

DOCKETED	
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Data Center Efficiency Improvements

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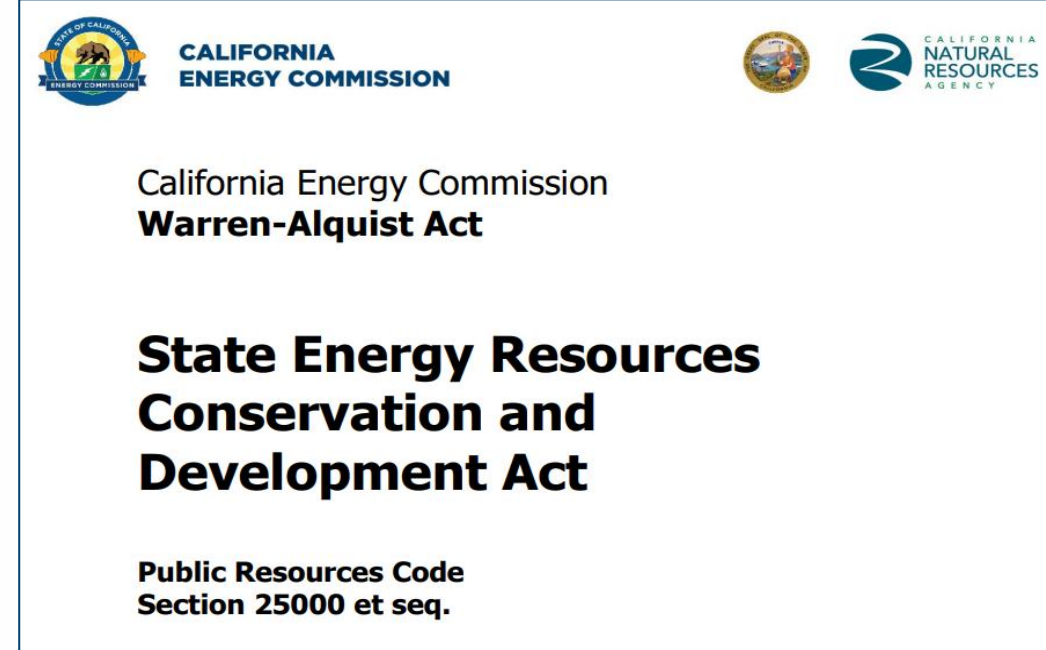
Energy Code background

Warren Alquist Act – signed into law in 1974

- Mandates updates to Building Energy Efficiency Standards and requires building departments to enforce them through the permit process

Public Resources Code (PRC) 25402

- Reduction of wasteful, uneconomic, inefficient, or unnecessary consumption of energy as it relates to buildings



■ Why the 2028 data center proposal is needed

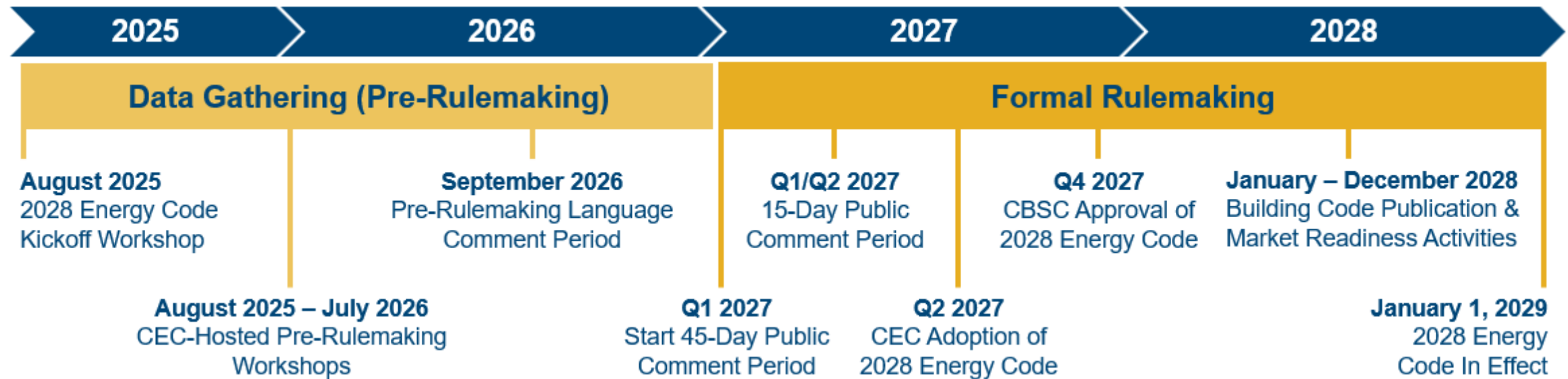
- Rapid data center growth is increasing statewide electricity demand
- Unmanaged load growth may increase grid costs and customer bills
- Efficiency improvements support California energy and GHG goals
- Currently, Energy Code do not adequately address newer liquid cooling technologies
- Economizer, fan controls and heat recovery reduce wasted energy
- Updated definitions and commissioning will ensure consistent enforcement



