Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Regional Sewerage Program
Policy Committee Meeting

AGENDA
Thursday, February 6, 2025
3:30 p.m.

Agency Headquarters – Board Room
6075 Kimball Avenue, Building A
Chino, CA 91708
Telephone Access: (415) 856-9169/Conf ID: 960 375 500#

The public may participate and provide public comment during the meeting by joining in person or by calling the number provided above. Comments may also be submitted by email to the Recording Secretary Denise Garzaro at dgarzaro@ieua.org prior to the completion of the Public Comment section of the meeting. Comments will be distributed to the Policy Members.

Call to Order

Roll Call

Flag Salute

Public Comment

Members of the public may address the Committee on any item that is within the jurisdiction of the Committee; however, no action may be taken on any item not appearing on the agenda unless the action is otherwise authorized by Subdivision (b) of Section 54954.2 of the Government Code. Comments will be limited to three minutes per speaker.

Additions to the Agenda

In accordance with Section 54954.2 of the Government Code (Brown Act), additions to the agenda require two-thirds vote of the legislative body, or, if less than two-thirds of the members are present, a unanimous vote of those members present, that there is a need to take immediate action and that the need for action came to the attention of the local agency subsequent to the agenda being posted.

(Continued)

1. **Technical Committee Report** *(Oral)*

2. **Action Item**
   A. Approve minutes of November 7, 2024 Policy Committee Meeting

3. **Information Items**
   A. RP-5 Expansion Project Update (PowerPoint)
   B. Rate-Setting Process and Schedule (Written)

4. **Receive and File Items**
   A. Building Activity Report (Written)
   B. Planning and Resources Department Fiscal Year 2023/24 Annual Reports (Written)

5. **Other Business**
   A. IEUA General Manager's Update
   B. Committee Member Requested Future Agenda Items
   C. Committee Member Comments
   D. Next Meeting – March 6, 2025

Adjourn

DECLARATION OF POSTING

I, Jennifer Hy-Luk, Board Services Officer of the Inland Empire Utilities Agency, a Municipal Water District, hereby certify that per Government Code Section 54954.2, a copy of this agenda has been posted at the Agency's main office, 6075 Kimball Avenue, Building A, Chino, CA and on the Agency's website at www.ieua.org at least seventy-two (72) hours prior to the meeting date and time above.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Jennifer Hy-Luk at (909) 993-1727 or jhyluk@ieua.org 48 hours prior to the scheduled meeting so that IEUA can make reasonable arrangements to ensure accessibility.

ACTION ITEM

2A

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Regional Sewerage Program
Policy Committee Meeting

MINUTES OF THE NOVEMBER 7, 2024 MEETING

CALL TO ORDER
A meeting of the Inland Empire Utilities Agency (IEUA)/Regional Sewerage Program (RSP) Policy Committee was held on Thursday, November 7, 2024, at 6075 Kimball Avenue, Building A, Chino, California.

Chair Peter Rogers/City of Chino Hills called the meeting to order at 3:30 p.m. Recording Secretary Jennifer Hy-Luk established a quorum was present. Chair Rogers led the Pledge of Allegiance.

Committee Members Present:

Curtis Burton	City of Chino
Peter Rogers	City of Chino Hills
Phillip Cothran	City of Fontana
John Dutrey	City of Montclair
Debra Dorst-Porada	City of Ontario
Bill Velto	City of Upland
Randall Reed	Cucamonga Valley Water District (CVWD)

Committee Members Absent:

Marco Tule	Inland Empire Utilities Agency (IEUA)

Others Present:

Ben Orosco	City of Chino
Ron Craig	City of Chino Hills
Courtney Jones	City of Ontario
Chad Nishida	City of Ontario
Nicole deMoet	City of Upland
Amanda Coker	CVWD
Jerry Burke	IEUA
Christiana Daisy	IEUA
Kristine Day	IEUA
Shivaji Deshmukh	IEUA
Lucia Diaz	IEUA
Don Hamlett	IEUA

Others Present (continued):

Jennifer Hy-Luk	IEUA
Michael Larios	IEUA
Eddie Lin	IEUA
Alex Lopez	IEUA
Jason Marseilles	IEUA
Alyson Piguee	IEUA
Ken Tam	IEUA
Brian Wilson	IEUA
Ashley Womack	IEUA

PUBLIC COMMENTS

There were no public comments.

ADDITIONS TO THE AGENDA

There were no additions to the agenda.

1. **TECHNICAL COMMITTEE REPORT**

   Ron Craig/City of Chino Hills stated that at the October 31 Technical Committee meeting, the Committee heard Pretreatment and Compliance updates, and all seven agencies were represented. Mr. Craig added that the Technical Committee unanimously supported recommending to the IEUA Board of Directors the award of construction contract for the RP-1 Solids Thickening Project.

   Mr. Craig stated that due to the upcoming holidays the November and December Technical Committee meetings will be cancelled but representatives will be available if an Ad Hoc meeting is needed.

2. **ACTION ITEMS**

   A. **APPROVE MINUTES OF THE JUNE 6, 2024 POLICY COMMITTEE MEETING**

   Motion: By Committee member Reed/CVWD and seconded by Committee member Dutrey/City of Montclair to approve the meeting minutes of the June 6, 2024 Regional Policy Committee Meeting, by the following vote:

   Ayes: Cothran, Dorst-Porada, Dutrey, Reed, Rogers, Velto
   Noes: None
   Absent: None
   Abstain: Burton

   The motion passed by a vote of 6 ayes, 0 noes, 0 absent, and 1 abstain.

B. RECOMMEND THE IEUA BOARD OF DIRECTORS AWARD CONSTRUCTION CONTRACT FOR THE RP-1 SOLIDS THICKENING PROJECT

Jason Marseilles and Brian Wilson/IEUA provided the presentation.

Discussion ensued regarding the proximity of the construction site to the City of Ontario Police station, performance bonds, and the project's inclusion in the Ten-Year Capital Improvement Plan.

Motion: By Committee member Dutrey/City of Montclair and seconded by Committee member Velto/City of Upland to make a recommendation to the IEUA Board of Directors to award the construction contract for the RP-1 Solids Thickening, Project No. EN22044, to W.M. Lyles Co. in the amount of $147,718,400, by the following vote:

Ayes:	Burton, Cothran, Dorst-Porada, Dutrey, Reed, Rogers, Velto
Noes:	None
Absent:	None
Abstain:	None

The motion passed by a vote of 7 ayes, 0 noes, 0 absent, and 0 abstain.

3. INFORMATION ITEMS

A. SEWER COLLECTION FEES OVERVIEW (POWERPOINT)

Ken Tam and Alex Lopez/IEUA provided the presentation.

Discussion ensued regarding what is supported through the connection fees – capacity at the time of expansion or growth in the future, Equivalent Dwelling Unit (EDU) and Accessory Dwelling Unit (ADU) calculations, and equitable rates and fees.

B. SEMI-ANNUAL GRANTS UPDATE (WRITTEN)

Item 3B was received and filed by the Committee.

4. RECEIVE AND FILE ITEM

Item 4A was received and filed by the Committee.

A. BUILDING ACTIVITY REPORT

5. OTHER BUSINESS

A. IEUA GENERAL MANAGER'S UPDATE

General Manager Shivaji Deshmukh/IEUA presented Committee member Reed with a Certificate of Recognition for his dedication and service as the Regional Sewerage Program Policy Committee Chair from July 2022 through 2024.

B. COMMITTEE MEMBER REQUESTED AGENDA ITEMS FOR NEXT MEETING

Committee member Reed requested three examples of different businesses' connection fees. Committee member Cothran requested a breakdown of where the fees are being spent.

C. <u>COMMITTEE MEMBER COMMENTS</u>

Committee member Dorst-Porada requested not to hear updates on the Chino Basin Program (CBP) as her agency declined to participate in the CBP. Committee member Cothran thanked staff for their assistance with an emergency manhole replacement. Committee member Dutrey thanked veterans for their service. Committee member Velto acknowledged the upcoming Veterans Day and Thanksgiving holidays. Committee member Reed thanked staff for their presentations.

D. <u>NEXT MEETING – DECEMBER 5, 2024</u>

<u>ADJOURNMENT</u>

Chair Rogers adjourned the meeting at 4:42 p.m.

Prepared by:

Jennifer Hy-Luk, Board Services Officer

INFORMATION ITEM

3A

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

RP-5 Expansion Project Update February 2025

Project Nos. EN19001 and EN19006

Brian Wilson P.E. CCM

Principal Engineer

February 2025

RP-5 Expansion – Flyover (January 2025)

Overview

Liquids Expansion Updates

- Influent Pump Station
- Mechanical Bar Screens
- Grit Channel 1A
- Fine Screens
- Primary Clarifiers
- Membrane Bio Reactor
- Aeration Basin and Blowers

Solids Handling Facility Updates

- Solids Startup Sequence
- Thickening/Digester/Dewatering
- Gas Conditioning/Boiler/Flare

4 Influent Pump Station

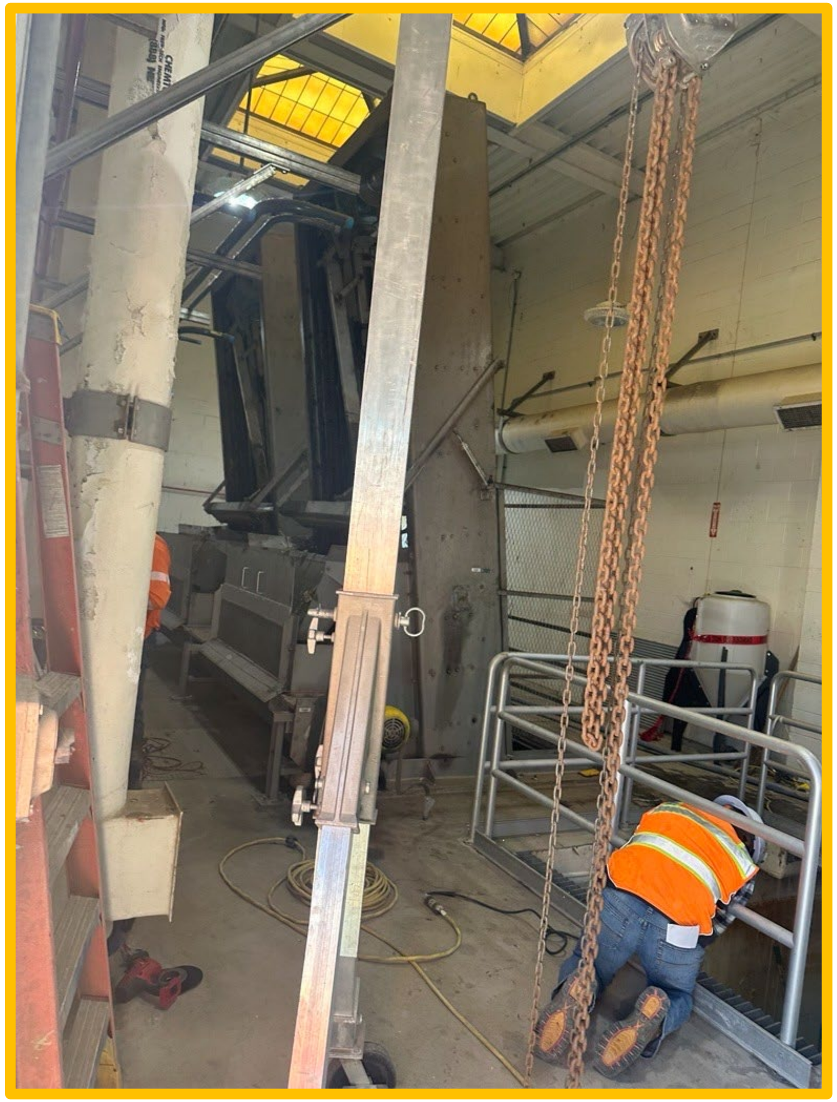
IPS Sequence

- Wet Well 3: Pumps 5 & 6
  - March 2025 to April 2025
- Wet Well 2: Pumps 3 & 4
  - June 2025 to July 2025
- Wet Well 1: Pump 2
  - July 2025 to August 2025
- Plant will always have 3 available pumps
- Pumps will be tested 1 by 1 to ensure flow into plant can be maintained

5 Mechanical Bar Screens

Bar Screen and Compactor Sequence

- Bar Screen 1C
  - April 2025 to May 2025
  - Manual rake to be replaced first to ensure two screens are always online
- Bar Screen 1B
  - May 2025 to June 2025
- Washer Compactor 1 & 2
  - September 2025 to October 2025
- Bar Screen 1A
  - October 2025 to November 2025



6 Fine Screens

Fine Screen Sequence

- March 2024 to May 2025

7 Primary Clarifiers

Primary Clarifier Sequence

- Primary Clarifiers 1 & 2
  - September 2025 to October 2025
- Primary Clarifiers 3 & 4
  - January 2026 to February 2026
- Primary Sludge Pump Station
  - June 2025 to July 2025

8 Blowers and Aeration Basin

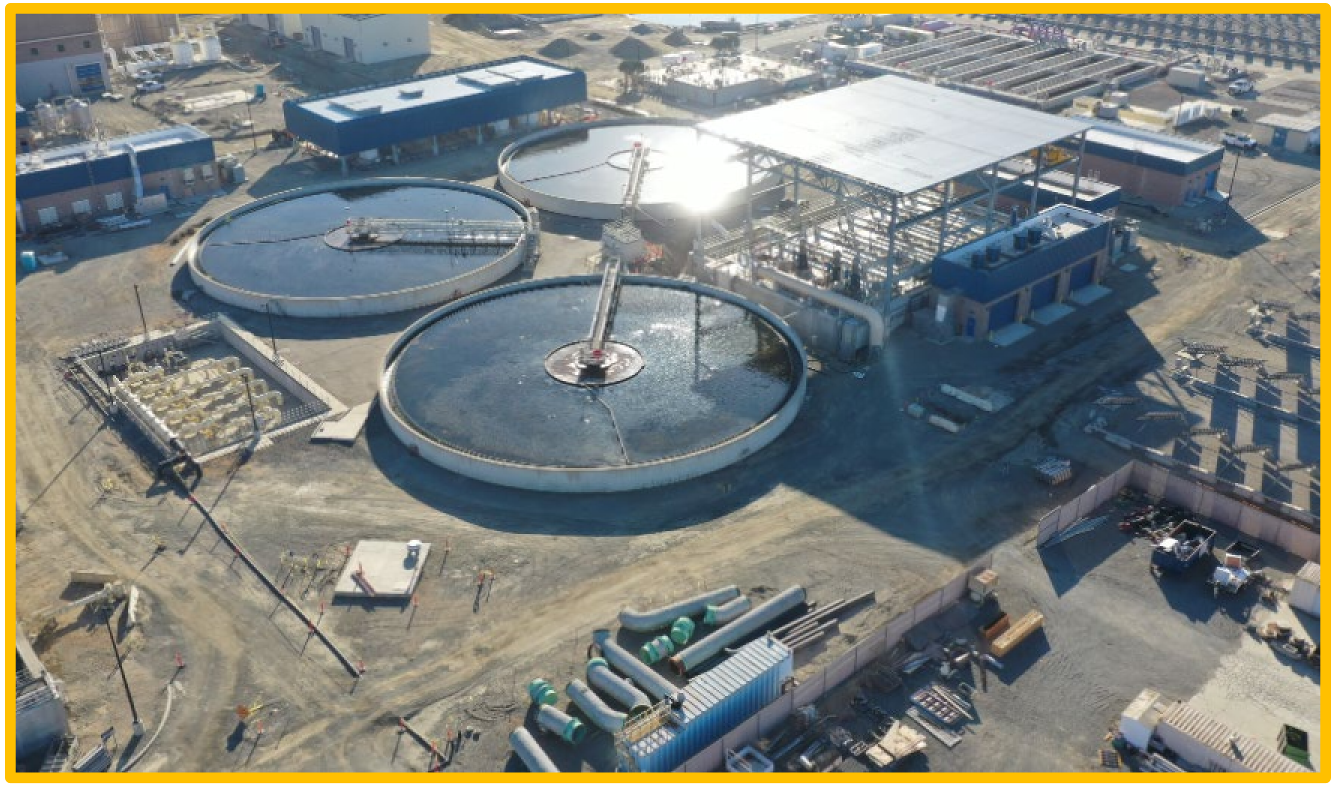
Construction Sequence

- New Blowers and Air Header
  - February 2025 to March 2025
  - Aeration Basin 4 power and control to instruments and equipment PC-2 to PC-6
- MLR Box Construction
  - April 2025 to May 2025
- Aeration Basin 3
  - June 2026 to July 2026
- Existing Blowers Replacement
  - July 2025 to August 2025

Membrane Bio Reactor

MBR Sequence

- MBR Phase 1 Startup
  - April 2025 to May 2025
- MBR Phase 2 Construction
  - December 2025 to April 2026
- Demo Tertiary Filter, Clarifiers, and RAS
  - July 2025 to March 2026



Solids Facilities Startup Sequence

Step	Date	Facility	Description
1A	July 25	Flares	Startup on natural gas
1B	July 25	Boilers	Startup on natural gas
2A	Sept/Oct 25	Dewatering	Startup with water; then transferred sludge from RP-2 via digesters
2B	Aug/Sept 25	Gas Phase Digesters	Fill with water; backfill with RP-2 digester gas; fill with digested sludge from RP-2
2C	Sept/Oct 25	Gas Conditioning – H2S + LP gas compressors	When digesters are filled with sludge, startup LP gas compressors with RP-2 DG. All gas sent to flares
3	Sept/Oct 25	Thickening	Startup with water; then feed PS and WAS from RP-5 when digesters are ready to accept thickened sludge
4	Sept 25	Acid Phase Digester	Feed thickened PS and WAS
5	Oct 25	Gas Conditioning & REEP – siloxane + HP gas compressors + REEP	Startup on DG
6	Oct 25	Boilers	Startup and test on DG

11 Thickening/Digester/Dewatering

12 Gas Conditioning/Boilers/Flare

Thank You

@IEUAwater

ieua.org

These materials have not been prepared with a view to informing an investment decision in any of the Agency's bonds, notes or other obligations. Any projections, plans or other forward-looking statements included in the information in this agenda are subject to a variety of uncertainties that could cause any actual plans or results to differ materially from any such statement. The information herein is not intended to be used by investors or potential investors in considering the purchase or sale of the Agency's bonds, notes or other obligations.

INFORMATION
ITEM

3B

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Date: January 30 & February 6, 2025

To: Regional Sewerage Technical and Policy Committees

From: Inland Empire Utilities Agency

Subject: Rate-Setting Process and Schedule

RECOMMENDATION

This item is an information item for the Regional Committees.

BACKGROUND

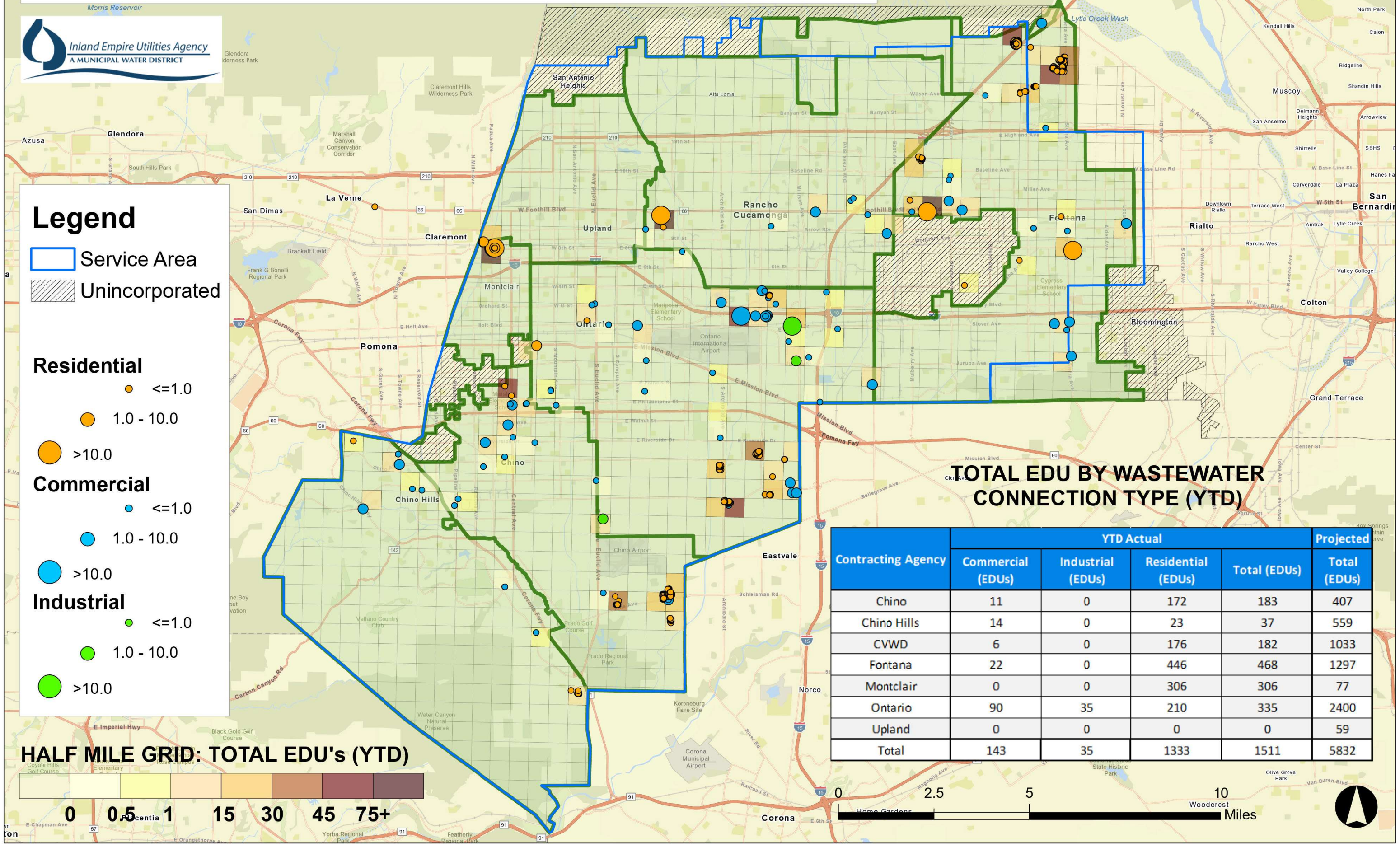
The rate-setting process includes a thorough review of the operating and capital plan budget needs for the next two years, an evaluation of key operating and planning assumptions, and an assessment of cost containment measures to help moderate increases in rates and charges. The goal is to finalize and adopt a two-year rate, with IEUA Board approval targeted for the April 16, 2025, Board meeting. Below is the schedule leading up to rate adoption, highlighting key milestones where input will be solicited:

Date	Meeting with Customer Agencies
July 2024	Rates Overview (Multiple) Workshops
Wednesday, October 2	Finance Directors Meeting
Monday, January 13, 2025	Finance Directors Meeting
Thursday, January 30	Regional Technical Committee
Wednesday, February 5	General Managers
Thursday, February 6	Regional Policy Committee
Monday, February 10	Rates Overview Workshop
Thursday, February 27	Regional Technical Committee
Wednesday, March 5	IEUA Board Workshop
Thursday, March 6	Regional Policy Committee
March 10 or 12	Rates Overview Workshop
Thursday, March 27	**Regional Technical Committee, Action Item**
Thursday, April 3	**Regional Policy Committee, Action Item**
Wednesday, April 16	**IEUA Board Meeting, Action Item**

