

## Technical Issues To Be Addressed by A Statewide Economizer Initiative

<b>Economizer Problems Identified In Field Studies To Be Addressed by Training &amp; Education<sup>1</sup></b>
Damper Linkage Failure
Economizer damper motor not functioning
Economizer disconnected
Minimum ventilation position not properly set
Changeover sensor inaccuracy and failure
Solar impact on changeover temperature sensor failure
Supply temperature sensor failure and inaccuracy
Integrated Economizer controls and operational issues
Building pressurization (improper exhaust/relief)
Exhaust air recirculation

<b>Economizer Advances To Be Addressed by Training &amp; Education<sup>2</sup></b>
New drive configurations using gears
New digital economizer with electronic feedback
Low leak dampers on outdoor and return air
New sensors with digital signals and error detection
New control logic for integrated control
Reliability Cycle Testing
Factory run testing
Outdoor cfm sensors
New microprocessor based controllers
Integrated displays and error detection
2-speed Economizers for reduced energy use

<b>Other Important Issues To Be Addressed by Training &amp; Education</b>
Absence of consensus and alignment among manufacturers, researchers, utilities, researchers, and regulators (CPUC and CEC) about the energy savings attributable to the several economizer and demand control ventilation strategies currently available in the market
At least one economizer energy savings estimator, developed jointly by two university researchers, is credible, useful, and continuously improving, yet virtually unknown by anyone in the value chain
Title 24-2013 (effective in 2014) requires that economizers (which are required on all HVAC systems equal to or more than 54,000 BTUs) shall include Fault Detection & Diagnostics (FDD)
Title 24-2013 (effective in 2014) requires factory certified function testing or field commissioning testing per a defined test procedure.

<sup>1</sup> From the presentation titled "Air Side Economizers and Energy Recovery – Improvements and New Regulations" by Richard (Dick) Lord, Carrier, September 2012

<sup>2</sup> From the presentation titled "Air Side Economizers and Energy Recovery – Improvements and New Regulations" by Richard (Dick) Lord, Carrier, September 2012