This presentation premiered at WaterSmart Innovations

watersmartinnovations.com

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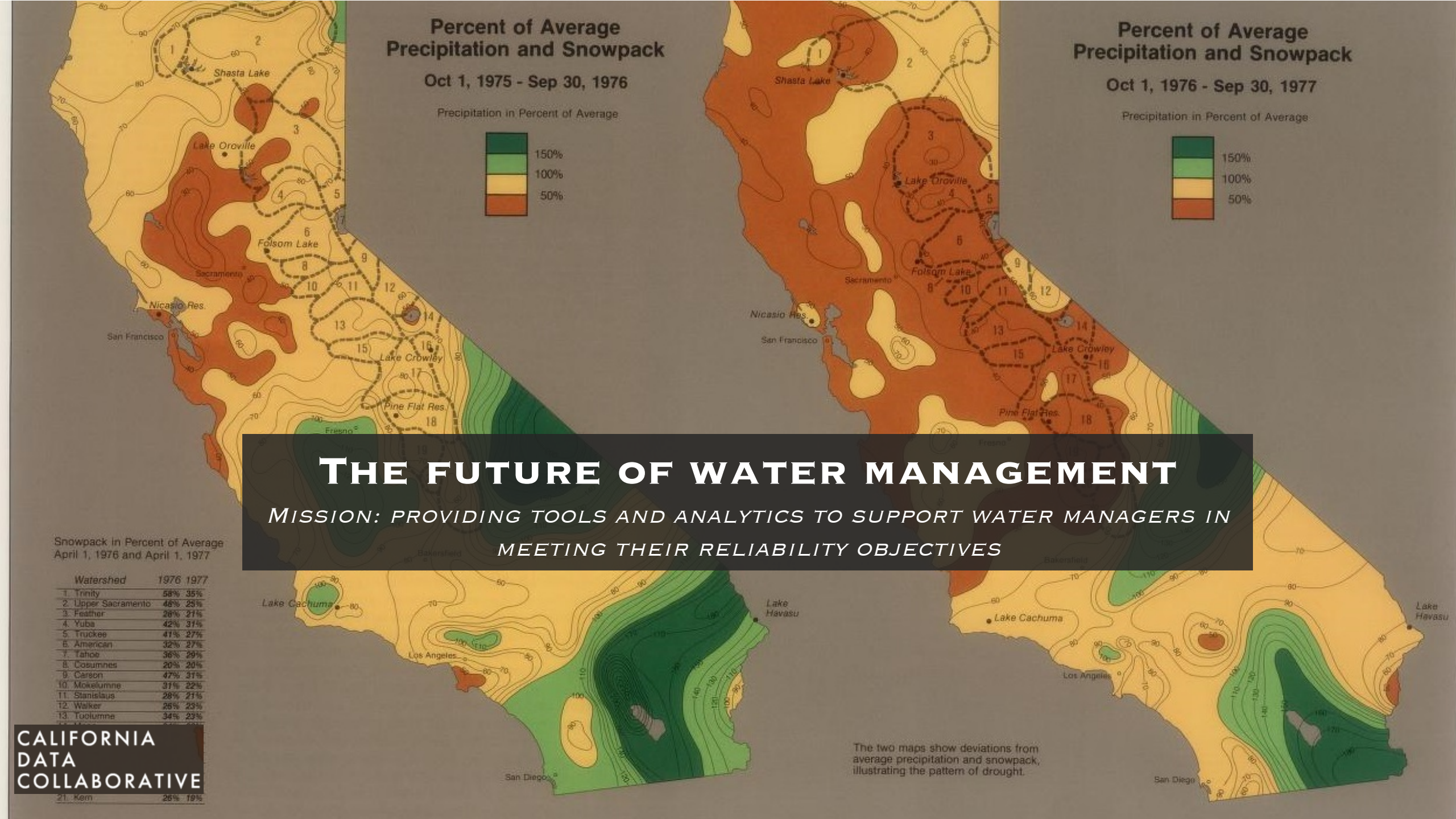
INNOVATIONS



The future of water management

Mission: providing tools and analytics to support water managers in meeting their reliability objectives

CALIFORNIA DATA COLLABORATIVE

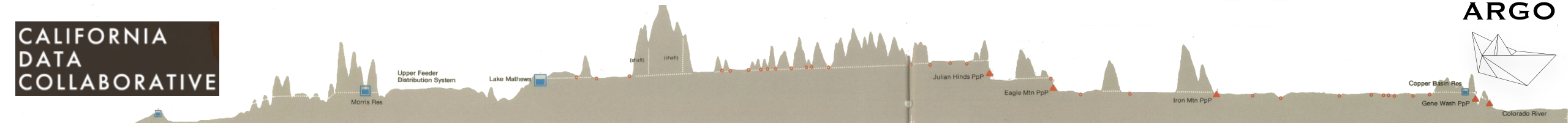
History: another way of saying all the data we have so far

Now that the rain for which they have been praying has at last fallen, our reverend brethren feel that they are "strictly in it."