RECEIVE AND FILE

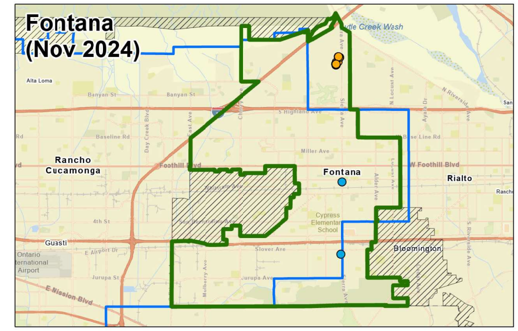
4A

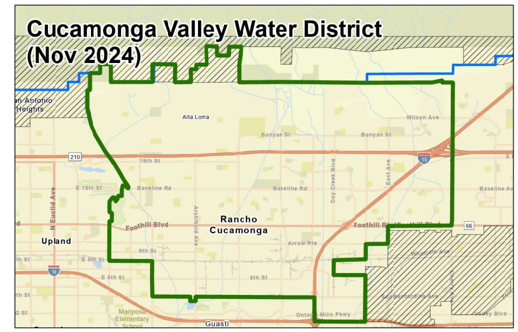
Building Activity Report - YTD Fiscal Year 2024/25

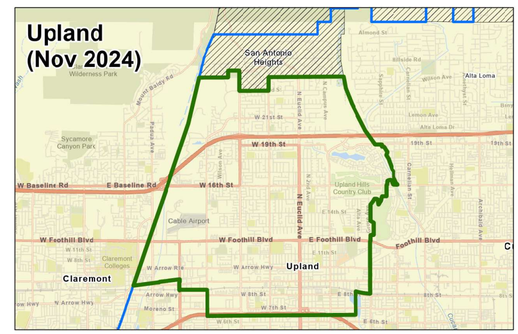


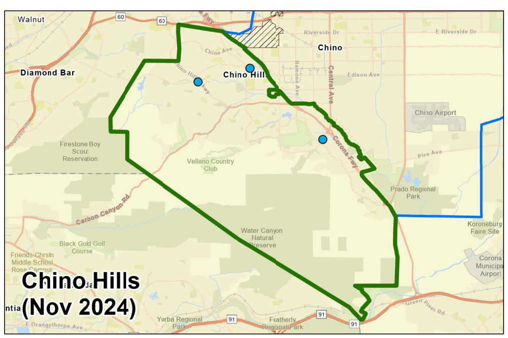
TOTAL EDU BY WASTEWATER CONNECTION TYPE (YTD)

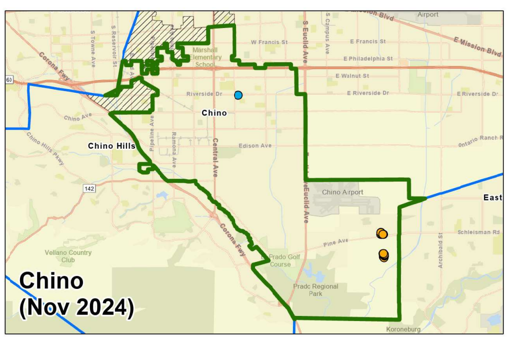
Contracting Agency	YTD Actual: Commercial (EDUs)	YTD Actual: Industrial (EDUs)	YTD Actual: Residential (EDUs)	YTD Actual: Total (EDUs)	Projected: Total (EDUs)
Chino	11	0	172	183	407
Chino Hills	14	0	23	37	559
CVWD	6	0	176	182	1033
Fontana	22	0	446	468	1297
Montclair	0	0	306	306	77
Ontario	90	35	210	335	2400
Upland	0	0	0	0	59
Total	143	35	1333	1511	5832

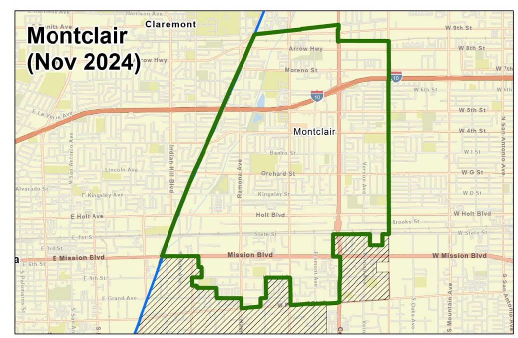












RECEIVE AND FILE

4B

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

Date:	January 30 & February 6, 2025
To:	Regional Sewerage Technical and Policy Committees
From:	Inland Empire Utilities Agency
Subject:	Planning and Resources Department Fiscal Year 2023/24 Annual Reports

RECOMMENDATION

This item is an information item for the Regional Committees.

BACKGROUND

The item was presented as an informational item at the November 20, 2024 IEUA Board of Directors Meeting. The FY 2023/24 Planning Annual Report contains the 10-year growth forecast provided by the sewage collection agencies. The FY 2023/24 Annual Energy Report contains energy usage and efficiency projects for IEUA facilities, including wastewater.

Attachments:

Attachment 1 – FY 2023/24 Planning Annual Report
Attachment 2 – FY 2023/24 Energy Report
Attachment 3 – Appendix A – Energy Report – IEUA Final ZEV Readiness Plan

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

2024

IEUA
Planning Annual Report

Contents

SECTION 1: THE REGION AT A GLANCE

An Introduction to IEUA

The Inland Empire Utilities Agency (IEUA) is located in Western San Bernardino County and serves approximately 945,000 residents in a 242-square mile service area. As a regional wastewater treatment agency, IEUA provides wastewater utility services to seven local sewage collection agencies (SCAs): cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, and Cucamonga Valley Water District (CVWD) in the city of Rancho Cucamonga. Since the 1970s, IEUA has provided wastewater service through the Regional Sewage Service Contract (Regional Contract). As the original Regional Contract was set to expire in January 2023, IEUA's Board of Directors adopted a Regional Sewage System Service Ordinance (Ordinance No. 111) in December 2022, which served as the document to continue the governance of the operations and maintenance of the Regional Sewer System absent a new Regional Contract. Following continued negotiations, a new Regional Contract was signed with four of seven SCAs in November 2023, while wastewater service for three SCAs remain governed under ordinance. The adopted Ordinance No. 111, later superseded by Ordinance No. 114 in December 2023, did not change IEUA's existing oversight of its wastewater service program, nor change any of the wastewater services provided to each of the SCAs. In addition to wastewater service the Agency also provides wholesale imported water from the Metropolitan Water District of Southern California (MWD) to seven customer agencies: the cities of Chino, Chino Hills, Ontario, Upland, CVWD in the city of Rancho Cucamonga, Fontana Water Company (FWC) in the city of Fontana, and the Monte Vista Water District (MVWD) in the city of Montclair.

In addition to providing these key services, IEUA also produces and distributes high quality recycled water, implements the Chino Basin groundwater recharge program, operates the Chino I Desalter for the Chino Desalter Authority (CDA), operates the Inland Empire Regional Composting Facility for the Inland Empire Regional Composting Authority, and provides regional water resources planning to ensure reliable, cost-effective environmentally responsible water supplies for current and future customers. The purpose of the Planning Annual Report (PAR) is to provide annually updated information about the IEUA service area's regional water use, imported water, local water, wastewater, recycled water, groundwater recharge, and environmental flows. This report also provides a summary of historic trends, usage patterns, current programs, and future forecasts.

IEUA's Water Cycle

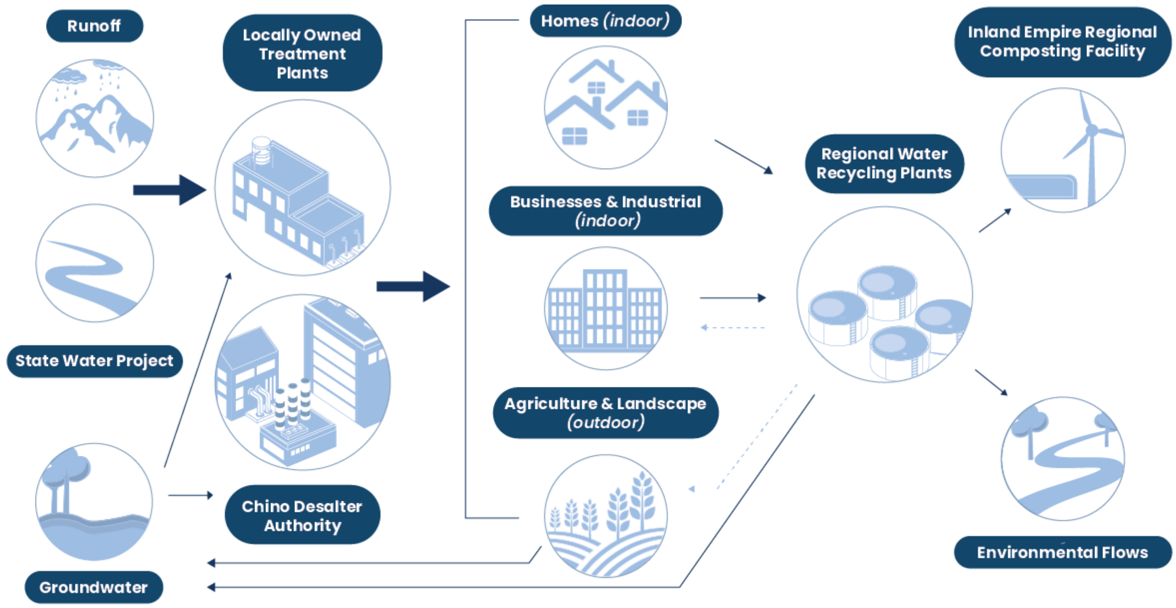


Figure 1 – IEUA Regional Water Cycle

Regional Population Growth

The IEUA service area has experienced tremendous growth since the start of the 21st Century. In Fiscal Year (FY) 00/01, IEUA served a population of just over 700,000, but now serves an estimated 945,000 people as of FY 23/24 with the expectation to serve approximately 1 million people by FY 30/31 as projected by Southern California Association of Governments (SCAG).

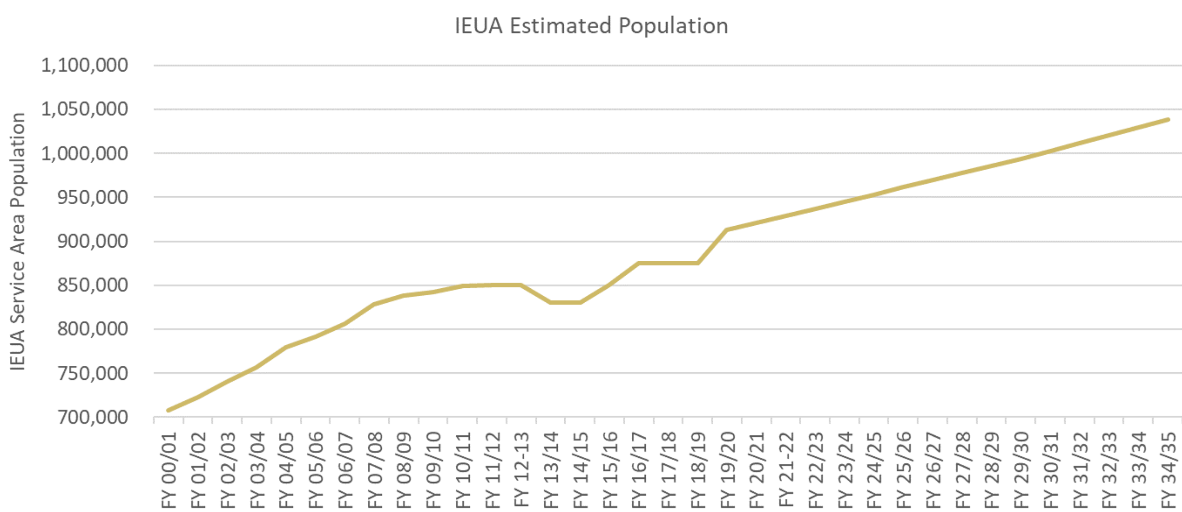


Figure 2 – IEUA Regional Population Growth

Increases in population are met with an increase in the number of water meters in the service area. IEUA tracks the relative increase in water meter capacity by keeping count of Meter

Equivalent Units (MEUs). An MEU is a measure of each connection's capacity requirement. One MEU is equivalent to one 5/8-inch or 3/4-inch water meter, which are the typical residential meter sizes. Meters larger than a 5/8-inch or 3/4-inch are greater than one MEU due to the increase in potential water flow capacity. In FY 24/25, the MEU count increased by 1,150 MEUs for a total of 424,876 MEUs region wide.

Table 1 – Meter Equivalent Units

Retail Agency	FY 23/24 MEUs	FY 24/25 MEUs
Chino	41,532	40,987
Chino Hills	39,173*	39,345
CVWD	106,384	106,798
FWC	93,084	93,173
MVWD	22,098	22,091
Ontario	80,638	81,445
SAWCo	1,869	1,874
Upland	35,039	34,719
WVWD**	3,909	4,447
Total	**423,726**	**424,876**

Chino Hills FY 23/24 MEUs were corrected from 39,986 to 39,173 in FY 24/25

****IEUA and WVWD have a shared service area for emergency supply Regional Water Use***

IEUA monitors and compiles water use data from each of its customer agencies to track overall water demands and sources of supply. Annual water use is split between potable water usage and the direct use of recycled water. IEUA's regional water usage in FY 23/24 was approximately 177,831 Acre Feet (AF) which includes 161,227 AF potable usage and 16,604 AF recycled water direct usage.

Despite large swings in outdoor water use due to drought, water availability, and regional population growth, overall, per person water use in the region is on a downward trend. In FY 23/24 per person water usage, calculated as gallons per capita per day (GPCD), increased slightly to 168 GPCD from the previous value of 164 GPCD, but did not return to pre-drought levels. This slight increase was anticipated, as the GPCD in FY 22/23 was artificially low as a result of limited imported water availability.

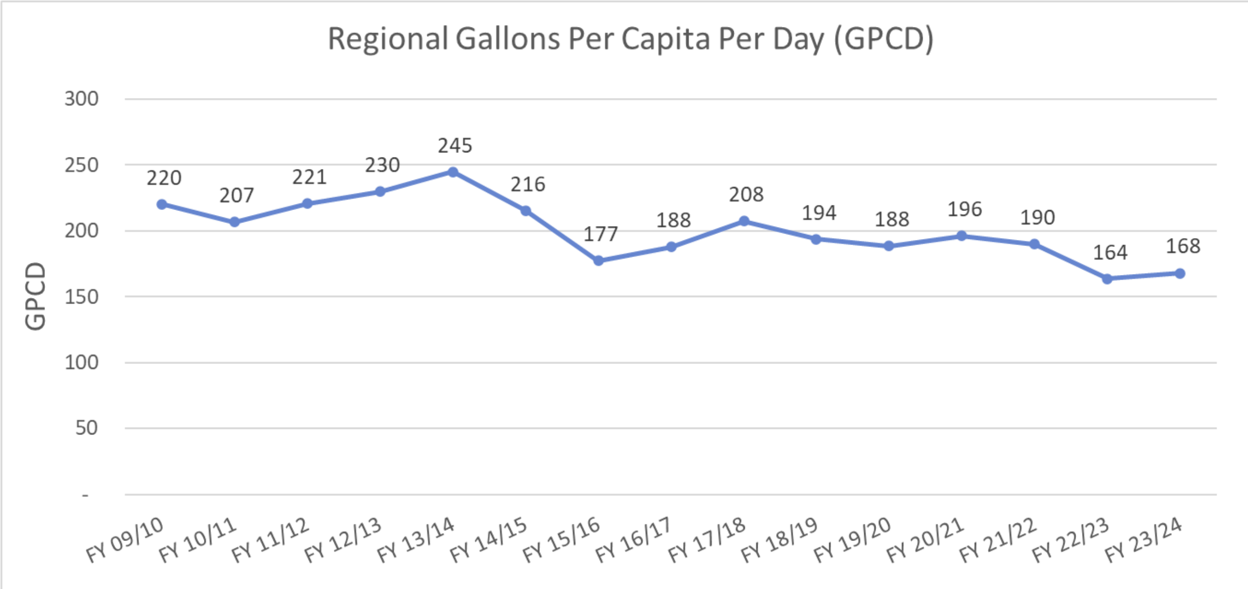


Figure 3 – IEUA Regional GPCD

Regional Water Use Projections

Projected regional water use was calculated as part of the development of the 2020 Urban Water Management Plan (UWMP). IEUA collected each customer agencies' projected water use from their respective UWMP and totaled the projected use to obtain a regional water use projection. Regional water use projections include both potable and non-potable recycled water direct use.

Table 2 – 2020 UWMP Projected Water Demand by Retail Agency (AF)

Retail Agency	2025	2030	2035	2040	2045
Chino	20,843	22,310	23,087	23,963	25,108
Chino Hills	17,120	17,334	17,678	17,725	17,769
CVWD	53,369	58,092	59,650	60,949	60,949
FWC	45,593	46,909	47,665	50,442	51,943
MVWD	14,232	14,564	15,175	15,437	15,706
Ontario	52,550	58,513	63,406	73,668	73,668
Upland	25,328	25,328	25,328	25,328	25,328
Total	**229,035**	**243,050**	**251,989**	**267,512**	**270,471**

Projected water use was also calculated as part of the 2015 Integrated Resources Plan (2015 IRP), which developed a range of demand possibilities to accommodate for future uncertainty caused by the various demand factors including climate change. This analysis came from demand modeling conducted as part of the 2015 IRP and 2015 UWMP, which found that new developments in the region are more water efficient due to changes in the plumbing code, higher density developments with less landscaping, and compliance landscape ordinance requirements set forth in AB1881.

Table 3 – 2015 IRP Demand Forecast (AF)

Urban M&I Forecast	2015	2020	2040
High Forecast	225,000	230,000	267,000
Medium Forecast	225,000	220,100	238,600
Low Forecast	225,000	212,000	217,400

Serving a growing population and increasing resource demand, IEUA predicted a range of future water use in the 2015 IRP, with a bottom projection of stable usage to a high estimate of year over year regional water use increases. Immediately following the 2015 IRP, the region was struck by drought, and water usage drastically dropped. As the drought ended, water usage rose to approximately 200,000 AF a year in FY 17/18 and usage was again projected in the 2020 UWMP, only to have record drought, mandatory water use restrictions, and limited imported water availability impact the region again in FY 22/23, decreasing water usage. With the drought and subsequent imported water allocation over, FY 23/24 saw an increase in regional water usage, from 171,823 AF in FY 22/23 to 177,831 AF in FY 23/24. Despite the increase, regional usage has not returned to pre drought usage levels seen in FY 20/21. Regional water use includes all the utility provided water used in IEUA's service area including supplies imported from MWD, recycled water supplies made available in-region purple pipe direct use, and local water supplies like pumped groundwater and surface water. Regional water use does not include water recharged into the Chino Groundwater Basin as these supplies are stored as a supply for later use and will be counted when the water is pumped out of the Chino Basin.

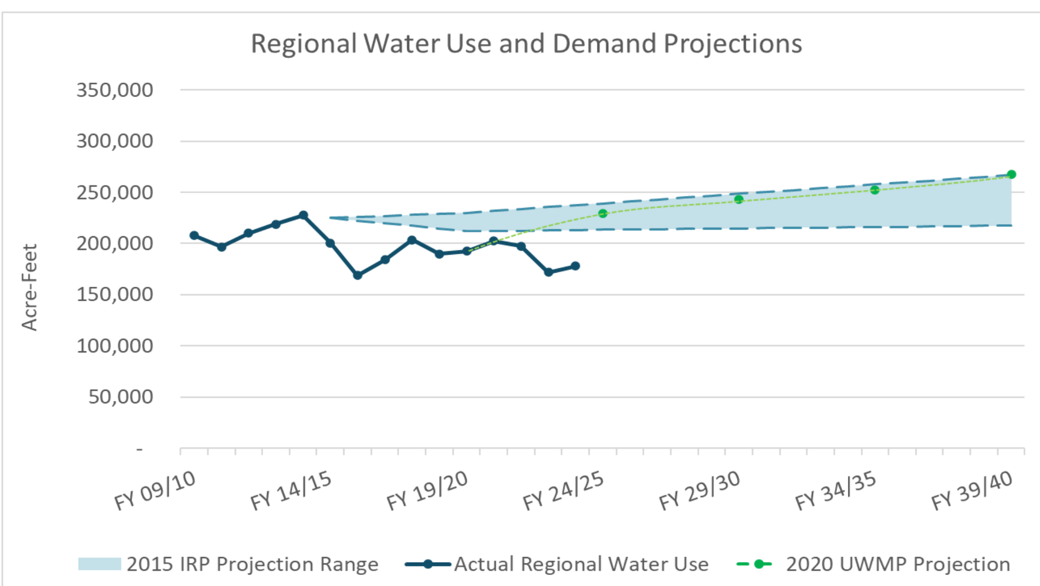


Figure 4 – IEUA Regional Water Use and Projections

The 2020 UWMP and 2015 IRP both project approximately 267,000 AF of annual water demands by FY 39/40. However, IEUA's actual FY 23/24 regional water use of 177,831 AF is well below both 2020 UWMP and 2015 IRP projections for that respective year. A continuous focus on water use efficiency and per capita reductions, as required in SB X7-7, AB 1668, and SB 606 is anticipated to continue to reduce per capita water use and demands. Over the planning horizon, demands are not expected to exceed the peak 10-year demand reached during FY 13/14 despite an increasing population.

SECTION 2: IMPORTED WATER USE

Imported Water Use Summary

IEUA is a member agency of MWD, which is a municipal water district that provides imported water from the northern California State Water Project (SWP) and Colorado River Aqueduct (CRA) to 26 member agencies located in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. IEUA is a SWP dependent MWD agency that currently has no access to CRA supplies and relies solely on SWP for supplies for imported deliveries. When there are excess imported water supplies, MWD stores water in the Chino Basin to offset demands at a later period under the conjunctive use Dry Year Yield (DYY) program. In FY 23/24, IEUA service area imported water deliveries totaled 41,151 AF, which was an approximate a 14% increase from FY 22/23. The increase in imported water deliveries was a direct result of the end of an MWD imported water supply allocation that severely limited IEUA's ability to purchase imported water supplies for its customer retail agencies. With no restrictions on MWD imported water supplies in FY 23/24, the region's utilization of imported water supplies trended slightly upwards.

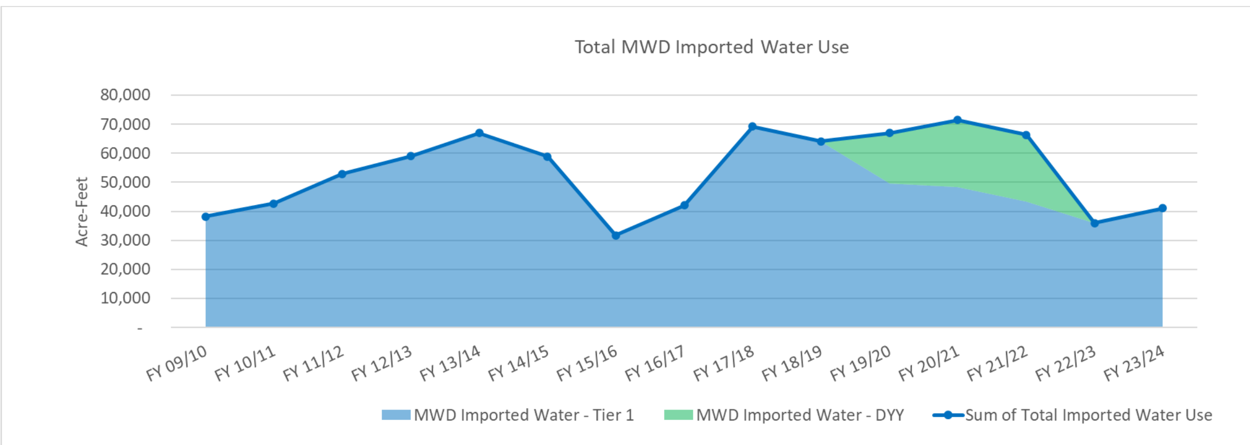


Figure 5 – Imported Water Use

Dry Year Yield

The DYY program provides for the storage of up to 100,000 AF of water in a MWD Storage Account in the Chino Basin pursuant to the Groundwater Storage Program Funding Agreement dated June 2003 and as subsequently amended. Signatories to the Phase I Agreement are:

- Metropolitan Water District of Southern California
- Inland Empire Utilities Agency
- Three Valleys Municipal Water District
- Chino Basin Watermaster

The DYY Agreement allows MWD to request storage of imported water supplies in the Chino Basin, up to 25,000 AF per year or more with the approval of the DYY Operating Committee and Chino Basin Watermaster. The DYY Agreement also allows MWD to request the extraction of up to 33,000 AF per year not to exceed the amount of water stored in MWD's Chino Basin storage account (DYY Account).

