



Bringing Energy Efficiency Solutions to California's Water Sector with the Use of Customized Energy Management System (EMS) and Supervisory Control and Data Acquisition System (SCADA)

2015 EPIC Innovation Symposium

EPC 14-062 / CEC EPIC 14-304

EPIC IAW Grant Program

California Energy Commission

**University of California Riverside
Bourns College of Engineering**

December 3, 2015

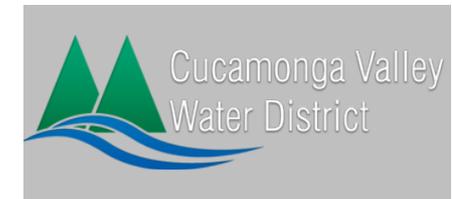


Project Goals and Partners

- **Implementation of Energy Monitoring and Management Strategies**
- **Integration of SCADA operations and EMS**
- **CEC funds intended to demonstrate water system energy improvements**
- **Partnership between gov't, academia, commercial, and utilities**



**CALIFORNIA
ENERGY COMMISSION**



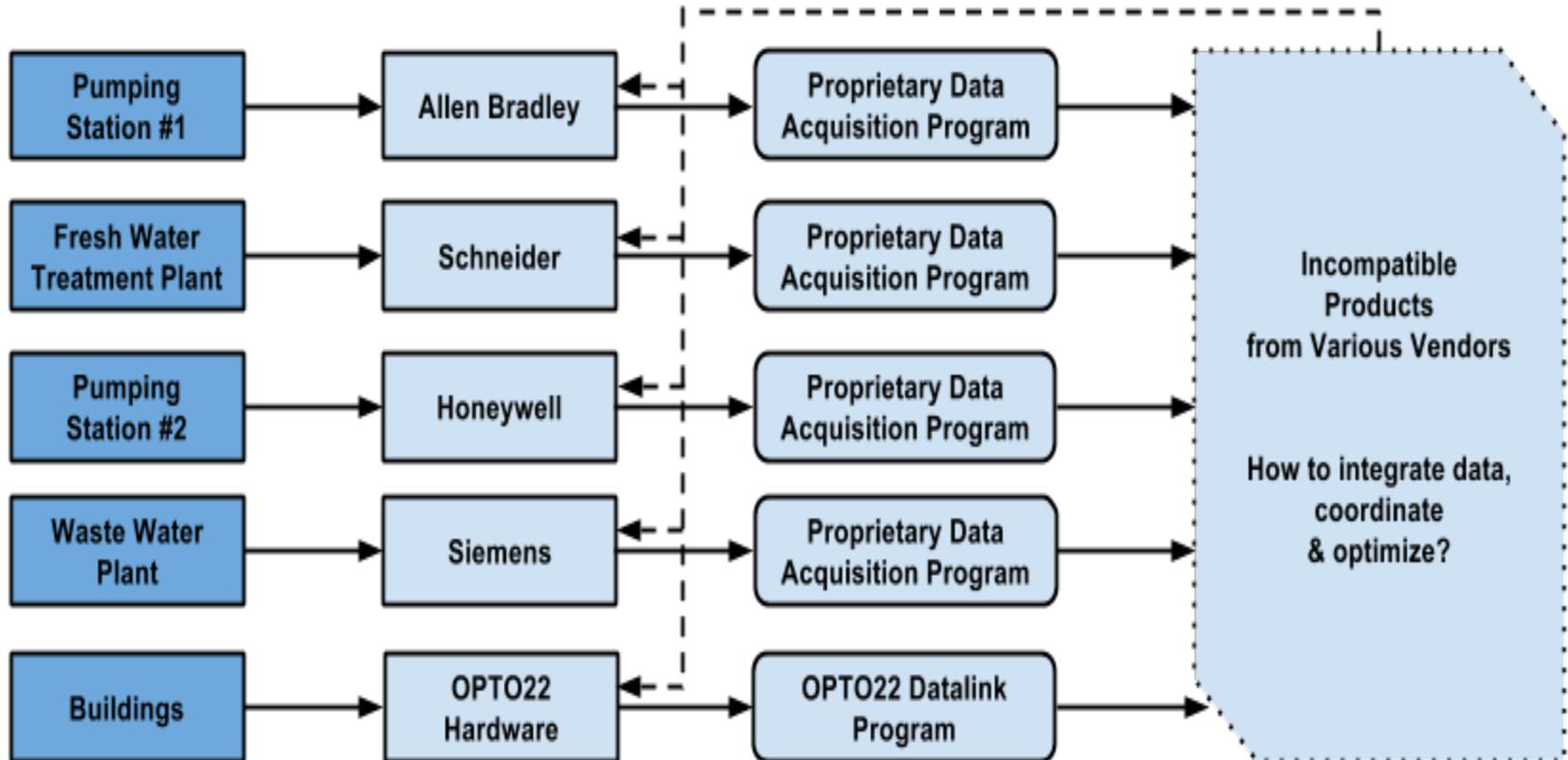
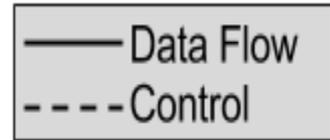
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Project Background

