EVN), with funding from the World Bank

Project Organization Prime Contractor: Savu C. Savulescu from Energy Consulting International, Inc. as an Independent Consultant, with full responsibility for all the technical and project management aspects of the project

Summary This project encompassed the:

- Conceptual design, requirements definition, cost estimates and project implementation plan for the New Hierarchical SCADA/EMS of NLDC
- Analysis of the communications backbone upgrades needed to support the New Hierarchical SCADA/EMS, the existing Interim Market System¹ and its future upgrades, and the Metering and Meter Management System
- Assistance to NLDC for the preparation of technical specifications and tendering documents for the New Hierarchical SCADA/EMS and Metering and Meter Management System

Background In recent years, EVN has conducted several SCADA/EMS projects aimed at implementing modern real-time and information systems at the NLDC and the Northern, Central and Southern Regional Load Dispatch Centers (NRLDC, CRLDC and, respectively, SRLDC). At the time when these projects were initiated, EVN specified advanced designs predicated on, then, state-of-the-art computers, communications and software. Due to the SCADA/EMS vendors' failure to comply with the stated specifications, the dramatic changes that took place in the computer technology, and recently the advent of electricity markets, the end result of this significant effort did not meet EVN's original expectations.

The problems and difficulties with the existing NLDC, NRLDC, CRLDC and SRLDC were addressed in two studies: Technical Review of Existing EVN's SCADA/EMS Systems², conducted in late 2002 and early 2003, and Approach Alternatives, Cost-Benefit Analysis for EVN SCADA/EMS Migration Strategy and Conceptual Design of a New System for NLDC³, which was performed in early 2004. These projects clearly indicated that the best way to support NLDC's wide range of interwoven responsibilities in the context of the Vietnamese Electricity Market is to implement an integrated information solution consisting of a Hierarchical SCADA/EMS and a Market System, supported by adequate RTU, communications and revenue metering facilities.

¹ Please refer to the project data sheet *Design, Implementation, Training and Start-Up of an Interim Market System at the National Load Dispatch Center of Vietnam Electricity*

² Please refer to the project data sheet *Technical Review of SCADA/EMS Systems Currently Existing at Vietnam Electricity*

³ Please refer to the project data sheet *Approach Alternatives, Cost-Benefit Analysis, Migration Strategy and Conceptual Design of a New SCADA/EMS System at the National Load Dispatch Center of Vietnam Electricity*

On this background, EVN hired Savu C. Savulescu in capacity of Independent Consultant to conduct the project Feasibility Study, Bidding Documents and Bid Evaluation Methodology for the SCADA/EMS, Market System, Communications Backbone and Metering Management System of the National Load Dispatch Center, Vietnam Electricity.

Objectives

- Review and update the recommendations of the *Technical Review of Existing EVN's SCADA/EMS Systems and Approach Alternatives, Cost-Benefit Analysis for EVN SCADA/EMS Migration Strategy and Conceptual Design of a New System for NLDC* studies and formulate a unified solution with cost estimates and a project implementation plan for the upgrading the existing SCADA/EMS, Market System and Communications Backbone and acquiring a Metering Management System to allow the NLDC to meet its current and future responsibilities in the Electricity Market of Vietnam
- Assist NLDC in the early stage of the overall project aimed at upgrading the existing SCADA/EMS, Market System and Communications Backbone and Metering Management System, including the preparation of technical specifications, tender documents and bid evaluation methodology, and the review of commercial and technical procedures
- Transfer technology to, and work interactively with, the NLDC Project Team assigned to this project

Scope of Work

- Task 1: Development of the Pre-Feasibility Study (PreFS) for the Hierarchical SCADA/EMS of NLDC that would: provide a rough estimate of the budget needed for the new SCADA/EMS system, as well as the upgrading of the Market System and the Communications Backbone; specify what's being included in the procurement, when and how are the various system components going to be implemented, and who will run the project(s). The PreFS will be structured as follows: need of investment; scope of requirements; analysis of alternative technical/technological approaches; preliminary economical and financial analysis.
- Task 2: Development of the Feasibility Study (FS) for the new hierarchical SCADA/EMS, encompassing: the Conceptual Design of a SCADA/EMS that will be part of a comprehensive information architecture encompassing a Metering Management System (MMS) as well as a Market System (MS); Guidelines for Technical Specifications of a Metering Management System (MMS) that will be consistent with the new SCADA/EMS system as well as the Market System (MS); Guidelines for integrating the SCADA/EMS, MMS, MS and revenue meters; Guidelines for logistics and communications solutions related to the migration of the SCADA/EMS functional operation from current NLDC office site to the new location; Guidelines for determination of the time and approach to upgrading the Interim Market System to a full-function Market System; Guidelines for the upgrade of, and/or additions to, the Communications Backbone to accommodate the new SCADA/EMS, Market System and

Meter Management System requirements; the Project Implementation Plan identifying project milestones for the other project components, i.e. the Metering Management System, Communications Backbone upgrade and the full-function Market System upgrade that are consistently with the major milestones of the SCADA/EMS project; and Budgetary Cost Estimates and Updating of the Existing Financial Analysis of the SCADA/EMS, Market System and Communications backbone upgrades.

- Task 3: Preparation of a bid evaluation methodology based on two-stage tendering that: can be used in the SCADA/EMS, Market System and Metering Management System projects; meets the criteria established by the World Bank for bid evaluation and vendor selection in this type of projects
- Task 4: Preparation of SCADA/EMS technical specifications and guidelines for the commercial documents to be used by NLDC to prepare the actual procurement specifications. The material prepared by the Consultant will be sufficiently detailed as to allow the NLDC Project Team to develop the full set of tendering documents as required by the World Bank

**Period of
Performance** January – August, 2005