From June 2017 through June 2020 a total of 63,308 AF were stored in the DYY Account; 58,372 AF by basin infiltration and 4,936 AF by injection through Monte Vista Water District's Aquifer Storage and Recovery (ASR) wells. From July 2019 through June 2022, Cucamonga Valley Water District and Fontana Water Company extracted 63,308 AF, leaving the DYY Account with a balance of 0 AF. In FY 22/23, DYY storage puts began again and by the end of FY 23/24 storage in the DYY Account included 36,674 AF by basin infiltration, 600 AF by ASR injection, and 2,098 AF by in-lieu storage for a total of approximately 39,372 AF stored in FY 23/24. This increased the DYY Account balance to 49,176 AF by the end of FY 23/24. These stored values are rounded and exclude any evapotranspiration loss.

Table **4 – DYY Account Balance FY 23/24**

DYY Account Balance (June 2017-June 2024)	
"PUTS"	
Recharged Water	104,708 AF
MVWD ASR Injection	5,678 AF
In-Lieu	2,098 AF
"TAKES"	
CVWD	55,808 AF
FWC	7,500 AF
Total	**49,176 AF**

Values based on DYY Certifications through MWD, data may differ from physical recharge activities due to operational losses or changes

Imported Water Use Projections

Demands for MWD Tier 1 imported water brought into the region through IEUA were projected to 2045 as part of the 2020 UWMP. The 2020 UWMP imported water demand projections were supplied by the retail agencies to IEUA. IEUA expects imported demand to increase over the next 25 years based on the 2020 UWMP projections. The forecast presented on Table 5 assumes average weather and precipitation conditions.

Table 5 – Projected Imported Water Use Demands by Retail Agency (AF)

Retail Agency	2025	2030	2035	2040	2045
Chino	5,353	5,353	5,353	5,353	5,353
Chino Hills	7,153	7,367	7,711	7,758	7,802
CVWD	28,369	28,369	28,369	28,369	28,369
FWC	15,000	15,000	15,000	15,000	15,000
MVWD	5,000	5,000	5,000	5,000	5,000
Ontario	11,000	13,000	15,000	17,000	17,000
Upland	5,541	5,541	5,541	5,541	5,541
Total	**77,416**	**79,630**	**81,974**	**84,021**	**84,065**

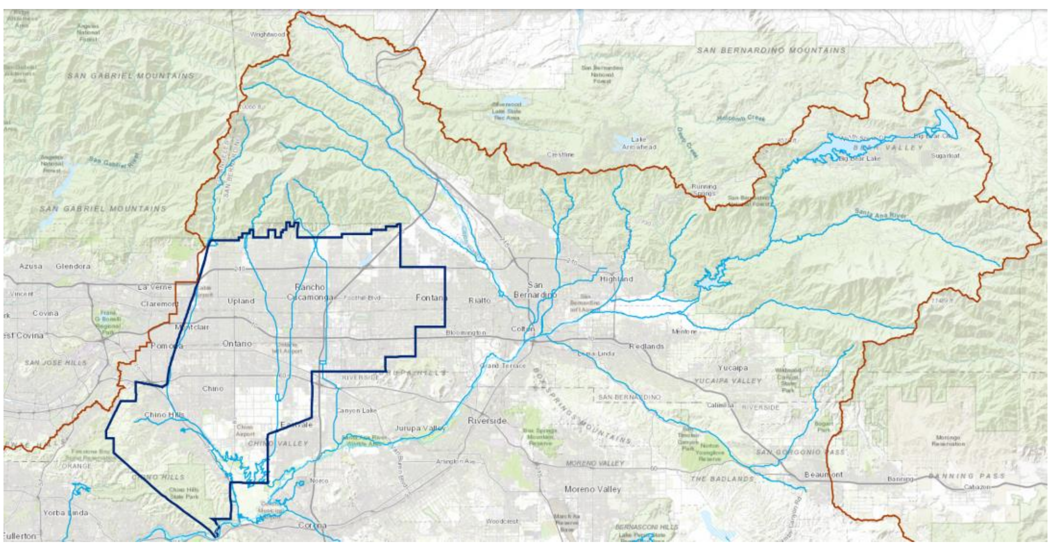
SECTION 3: LOCAL WATER SUPPLIES

Local Supplies

IEUA serves as the MWD member agency providing imported water from MWD to IEUA's customer water retail agencies. Although imported water is an important component of the region's water supply portfolio, IEUA's customer agencies rely most heavily on locally available water supplies such as surface water and groundwater.

Local Surface Water Use

Located within the Santa Ana River Watershed and directly below the eastern San Gabriel Mountain Range, agencies in the norther portion of IEUA's service region have access to surface water flows, weather permitting. As precipitation accumulates in the San Gabriel Mountains, it works its way South via streams and tunnels where it can be collected, treated, and used to supplement water supplies. Surface water availability is heavily influenced by climate patterns. Increased precipitation typically correlates with increased surface water availability, reducing an agency's need to procure water from other sources.



IEUA Service Area | Santa Ana River Watershed | Surface Water

Figure 6 – Local Surface Water Map

FY 23/24 saw a record amount of surface water production. Total surface water production for FY 23/24 was 27,545 AF which represents approximately 98% increase from last year's surface water production of 13,937 AF.

Table 6 – Surface Water Production

Customer Agency	FY 22/23 Surface Water Production (AF)	FY 23/24 Surface Water Production (AF)
CVWD	3,567	5,360
FWC	4,255	12,346
SAWCo	6,115	9,839
Total	**13,937**	**27,545**

Analysis of data from the past 15 years demonstrates a correlation between precipitation levels and surface water production.

A trend of note is that there is often a lag between rainfall events and the observed peak water surface water production. This delay is influenced by various factors, including the size of the watershed, local topography, and soil characteristics. These elements collectively affect the rate at which precipitation translates into increased surface water availability.

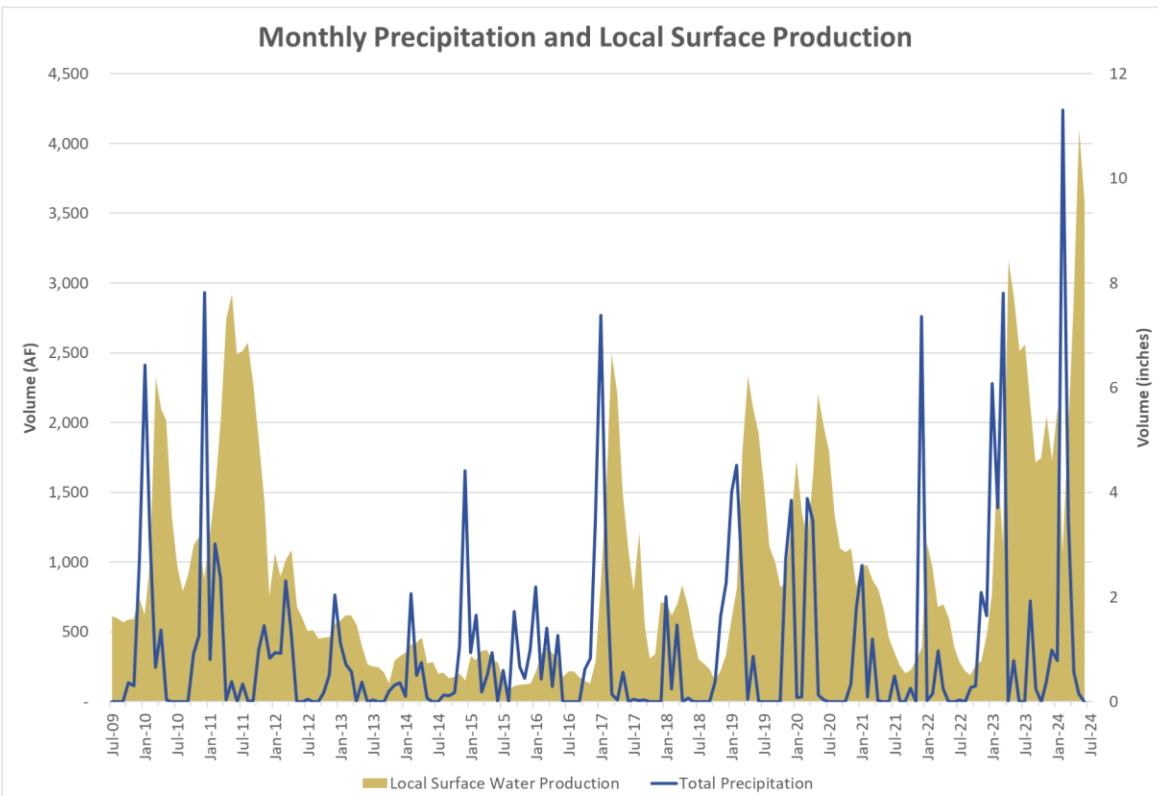


Figure 7 - Precipitation and Local Water Production Trends in Summer and Winter Months

Groundwater Production

IEUA's service area retail agencies primarily rely on groundwater supplies to meet the majority of their service area water demands. IEUA's service area largely overlays the Chino Groundwater Basin, which is managed by the Chino Basin Watermaster and provides local groundwater supplies that can be pumped, filtered, and introduced into the region's water supply. IEUA's retail agencies have access to pumped groundwater from the Chino Basin either directly from their own wells or through the Chino Desalter Authority for those in the southern part of the service area. Portions of the northern part of the service area has access to neighboring groundwater basins including the Lytle Basin, Cucamonga Basin, and Rialto Basin, collectively identified as "Other Groundwater".

FY 23/24 saw a reduction in the amount of groundwater production. Total groundwater production by IEUA customer agencies for FY 23/24 was 90,244 AF, which represents an approximately 13% decrease from last year's groundwater production of 103,819 AF.

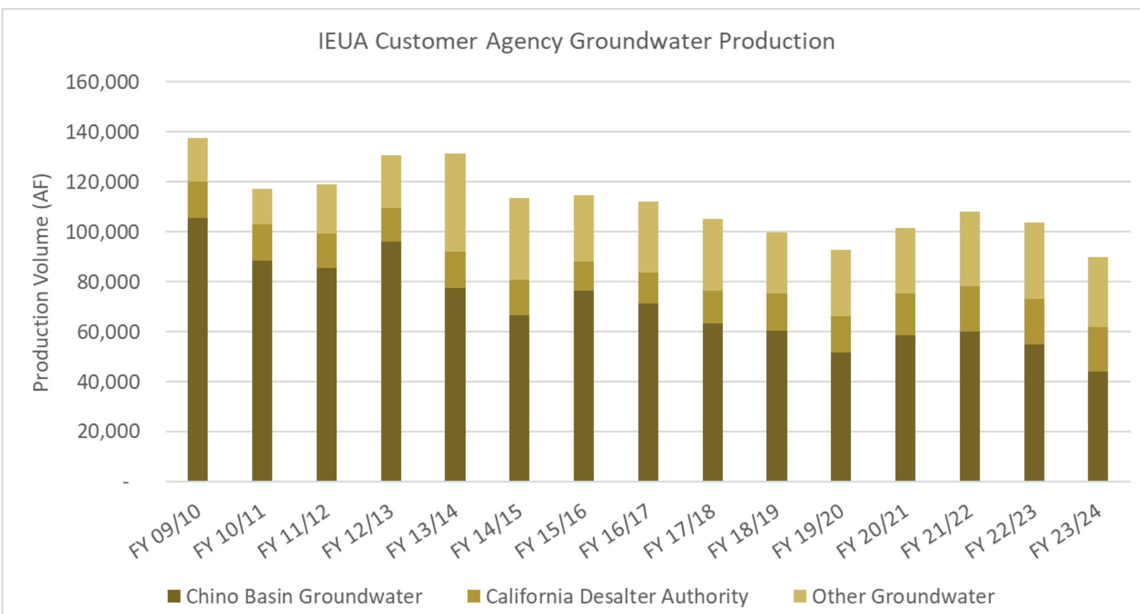


Figure 8 – IEUA Customer Agency Groundwater Production

SECTION 4: WASTEWATER

Wastewater Influent

Water used indoors is returned to IEUA via a 90-mile sanitary sewer system that transports wastewater to one of four Regional Water Recycling Plants. Over the past decade, the IEUA service area has experienced an increase in indoor water use efficiency as a direct result of drought, shifting public policy, more efficient building and plumbing codes, and effective conservation program campaigns. This increased efficiency had decreased the volume of wastewater flows received by IEUA treatment plants from a peak in 2010 until 2017, when a slight upward trend started. The slow increase in wastewater influent is likely due to the regional population continuing to grow despite reduced per person water use.

Senate Bill 606 and Assembly Bill 1668, collectively known as “Making Conservation a California Way of Life” were passed by the State Water Board on July 3, 2024. “Making Conservation a California Way of Life” establishes water use objectives for IEUA’s retail water agencies and is expected to further reduce the amount of water used in the State. This additional conservation has the potential to reduce wastewater influent to IEUA’s Regional Water Recycling Plants as it takes the established 55 GPCD indoor water use Standard and reduces it over time to a final value of 42 GPCD in 2030. IEUA’s estimated indoor water use, based on Department of Water Resources data, ranges from 37 to 60 GPCD depending on the customer agency. Agencies at the upper end of the range have the potential to lower indoor usage to comply with the regulation, reducing influent flow to IEUA.

The combination of an increased population but overall reduced wastewater flow per household has resulted in an increase in the strength of the wastewater coming into IEUA’s treatment facilities. This trend of increased wastewater strength is expected to continue as both the population and regional water efficiency standards continue to increase. Current and future wastewater treatment plant expansions are driven by the increased strength of wastewater flows to the facilities, rather than the volume of flows to the facilities.

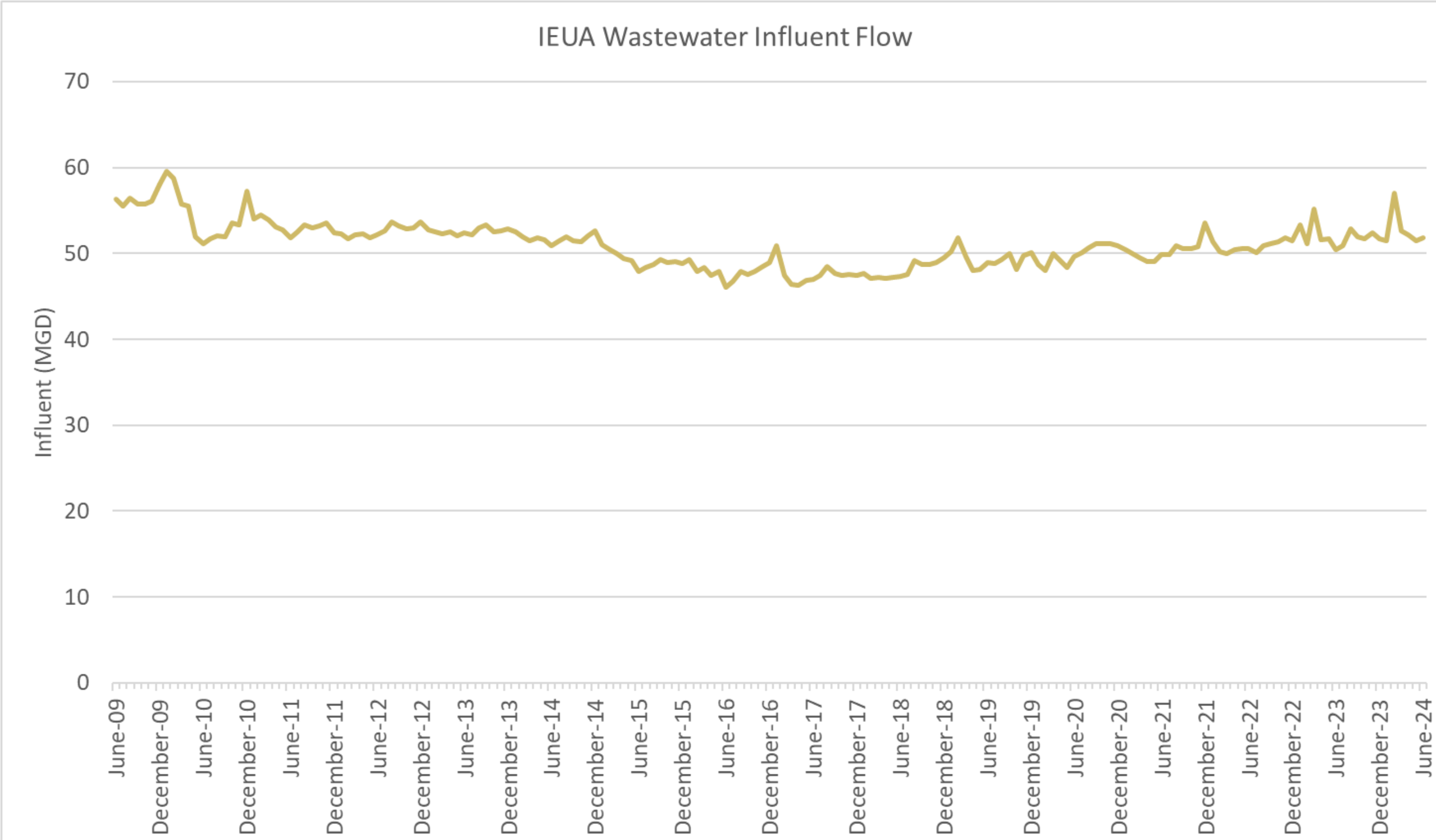


Figure 9 – Historical Regional Influent Flows

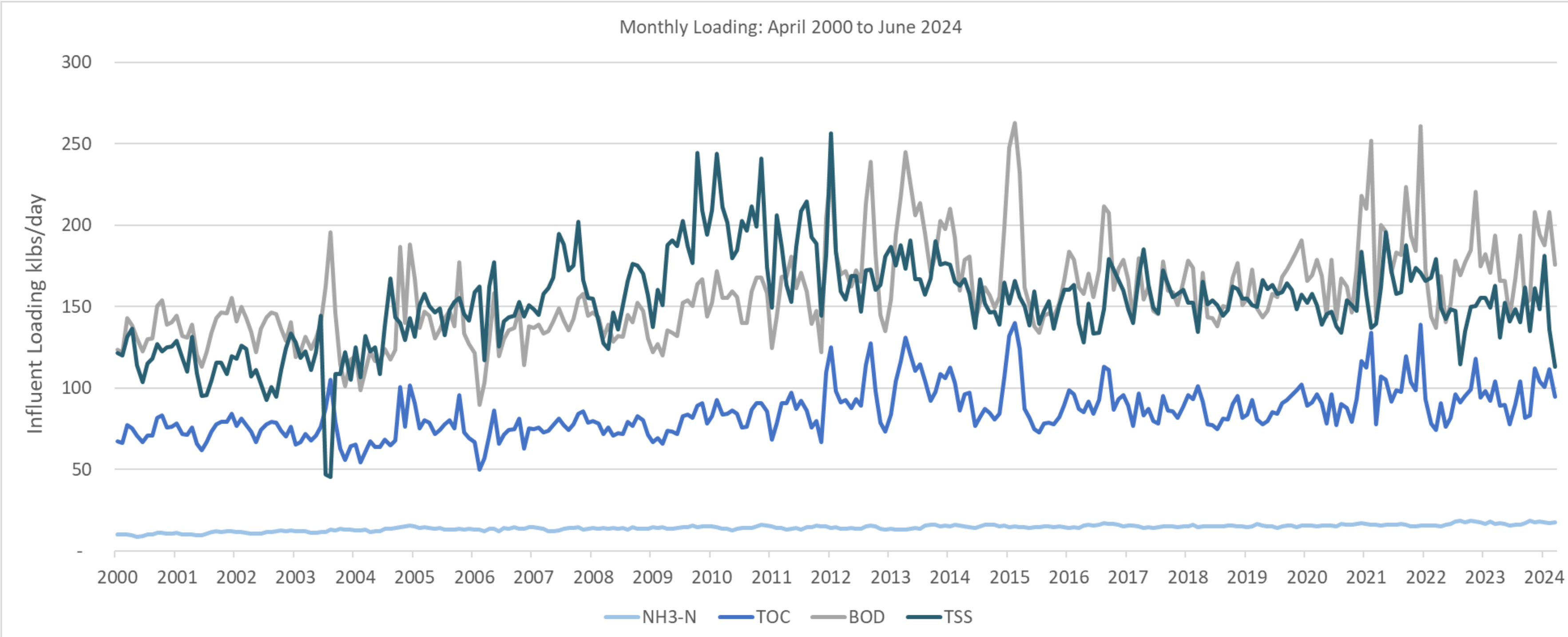


Figure 10 – Influent Loading

Wastewater Effluent

At IEUA's Regional Water Recycling Plants, wastewater is treated to Title 22 recycled water regulations set by the State Division of Drinking Water and distributed for agricultural, municipal irrigation, industrial uses, and for groundwater replenishment. A portion of that recycled water is dechlorinated and used for environmental flows in the Santa Ana River. Environmental flows peak in the winter when demand for recycled water is low and decline in the summer when demands for recycled water increase.

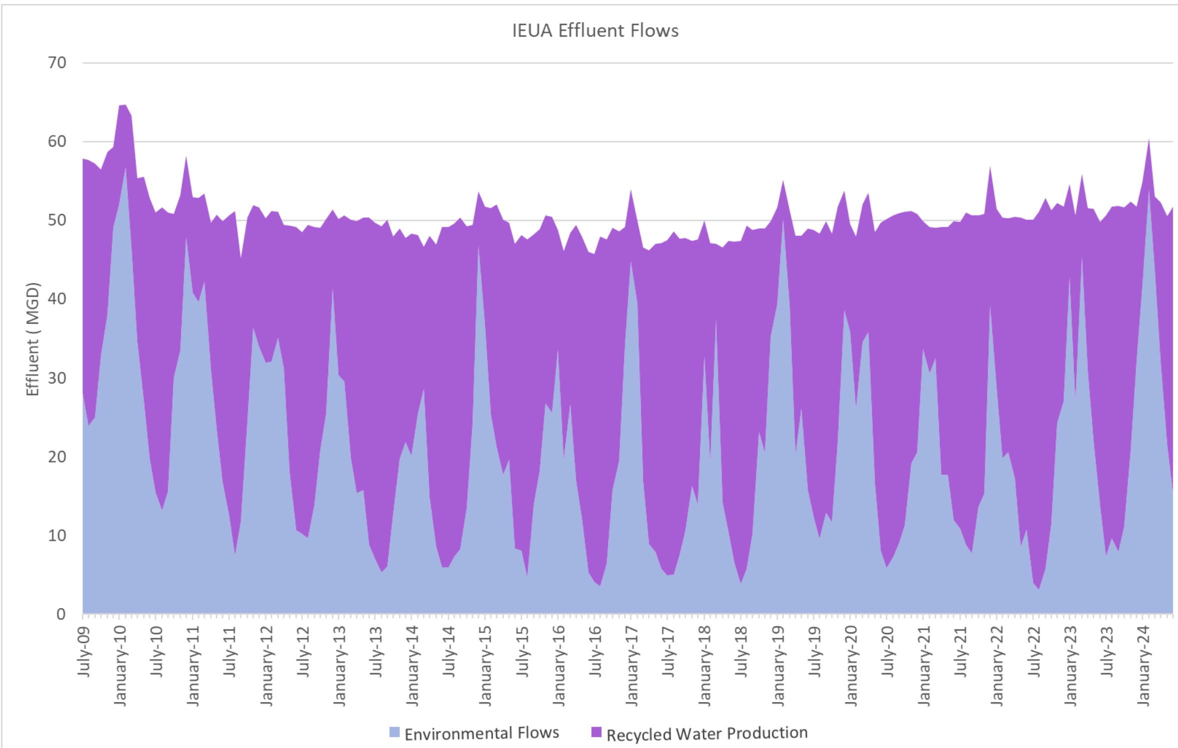


Figure 11 – IEUA Monthly Effluent

Equivalent Dwelling Units

An Equivalent Dwelling Unit (EDU) is a measure of wastewater flow equivalent in quantity and strength to the daily flow of an average residential household. New EDU connection activity increased in FY 23/24 with the addition of 3,488 connection EDUs to the region. The additional connection EDUs added in FY 23/24 were 4,290 EDUs lower than the SCAs projections of 7,778 EDUs and 512 EDUs less than the IEUA Budgeted Projections of 4,000 connection EDUs. Two sets of projections exist to allow for conservative estimates on both the flow and financial aspects of EDUs. The SCAs provide growth projections, which are considered when determining plant treatment capacity needs. Budgeted projections on the other hand are used by IEUA to project future funding needs and are held conservatively low. Moving forward, IEUA will continue working with the SCAs to improve growth models and enhance projection reliability.