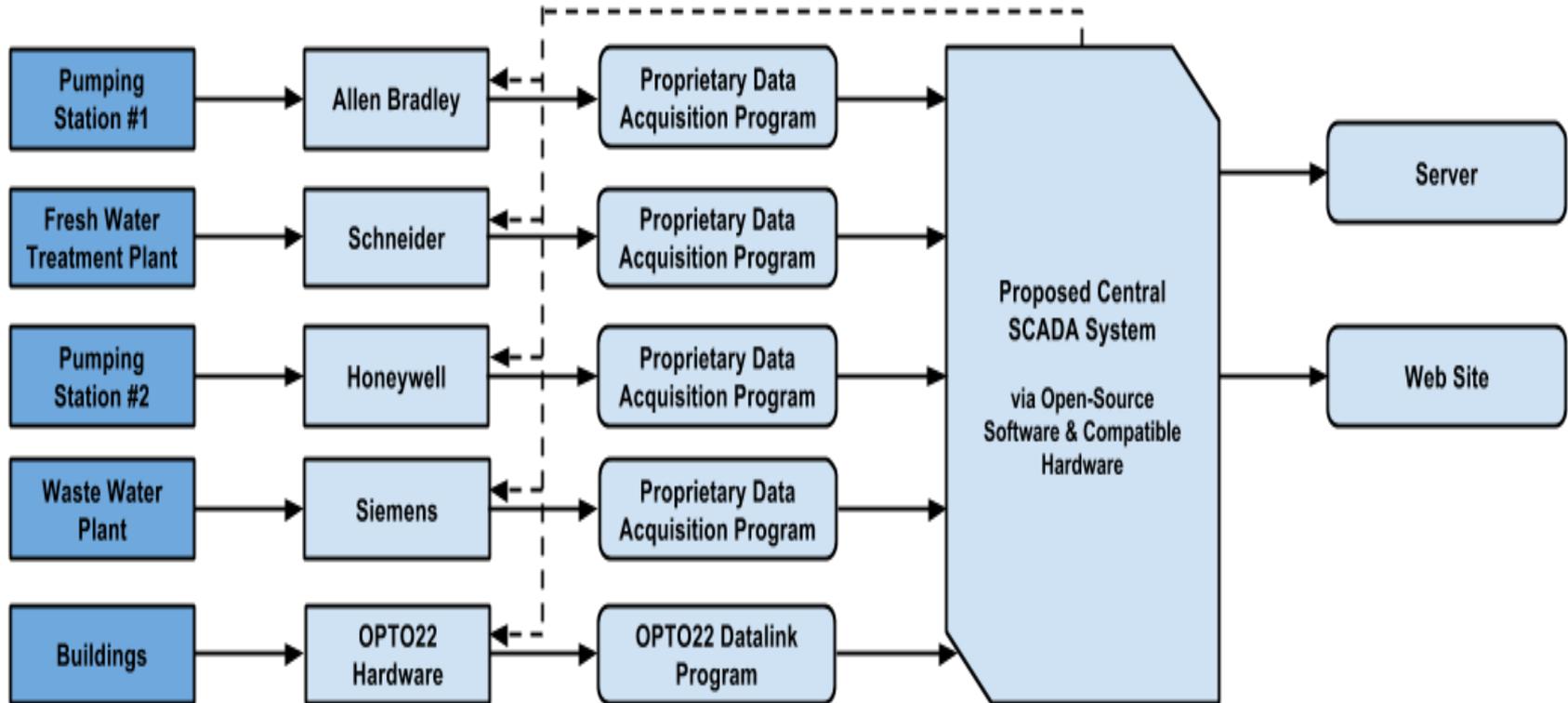
Typical Water System Data Acquisition & Control in Use Now





