

# ET Summit 2019

Presented by



## Efficiency and Air Quality



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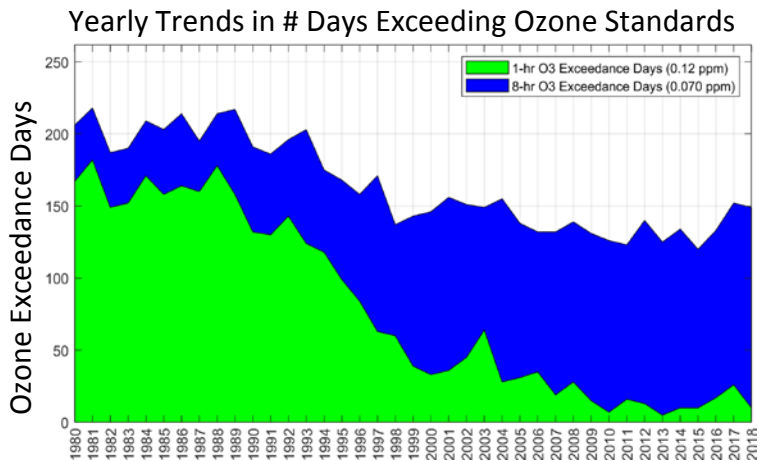


## Despite Improvements in Air Quality, Much Work Remains

Non-attainment of federal ozone and PM<sub>2.5</sub> standards



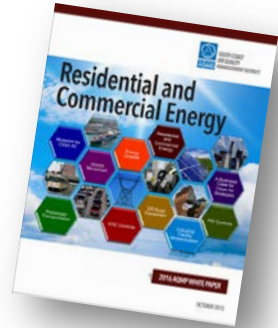
Unique topography, meteorology, and photochemistry



## Efficiency for Air Quality

↓ Ozone Levels = ↓ Nitrogen Oxides (NO<sub>x</sub>)  
NO<sub>x</sub> Emissions = Energy Use (combustion)

- Air Quality Management Plan: Extensive review of emission sources
- Efficiency measures result in permanent emission reductions
- Developed efficiency based emission control measures



## South Coast AQMD Headquarters

- Built in 1991
  - 370,000 sq. ft.
  - 23,000 sq. ft. chemistry lab
- History of adding onsite generation
- Transportation
  - CNG, Hydrogen, 130 vehicle chargers
- Large electricity load, no load management
- No updates to efficiency



## South Coast AQMD: Efficiency Retrofits

- Central plant replacement – High efficiency chillers cooling towers with new refrigerant
  - Laboratory constant flow fume hoods w. dynamic flow valves, sash position and proximity sensors
  - Advanced zone building management system controls
  - Demand response platform
  - LED office fixtures that adjust color, temperature, and intensity throughout day
  - DC LED lighting system for laboratory with solar panels and storage
  - Off-grid outdoor LED parking light poles
- > 20% efficiency gain expected
  - Project lead: Willdan Energy Solutions
  - Showcase and lessons learned



The building retrofit project is funded by the California Emerging Technologies Program, South Coast Air Quality Management District, and the California Energy Commission's Electric Program Investment Charge (EPIC) program.

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