Table 7 – Historical EDU Activity

Building Activity for Last Five Fiscal Years (FY 18/19 through FY 23/24)			
Year	Building Activity (EDUs)	Budgeted Projections (EDUs)	SCAs Projections (EDUs)
FY 18/19	3,459	4,000	6,149
FY 19/20	3,435	4,000	6,390
FY 20/21	5,281	4,000	9,013
FY 21/22	4,767	4,000	9,144
FY 22/23	3,494	4,000	8,059
FY 23/24	3,488*	4,000	7,778

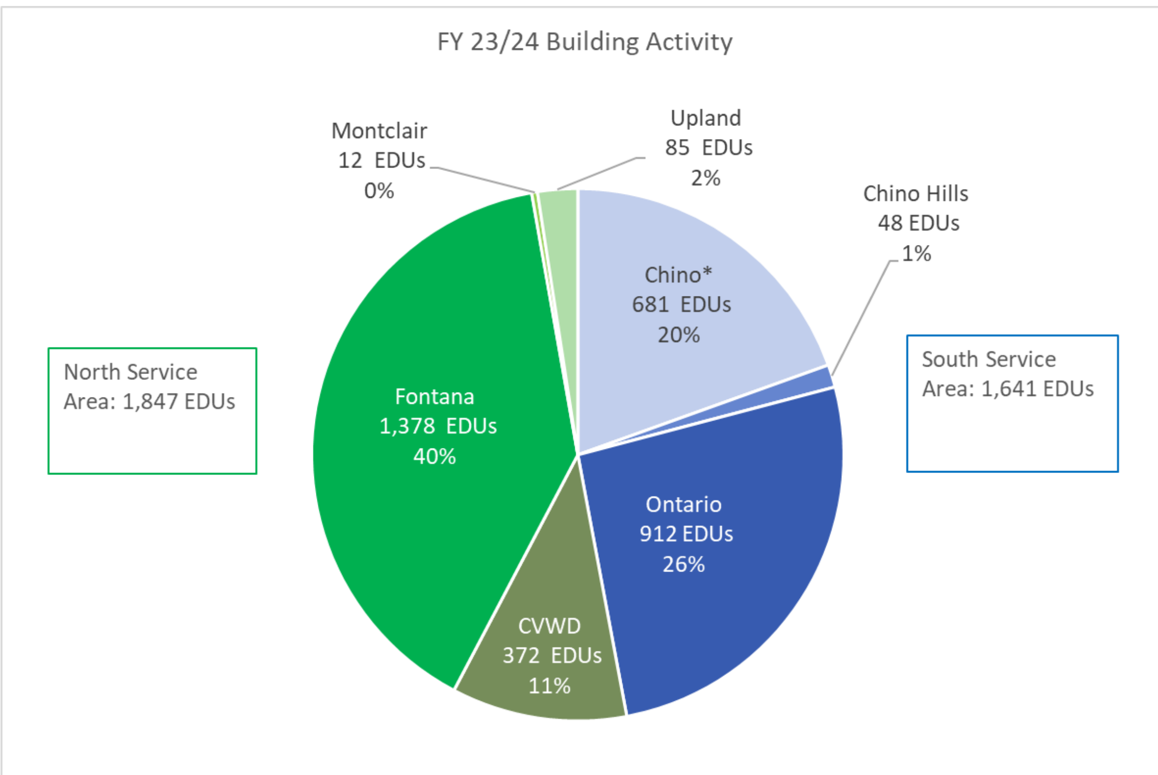


Figure 12 – Building Activity

**Value is draft and still subject to revision*

Wastewater Projections

Wastewater flow forecasts are conducted annually and are based on four main components: (1) historical wastewater flow trends; (2) per dwelling unit wastewater generation factors, based on the 2015 Wastewater Facilities Master Plan Update (WWFMPU) projections; (3) actual influent flows measured at the treatment plants; and (4) expected future growth numbers provided by the SCAs. These projections are used to determine future demands on the Agency's facilities and help anticipate the need for modifications to treatment plants and solids handling facilities.

The WWFMPU identified the projected flows to the treatment plants in 2035 through 2060. The WWFMPU estimates that there will be a regional flow of 73.5 MGD by 2035 and an ultimate/build-out flow of 80 MGD by 2060. The increase in flows implies that there will be facility expansions over the next 20 years.

Each year, IEUA and the SCA's update the 10-year demand forecast. The results of the 10-year capacity demand forecast survey are summarized in Figure 13 below. Approximately 63% of the projected growth over the next ten years is anticipated to be from new development in the City of Ontario and City of Fontana service areas; building activity is projected to be approximately 84% residential and 16% commercial/industrial.

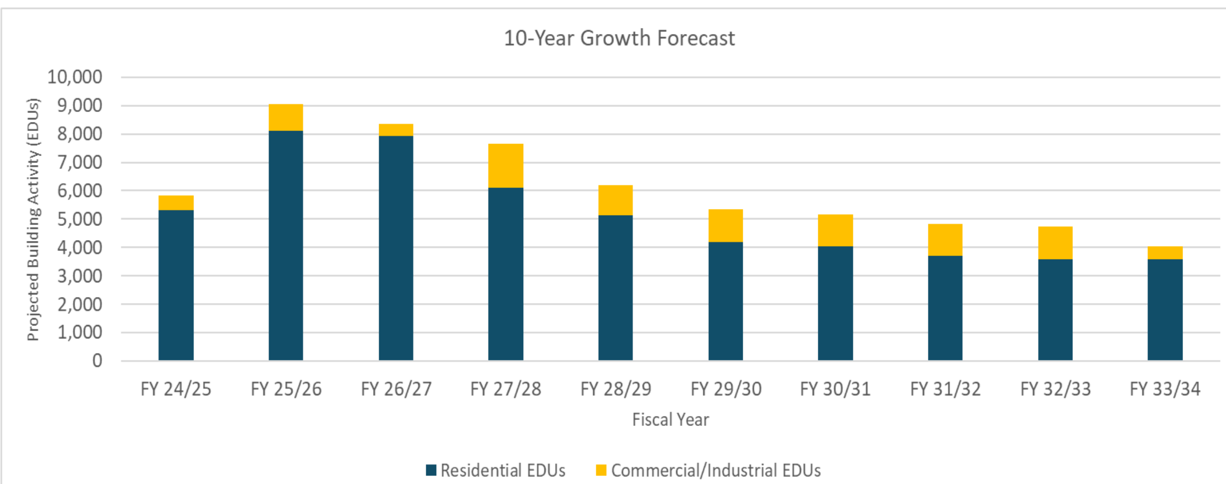


Figure 13 – 10-Year Growth Forecast

SECTION 5: RECYCLED WATER

Current Recycled Water Use

Total recycled water use in FY 23/24 was 30,455 AF (16,604 AF of direct use and 13,851 AF for groundwater recharge). This high recycled water utilization can at least partially be attributed to the San Bernardino Avenue Lift Station and the Montclair Lift Station. The Montclair Lift Station pumps wastewater from portions of Montclair, Upland, and Chino to IEUA's RP-1 and CCWRF treatment plants. The San Bernardino Ave Pump Station pumps a portion of the flow from the City of Fontana to IEUA's RP-4 treatment plant. Together, these lift stations help shift flows that would naturally flow from one portion of the service area to a different treatment plant to balance flows and keep water in the northern portion of the service area. This shift in flows allows IEUA to maximize the potential for recycled water use, especially as the majority of recycled water groundwater recharge activity occurs in the northern portion of the service area. These lift stations also increase regional system flexibility and allow the treatment plants to operate as an interconnected system.

Recycled Water Direct Use

IEUA is the wholesale recycled water provider to the SCAs which work as or with retail agencies to directly serve customers. FWC and MVWD are the water retailers in the Cities of Fontana and Montclair, respectively, but do not provide wastewater to IEUA. FWC and MVWD retail recycled water obtained from their overlying cities. San Bernardino County is currently a direct use customer of IEUA based on long standing historical contracts. Total recycled water direct use within the region was 16,604 AF in FY 23/24.

Table 8 – Recycled Water Demand by Agency for FY 23/24

Retail Agency	Direct Use (AF)	Percent of Direct Demand
Chino	3,970	23.9%
Chino Hills	992	6.0%
CVWD	1,014	6.1%
Fontana/FWC	293	1.8%
Montclair/MVWD	264	1.6%
Ontario	9,180	55.3%
Upland	525	3.2%
IEUA	155	0.9%
San Bernardino County	211	1.3%
Total	**16,604**	**100%**

Recycled Water Direct Use Projections

Direct recycled water use in the IEUA service area has been projected out to 2040 in both the 2020 UWMP and as part of the Recycled Water Demand Forecast Technical Memorandum (Demand Forecast). The 2020 UWMP recycled water projections were supplied by the retail agencies to IEUA as part of the 2020 UWMP. The Demand Forecast recycled water projections utilized land use-based demand modeling completed by IEUA in conjunction with the retail agencies in 2015 and were subsequently updated in 2021. Projections for recycled water direct use will be revised as part of IEUA's Recycled Water Program Strategy update.

Table 9 – Projected Recycled Water Direct Use Demand by Retail Agency (AF)

Retail Agency	Projection Source	2025	2030	2035	2040
Chino	2020 UWMP	4,500	4,500	4,000	3,800
	Demand Forecast	5,498	5,780	5,961	6,178
Chino Hills	2020 UWMP	1,609	1,609	1,609	1,609
	Demand Forecast	1,858	2,047	2,047	2,626
CVWD	2020 UWMP	1,800	2,000	2,000	2,000
	Demand Forecast	2,032	2,288	2,513	2,674
FWC	2020 UWMP	1,000	1,500	2,000	2,500
	Demand Forecast	994	1,392	1,911	2,000
MVWD	2020 UWMP	1,100	1,100	1,100	1,100
	Demand Forecast	359	363	396	398
Ontario	2020 UWMP	12,168	13,465	14,330	16,059
	Demand Forecast	9,188	10,383	10,814	12,820
Upland	2020 UWMP	703	703	703	703
	Demand Forecast	940	1,022	1,062	1,158
Total	**2020 UWMP**	**22,880**	**24,877**	**25,742**	**27,771**
	Demand Forecast	**20,869**	**23,275**	**24,704**	**27,854**

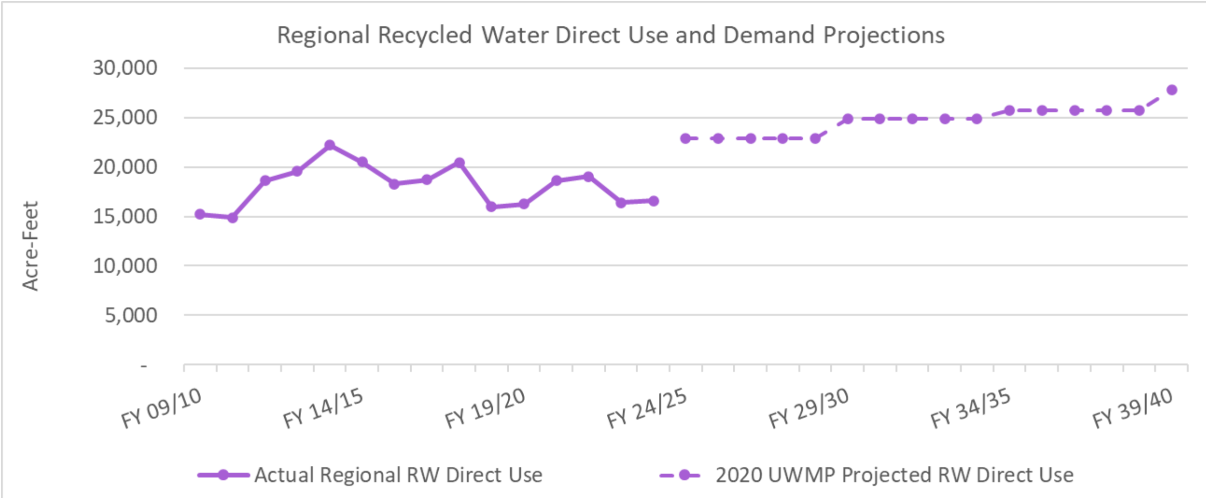


Figure 14 – FY 23/24 Recycled Water Direct Use and Projections

Recycled Water Groundwater Recharge

Other than direct use, recycled water is also used as a supply to recharge the Chino Groundwater Basin. Recycled water groundwater recharge deliveries were 13,851 AF in FY 23/24, down 6.3% from FY 22/23 recycled water groundwater recharge deliveries of 14,785 AF. Recycled water groundwater recharge volumes were lower during the year primarily due to heavy precipitation. Stormwater groundwater recharge takes priority over recycled water supplies, so frequent and heavy rainfall fills the recharge basins with stormwater instead of recycled water supplies. Stormwater is prioritized due to the basins' primary function to prevent flooding in the event of heavy precipitation. Recycled water is recharged by IEUA on behalf of its SCAs and retail water agencies. Details about groundwater recharge can be found in Section 6 below.

Table 10 – FY 23/24 Recycled Groundwater Recharge Deliveries by Agency

Retail Agency	Recycled Water Recharge (AF)
Chino	1,523
Chino Hills	1,198
CVWD	3,254
Fontana/FWC	2,751
Montclair/MVWD	561
Ontario	3,298
Upland	1,266
Total	**13,851**

Recycled Water Land Use Change

Of the ways in which recycled water beneficial use is maximized within the region has changed as the Inland Empire has developed. In FY 13/14, recycled water utilization hit its peak at 38,251 AF with agriculture using 29%, landscape irrigation using 31%, groundwater recharge using 36%, and commercial, industrial, and construction using 5%. Ten years later, in FY 23/24, total recycled water utilization was 30,455 AF, with agriculture using 21%, landscape irrigation using 26%, groundwater recharge using 45%, and commercial, industrial, and construction using 8%. The shift away from agricultural and towards groundwater recharge is due to the rapid development of what was previously farmland within the region. Shrinking agricultural needs and increasingly efficient landscaping has provided the opportunity to expand the groundwater recharge program, supplementing local water supplies through indirect potable reuse.

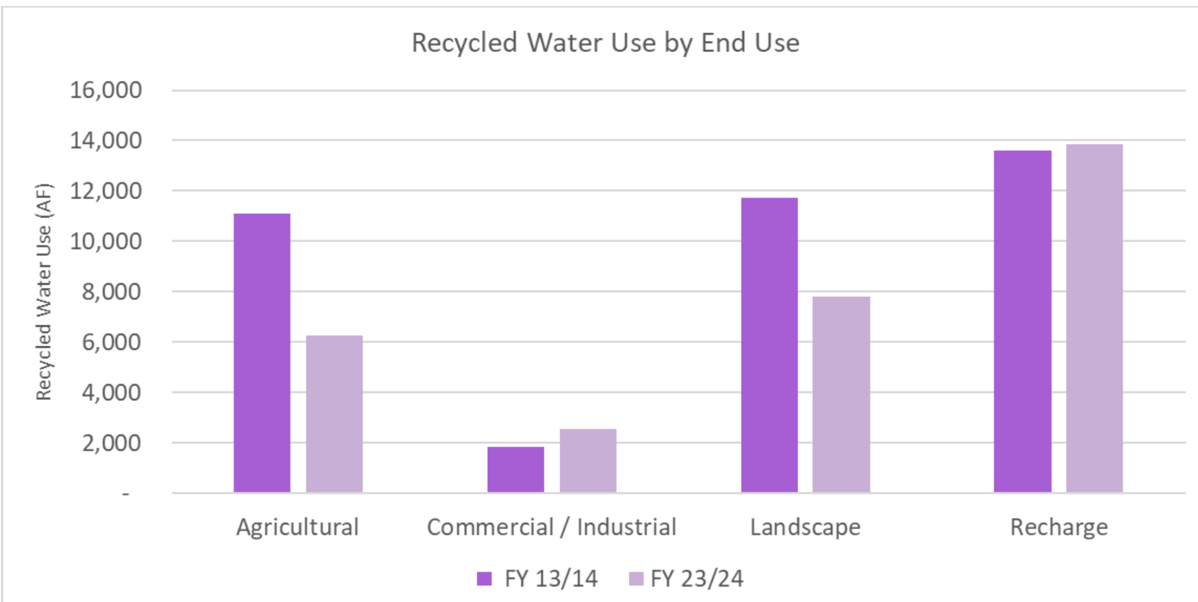


Figure 15 – Recycled Use Water by End Use

SECTION 6: GROUNDWATER RECHARGE DELIVERIES

Historical Groundwater Recharge Deliveries

The Chino Basin is one of the largest groundwater basins in Southern California containing approximately 5,000,000 AF of water with an un-used storage capacity of approximately 1,000,000 AF. Groundwater from the Chino Basin accounted for approximately 25% of FY 23/24, regional water supplies used. The Chino Basin is an adjudicated basin and has been overseen by the Chino Basin Watermaster (CBWM) since 1978. The basin is dependent on rainfall and supplemental sources for recharge.

IEUA, in coordination with CBWM, the Chino Basin Water Conservation District (CBWCD), and San Bernardino County Flood Control District (SBCFCD) capture water for replenishment. Sources include recycled water from IEUA's regional water recycling plants, stormwater and dry weather flow capture, and imported water recharge.

Recharged imported water is either purchased by a local agency, requested by the Chino Basin Watermaster to maintain safe operating yield of the basin, or stored as part of the Chino Basin Dry-Year Yield (DYY) Program. Total groundwater recharge delivered to the Chino Basin in FY 22/23 was 73,729 AF. Groundwater recharge deliveries are water delivered to recharge facilities and do not take into consideration evaporative or other losses that may occur prior to recharge.

Table 11 – FY 23/24 Groundwater Recharge Sources

Groundwater Recharge Source	Recharge (AF)
Recycled Water	13,851
Stormwater & Dry Weather Flow	15,141
Imported Water	44,737
*DYY Puts**	*36,674*
*Other***	*8,063*
Total	**73,729**

**DYY Puts Exclude aquifer storage and recovery and In-Lieu*

*** Supplies recharged that were delivered from outside IEUA's service area not including IEUA purchases. Includes water recharged on behalf of CVWD, SAWCo, Three Valley Municipal Water District, and Western Municipal Water District.*

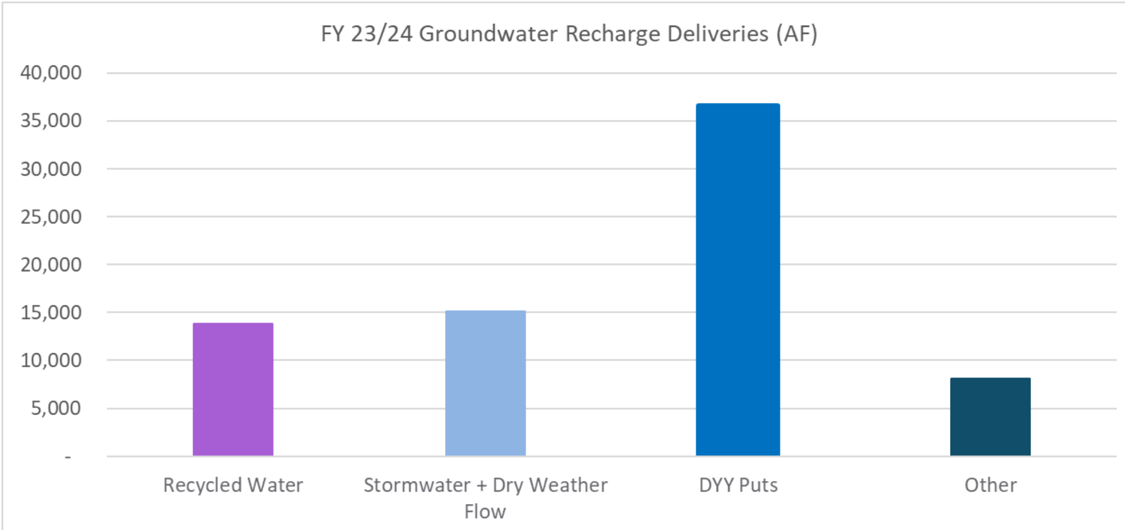


Figure 16 – FY 22/23 Groundwater Recharge Deliveries

FY 23/24 saw a large increase in recharge due to the DYY program, which experienced a full fiscal year of recharge activities. Heavy winter rainfall and the resulting stormwater flows also added significantly to the recharge program. Other recharge activity for the year was higher than normal and included IEUA recharging not only on behalf of CVWD and SAWCo, but Three Valley Municipal Water District, and Western Municipal Water District as well.

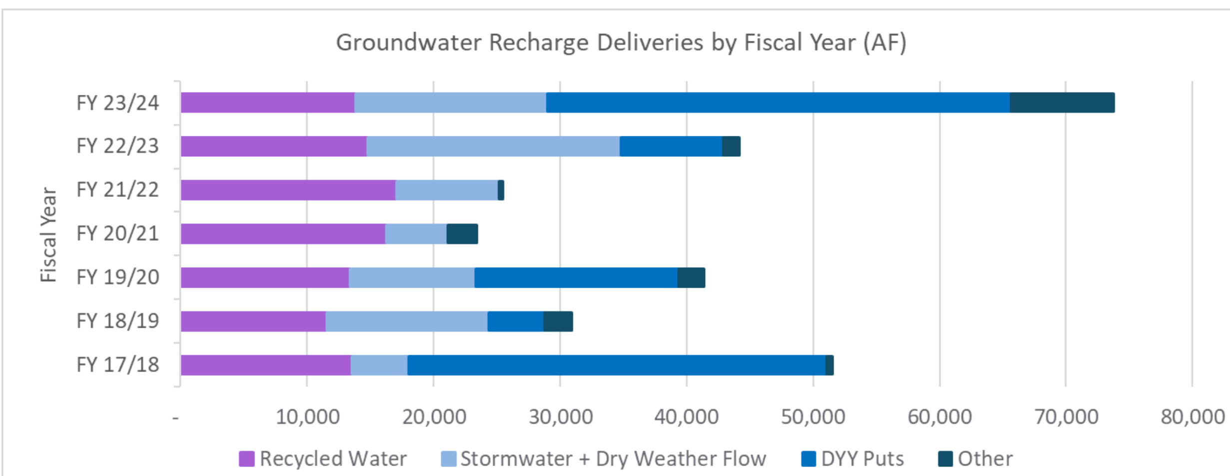


Figure 17 – Historical Groundwater Recharge Deliveries

Projected Groundwater Recharge Deliveries

It is projected that future groundwater recharge delivery projections will remain at an estimated 16,420 AF per year of recycled water as outlined in the Chino Basin Watermaster's 2023 Recharge Master Plan Update. Due to the unpredictability of storm events and variability of imported water for groundwater recharge in the IEUA region, the five-year average was taken to determine the projected recharge of stormwater and dry weather flows as well as imported water. Table 12 below shows the projected recharge for recycled water, stormwater and dry weather flows, and imported water. The imported groundwater projections do not include DYY program values.