Project Background

Proposed Water System Data Acquisition & Control





Olivenhain Municipal Water District

- **Northern San Diego County**
- **Serves a population of 83,000**
- **17 reservoirs with 80 million gallon water capacity**
- **27,000 meters serviced**
- **400 miles of pipeline**





Inland Empire Utilities Agency

- **Western San Bernardino County**
- **Serves a population of 830,000**
- **70 million gallons of waste water treatment per day**
- **Aims to reduce water use by 5,157 acre-feet by end of 2015**



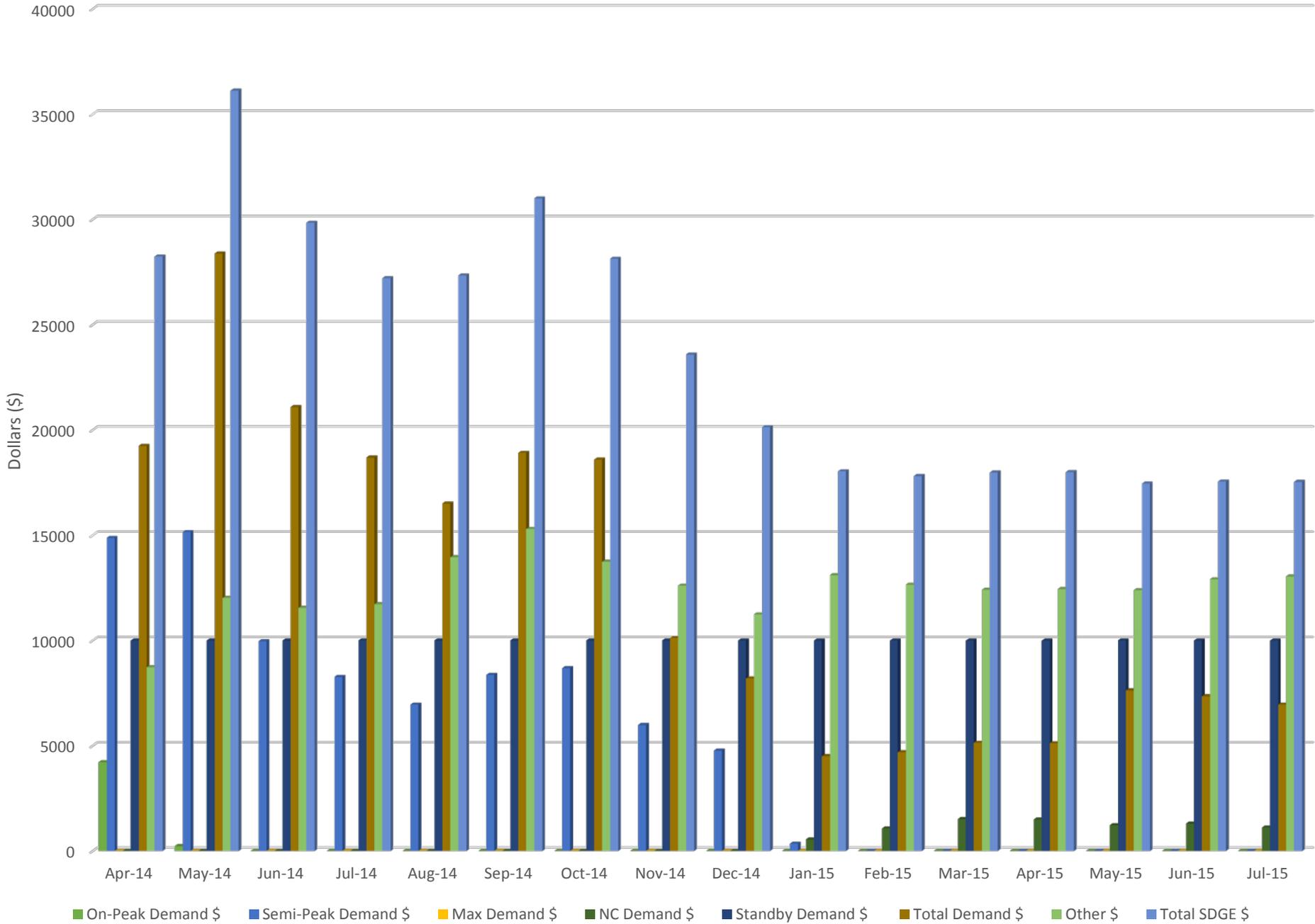


Cucamonga Valley Water District

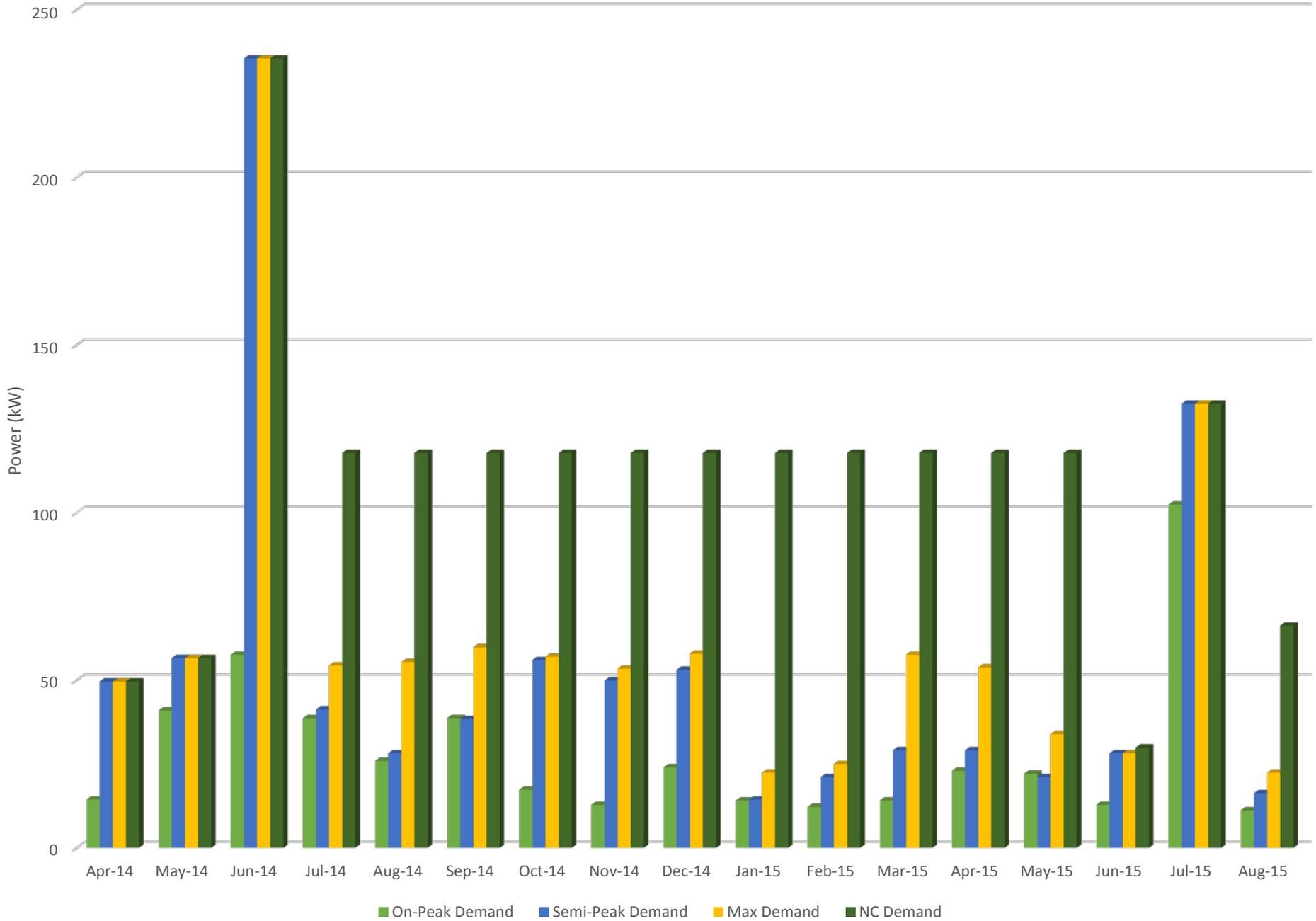
- **City of Rancho Cucamonga**
- **Serves a population of 190,000**
- **45,000 water connections**
- **35,000 sewer connections**
- **50 million gallon per day average demand**