Jan. 17, 1896

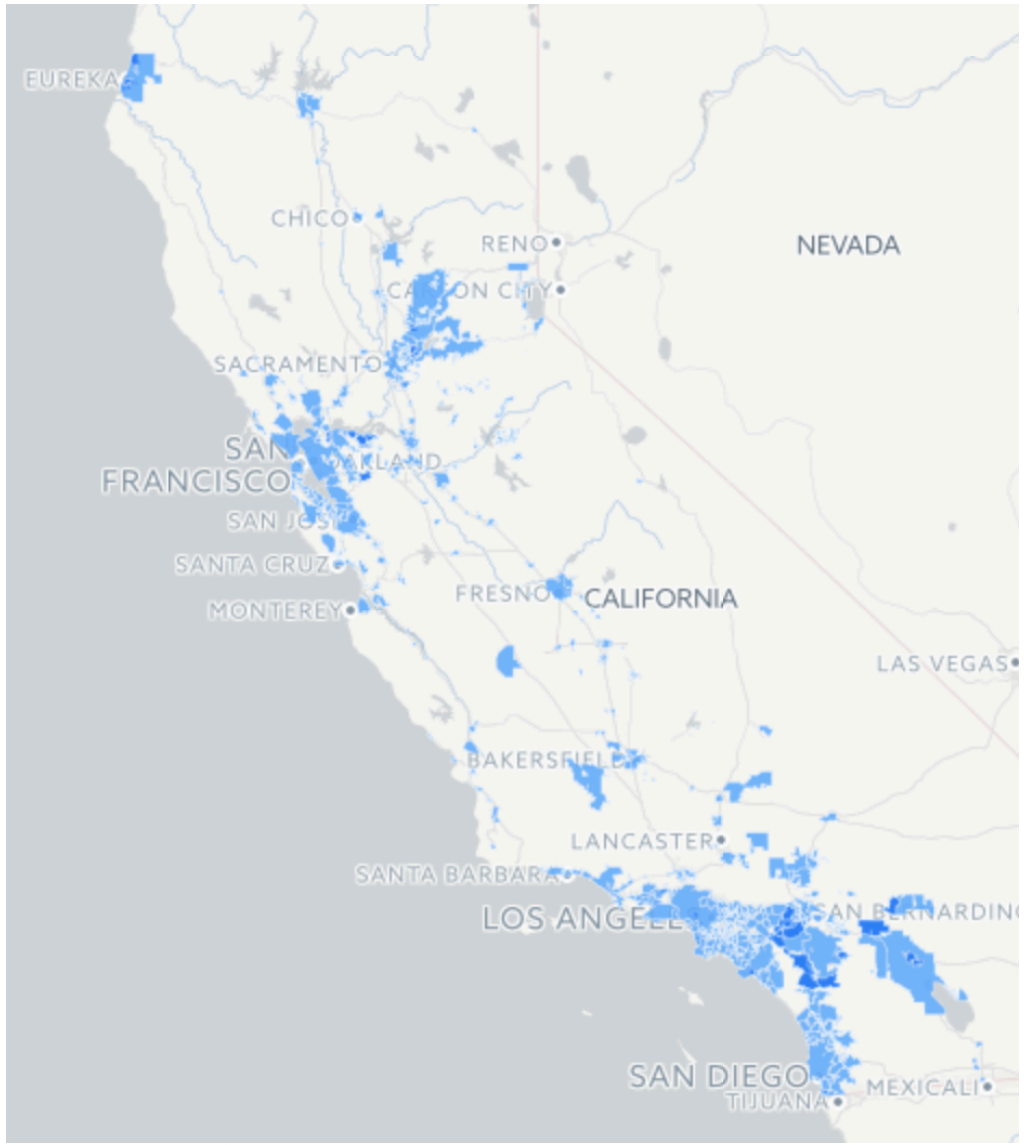
"And it never failed that during the dry years the people forgot about the rich years, and during the wet years they lost all memory of the dry years."
– John Steinbeck,

East of Eden



Why water data?