Table 12 – Projected Groundwater Recharge Deliveries by Source

Groundwater Recharge Source	Projected Groundwater Recharge (AF)
Recycled Water	16,420
Stormwater + Dry Weather Flow	11,631
Imported Water (No DYY)	2,737
Total	30,788

SECTION 7: ENVIRONMENTAL FLOWS

Santa Ana River Regional Base Flow Obligation

The Santa Ana River has a regional base flow obligation established by past judgment. The base flow obligation is a joint obligation between IEUA and Western Municipal Water District (Western) to ensure an average annual adjusted base flow of 42,000 AF at Prado(Dam). The base flow is the portion of the total flow remaining after subtracting storm flow, non-tributary flow, exchange water purchased by Orange County Water District, and other flows as determined by the Santa Ana River Watermaster. IEUA and Western each year shall be responsible for not less than 37,000 AF of base flow at Prado, plus one-third of any cumulative debit; provided however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or any year prior to 1986 whenever the cumulative credit exceeds 30,000 AF, said minimum shall be 34,000 AF. In Water Year (WY) 2022/2023, base flow at Prado Dam was 89,199 AF and the cumulative credit was 3,896,258 AF. More information about the Santa Ana River baseflow obligation can be found in the Santa Ana River Watermaster Annual Report.

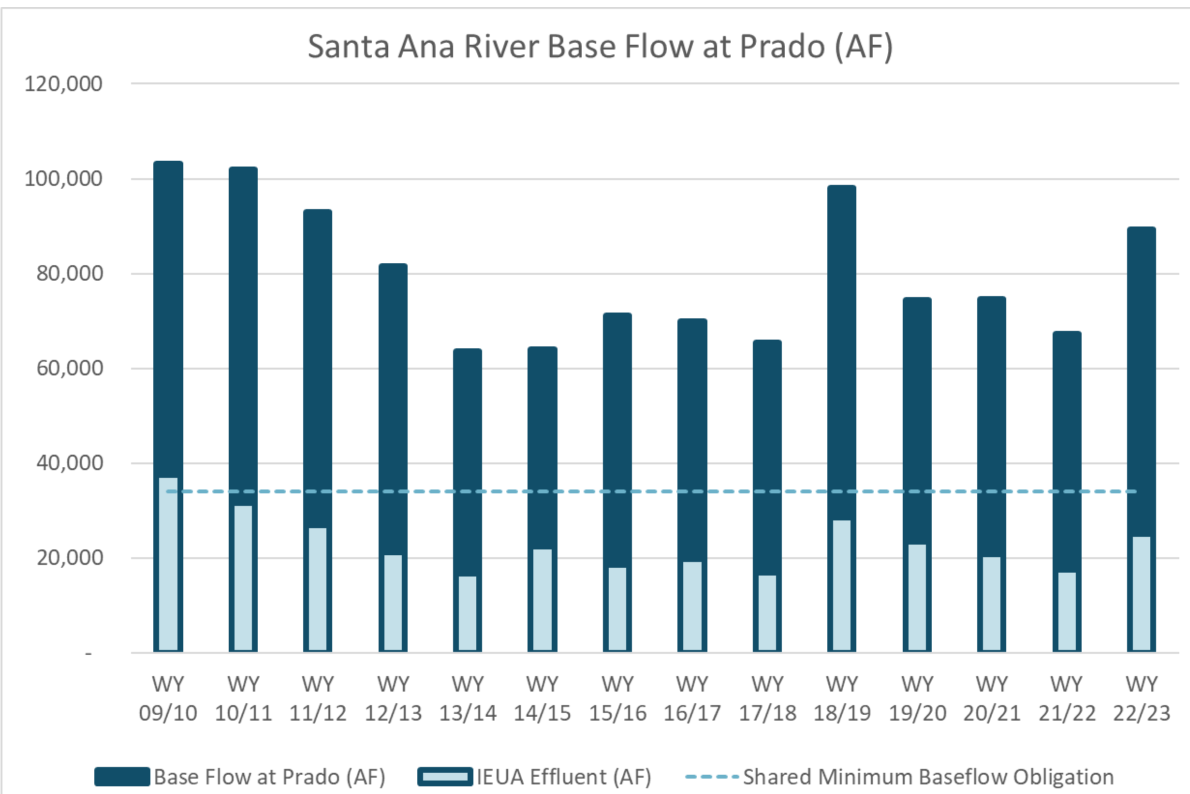


Figure 18 – Santa Ana River Base Flow at Prado

APPENDIX A: ACRONYMS

AF: Acre Feet

ASR: Aquifer Storage and Recovery

CBWCD: Chino Basin Water Conservation District

CBWM: Chino Basin Water Master

CDA: California Desalter Authority

CVWD: Cucamonga Valley Water District

DYY: Dry Year Yield Program

EDU: Equivalent Dwelling Unit

FWC: Fontana Water Company

IEUA: Inland Empire Utilities Agency

IRP: 2015 Integrated Resource Plan

MEUs: Meter Equivalent Units

MGD: Million Gallons per Day

MVWD: Monte Vista Water District

MWD: Metropolitan Water District of Southern California

SPAR: Strategic Planning Annual Report

SCAs: Sewer Contracting Agencies

SAR: Santa Ana River

SAWCo: San Antonio Water Company

SBCFCD: San Bernardino County Flood Control District

UWMP: Urban Water Management Plan

WVMWD: West Valley Municipal Water District

WWFMPU: 2015 Wastewater Facilities Master Plan Update

APPENDIX B: WATER USE TABLES

		Total IEUA Service Area Water Use By All Member Agencies									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	4,908	6,050	5,463	4,533	3,296	2,677	1,828	2,103	2,774	2,001	2,563	2,955	***41,151***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	2,189	2,699	2,315	1,980	1,638	1,122	625	301	297	590	1,124	1,726	***16,604***
Subtotal		***7,097***	***8,748***	***7,778***	***6,513***	***4,934***	***3,800***	***2,453***	***2,403***	***3,071***	***2,590***	***3,687***	***4,681***	***57,756***
Production	Chino Groundwater	5,240	3,904	3,580	4,744	3,919	3,887	3,411	2,268	1,996	2,651	3,626	4,840	***44,065***
	Other Groundwater	3,830	3,497	2,812	2,008	1,632	1,702	1,408	1,740	1,909	1,847	2,324	3,284	***27,994***
	Local Surface Water	2,559	2,148	1,713	1,744	2,050	1,727	2,117	1,066	1,897	2,857	4,099	3,568	***27,545***
Subtotal		***11,629***	***9,550***	***8,106***	***8,496***	***7,601***	***7,315***	***6,937***	***5,074***	***5,801***	***7,355***	***10,049***	***11,692***	***99,604***
Purchases	CDA	1,703	1,683	1,636	1,646	1,582	1,272	1,342	1,180	1,529	1,606	1,574	1,433	***18,185***
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	379	435	419	368	232	191	10	67	11	25	461	518	***3,115***
	SAWCo	1,285	1,178	806	729	602	646	521	306	466	557	708	899	***8,704***
	SBVMWD	343	370	374	383	374	365	47	26	91	131	-	13	***2,518***
	West End	88	91	298	332	346	190	95	95	122	100	162	175	***2,093***
Subtotal		***3,797***	***3,757***	***3,533***	***3,458***	***3,137***	***2,665***	***2,015***	***1,673***	***2,219***	***2,420***	***2,904***	***3,038***	***34,615***
Sales	Chino Hills	(629)	(609)	(594)	(543)	(407)	(366)	(185)	(117)	(136)	(165)	(461)	(518)	***(4,728)***
	Ontario	(44)	(44)	(42)	(46)	(39)	(42)	(34)	(33)	(41)	(36)	(41)	(44)	***(485)***
	MVWD	(50)	(49)	(48)	(52)	(44)	(47)	(38)	(37)	(46)	(40)	(46)	(129)	***(626)***
	Upland	(1,241)	(1,135)	(762)	(639)	(563)	(605)	(526)	(280)	(482)	(529)	(688)	(855)	***(8,304)***
Subtotal		(1,963)	(1,836)	(1,447)	(1,279)	(1,053)	(1,059)	(783)	(466)	(704)	(771)	(1,236)	(1,546)	***(14,144)***
Total		***20,560***	***20,219***	***17,970***	***17,188***	***14,618***	***12,720***	***10,621***	***8,684***	***10,388***	***11,594***	***15,405***	***17,865***	***177,831***

		Total IEUA Service Area Water Use By Chino								(Acre Feet)		FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	482	475	462	346	231	179	167	88	101	122	217	285	***3,156***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	513	753	498	671	508	230	108	37	27	105	201	319	***3,970***
Subtotal		***994***	***1,228***	***960***	***1,017***	***739***	***409***	***275***	***125***	***128***	***227***	***419***	***604***	***7,126***
Production	Chino Groundwater	642	575	437	518	482	465	390	349	365	411	579	643	***5,858***
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***642***	***575***	***437***	***518***	***482***	***465***	***390***	***349***	***365***	***411***	***579***	***643***	***5,858***
Purchases	CDA	456	460	474	458	443	279	389	322	427	462	442	456	***5,066***
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***456***	***460***	***474***	***458***	***443***	***279***	***389***	***322***	***427***	***462***	***442***	***456***	***5,066***
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***2,092***	***2,263***	***1,871***	***1,994***	***1,664***	***1,153***	***1,055***	***795***	***920***	***1,101***	***1,439***	***1,704***	***18,050***

		Total IEUA Service Area Water Use By Chino Hills								(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	200	200	120	100	90	90	100	100	100	100	100	200	***1,500***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Recycled (Direct Use)	124	175	137	116	100	63	24	10	9	20	83	131	***992***
Subtotal		***324***	***375***	***257***	***216***	***190***	***153***	***124***	***110***	***109***	***120***	***183***	***331***	***2,492***
Production	Chino Groundwater	250	174	175	175	175	175	175	50	125	140	-	-	***1,614***
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal		***250***	***174***	***175***	***175***	***175***	***175***	***175***	***50***	***125***	***140***	**-**	**-**	***1,614***
Purchases	CDA	449	392	383	387	374	327	323	271	360	385	388	400	***4,438***
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	MVWD	379	435	419	368	232	191	10	67	11	25	461	518	***3,115***
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	West End	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal		***827***	***827***	***802***	***754***	***607***	***518***	***333***	***337***	***371***	***410***	***849***	***918***	***7,553***
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total		***1,401***	***1,375***	***1,234***	***1,145***	***972***	***846***	***632***	***497***	***605***	***669***	***1,032***	***1,249***	***11,658***

		Total IEUA Service Area Water Use By CVWD (Acre Feet) FY 23/24												
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	2,289	2,425	1,916	1,384	927	478	-	668	942	886	942	999	***13,855***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Recycled (Direct Use)	143	126	114	101	92	54	35	13	34	56	121	126	***1,014***
Subtotal		***2,432***	***2,550***	***2,030***	***1,485***	***1,019***	***532***	***35***	***681***	***976***	***942***	***1,063***	***1,125***	***14,869***
Production	Chino Groundwater	1,067	932	1,037	1,397	1,265	1,450	1,253	411	226	589	1,090	1,904	***12,622***
	Other Groundwater	580	451	394	379	479	502	596	593	661	643	667	641	***6,587***
	Local Surface Water	630	544	473	481	484	316	436	92	269	367	672	598	***5,360***
Subtotal		***2,277***	***1,927***	***1,905***	***2,257***	***2,228***	***2,268***	***2,284***	***1,096***	***1,156***	***1,600***	***2,429***	***3,143***	***24,569***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	West End	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	**-**
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total		***4,709***	***4,477***	***3,934***	***3,742***	***3,247***	***2,800***	***2,319***	***1,777***	***2,132***	***2,542***	***3,493***	***4,268***	***39,438***

		Total IEUA Service Area Water Use By FWC (Acre Feet) FY 23/24												
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	211	576	699	664	707	776	847	637	934	124	0	-	***6,175***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	54	43	37	29	20	13	6	1	3	11	30	45	***293***
Subtotal		***265***	***619***	***736***	***693***	***727***	***789***	***853***	***639***	***936***	***135***	***30***	***45***	***6,469***
Production	Chino Groundwater	495	217	358	928	335	85	50	221	61	54	20	37	***2,862***
	Other Groundwater	1,956	1,790	1,639	899	633	548	275	557	619	585	761	1,591	***11,854***
	Local Surface Water	903	769	381	473	969	913	1,171	392	645	1,435	2,326	1,970	***12,346***
Subtotal		***3,353***	***2,777***	***2,379***	***2,300***	***1,937***	***1,546***	***1,496***	***1,170***	***1,326***	***2,074***	***3,107***	***3,598***	***27,063***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	343	370	374	383	374	365	47	26	91	131	-	13	***2,518***
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***343***	***370***	***374***	***383***	***374***	***365***	***47***	***26***	***91***	***131***	-	***13***	***2,518***
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***3,961***	***3,766***	***3,489***	***3,377***	***3,038***	***2,700***	***2,395***	***1,834***	***2,354***	***2,341***	***3,137***	***3,656***	***36,049***

		Total IEUA Service Area Water Use By MVWD								(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	452	1,249	1,197	1,136	718	572	273	219	275	276	458	457	*7,280*
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	46	45	28	30	24	20	5	3	5	12	19	26	*264*
Subtotal		***497***	***1,294***	***1,226***	***1,166***	***741***	***592***	***278***	***222***	***279***	***288***	***476***	***483***	***7,543***
Production	Chino Groundwater	1,003	174	160	185	344	419	455	321	314	373	595	541	*4,887*
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***1,003***	***174***	***160***	***185***	***344***	***419***	***455***	***321***	***314***	***373***	***595***	***541***	***4,887***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	Chino Hills	(629)	(609)	(594)	(543)	(407)	(366)	(185)	(117)	(136)	(165)	(461)	(518)	*(4,728)*
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		(629)	(609)	(594)	(543)	(407)	(366)	(185)	(117)	(136)	(165)	(461)	(518)	*(4,728)*
Total		*872*	*859*	*792*	*809*	*678*	*646*	*548*	*427*	*458*	*496*	*611*	*507*	*7,702*

		Total IEUA Service Area Water Use By Ontario									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	756	606	552	510	381	339	259	217	239	297	626	723	***5,505***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	1,180	1,427	1,400	957	820	690	416	214	193	339	587	956	***9,180***
	Subtotal	***1,936***	***2,033***	***1,952***	***1,467***	***1,201***	***1,029***	***675***	***431***	***432***	***636***	***1,213***	***1,678***	***14,684***
Production	Chino Groundwater	1,620	1,682	1,353	1,382	1,206	1,116	950	813	803	948	1,171	1,459	***14,502***
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	***1,620***	***1,682***	***1,353***	***1,382***	***1,206***	***1,116***	***950***	***813***	***803***	***948***	***1,171***	***1,459***	***14,502***
Purchases	CDA	798	831	779	801	765	666	630	587	742	760	745	577	***8,680***
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	44	44	42	46	39	42	34	33	41	36	41	44	***485***
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	***842***	***875***	***821***	***847***	***803***	***708***	***664***	***620***	***782***	***795***	***785***	***622***	***9,165***
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***4,398***	***4,589***	***4,127***	***3,695***	***3,211***	***2,853***	***2,289***	***1,864***	***2,018***	***2,379***	***3,169***	***3,759***	***38,352***

		Total IEUA Service Area Water Use By SAWCo									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Production	Chino Groundwater	0	0	1	0	1	-	0	1	-	0	0	100	***104***
	Other Groundwater	1,179	1,117	676	617	411	546	436	479	522	515	695	870	***8,062***
	Local Surface Water	1,027	835	859	790	597	498	511	582	983	1,055	1,101	1,001	***9,839***
Subtotal		***2,205***	***1,953***	***1,536***	***1,408***	***1,009***	***1,044***	***947***	***1,062***	***1,505***	***1,570***	***1,796***	***1,971***	***18,005***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	(44)	(44)	(42)	(46)	(39)	(42)	(34)	(33)	(41)	(36)	(41)	(44)	***(485)***
	MVWD	(50)	(49)	(48)	(52)	(44)	(47)	(38)	(37)	(46)	(40)	(46)	(129)	***(626)***
	Upland	(1,241)	(1,135)	(762)	(639)	(563)	(605)	(526)	(280)	(482)	(529)	(688)	(855)	***(8,304)***
Subtotal		(1,335)	(1,227)	(853)	(737)	(646)	(693)	(598)	(350)	(568)	(606)	(775)	(1,028)	***(9,415)***
Total		***870***	***726***	***683***	***671***	***363***	***350***	***349***	***712***	***937***	***964***	***1,021***	***942***	***8,589***

		Total IEUA Service Area Water Use By San Bernadino County									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	33	33	19	13	21	17	8	6	3	12	21	25	***211***
	Subtotal	***33***	***33***	***19***	***13***	***21***	***17***	***8***	***6***	***3***	***12***	***21***	***25***	***211***
Production	Chino Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***33***	***33***	***19***	***13***	***21***	***17***	***8***	***6***	***3***	***12***	***21***	***25***	***211***

		Total IEUA Service Area Water Use By Upland									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	471	483	468	383	243	241	152	153	151	184	198	242	***3,370***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	83	82	69	51	37	23	9	5	13	23	48	83	***525***
Subtotal		***554***	***565***	***536***	***434***	***280***	***264***	***161***	***158***	***164***	***207***	***246***	***326***	***3,895***
Production	Chino Groundwater	163	149	59	157	110	176	137	102	102	135	171	154	***1,617***
	Other Groundwater	51	64	35	38	38	33	67	42	33	37	128	109	***674***
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***214***	***213***	***95***	***195***	***148***	***209***	***205***	***145***	***134***	***171***	***299***	***263***	***2,291***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	1,241	1,135	763	683	563	605	488	273	425	522	667	855	***8,219***
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	88	91	298	332	346	190	95	95	122	100	162	175	***2,093***
Subtotal		***1,329***	***1,226***	***1,061***	***1,016***	***910***	***794***	***583***	***368***	***547***	***621***	***829***	***1,030***	***10,313***
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***2,097***	***2,004***	***1,692***	***1,644***	***1,337***	***1,267***	***949***	***670***	***846***	***1,000***	***1,374***	***1,619***	***16,499***

		Total IEUA Service Area Water Use By WVWD									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	47	35	50	10	-	3	30	21	32	12	22	50	***311***
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***47***	***35***	***50***	***10***	-	***3***	***30***	***21***	***32***	***12***	***22***	***50***	***311***
Production	Chino Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other Groundwater	65	75	67	75	72	74	34	69	73	67	71	73	***816***
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		***65***	***75***	***67***	***75***	***72***	***74***	***34***	***69***	***73***	***67***	***71***	***73***	***816***
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***112***	***110***	***117***	***85***	***72***	***77***	***65***	***89***	***105***	***79***	***94***	***123***	***1,127***

		Total IEUA Service Area Water Use By IEUA									(Acre Feet)	FY 23/24		
		July	August	September	October	November	December	January	February	March	April	May	June	Total
Purchases from IEUA	MWD Imported Water - Tier 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	MWD Imported Water - DYY Take	-	-	-	-	-	-	-	-	-	-	-	-	-
	Recycled (Direct Use)	14	16	13	13	15	11	13	11	11	12	13	13	***155***
Subtotal		***14***	***16***	***13***	***13***	***15***	***11***	***13***	***11***	***11***	***12***	***13***	***13***	***155***
Production	Chino Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other Groundwater	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local Surface Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Purchases	CDA	-	-	-	-	-	-	-	-	-	-	-	-	-
	CVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	SAWCo	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBVMWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	West End	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	Chino Hills	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ontario	-	-	-	-	-	-	-	-	-	-	-	-	-
	MVWD	-	-	-	-	-	-	-	-	-	-	-	-	-
	Upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		-	-	-	-	-	-	-	-	-	-	-	-	-
Total		***14***	***16***	***13***	***13***	***15***	***11***	***13***	***11***	***11***	***12***	***13***	***13***	***155***

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

2024

IEUA
Annual Energy Report

Table of Contents

IEUA Energy Portfolio

Executive Summary

The 2023/24 Energy Report tracks IEUA's energy consumption and portfolio, renewable generation performance and savings, and energy efficiency projects for the fiscal year. The report includes a brief description of upcoming projects and initiatives that will be implemented over the next few years.

IEUA's energy portfolio included:

- Imported Electricity
- Solar Energy
- Wind Power
- Battery Storage
- Biogas
- Natural gas

2023/24 IEUA's energy use

- Total Electricity consumption: 82,212 MWh of electricity
- Renewable Energy: 6,310 MWh (8% of total electricity)
- Annual energy expenses [imported electricity, renewable energy, natural gas, and energy management services]: $15.2 million (IEUA), $1.8 million (IERCF)
- Renewable energy savings since 2008: $2,280,000

Did you know?

*In 2022 a typical U.S. household used 10,500 kWh**

The renewable energy generated by IEUA would be able to provide electricity to at least 712 homes.

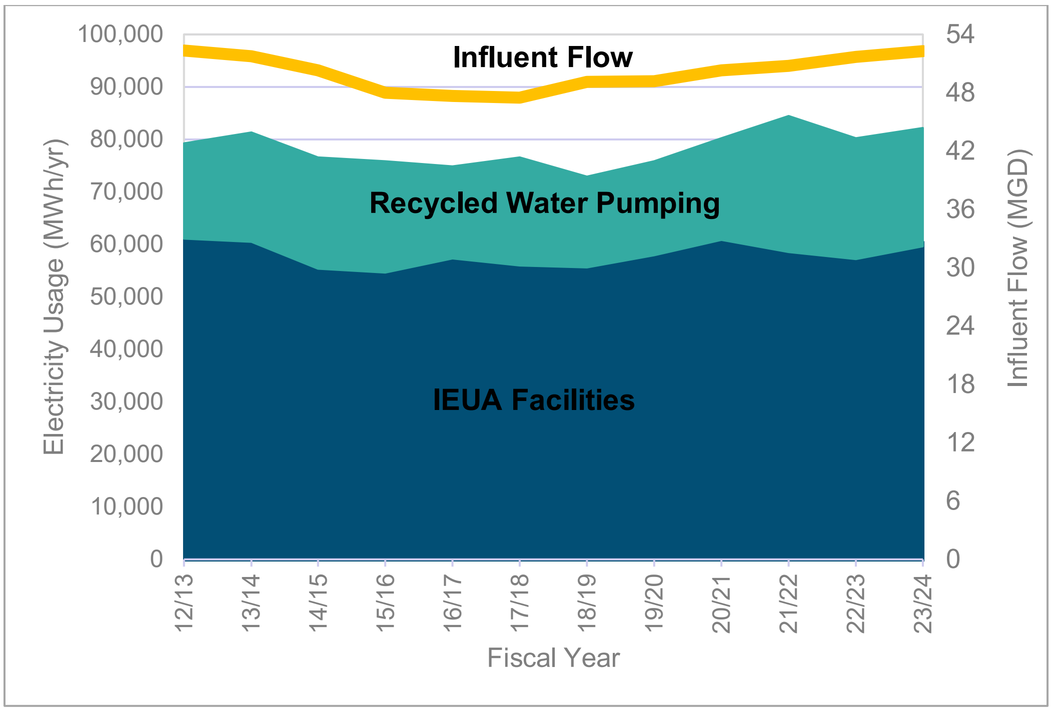
Source: U.S. Energy Information Administration (2023)

Disclaimer: The data presented in this report is subject to change as it may undergo reconciliation.

Flow and Energy Consumption

- In 2023/24, the annual average influent flow to the regional water recycling plants was 52.3 MGD which was an increase of 1% as compared to the previous fiscal year of 51.7 MGD. The increase in flow is likely due to population growth. (Figure 1).
- In 2023/24, IEUA facilities, which include the regional water recycling plants, composting facility, and recycled water pumping, used approximately 82,212 MWh of electricity (Figure 1). The electricity consumption for 2023/24 increased by 2.5% as compared to the previous fiscal year of 80,198 MWh.

