

# Nor-Cal Controls ES, Inc.

## Retrofit Equipment Migrations

**Diamond Springs, CA**– Nor-Cal Controls ES, Inc. (Nor-Cal) provides energy solutions to a wide array of partners throughout the United States. Among the many professional services that Nor-Cal provides include retrofit migration paths for antiquated and obsolete control hardware relating to the power generation industry.

### Millennium Retrofits Ensure Continued Availability

GE's line of LM series control and automation systems leads the market and are constantly being upgraded, aided with new technology, to better serve customers worldwide. Occasionally GE discontinues certain control components, reducing the availability of replacement parts and or modules that may be required to keep a plant operating efficiently.

Nor-Cal provides retrofit services to ensure power plants remain functionally viable by upgrading obsolete controls components and genius bus controllers with expert design followed by dedicated system startup, commissioning, and support.

### Retrofitting for the Future

Existing aging power plants have many units with control systems facing obsolescence and/or increased scrutiny by grid operators and the North American Electric Reliability Corp (NERC). Aging plants must maintain mechanical viability and efficiency to continue to reliably support the electric grid's needs.

Because of their relatively short return on investment time, control retrofits are often quite attractive to plant operators and offer cost saving opportunities with respect to labor, fuel, maintenance and emissions.

### LM6000 Upgrades

The upgrade or replacement of aging control systems is a topic of considerable interest among gas-turbine owner/operators, LM6000 users in particular. That engine, introduced two decades ago, has been equipped with several different controls solutions over the years; many in operation for five or more years require attention.

*"Nor-Cal continues to build upon proven LM6000 project success. Our solutions provide highly supportive and operable control systems that adapt to the unique needs of different plant configurations and installations. Our upgrade retrofits eliminate high risk by providing updated controls components to ensure continued operations as well as NERC compliance."*

*- Robert "Bob" Lopez, President, Nor-Cal Controls ES, Inc.*

There are many objective benefits to implementing a control system retrofit for the LM6000 user;

- Improving safety and operational reliability consistent with current industry standards.
- Maintaining NERC CIP compliance.
- Reduction in the number of control-system platforms in the plant and across the fleet.
- Improvement of alarm management.
- Advanced predictive diagnostics for engine monitoring.



### Proven Experience

Nor-Cal has successfully performed LM6000 retrofit upgrades for several plants, including the Tracy Combined Cycle and Hanford Peaker Plant in California.

From comprehensive existing system audits, through design development, review and implementation, Nor-Cal's extensive team of experienced engineers and technical personnel has a proven track record of plant control system upgrades.

At present, hundreds of gas turbine control systems installed between 1990 and 2005 are in need of replacement of their OEM controls.

Choosing Nor-Cal is a logical next step in achieving plant maintainability and reliability.