- ✓Digital integration across a fragmented industry
- ✓Historic drought, worst in 600 years
- ✓New tools to adapt to future uncertainty



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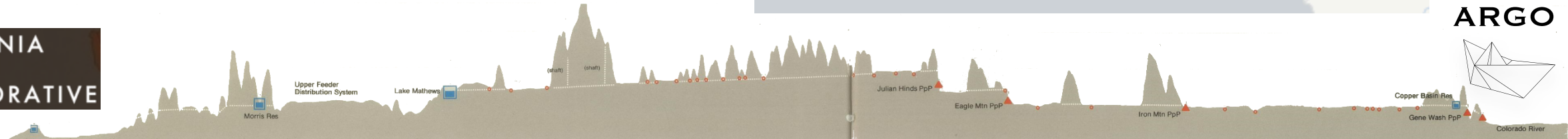

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What is the California Data Collaborative?

- ✓Launched Jan 2016 by water agencies for water agencies
- ✓Goal: Leverage modern data science to ensure water reliability
- ✓Powered by ARGO, a 501(c)3 public data infrastructure non-profit

Founding Participants:

emwd Eastern Municipal Water District
moulton niguel water district
Inland Empire Utilities Agency A Municipal Water District
Santa Margarita Water District
Irvine Ranch Water District
Las Virgenes Municipal Water District
UC Davis University of California
EBMUD

New Participants:

The Metropolitan Water District of Southern California
Western Municipal Water District
Monte Vista Water District
City of Santa Rosa
City of Sacramento
SAWPA
El Toro Water District

Partners:

Claremont Graduate University
California Institute of Technology 1891
DataKind Using Data in the Service of Humanity
CUWCC
seed
enigma
UCI WEX Center Research at the Water-Energy Nexus
ACWA
Microsoft
NETFLIX
SCWC
Stanford Graduate School of Business
UC Riverside
U.S. Department of the Interior Bureau of Reclamation
OmniEarth
Ucla
Rose Institute of State and Local Government Claremont McKenna College

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Accomplishments jan 2016-September 2017

- Best Urban Tool in State of CA and White House 2016 Hackathon
- Doubled membership in 12 months
- Recognition:
  - Honored in White House March 2016 Water Summit
  - Featured in Harper's Magazine, Associated Press, and Water Industry News (ACWA, Water Deeply, etc.)
  - Leading example in CA Senate Panel for open and transparent data re: SB272 (Hertzberg)
  - ACC-OC Golden Hub of Innovation Winner, May 2017

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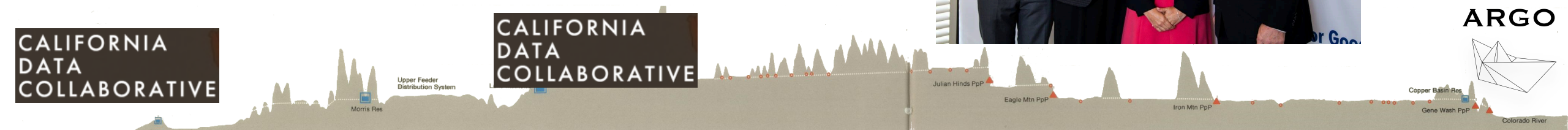


Nonprofit water data infrastructure

Multiple benefits

1. Next generation integrated planning
2. Support revenue stability with adaptive modeling
3. Data-driven demand management

CALIFORNIA DATA COLLABORATIVE

Data Ingestion

Choose File

Upload Raw Data to CaDC

Ongoing Research

The Stanford Conservation Marketing Experiment

MFR/CII Efficiency Benchmarking with NYU

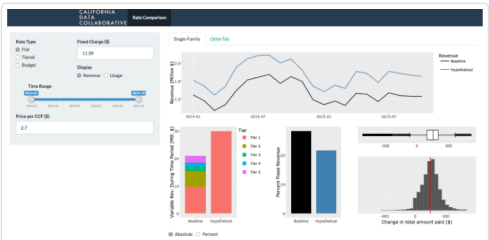
CA-Friendly Plants Survey

Demand Effects of Water Rates

Working with the Stanford Graduate School of Business's Professor Wes Hartmann, the CaDC is evaluating social media advertising as a vehicle for persuading consumers to reduce water usage. By bringing together customer-level water use data and digital ad impression data, managers are able to measure campaign effectiveness with unprecedented quantitative precision.