Figure 1: IEUA Electricity Use and Regional Influent Flows



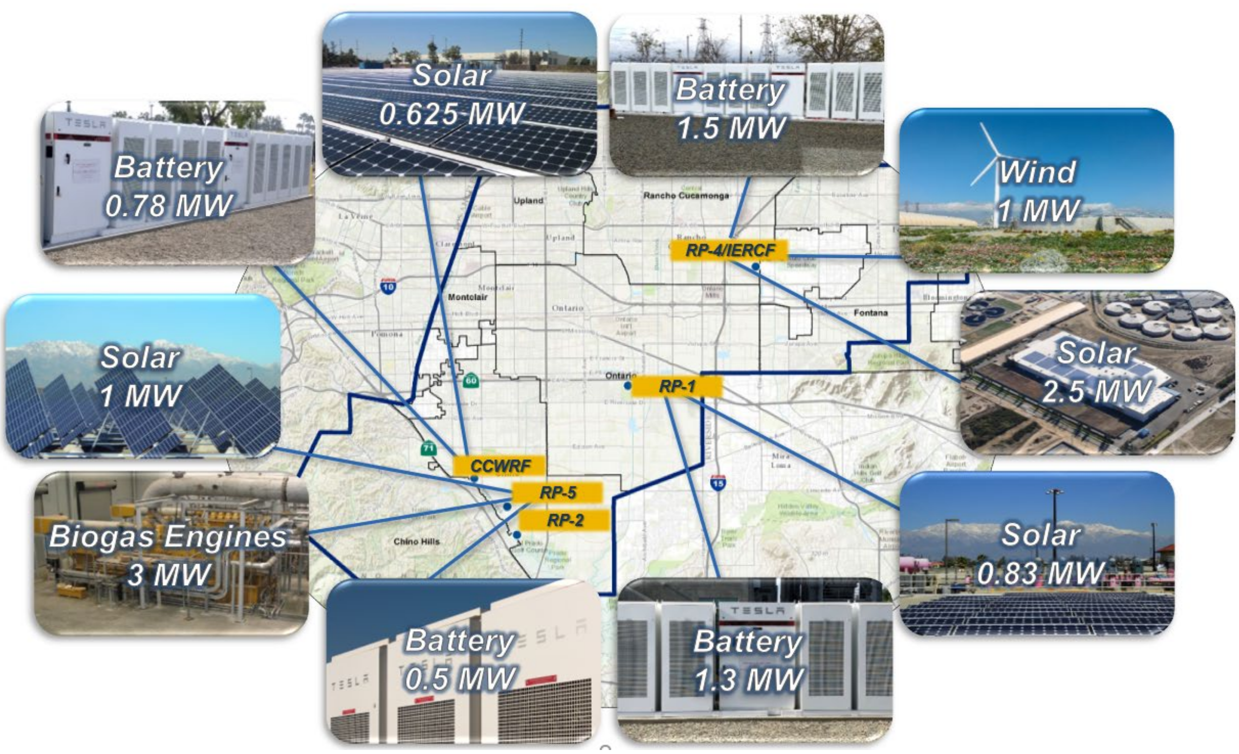
Expenditure

- The cost of electricity remains the highest non-labor operations and maintenance (O&M) expenditure for IEUA. In 2023/24, the annual cost for energy related utilities and energy management was $15.2 million compared to the previous fiscal year of $12.4 million due to rising energy cost in California, including Southern California Edison rates. IEUA has a diversified energy procurement approach, that includes on-site generation Power Purchase Agreements (PPA), energy demand management, electricity purchase from Southern California Edison, and a direct access contract with Shell Energy North America, which continues to provide rate stabilization and cost effectiveness.

Renewable Energy Production and Storage

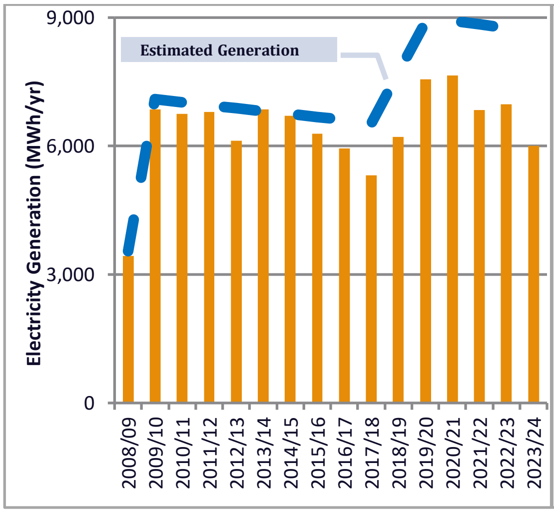
- IEUA's diverse renewable portfolio consists of 5.0 MW solar, 1.0 MW of wind, 3.0 MW of engines, and 4.0 MW battery (Figure 2). The battery storage optimizes energy management by charging from the grid during off-peak periods and discharging during on-peak periods, therefore it is not considered as onsite generation. In order to increase onsite renewable generation, IEUA plans to complete the installation of the necessary emissions control required by South Coast Air Quality Management District to have the Renewable Energy Efficiency Project (REEP) engines operating as part of the Regional Water Recycling Plant No. 5 (RP-5) Expansion project.

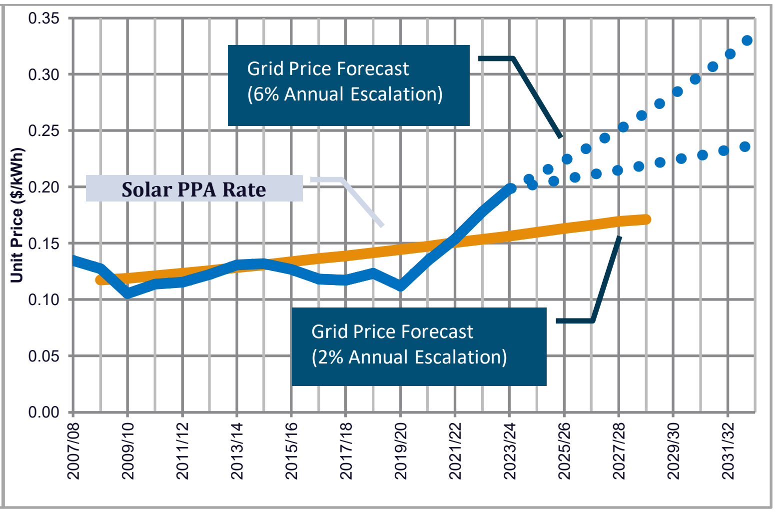
Figure 2: IEUA's Diverse Renewable Portfolio



- In 2023/24, 6,310 MWh of electricity was generated onsite, 16% less than 2022/23. The slight decrease is due to slightly less favorable wind activity and solar arrays going offline periodically due to needed repairs.
- IEUA's renewable portfolio generated 8% of the electricity used in 2023/24. Of the electricity consumed by IEUA;
  - 6,010 MWh was produced by the solar across IEUA facilities; and
  - 300 MWh was produced by the wind turbine at RP-4.
- In 2023/24, renewable energy projects provided overall $468,000 in savings, as a result of PPA rates being lower than the average grid price and lower standby charges compared to the facility demand charge rate.
- Generated solar electricity varies throughout the year due to the different number of sunlight hours, solar generation is usually higher in the summer and lower in the winter.
- The REEP engine has been offline since August 2017, operation is expected to restart the engine subsequent to the completion of the RP-5 Biosolids Facility project and the installation of the emission control equipment, which is anticipated in 2025.
- In 2015, IEUA partnered with Advanced Microgrid Solutions (AMS) through an energy management services (EMS) agreement to install 4 MW of battery storage and 1.5 MW of solar to optimize energy management and achieve cost savings through strategic procurement. The Regional Water Recycling Plant No. 1 (RP-1), RP-5, and Carbon Canyon Water Recycling Facility (CCWRF) battery storage systems started commercial operation in November 2018, and the Regional Water Recycling Plant No. 4 (RP-4) and Inland Empire Regional Composting Facility (IERCF) battery storage and solar system began commercial operation in March 2019. All facilities have completed their fifth year of operation. As of April 2020, the battery systems are now being operated and maintained by Enel X.

Solar across IEUA facilities generated 6,010 MWh of renewable energy, **13.8% less than 2022/23.** The decrease in production is attributed to several sites going offline due to system components needing repairs.



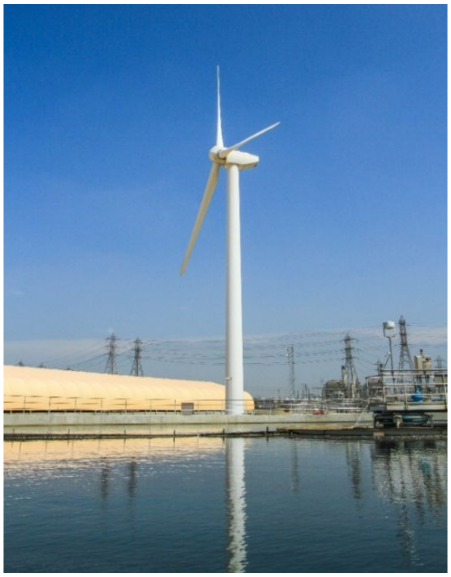


For 2023/24, the average SunPower PPA rate for the solar was lower than the average grid price. The solar PPA projects provided approximately $468,000 in savings, which also includes savings from lower standby charges compared to the facility demand charge rate. The current SunPower PPA will expire in 2029. Staff will negotiate with the provider to extend the contract or purchase the solar, if cost-effective for the Agency.

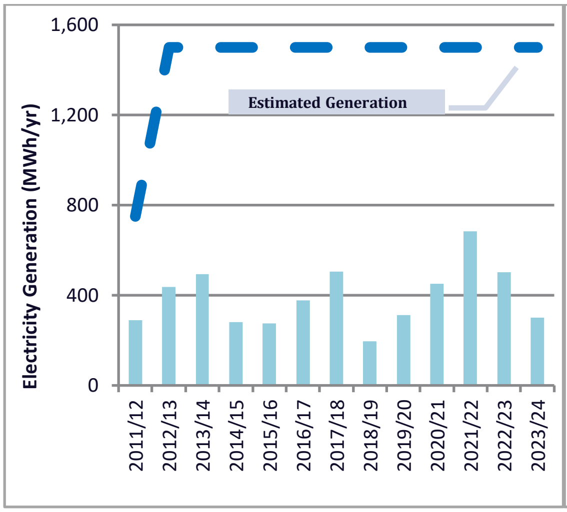
Solar generated an overall savings of $1,377,000 from 2008/09 to 2023/24

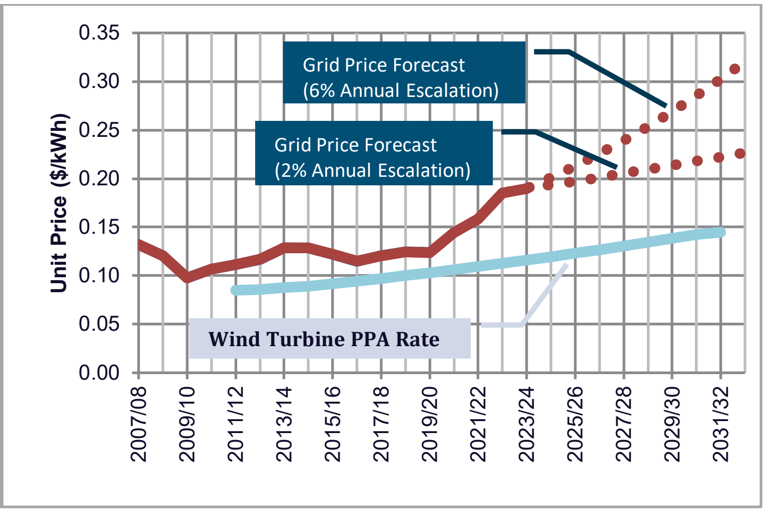
Table 1: Savings from Solar Power PPA

Savings FY 08/09 – FY 23/24	$1,377,000
Range of Savings PPA Term (FY 08/09 – FY 28/29)	$4,112,000 (2% Esc) $4,931,000 (6% Esc)



Wind turbine at RP-4 generated 300 MWh of renewable energy, **40% lower than 2022/23** due to less favorable wind conditions. For 2023/24, the PPA rate for the wind turbine was 40% lower than the average grid price. The wind turbine provided approximately $22,000 in savings.





Wind generated $193,000 in savings from 2011/12 to 2023/24.

Table 2: Savings from Wind Power

Savings FY 11/12 – FY 23/24	$193,000
Range of Savings PPA Term (FY 11/12 – FY 31/32)	$409,000 (2% Esc) $527,000 (6% Esc)

The REEP engines at RP-5 were taken offline in August 2017 because the RP-5 Solids Handling Facility was no longer operational. Renewable energy was not generated by the REEP engines in FY23/24. **The engines are expected to go back online in 2025 after the completion of the RP-5 Biosolids Facility project**, and the installation of the SCAQMD required emission controls.

The AMS battery storage at RP-1, RP-5 and CCWRF (2.5 MW combined) started commercial operation in November 2018, and the 1.5 MW battery storage at RP-4 and 1.5 MW of solar at IERCF started commercial operation on March 2019. In the fifth year of commercial operation, **RP-1, RP-5, and CCWRF achieved an estimated reduction in average demand of 517 kW during peak hours.** This reduction in peak-hour demand led to total SCE bill savings of $183,000. While the system at **IERCF and RP-4 achieved approximately an average demand reduction of 373 kW during on-peak hours and solar generation of 2,156 MWh** with a total SCE bill savings of $413,000 in the fifth term year. Since the minimum guaranteed savings per the contracts were not met, the battery system owners reconciled the remainder of the expected savings to the Agency.

The battery storage systems incurred a $596,000 in savings during year 5 of operation.

Energy Efficiency Projects

- IEUA continues to work with Southern California Edison and Southern California Regional Energy Network (SoCalREN) to conduct comprehensive energy audits and to implement projects to reduce electricity consumption and demand throughout its facilities and operations.
- Since the start of the partnership in 2015, the Agency's implementation of energy efficiency projects has resulted in:
    - Estimated annual savings: 6,658,000 kWh and $1,235,000 (based on FY 23/24 average rate of $0.19/kWh for imported power)
    - Incentive: $623,000
    - Avoided power usage: 600 kW

Aeration Blower Replacement

- These projects consist of replacing the existing aeration blowers with energy efficient blowers at CCWRF. The CCWRF project is scheduled to be completed July 2025 and is anticipated to provide about 1,271 MWh or $236,000 in energy savings annually.

CCWRF Odor Control Equipment Replacement

- The CCWRF Improvements project will replace the existing odor control system with biotrickling filters by September 2025. In addition to continuing to address plant odor, the measure will also provide energy savings of about 247 MWh/year or $46,000/year.

Process Optimization

- Automated ammonia controls will optimize operation and reduce power consumption of the aeration blowers at RP-4 and CCWRF. RP-4 ammonia controls were commissioned February 2024 while CCWRF ammonia controls are expected to be installed by March 2025. These projects would result in an estimated savings of 774 MWh/year or $144,000/year.

Other Projects

RP-5 Solids Handling Facility (SHF) Request for Proposal

- In FY 20/21, IEUA conducted a business case study to evaluate future uses of the RP-5 SHF, developing the following project alternatives:
  - Status quo – Idle assets and land
  - Lease for organics processing
  - Sell for organics processing
  - Lease as logistics hub
  - Sell as logistics hub
- The study concluded that the preferred alternative at this time is the Status Quo because of the benefits of using the facility as a construction staging site and contractor parking area for the RP-5 Expansion Project, and the costs associated with moving the RP-5 expansion contractor elsewhere.
- IEUA issued a Request for Information (RFI) in FY 22/23 to gauge market interest in RP-5 SHF from any Private or Public Venture. There were responses received from organics processors and a logistic hub.
- A Request for Proposal for the Land, Lease, and Development of SHF was released November 2023 for onsite organics processing operations, general industrial/commercial use or other use as proposed by Respondents. Similar to the RFI, IEUA received responses from an organics processor and logistics hub. Both projects were not favorable for the Agency, therefore rejected.
- The Facility will stay idle until the drying beds at RP-2 are transferred to the site.

Fleet Electrification Master Plan

- In 2023, California Air Resources Board adopted the Advanced Clean Fleet Rule with the goal to improve air quality by accelerating the transition to zero-emission medium and heavy-duty fleet vehicles. This rule applies to fleets owned by State, local, and federal agencies. The Agency is required to ensure that 50% of vehicles purchased are zero-emission starting in 2024 and 100% of vehicles purchased are zero-emission by 2027. In response to the new regulation, IEUA has prepared a Fleet Electrification Master Plan to determine the most feasible and cost-effective pathway to electrifying Agency fleet, including the installation of electric vehicle charging stations. The plan was completed September 2024. Reference Appendix A.

SCE Charge Ready 2 Program

- Through the Charge Ready 2 Program, SCE will design, construct, and install electric vehicle (EV) charging infrastructure at no cost to IEUA. The Agency is only required to purchase and install the EV chargers. RP-1 was approved for 35 ports, and the agreement between SCE and IEUA has been executed. Design has been finalized and construction is anticipated to start Fall 2024.

Energy Service Provider (ESP) Request for Proposal

- IEUA currently participates in a program known as Direct Access (DA) that allows the purchase of electricity from an ESP instead of the local utility, SCE. Purchases of electricity through DA has consistently reduced overall IEUA costs and are an integral part of the IEUA Energy Management Plan and diversified portfolio strategy. The Agency currently purchases electricity for the power needed at the RP-1, RP-2, and CCWRF from Shell Energy North America (US), L.P. under a Master Energy Sales Agreement (MESA), which is set to expire July 1, 2025.
- In July 2024, IEUA issued a Request for Proposal to enter into a new ESP contract starting FY 2026 and four proposals were received. The Agency will have an extended bidding period that may continue until May 2025. Staff, in collaboration with an energy market consultant, will continue to monitor the energy market and will enter into a contract with the energy service provider offering the most competitive price and terms for the Agency.

RP-1 Solar Area 4 Partial Decommissioning

- The RP-1 Solids Thickening Project will improve the processes upstream of the digesters and will increase the overall treatment capacity to meet projected demand. A major component of the project will be the construction of a new solids thickening building to house the rotary drum thickener units. Due to safety, vehicular access, and construction requirements, the solids thickening building will be built at the same location as the northern section of the existing photovoltaic system located on the west side of RP-1, which required the removal of a portion of the existing solar panels. In August 2025, approximately 182 kW of 831 kW were removed by the owner’s contractor.

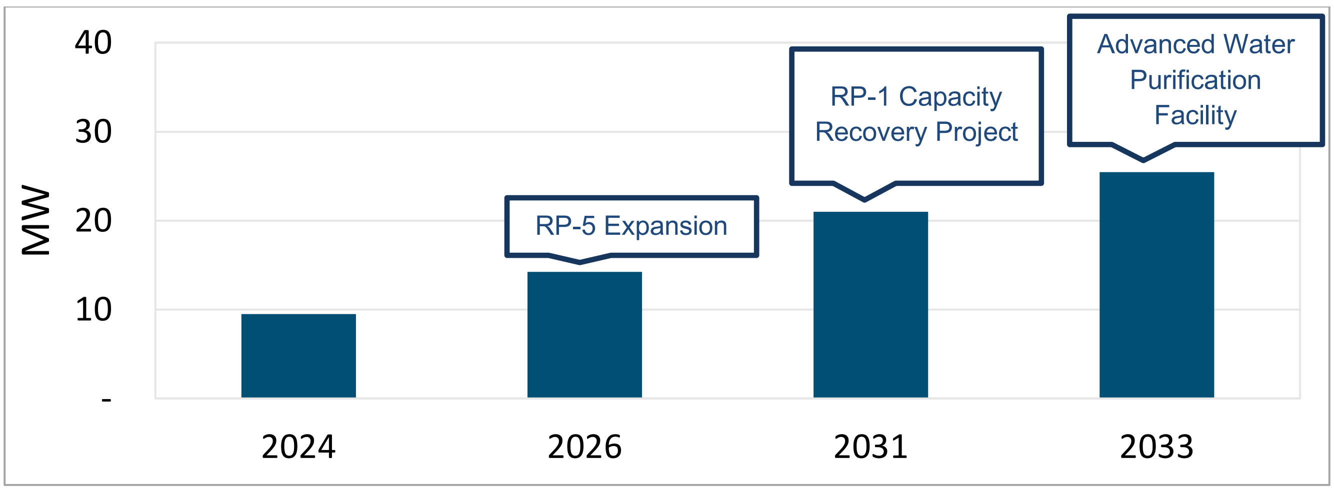
Upcoming Projects

Beneficial Use of Biogas

- IEUA evaluated opportunities to beneficially use the biogas generated at RP-1 in addition to onsite use for digesters heating. Staff is currently updating the study to consider new technologies, and incorporate recent changes in funding, capital and energy costs.

Energy Plan

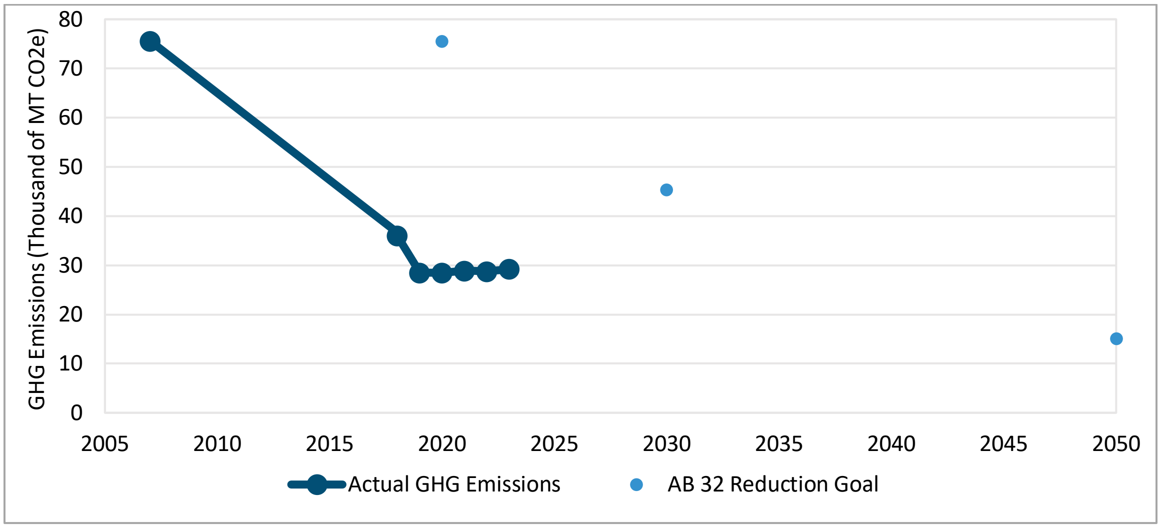
- Agency load is expected to more than double in the next 10 years due to the RP-5 Expansion, RP-1 Capacity Recovery Project, and Chino Basin Project Advanced Water Purification. Staff will develop a new Energy Plan to outline steps to manage and optimize the Agency's energy usage.



Climate Change Action Plan

- In 2018, IEUA staff developed a Climate Change Action Plan that described the vision and direction needed to bolster IEUA's water management system and minimize its carbon footprint. IEUA is following AB 32 standards using the oldest emission baseline data available to reduce GHG levels to 2007 levels by 2020, 40 percent below 2007 levels by 2030, and 80 percent below 2007 levels by 2050. 2022 greenhouse gas emissions (GHG) slightly decreased 0.6% from 2021, which is 62% below the 2007 baseline levels.

Figure 3: Greenhouse Gas Emissions Actuals and Goals



- IEUA is planning to implement capital projects and will continue to optimize operations and maintenance activities to mitigate potential climate change impacts including increasing the flood, drought, heat, and wildfire resilience of the Agency's sites. IEUA will also reduce energy consumption and increase the use of zero-carbon energy sources, including the enrollment into green rates, where available and cost effective. The majority of the projects being explored fall into four categories: solar, hydropower, biogas (renewable methane), and energy efficiency. The current list of projects being explored by IEUA, are in varying degrees of planning and review with some being feasible for construction as soon as 2024 while others are 10 or more years out.

- Potential projects
  - Solar:
    - Evaluated the feasibility for remote solar and battery storage system through a public private partnership to generate bill credits through the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program in FY 22/23. Due to the proposed project location being outside of the IEUA service area, the project was deemed ineligible for RES-BCT by SCE. Staff will re-evaluate potential locations within the IEUA territory.
    - Favorable outlook for the carport solar because of the forecasted SCE rate increase and higher facility load.
  - Hydropower: A feasibility study conducted in FY 19/20 at two proposed locations deemed the project to be not feasible. Staff will re-evaluate in the future at other locations with lower interconnection costs.