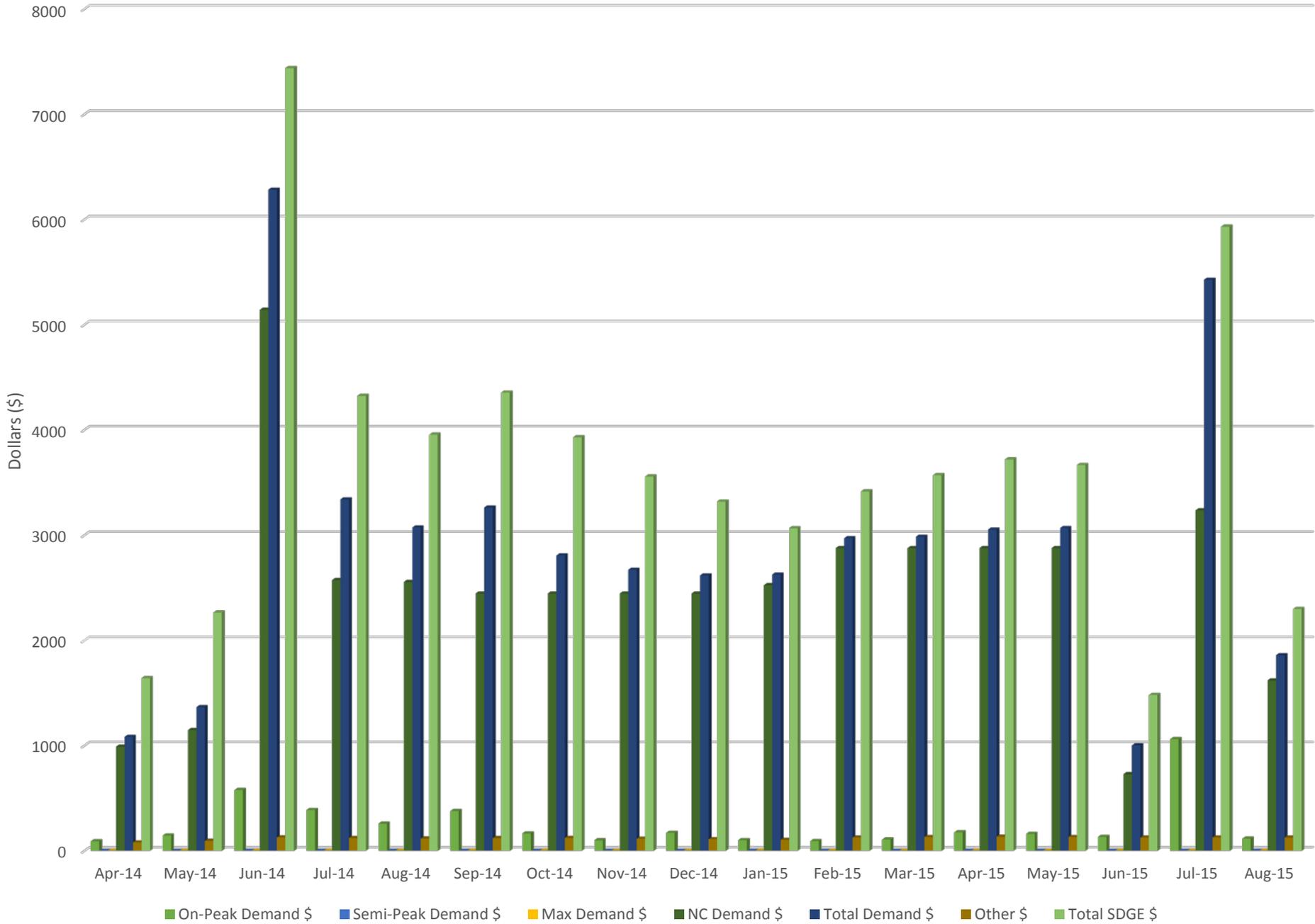
19090 VIA AMBIENTE Demand Charges



18389 AVENIDA APICE Peak Demand



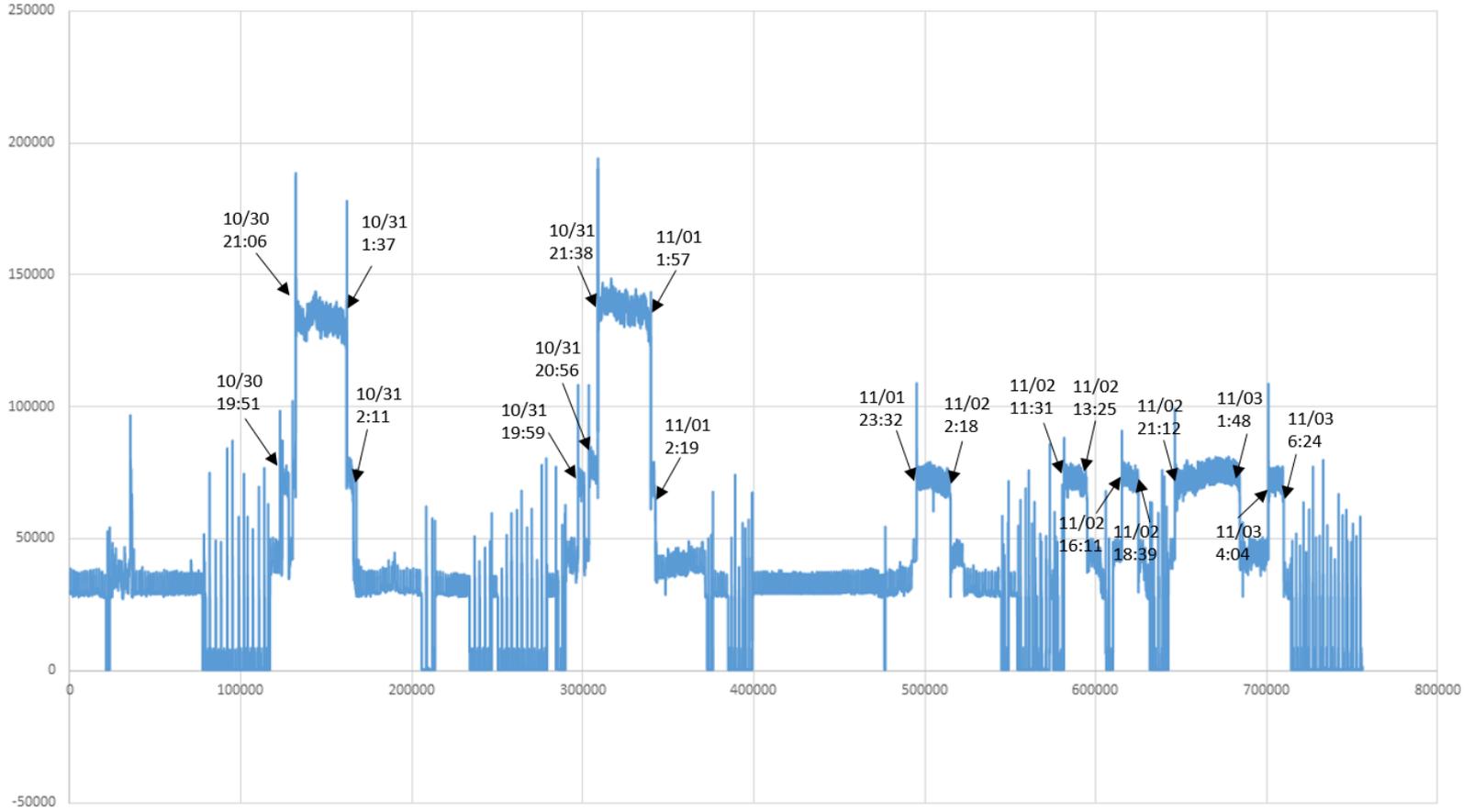
18389 AVENIDA APICE Demand Charges





Waste Water Pumping Station kW Demand

WW#3 October 30 - November 3





Questions?