To learn more about participating in this project, please contact patrick@argolabs.org

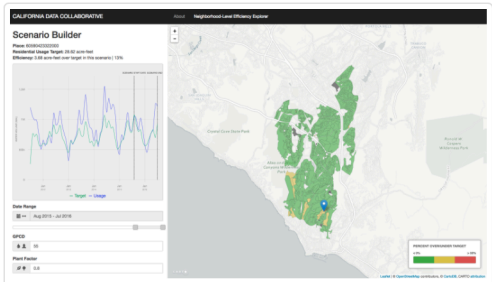
Interactive Analytics



Rate Comparison Tool

Compare revenue, equity, and demand implications of different water rate structures

Launch | Github



Efficiency Explorer

Explore spatiotemporal patterns in efficiency across different standards for residential water use

Launch | Github

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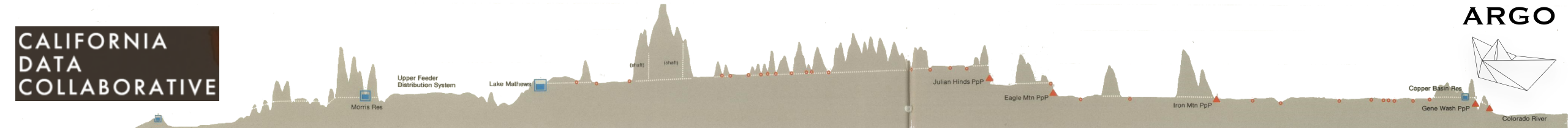
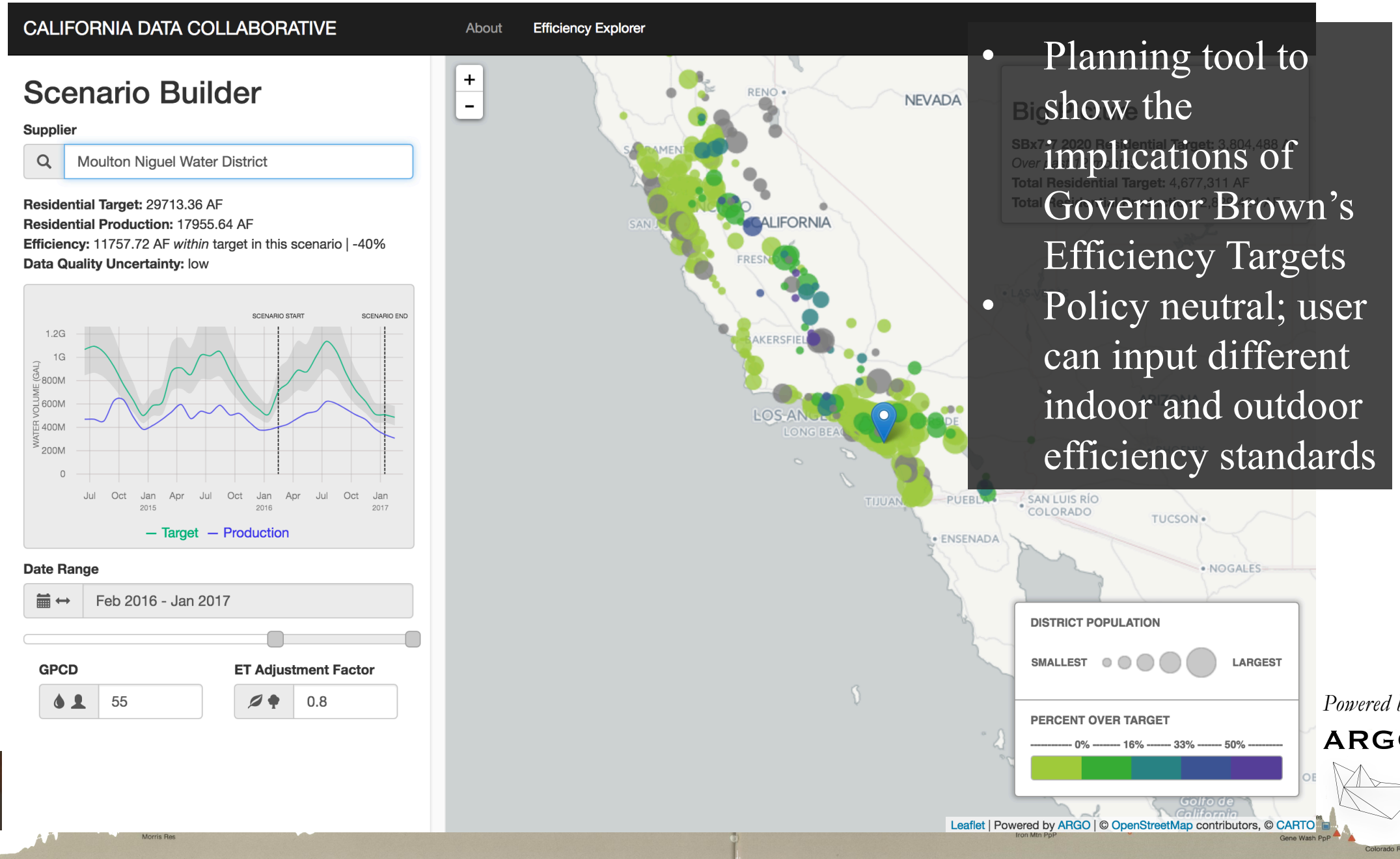