- Biogas: Staff is currently updating the RP-1 Beneficial Use of Biogas Feasibility Study to evaluate cost effective alternatives consistent with the Agency's Business Goals.
- Energy efficiency: Multiple ongoing projects expected to be completed by 2025.

Zero-Emission Vehicle Study

Zero-Emission Vehicle Readiness Plan—Final Report

prepared by

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, California 91708

prepared with the assistance of

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

September 2024

RINCON CONSULTANTS, INC. SINCE 1994

Table of Contents

Tables

Figures

Executive Summary

Inland Empire Utilities Agency (IEUA) is a regional water and wastewater treatment agency that owns and operates a robust vehicle fleet comprised of several different body types to meet the specific operational needs of the agency. In April 2023, the California Air Resources Board (CARB) adopted the Advanced Clean Fleets (ACF) regulation, which is designed to phase out the sales of medium- and heavy-duty (MDHD) internal combustion engine vehicles in California and accelerate the large-scale adoption of MDHD zero-emission vehicles (ZEV).[1] This Zero-Emission Vehicle Readiness Plan analyzes IEUA's existing on-road vehicle fleet and charging infrastructure relative to the ACF requirements to establish IEUA's ZEV goal and strategies to meet the goals.

The ACF regulation applies to local government agency fleets and affects on-road vehicles with a gross vehicle weight rating (GVWR)[2] greater than 8,500 pounds, off-road yard tractors, and light-duty mail and package delivery vehicles. The regulation requires local government agencies to purchase vehicles such that 50 percent of new MDHD vehicle purchases between 2024 and 2026 are ZEVs and 100 percent of MDHD vehicle purchases are ZEVs from 2027 onward. ZEV options include battery electric, long-range plug-in electric hybrids, and hydrogen fuel cell MDHD vehicles. Although there is an alternative option for compliance (i.e., ZEV Milestones Option), this plan will focus on the purchase schedule option.

IEUA Existing Fleet Analysis

Out of IEUA's 120 on-road vehicles, about half are affected by the ACF regulation. In general, the affected vehicles travel within IEUA's service area and close to IEUA's facilities. Covered vehicles were found to travel an average of 16 miles a day, with the longest distance traveled by an affected vehicle being 182 miles. These distances, including the maximum distance, are within the existing ranges of available ZEVs. Most affected vehicles also exhibit long downtimes (i.e., greater than eight hours between daily uses) that provide vehicles with sufficient time for charging and make the fleet well-suited for Level 2 charging. Sixteen affected vehicles, however, exhibited instances of shorter downtimes (i.e., less than eight hours between daily uses) that may not provide enough time for a full charge. When combined with the mileage analysis however, it can be seen that affected vehicles can operate at least two days without a charge. Even in a scenario where affected vehicles drive their maximum daily distance multiple days in a row, all except one affected vehicle can operate a full day without a charge. Direct Current (DC) Fast chargers can help provide continuity in these situations, however, based on the analysis, IEUA has multiple vehicles available that could be used to sustain operations. Lastly, the affected vehicle fleet is on average ten years old, with a maximum age of 36 years and seven vehicles at a minimum age of less than one year old. The age of the fleet indicates IEUA should have a couple additional years before additional affected vehicle purchases are needed.

[1] The ACT regulation requires manufacturers who certify on-road vehicles with a GVWR over 8,500 pounds (i.e., Class 2b to Class 8 vehicles) to sell zero-emission chassis or ZEVs as an increasing percentage of their annual California sales starting in 2024.
[2] GVWR is defined pursuant to California Vehicle Code Section 350(a) as the weight specified by the manufacturer as the loaded weight of a single vehicle.

Goals and Recommended Strategies

IEUA's ZEV goals include purchasing and planning for the use of MDHD vehicles to:

- Comply with ACF requirements,
- Meet vehicle and operational needs,
- Maintain energy security, and
- Minimize vehicle and infrastructure costs.

Based on these goals and the existing fleet analysis, IEUA has several strategies to phase in MDHD ZEVs over time. The strategies are associated with four focus areas as follows:

- **Vehicle Replacements.** In the near term, avoid ZEV purchases for affected vehicles and focus, as needed, on replacing non-affected vehicles with ZEV alternatives, if cost effective, to demonstrate proof-of-concept. In the medium term, pair affected ZEV purchases with affected ICE vehicles purchases that need replacement but do not have available ZEV alternatives.
  - VR-1 Focus on replacing non-affected vehicles with ZEV alternatives.
  - VR-2 Identify affected ICE vehicle replacements to pair with affected ZEV purchases.
  - VR-3 Continue to develop relationships with ZEV manufacturers.
  - VR-4 Continue to monitor CARB exemptions.
- **Behavior Change.** Study affected vehicle use behavior and pilot behavior change recommendations to optimize IEUA's vehicle use system for the ZEV phase-ins.
  - BC-1 Identify specific "home bases" for ZEVs.
  - BC-2 Identify specific vehicles for specific tasks.
  - BC-3 Provide trainings for fleet managers and drivers on efficient ZEV operation, maintenance, and charging protocols.
- **Charging and Resilience.** In the near term, install EV ready spaces at all facilities with a focus on wiring, conduits, and electrical panel upgrades. In the medium term, install about 35 percent of projected EV chargers at key locations and continue to scale over time.
  - CR-1 Prioritize wiring, conduit, and electrical panel upgrades in the near-term.
  - CR-2 Plan for needed EV charging capacity based on vehicle use scenarios.
  - CR-3 Continue to coordinate with Southern California Edison (SCE) early to plan infrastructure upgrades.
  - CR-4 Utilize smart chargers for capacity-constrained buildings.
  - CR-5 Consider back-up power options for fleet resilience and emergency planning.
  - CR-6 Consider DC Fast Chargers.
- **Funding and Resources.** Apply for early action funding opportunities and monitor state funding opportunities as they arise.
  - FR-1 Apply for early action funding opportunities.
  - FR-2 Monitor funding opportunities.
  - FR-3 Leverage technical assistance programs.

The strategies can be implemented over time as needed with a process to monitor ZEV adoption and report progress to CARB. Implementation of every strategy will not be required, but combining strategies will help IEUA adhere to the overall approach to meet each of their goals. While the strategies do not provide IEUA with a specific vehicle replacement schedule, they provide IEUA with the process to develop one as studies are completed, systems are refined, and new technologies become available.

1 Introduction

Inland Empire Utilities Agency (IEUA) is a regional water and wastewater treatment agency that owns and operates a robust vehicle fleet comprised of several different body types to meet the specific operational needs of the agency. In April 2023, the California Air Resources Board (CARB) adopted the Advanced Clean Fleets (ACF) regulation, which is designed to phase out the sales of medium- and heavy-duty (MDHD) internal combustion engine vehicles in California and accelerate the large-scale adoption of MDHD zero-emission vehicles (ZEV).[3] The ACF is aligned with the California's long-term vision of transitioning the State's transport system to ZEVs by 2045. IEUA aims to meet ACF requirements while maintaining adequate and reliable service to the approximately 935,000 people IEUA serves over a 242 square mile area. Achieving and maintaining compliance with ACF will also help IEUA reduce GHG emissions from their on-road fleet and align with their Climate Change Action Plan.

This Zero-Emission Vehicle Readiness Plan outlines the ACF regulation requirements and presents an analysis of IEUA's existing on-road vehicle fleet and charging infrastructure relative to the ACF requirements. It outlines the enabling policies, processes, and technologies that would be needed to transition the fleet to ZEVs. This plan also establishes IEUA's goals around ZEVs and creates a pathway to achieve the goals through a series of strategies for implementation. Because new technology evolves quickly, this plan defines key next steps to comply with the ACF and establishes a longer-term structure that is intentionally flexible to allow for periodic reassessment as the technological and regulatory landscapes evolve.

1.1 Advanced Clean Fleets Regulation

The ACF regulation applies to vehicle fleets performing drayage operations, public fleets owned by state and local government agencies, and high priority private fleets with more than 50 MDHD vehicles. The regulation effects on-road vehicles with a gross vehicle weight rating (GVWR)[4] greater than 8,500 pounds, off-road yard tractors, and light-duty mail and package delivery vehicles. The regulation requires state and local government agency fleets to purchase vehicles such that 50 percent of new MDHD vehicle purchases annually between 2024 and 2026 are ZEVs and 100 percent of MDHD vehicle purchases are ZEVs from 2027 onward. MDHD ZEV options include battery electric vehicles (EVs), long-range plug-in electric hybrid vehicles, and hydrogen fuel cell vehicles.

Alternately, state and local government agency fleet owners may elect to continuously meet or exceed ZEV targets using the ZEV Milestones Option (as shown in Table 1). Under both compliance pathways, state and local government agency fleets may purchase either ZEVs or near-ZEVs, or a combination of ZEVs and near-ZEVs, until 2035; but, beginning in 2035, only ZEVs will meet the requirements.[5]

[3] The ACT regulation requires manufacturers who certify on-road vehicles with a GVWR over 8,500 pounds (i.e., Class 2b to Class 8 vehicles) to sell zero-emission chassis or ZEVs as an increasing percentage of their annual California sales starting in 2024.

[4] GVWR is defined pursuant to California Vehicle Code Section 350(a) as the weight specified by the manufacturer as the loaded weight of a single vehicle.

[5] A near-ZEV means a vehicle that is capable of operating like a ZEV using electricity stored on-board the vehicle for a minimum number of miles, or "all-electric range", as specified and tested in accordance with section 1037.150p(2)(ii) of "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," as last amended September 9, 2021.

Table 1 Advanced Clean Fleets ZEV Milestone Option Requirements by Milestone Group and Year

Percentage of Vehicles that Must be ZEV	10%	25%	50%	75%	100%
Milestone Group 1: Box trucks, vans, buses with two axles, yard tractors, light-duty package delivery vehicles	2025	2028	2031	2033	2035 and beyond
Milestone Group 2: Work trucks, day cab tractors, pickup trucks, buses with three axles	2027	2030	2033	2036	2039 and beyond
Milestone Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042 and beyond

Source: Advanced Clean Fleets Regulation. Attachment A-2: High Priority and Federal Fleets Requirements.

On-road vehicles with a GVWR greater than 8,500 pounds include vehicles such as MDHD pickup trucks, work trucks, box trucks, vans, and specialty vehicles like vactor trucks. The regulation does not affect on-road vehicles with a GVWR less than or equal to 8,500 pounds. Non-affected vehicles include vehicles such as compact cars, sports utility vehicles (SUVs), and light-duty pickup trucks. Although these vehicles are not affected by the ACF regulation, they will be affected by Executive Order N-79-20 which ends the sale of internal combustion engine (ICE) passenger vehicles by 2035 requiring all passenger vehicle sales be ZEVs by 2035.

While all on-road vehicles with a GVWR greater than 8,5000 pounds are affected by the ACF regulation, the regulation allows fleet operators to request exemptions from and extensions to the ZEV requirements for specific vehicle types (pursuant to Section 2013.1). Assembly Bill (AB) 1594 adds additional language around vehicle exemptions for public agency utilities. AB 1594 authorizes public agency utilities—which includes local publicly owned electric utilities, community water systems, water districts, and wastewater treatment providers—to purchase non-ZEV replacements for traditional utility specialized vehicles that are at the end of life when needed to maintain reliable service and respond to major foreseeable events. While these exemptions and extensions are included in the regulations, they are limited to the vehicles CARB includes in the ZEV Purchase Exemption List or subject to CARB’s approval on a case-by-case basis via the ZEV Purchase Exemption Application.

2 Existing Vehicle Fleet and Conditions

2.1 Existing Vehicle Fleet

IEUA has an on-road vehicle fleet of 126 vehicles. Of these vehicles, 64 vehicles, or about half the existing fleet, are affected by the ACF regulation. Table 2 presents a breakdown of the types of vehicles in the fleet affected by ACF. The majority of IEUA vehicles affected by ACF are Ford F-250 pickup trucks (i.e., 23 vehicles) and Ford F-350 pickup trucks (i.e., 20 vehicles). Table 3 presents a breakdown of the types of vehicles in the fleet not affected by ACF. The majority of IEUA vehicles not affected by ACF are Ford F-150 pickup trucks (i.e., 45 vehicles including two F-150 Lightnings).

Table 2 Summary of Affected Vehicles in Existing IEUA Fleet

Make	Model	Count of Vehicles
Chevrolet	2500	1
Ford	E-450	1
Ford	F-250	23
Ford	F-350	20
Ford	F-550	3
Ford	F-650	1
Ford	F-700	1
Ford	F-750	3
Ford	L-8000	1
Ford	Transit	3
Freightliner	108 SD	1
Freightliner	M2 106 Medium Duty	2
GMC	Sierra	1
Mack	GU (Granite) 700	1
Western Star Trucks	4700 Set Forward Axle	1
Navistar Int'l Transportation Corp	4700 4x2	1
Total Affected Vehicles		**64**

Source: Rincon Consultants, Inc. (Rincon) analysis of data from Fleetistics.

Table 3 Summary of Non-Affected Vehicles in Existing IEUA Fleet

Make	Model	Count of Vehicles
Ford	C-MAX	5[1]
Ford	Escape	8
Ford	F-150	43
Ford	F-150 Lightning[2]	2
Ford	Ranger	2
Ford	Transit Connect	1
Toyota	Tacoma	1
Total Affected Vehicles		**62**

[1] The five Ford C-MAX vehicles are plug-in hybrid vehicles.
[2] The two Ford F-150 Lightnings are EVs.
Source: Rincon analysis of data from Fleetistics.

2.2 Existing Behavior

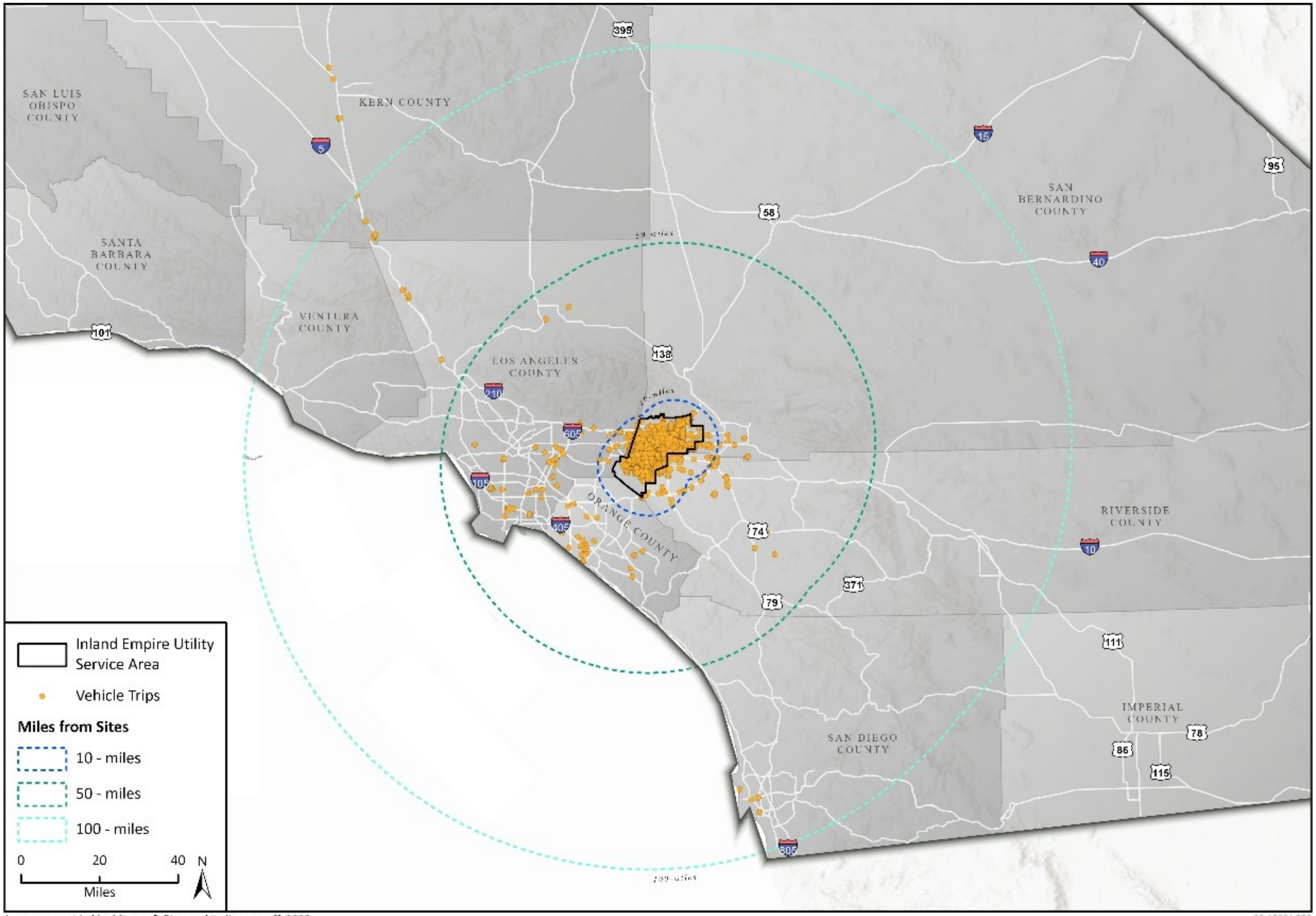
To understand how best to phase in ZEV's to IEUA's fleet, Rincon first conducted an analysis of the current fleet use behaviors and statistics. In order to understand how operators use the existing on-road vehicle fleet, vehicle trip data were analyzed over a one-year period between June 28, 2022 and June 28, 2023 for distance traveled, downtime, and age of vehicles. In addition to the table series below, information on each affected and non-affected vehicle's characteristics and trips can be found on the Inland Empire Utility Vehicle Electrification Dashboard created for this project.[6]

Vehicle Distance

IEUA serves a 242 square mile area indicating vehicles may need to travel far distances in a day.[7] Understanding the distance vehicles typically cover will help determine if range, or the distance a ZEV can travel before the battery must be charged, will be an important factor in ZEV planning. Figure 1 displays the start and end locations (depicted by yellow points) of all trips taken by affected vehicles during the analyzed one-year period. While the figure shows some affected vehicles travel trips start or end outside IEUA's service area, it shows most trips occur within IEUA's service area. Figure 2 displays the trips taken by affected vehicles specifically within the IEUA service area during the one-year period through a heat—or density—map. The colored areas of the map represent areas where the trip start, and end points occur frequently. This figure shows within IEUA's service area trips, most trips occur within a close radius to IEUA's facilities (i.e., a one-mile radius) rather than throughout the service area. Together, these figures demonstrate affected vehicles travel close to or within IEUA's facilities for a majority of their uses. Specifically, about 80 percent of affected vehicles travel less than 20 miles per day on average and only nine affected vehicles traveled more than 100 miles in a day during the one-year period.

[6] Dashboard created by Rincon Consultants, Inc. (Rincon) using data from Fleetistics.
[7] IEUA. Annual Report: Fiscal Year 2021/22. Accessed at https://issuu.com/ylam-ieua/docs/full_2021-22_annual_report_v1-c_compressed?fr=sMjFlZDEwNjk1Njc.

Figure 1 Start and End Locations for All Trips by Affected Vehicles



Imagery provided by Microsoft Bing and its licensors © 2023.

Figure 2 Density of Start and End Locations for All Trips by Affected Vehicles

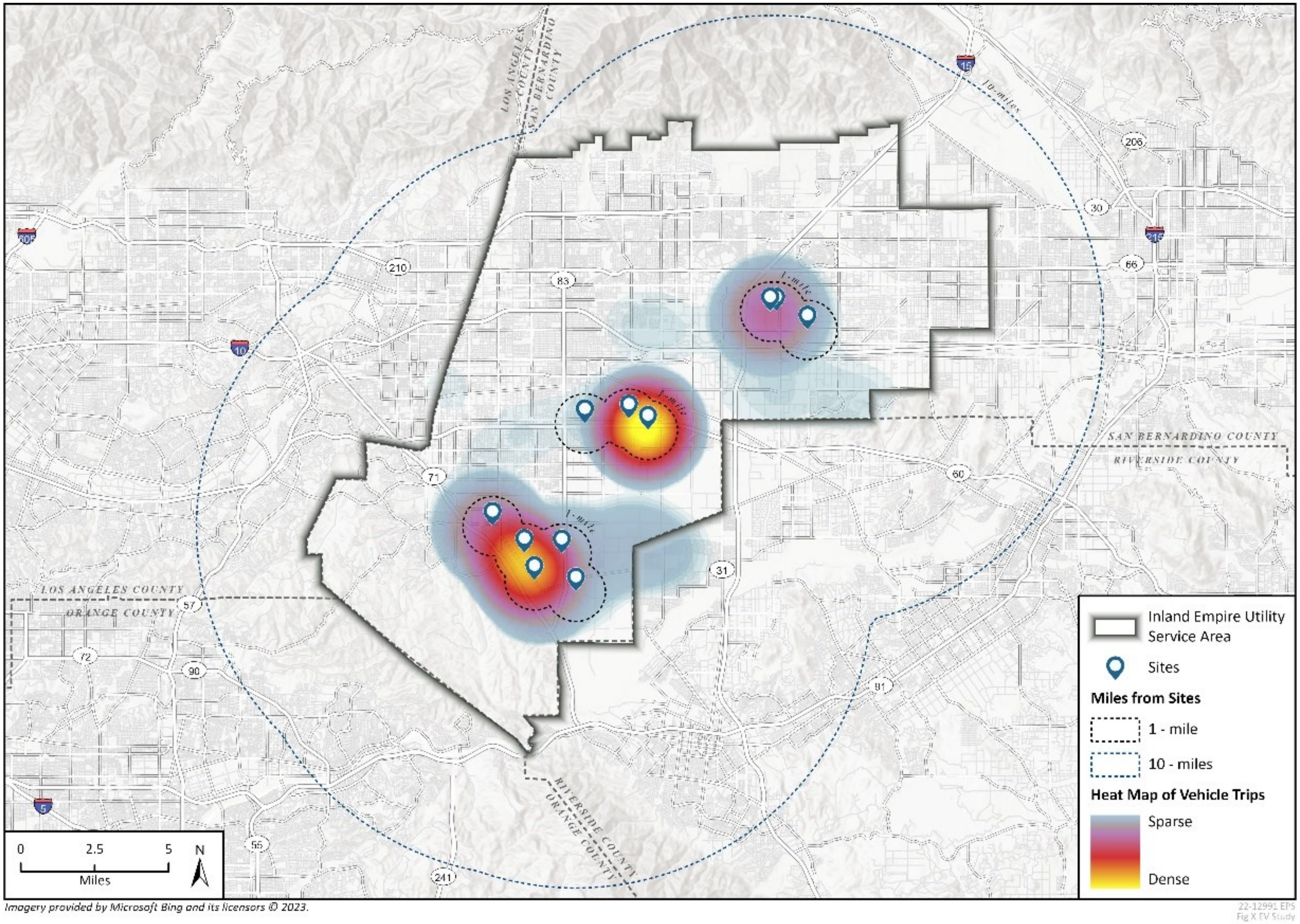


Table 4 details the average and maximum daily distances traveled by each affected vehicle type. As shown therein, the average daily distance traveled by all affected vehicles was approximately 16 miles, while the maximum daily distance traveled by an affected vehicle was 182 miles. In contrast, the average daily distance traveled by non-affected vehicles was about 19 miles while the maximum daily distance traveled by a non-affected vehicle was 436 miles. This data indicates affected vehicles tend to travel shorter distances than the non-affected vehicles in the fleet and distances traveled are generally within the existing ranges of available ZEVs.