Overview Schedule for the 2028 California Energy Code



We are
here





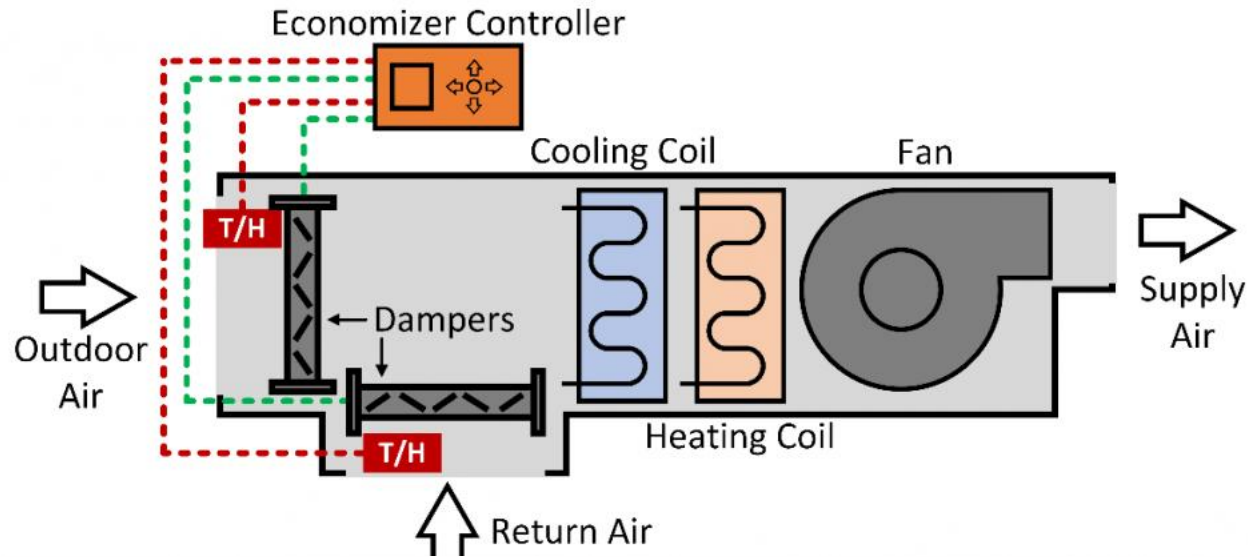
Energy Code addresses new data centers, newly installed equipment

- California's Energy Code regulates rooms with IT equipment power density exceeding 20 Watt/ft² of conditioned floor area
- First requirements established in 2013
- Two types of requirements:
 - Mandatory requirements set minimum performance for all data centers, must always be met, and can never be traded off
 - Prescriptive requirements are predefined efficiency requirements,
 - May supersede mandatory requirements, and
 - Vary for new construction, additions, and alterations.