Nonprofit water data infrastructure



- Planning tool to show the implications of Governor Brown's Efficiency Targets
- Policy neutral; user can input different indoor and outdoor efficiency standards

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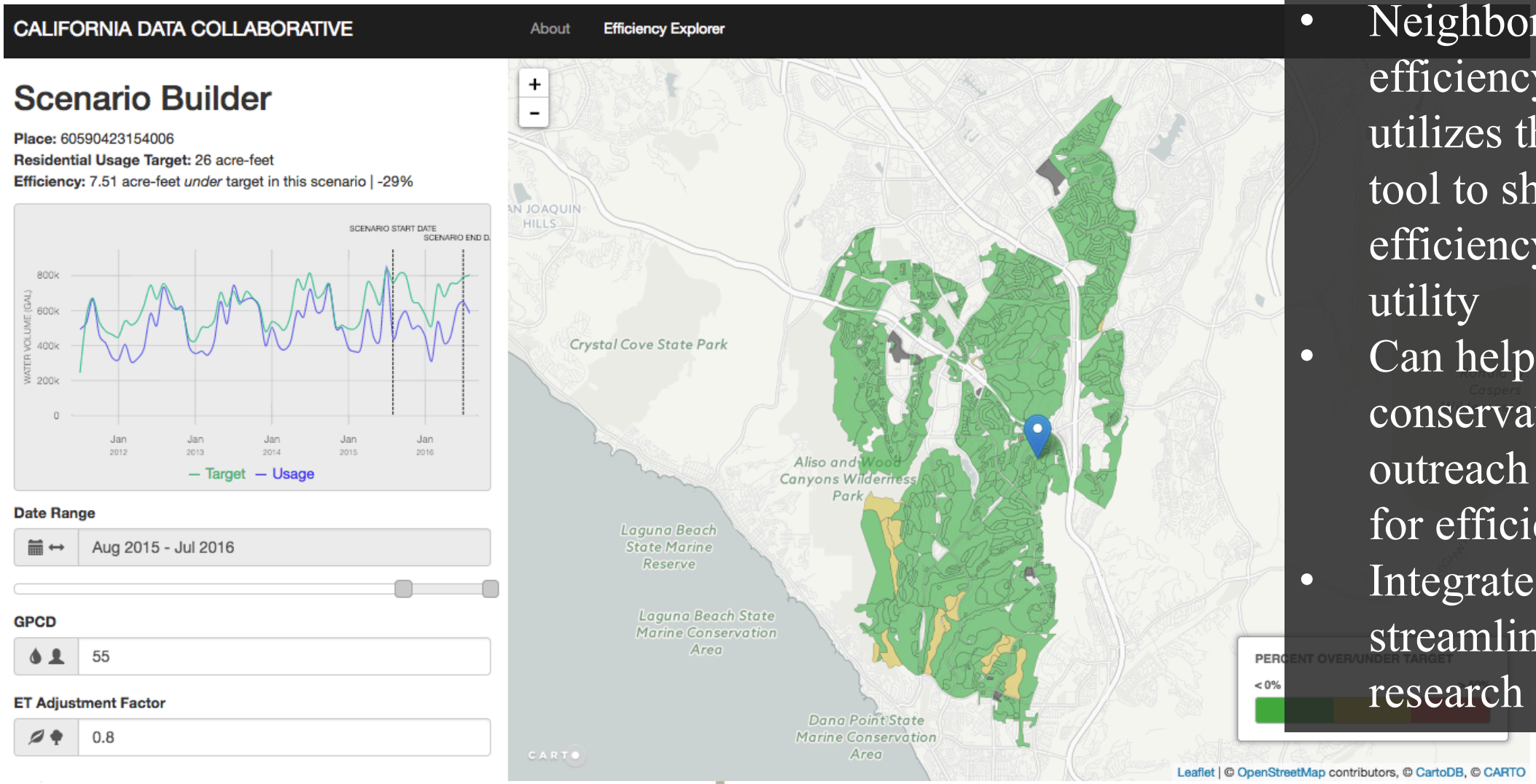
Multiple benefits: neighborhood level efficiency explorer



- Neighborhood level efficiency explorer utilizes the same tool to show water efficiency within a utility
- Can help target conservation outreach and plan for efficiency targets
- Integrates with streamlined WUE research

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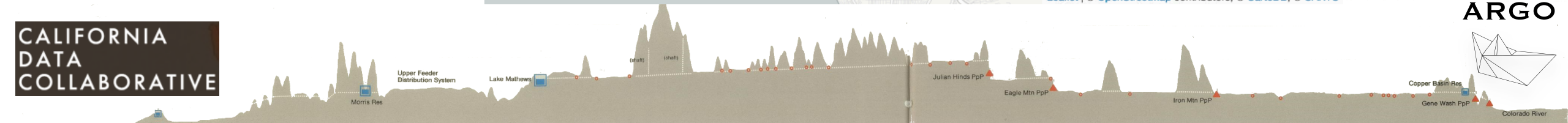

Multiple Benefits: Support revenue stability

- Agencies lost $700 Million in revenue in the drought
  - Evaluate rate study impacts to customers ***before*** starting the rate study
  - Developed a revenue planning tool
  - Flexible to any rate structure
  - Evaluates impacts at the account level

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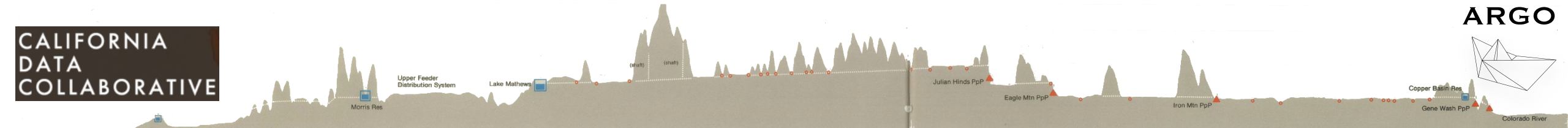
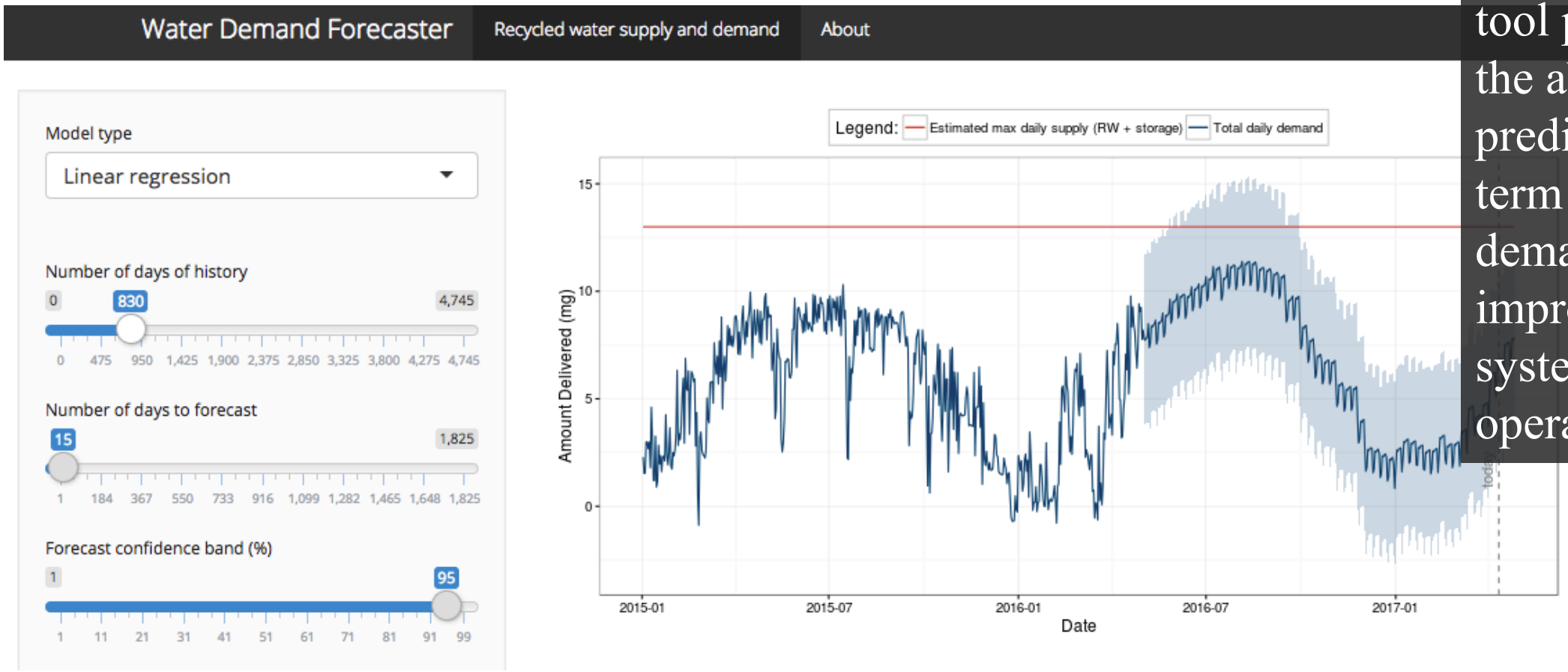