Focuses on three main efficiency strategies - I

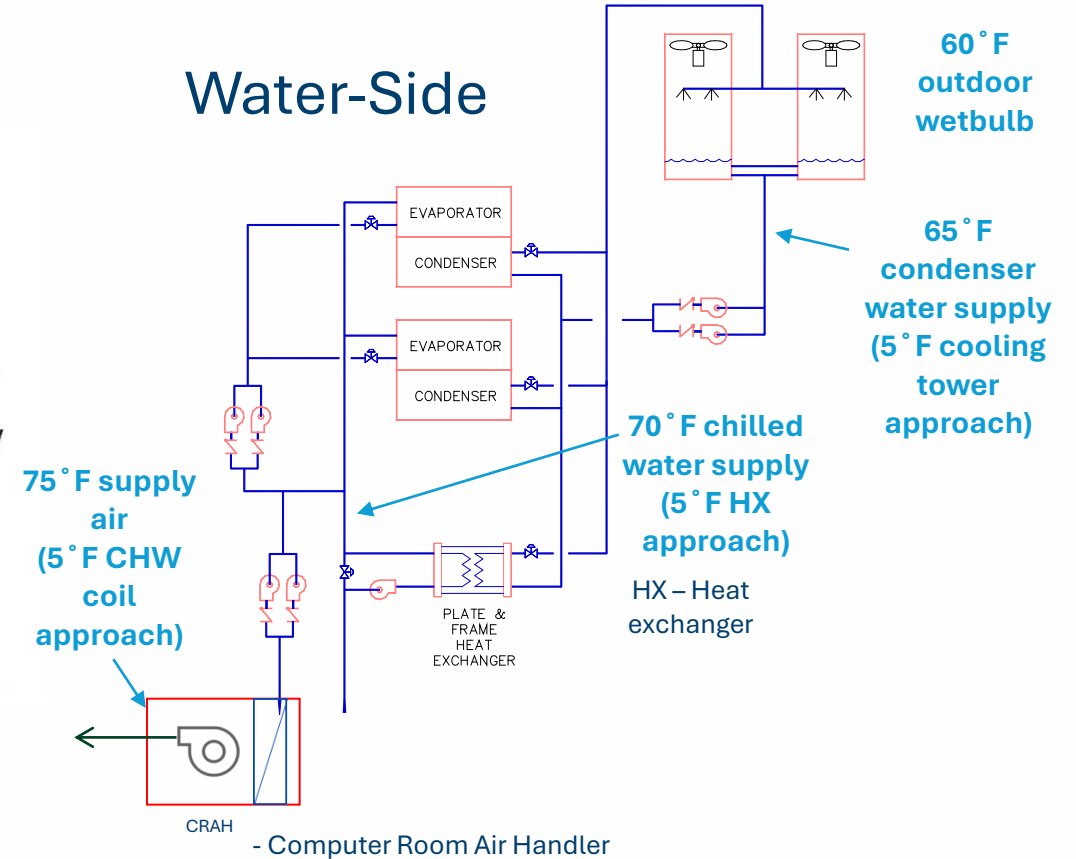


1. Economizer Air-Side



Source: <https://www.pnnl.gov/projects/om-best-practices/air-side-economizers>

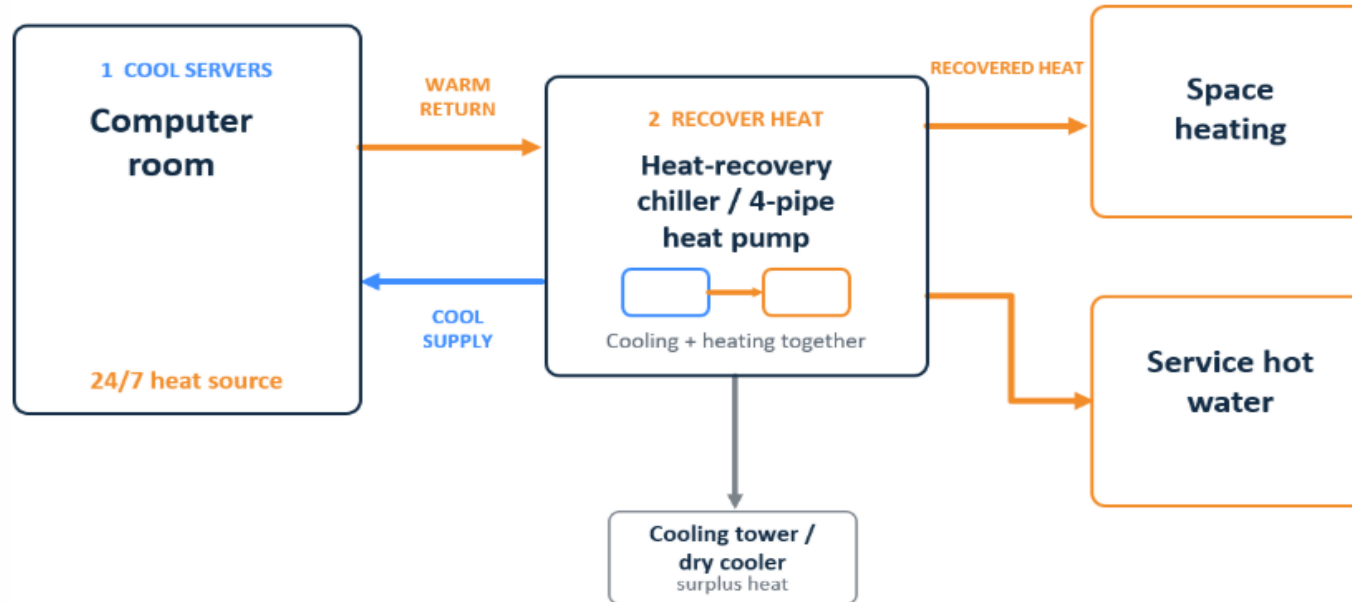
Water-Side



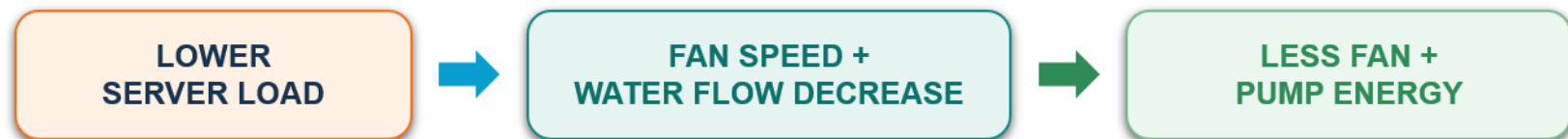
Goal: Reduce wasted energy from data centers while maintaining reliable cooling

Focuses on three main efficiency strategies - II

2. Heat Recovery



3. Fan & Flow Controls



Goal: Reduce wasted energy from data centers while maintaining reliable cooling

Cooling Efficiency Measures



Proposed Measure	Proposed Direction	Expected Benefit
Economizer thresholds	Higher outdoor temperature thresholds for expanded economizer operation.	More hours using “free” cooling from economizing.
Liquid-cooled IT equipment	Clearer path for high-temperature facility-water loops in large liquid-cooled systems.	Reduced chiller operation for modern IT equipment.
Fan control	Variable-speed fans for smaller direct-expansion computer room cooling equipment.	Lower fan energy during part-load operation.
Temperature difference and flow	Minimum air and water temperature differences with variable flow control.	More efficient heat removal and reduced pump energy.

Cooling Efficiency Measures, Cont.



Proposed Measure	Proposed Direction	Expected Benefit
Heat recovery	Recover useful heat from qualifying computer rooms to support space heating or service water heating.	Reduced heating energy, with co-benefit of reduced greenhouse gas emissions.

Assembly Bill 130 (2025)



Limits updates to building standards affecting residential units before 2031 code cycle (effective date no sooner than Jan 1, 2032)

- All 2028 Energy Code updates will exclude buildings of Group R Occupancy including its common or public use areas
 - Residential Group R is defined Part 2 of Title 24
- Residential energy metrics will remain unchanged until 2031 Energy Code, including compliance metrics and weather files
- September 2025, CA Building Standards Commission Information Bulletin 25-03:
 - <https://www.dgs.ca.gov/BSC/News/Page-Content/Building-Standards-Commission-News-List-Folder/IB-25-03-AB-130>



Questions and Contact Information?

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Thank You!