Multiple Benefits: Forecast demand

Demand forecasting tool provides the ability to predict short term water demand to improve system operations



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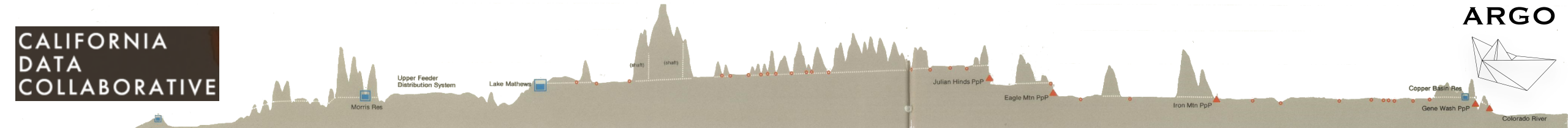

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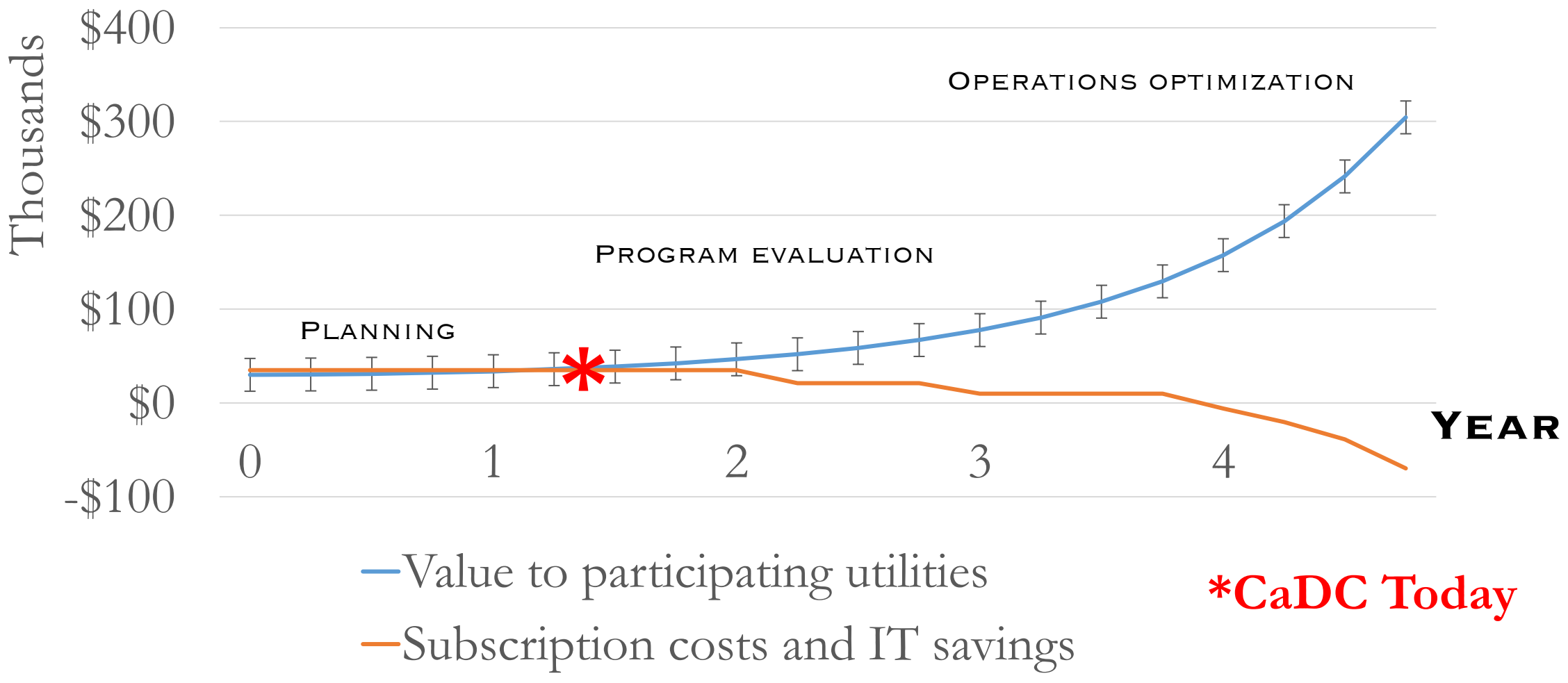
Long term business model



*CaDC Today

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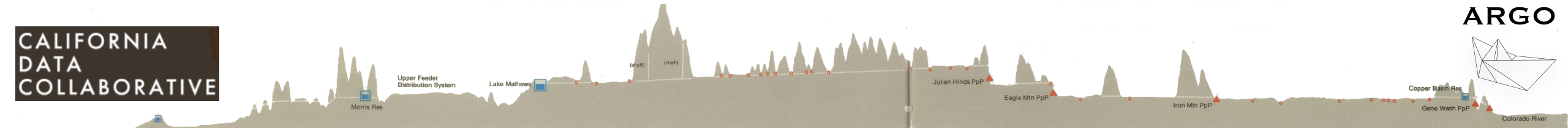

Streamlining Data Sharing

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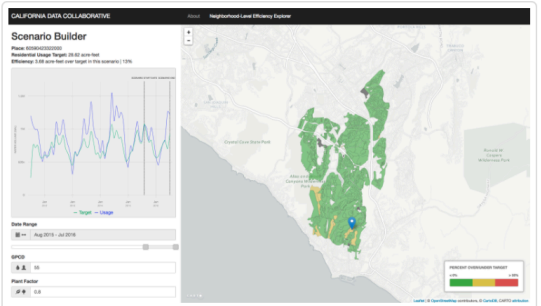

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All powered by ARGO public data infrastructure

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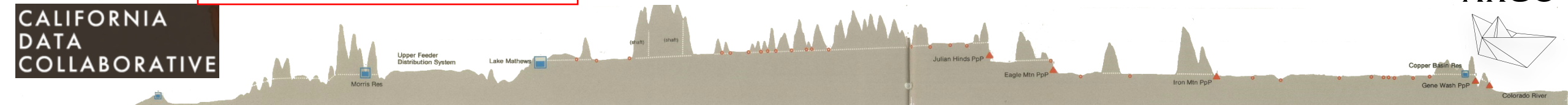

SCUBA SUBSCRIPTION FEES

SCUBA

Urban metered water use data integration

$17.5k Less than 15,000 connections

$35k Between 15,000 and 150,000 connections

$70k Greater than 150,000 connections

*Meter counts by retailer

- Full technical working group access
- Input into statewide efficiency work
- Access to cutting edge data community
- Access to research results
- Receive landscape area data by parcel
- Flagship CaDC Analytics Deployment
- Automate data standarization pipelines
- Option to reshare data with academics

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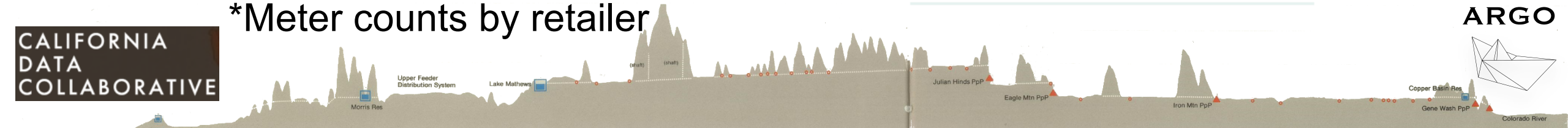

WHAT CAN THE PUBLIC DATA WORLD LEARN FROM CALIFORNIA WATER?

Artisanal, ad hoc

Integrated infrastructure

ACWA

Public data infrastructure in the visionary tradition of CA Water Management!

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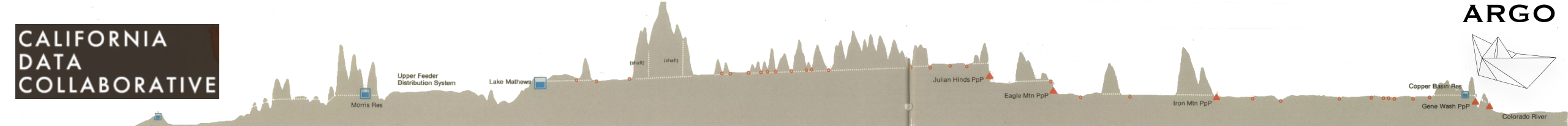

"The people of California have not lost their pioneering spirit or their capacity to meet life's challenges."

– Jerry Brown

Contact:
Patrick@argolabs.org