Table 4 Average and Maximum Daily Distances of Affected Vehicles in Existing IEUA Fleet

Make	Model	Average Daily Distance (miles)	Maximum Daily Distance (miles)
Chevrolet	Full Size Truck	6	34
Ford	E-450	26	62
Ford	F-250	15	143
Ford	F-350	18	120
Ford	F-550	N/A	N/A
Ford	F-700	1	35
Ford	F-750	5	43
Ford	L-8000	4	34
Ford	Transit	28	115
Freightliner	108 SD	7	55
Freightliner	M2 106 Medium Duty	9	72
GMC	Sierra	45	104
Mack	GU (Granite) 700	N/A	N/A
Western Star Trucks	4700 Set Forward Axle	35	182
Navistar Int'l Transportation Corp	4700 4x2	11	47
Affected Vehicles		**16 (Average)**	**182 (Maximum Daily)**

N/A = not available. The Mac GU (Granite) and one of the Ford F-250's experienced reporting errors during the one-year reporting period and did not have trip data available. The three Ford F-550's, one Ford F-650, five of the Ford F-350's, and one of the Ford Transits were purchased after the one-year reporting period (i.e., after June 28, 2023). Trip data for these vehicles are not included in the table.

Source: Rincon analysis of data from Fleetistics.

This vehicle trip data along with detail provided by IEUA fleet operators regarding fleet use patterns provides insight into the variety of activities for which IEUA uses the on-road vehicle fleet. These activities can be summarized by the following characteristics.

- **Short-distance Hauling.** Affected vehicles are generally used to haul equipment over short distances. Such vehicles tend to be powerful enough to tow and large enough to haul equipment such as utility boxes and small cranes. They are commonly utilized to transport equipment within a single facility or between facilities within the IEUA service area. This characteristic means affected vehicles are used to tow and haul large equipment or tools but also maneuver tight spaces.

- **Multi-use.** Affected vehicles are generally specialized in performing a wide range of operations. Each vehicle is assigned to one operator and is used to support the full range of operational needs required by that operator. While each operator may need multiple vehicle attributes (e.g., crane, towing capacity, tool hauling) over the course of a week or year, not all those attributes are needed on a daily basis.
- **Specific-use.** Some affected vehicles are specialized in performing a specific operation or haul specific heavy equipment. Vehicles in this category include vactor trucks and dump trucks. Some of these vehicles are used infrequently and may go long periods without use.

While available ZEVs are generally well suited to cover the short distances traveled by IEUA's on-road vehicles, there are existing limitations on the range of activities performed by the affected vehicles including those related to heavy hauling in a smaller package (e.g., activities provided by vehicles like the Ford F-250's and F-350's). The next section (Section 2.3, ZEV Market) summarizes the state of the ZEV market and provides insight into the state of the market relative to vehicle towing, hauling, and multi-use needs.

Vehicle Downtime

One of the major differences between EV's and ICE vehicles is the time needed to refuel. While ICE vehicles can be filled up in several minutes at any fuel depot or gas station, EV's currently require longer periods to charge. These timelines vary significantly depending on the type of charger and vehicle in question.

By analyzing vehicle downtime, or the time which a vehicle is inactive between daily uses, IEUA can understand the impacts of EV charging (once transitioned to ZEVs) and plan for the right mix of EV chargers to meet the needs of their fleet. To estimate downtime, Rincon calculated the time between the last trip of each day and the first trip of the next following day. For example, a vehicle that stopped driving at 5pm on May 5th and started again at 5am on May 6th would have a 12-hour downtime. A vehicle which was in constant use overnight might record one trip at 11:30pm and another at 12:15am resulting in a 45-minute downtime for that day. Since that vehicle could then go directly back to the lot for several hours or days afterwards, this analysis is considered conservative.

Rincon completed this analysis for two different time periods. The first analysis included every day and datapoint available for the calendar year which includes weekends. This analysis provides a complete look at the average and minimum downtimes experienced by the IEUA fleet. An additional analysis was also completed for just Monday through Thursday which is the most common work schedule for the Maintenance team. This analysis shows a more conservative view of vehicle usage during the most intense driving periods. Both analyses are summarized below.

Annual Vehicle Downtime Analysis

Table 5 presents the average and minimum downtime (in hours and minutes) for each affected vehicle in IEUA's existing fleet over the analyzed one-year period for all days of the week. On average, IEUA's existing affected vehicles had about 143 hours, or about six days, of downtime in between daily uses during the one-year period showing that most vehicles are not used on a daily basis. More importantly, all but 16 affected vehicles experienced no downtimes of less than eight hours. The other 16 affected vehicles experienced at least one minimum downtime of less than eight hours and thus at least one overnight use where they would not be able to charge. These 16 affected vehicles only experienced a total of 31 overnight uses during the one-year period.

This analysis indicates IEUA's existing affected vehicle fleet has sufficient downtimes for a Level 2 charger to charge from 0% to 100% most of the time, as detailed in the Existing Charging Infrastructure section. The few instances of overnight uses may indicate a need for faster EV charging. However, faster charging would only be needed in the vehicles that used up their batteries before these short downtimes. The next analysis and Table 6 account for this analysis using downtimes and mileage of affected vehicles.

Table 5 Downtime Analysis of Affected Vehicles in Existing IEUA Fleet

Vehicle Name	Make	Model	Average Time between Daily Use (hr:min)	Minimum Time between Daily Use (hr:min)	Number of Overnight Uses
VQUI2001	Western Star Trucks	4700 Set Forward Axle	43:27	2:06	8
VQUI2002	Freightliner	M2 106 Medium Duty	49:12	4:58	5
VEH0710	Ford	F-350	40:11	0:29	2
VEH0711	Ford	F-350	37:50	0:52	2
VEH0811	Ford	F-350	34:16	1:24	2
VEH1708	Ford	F-250	34:59	0:03	2
VEH0807	Ford	F-350	45:31	3:04	1
VEH1101	Ford	F-250	58:31	1:35	1
VEH1706	Ford	F-250	51:47	6:51	1
VEH1820	Ford	F-250	39:48	0:40	1
VEH1901	Ford	F-250	39:14	0:06	1
VQUI8908	Ford	F-700	202:44	4:00	1
VEH0205	Chevrolet	Full Size Truck	59:03	0:21	1
VEH0714	Ford	F-350	48:25	1:08	1
VEH1821	Ford	F-250	39:30	0:06	1
VEH1902	Ford	F-250	45:44	7:53	1
VEH0609	Ford	F-350	57:13	11:02	0
VEH0712	Ford	F-350	126:27	11:57	0
VEH0713	Ford	F-350	47:34	11:28	0
VEH0715 (2008)	Ford	F-350	49:17	10:07	0
VEH0809	Ford	F-350	48:55	10:41	0
VEH0810	Ford	F-350	56:05	11:23	0
VEH1402	Ford	E-450	61:04	10:14	0
VEH1601	GMC	Sierra	43:35	9:23	0
VEH1709	Ford	F-250	91:48	14:36	0
VEH1815	Ford	F-250	41:41	11:26	0
VEH1816	Ford	F-250	44:22	10:14	0
VEH1817	Ford	F-250	44:19	10:08	0

Vehicle Name	Make	Model	Average Time between Daily Use (hr:min)	Minimum Time between Daily Use (hr:min)	Number of Overnight Uses
VEH1822	Ford	F-250	48:32	9:45	0
VEH1913	Ford	F-250	86:31	12:18	0
VEH1914	Ford	F-250	50:24	11:39	0
VEH1916	Ford	F-250	36:18	10:10	0
VEH1917	Ford	F-250	108:28	16:44	0
VEH1918	Ford	Transit	33:46	8:35	0
VEH2201	Ford	F-250	54:33	12:31	0
VEH2202	Ford	F-350	63:42	10:43	0
VEH0304	Ford	F-250	84:44	11:15	0
VEH0417	Ford	F-250	73:46	8:03	0
VQUI0700	Ford	F-750	89:07	13:03	0
VQUI1102	Freightliner	M2 106 Medium Duty	1927:44	322:58	0
VQUI1900	Freightliner	108 SD	235:31	16:02	0
VQUI8810	Ford	L-8000	149:01	8:06	0
VQUI9216	Navistar Int’l Transportation Corp	4700 4x2	313:35	14:36	0
VEH0808	Ford	F-350	34:24	8:48	0
VEH1301	Ford	F-350	45:38	13:56	0
VEH1800	Ford	Transit	103:12	14:07	0
VEH1813	Ford	F-350	98:59	15:05	0
VEH1818	Ford	F-250	62:20	13:53	0
VEH1819	Ford	F-250	51:51	12:29	0
VEH1903	Ford	F-250	57:16	8:56	0
VQUI 1901	Ford	F-750	97:47	14:04	0
VQUI2101	Ford	F-750	1889:11	13:38	0

N/A = downtime not available because vehicle was not used within a work week; hr = hour; min = minute. VQUI1203 and VEH1707 experienced reporting errors during the one-year reporting period and did not have downtime data available. VEH2301, VEH2302, VEH2305, VEH2306, VEH2307, VEH2308, VQUI2302, VQUI2303, VQUI2304, and VQUI2401 were purchased after the one-year reporting period (i.e., after June 28, 2023). Downtime data for these vehicles are not included in the table.

Source: Rincon analysis of data from Fleetistics.

Vehicle Downtime During the Work Week

To remove outliers and complete an analysis more representative of IEUA’s typical operations, Rincon also performed a downtime analysis filtered for IEUA’s typical work week (i.e., Monday through Thursday). This analysis calculates the time between the last trip of each day during the work week and the first trip of the next day within that same work week. In effect, this analysis conservatively excludes downtime experienced on days IEUA employees do not typically work (i.e., the weekends including Saturdays and Sundays, as well as Fridays) and the excludes long periods (i.e., multi-week periods) of vehicle inactivity.

Table 6 presents the average downtime (in hours and minutes) for each affected vehicle in IEUA's existing fleet under this analysis over the analyzed one-year period. Within the work week, IEUA's affected vehicles experienced about 20 hours, or just under one day, of downtime between daily uses during the analyzed one-year period. While this analysis showed a decrease in downtime (from about 143 hours) compared to the original downtime analysis, it still shows IEUA's affected vehicles exhibit sufficient downtimes within the work week to charge from zero percent to 100 percent on Level 2 chargers most of the time.

Table 6 Downtime Analysis of Affected Vehicles in Existing IEUA Fleet During the Work Week

Vehicle Name	Make	Model	Average Time between Daily Use during Work Week (hr:min)
VQUI2001	Western Star Trucks	4700 Set Forward Axle	20:18
VQUI2002	Freightliner	M2 106 Medium Duty	24:26
VEH0710	Ford	F-350	16:58
VEH0711	Ford	F-350	16:44
VEH0811	Ford	F-350	15:47
VEH1708	Ford	F-250	14:59
VEH0807	Ford	F-350	15:32
VEH1101	Ford	F-250	20:20
VEH1706	Ford	F-250	16:34
VEH1820	Ford	F-250	16:15
VEH1901	Ford	F-250	16:56
VQUI8908	Ford	F-700	33:21
VEH0205	Chevrolet	Full Size Truck	28:04
VEH0714	Ford	F-350	16:07
VEH1821	Ford	F-250	15:46
VEH1902	Ford	F-250	16:49
VEH0609	Ford	F-350	15:19
VEH0712	Ford	F-350	17:40
VEH0713	Ford	F-350	16:55
VEH0715 (2008)	Ford	F-350	16:18
VEH0809	Ford	F-350	18:10
VEH0810	Ford	F-350	15:31
VEH1402	Ford	E-450	21:45
VEH1601	GMC	Sierra	19:26
VEH1709	Ford	F-250	16:46
VEH1815	Ford	F-250	19:09

Vehicle Name	Make	Model	Average Time between Daily Use during Work Week (hr:min)
VEH1816	Ford	F-250	17:41
VEH1817	Ford	F-250	16:24
VEH1822	Ford	F-250	22:53
VEH1913	Ford	F-250	17:00
VEH1914	Ford	F-250	16:45
VEH1916	Ford	F-250	16:42
VEH1917	Ford	F-250	37:42
VEH1918	Ford	Transit	15:35
VEH2201	Ford	F-250	17:54
VEH2202	Ford	F-350	17:44
VEH0304	Ford	F-250	19:05
VEH0417	Ford	F-250	16:36
VQUI0700	Ford	F-750	26:55
VQUI1102	Freightliner	M2 106 Medium Duty	N/A – not used more than once during a work week
VQUI1900	Freightliner	108 SD	24:19
VQUI8810	Ford	L-8000	30:25
VQUI9216	Navistar Int'l Transportation Corp	4700 4x2	26:51
VEH0808	Ford	F-350	15:52
VEH1301	Ford	F-350	18:57
VEH1800	Ford	Transit	23:05
VEH1813	Ford	F-350	40:24
VEH1818	Ford	F-250	16:55
VEH1819	Ford	F-250	19:27
VEH1903	Ford	F-250	20:22
VQUI 1901	Ford	F-750	25:44
VQUI2101	Ford	F-750	N/A – not used more than once during a work week

N/A = not available; hr = hour; min = minute. VQUI1203 and VEH1707 experienced reporting errors during the one-year reporting period and did not have downtime data available. VEH2301, VEH2302, VEH2305, VEH2306, VEH2307, VEH2308, VQUI2302, VQUI2303, VQUI2304, and VQUI2401 were purchased after the one-year reporting period (i.e., after June 28, 2023). Downtime data for these vehicles are not included in the table.

Source: Rincon analysis of data from Fleetistics.

Days Without Charging Analysis

To further understand IEUA's charging needs during short downtimes, mileage is considered with downtime to understand how many days each affected vehicle can operate without a re-charge. This factor helps answer whether a vehicle that does perform overnight (i.e., experiences a short downtime with no time to charge) has enough charge to continue operating the next day. To estimate this factor, this analysis considers average mileage and average downtime for each affected vehicle relative to the expected standard range of a ZEV (i.e., 150 miles).[8] Table 7 shows the results of this analysis—the average number of days each affected vehicle can go without a charge. The results indicate that under most scenarios, vehicles can go two days of use without a charge. The analysis also considers the maximum mileage a vehicle traveled in the one-year period and average downtime relative to the expected standard range of a ZEV (i.e., 150 miles).[9] Table 7 shows the results of this analysis—the minimum number of days each affected vehicle may be limited to. The results indicate that all vehicles except for one (i.e., VEH1918) would be able to operate at least one full day without access to charging. In the case that this vehicle did drive its maximum daily distance and would be needed again before it could charge, the analysis demonstrates there would likely be multiple other vehicles available to serve in its place. Therefore, it is unlikely that IEUA will need chargers that can charge MDHD EVs in less than eight hours (i.e., DC Fast Chargers). To provide a complete view of the downtime available to the fleet, the full year of fleet data (including weekends) was used. While this could increase the average days without charging compared to just using the workweek, the minimum days without charging is more conservative since it captures some outliers which occur over weekends.

Table 7 Days without Charging for Affected Vehicles in Existing IEUA Fleet

Vehicle Name	Make	Model	Average Days without Charge	Minimum Days without Charge
VEH1301	Ford	F-350	2	1
VEH1601	GMC	Sierra	3	1
VEH1901	Ford	F-250	3	1
VEH1918	Ford	Transit	4	0
VEH1813	Ford	F-350	4	1
VQUI2001	Western Star Trucks	4700 Set Forward Axle	4	1
VEH1101	Ford	F-250	4	1
VEH1917	Ford	F-250	4	1
VEH1903	Ford	F-250	5	2

[8] A range of 150 miles was selected conservatively because MDHD EVs generally have ranges below 200 miles. Resources for the Future. Medium- and Heavy-Duty Vehicle Electrification: Challenges, Policy Solutions, and Open Research Questions (2023). Accessed at: https://www.rff.org/publications/reports/medium-and-heavy-duty-vehicle-electrification-challenges-policy-solutions-and-open-research-questions/.

[9] A range of 150 miles was selected conservatively because MDHD EVs generally have ranges below 200 miles. Resources for the Future. Medium- and Heavy-Duty Vehicle Electrification: Challenges, Policy Solutions, and Open Research Questions (2023). Accessed at: https://www.rff.org/publications/reports/medium-and-heavy-duty-vehicle-electrification-challenges-policy-solutions-and-open-research-questions/.

Vehicle Name	Make	Model	Average Days without Charge	Minimum Days without Charge
VEH1402	Ford	E-450	5	1
VEH1706	Ford	F-250	6	2
VEH2202	Ford	F-350	6	1
VEH1902	Ford	F-250	8	2
VEH1800	Ford	Transit	8	1
VEH1820	Ford	F-250	9	2
VEH0714	Ford	F-350	10	2
VEH1821	Ford	F-250	10	3
VEH0609	Ford	F-350	10	2
VEH0808	Ford	F-350	10	3
VEH0712	Ford	F-350	10	2
VEH0713	Ford	F-350	11	1
VEH0811	Ford	F-350	11	3
VEH1914	Ford	F-250	11	2
VEH0710	Ford	F-350	12	3
VEH0715 (2008)	Ford	F-350	12	2
VEH1816	Ford	F-250	12	2
VEH2201	Ford	F-250	13	2
VQUI9216	Navistar Int'l Transportation Corp	4700 4x2	13	2
VEH1708	Ford	F-250	13	2
VEH0807	Ford	F-350	13	3
VEH1916	Ford	F-250	14	3
VEH0417	Ford	F-250	14	3
VEH1819	Ford	F-250	14	3
VEH0810	Ford	F-350	14	1
VEH1817	Ford	F-250	14	4
VQUI1102	Freightliner	M2 106 Medium Duty	14	3
VEH1709	Ford	F-250	15	4
VEH0304	Ford	F-250	16	1
VQUI2101	Ford	F-750	17	3
VEH1818	Ford	F-250	17	3
VQUI2002	Freightliner	M2 106 Medium Duty	18	3
VEH1822	Ford	F-250	19	2
VEH0711	Ford	F-350	21	3
VQUI1900	Freightliner	108 SD	21	2

Vehicle Name	Make	Model	Average Days without Charge	Minimum Days without Charge
VEH1815	Ford	F-250	23	5
VEH0809	Ford	F-350	24	3
VEH1913	Ford	F-250	24	4
VEH0205	Chevrolet	Full Size Truck	27	4
VQUI0700	Ford	F-750	32	3
VQUI8810	Ford	L-8000	41	4
VQUI 1901	Ford	F-750	127	17
VQUI8908	Ford	F-700	146	4

All values are rounded down to the nearest day.

VQUI1203 and VEH1707 experienced reporting errors during the one-year reporting period and did not have downtime data available. VEH2301, VEH2302, VEH2305, VEH2306, VEH2307, VEH2308, VQUI2302, VQUI2303, VQUI2304, and VQUI2401 were purchased after the one-year reporting period (i.e., after June 28, 2023). Analysis for these vehicles are not included in the table.

Source: Rincon analysis of data from Fleetistics.

Vehicle Age

IEUA's on-road vehicle fleet has been built over the course of many years. Understanding the age of IEUA's affected vehicle fleet will indicate when vehicles need to be replaced relative to ACF requirements and effective dates. Thus, data on the age of IEUA's on-road fleet were also analyzed and are presented in Table 8 and Table 9. Affected vehicles are on average ten years old while the maximum age of an affected vehicle is 35 years old. Since IEUA purchased ten affected vehicles in 2023 and early 2024 to cover expected needs through the next year and aims to maintain vehicle lifespans of at least ten years, this data indicates IEUA may have a few years before new affected vehicle purchases are needed. Non-affected vehicles are slightly younger than affected vehicles. On average, non-affected vehicles are nine years old while the maximum age of a non-affected vehicle is 20 years old.

Table 8 Age of Affected Vehicles in Existing IEUA Fleet

Vehicle Name	Make	Model	Model Year	Age (Years)
VQUI8810	Ford	L-8000	1988	36
VQUI8908	Ford	F-700	1989	35
VQUI9216	Navistar Int'l Transportation Corp	4700 4x2	1992	32
VEH0205	Chevrolet	Full Size Truck	2002	22
VEH0304	Ford	F-250	2003	21
VEH0417	Ford	F-250	2004	20
VEH0609	Ford	F-350	2006	18
VQUI0700	Ford	F-750	2007	17
VEH0710	Ford	F-350	2008	16
VEH0711	Ford	F-350	2008	16
VEH0712	Ford	F-350	2008	16

Vehicle Name	Make	Model	Model Year	Age (Years)
VEH0713	Ford	F-350	2008	16
VEH0714	Ford	F-350	2008	16
VEH0715 (2008)	Ford	F-350	2008	16
VEH0807	Ford	F-350	2008	16
VEH0808	Ford	F-350	2008	16
VEH0809	Ford	F-350	2008	16
VEH0810	Ford	F-350	2008	16
VEH0811	Ford	F-350	2008	16
VQUI1102	Freightliner	M2 106 Medium Duty	2009	15
VEH1101	Ford	F-250	2012	12
VEH1301	Ford	F-350	2013	11
VEH1402	Ford	E-450	2014	10
VQUI1203	Mack	GU (Granite) 700	2014	10
VEH1601	GMC	Sierra	2016	8
VEH1706	Ford	F-250	2017	7
VEH1708	Ford	F-250	2017	7
VEH1709	Ford	F-250	2017	7
VEH1707	Ford	F-250	2017	7
VEH1800	Ford	Transit	2018	6
VEH1813	Ford	F-350	2018	6
VEH1815	Ford	F-250	2018	6
VEH1816	Ford	F-250	2018	6
VEH1817	Ford	F-250	2018	6
VEH1818	Ford	F-250	2018	6
VEH1819	Ford	F-250	2018	6
VEH1820	Ford	F-250	2018	6
VEH1821	Ford	F-250	2018	6
VEH1822	Ford	F-250	2018	6
VQUI 1901	Ford	F-750	2018	6
VEH1901	Ford	F-250	2019	5
VEH1902	Ford	F-250	2019	5
VEH1903	Ford	F-250	2019	5
VEH1913	Ford	F-250	2019	5
VEH1914	Ford	F-250	2019	5
VEH1916	Ford	F-250	2019	5
VEH1917	Ford	F-250	2019	5

Vehicle Name	Make	Model	Model Year	Age (Years)
VEH1918	Ford	Transit	2019	5
VQUI1900	Freightliner	108 SD	2019	5
VQUI2001	Western Star Trucks	4700 Set Forward Axle	2020	4
VQUI2002	Freightliner	M2 106 Medium Duty	2021	3
VQUI2101	Ford	F-750	2021	3
VEH2201	Ford	F-250	2022	2
VEH2202	Ford	F-350	2022	2
VEH2301	Ford	F-350	2023	1
VEH2302	Ford	F-350	2023	1
VEH2305	Ford	F-350	2023	1
VEH2306	Ford	F-350	2023	1
VQUI2302	Ford	F-350	2023	1
VQUI2303	Ford	F-550	2023	1
VQUI2304	Ford	F-550	2023	1
VEH2307	Ford	Transit	2023	1
VEH2308	Ford	F-350	2023	1
VQUI2401	Ford	F-650	2024	0
Affected Vehicles Average Age				**10**

Source: Rincon analysis of data from Fleetistics.

Table 9 Age of Non-affected Vehicles in Existing IEUA Fleet

Vehicle Name	Make	Model	Model Year	Age (Years)
VEH0419	Ford	F-150	2004	20
VEH0501	Ford	F-150	2005	19
VEH0601	Ford	F-150	2006	18
VEH0602	Ford	F-150	2006	18
VEH0603	Ford	F-150	2006	18
VEH0605	Ford	F-150	2006	18
VEH0606	Ford	F-150	2006	18
VEH0608	Ford	F-150	2006	18
VEH0612	Ford	F-150	2006	18
VEH0613	Ford	F-150	2006	18
CY52211C0C7D	Ford	F-150	2006	18
VEH0801	Ford	F-150	2008	16
VEH0802	Ford	F-150	2008	16
VEH0803	Ford	F-150	2008	16

Vehicle Name	Make	Model	Model Year	Age (Years)
VEH0805	Ford	F-150	2008	16
VEH0806	Ford	F-150	2008	16
VEH1401	Ford	F-150	2014	10
VEH9902	Toyota	Tacoma	2014	10
VEH1501	Ford	F-150	2015	9
VEH1502	Ford	F-150	2015	9
VEH1503	Ford	F-150	2015	9
VEH1504	Ford	Escape	2015	9
VEH1505	Ford	Transit Connect	2015	9
VEH1701	Ford	C-MAX	2017	7
VEH1702	Ford	C-MAX	2017	7
VEH1703	Ford	C-MAX	2017	7
VEH1704	Ford	C-MAX	2017	7
VEH1705	Ford	C-MAX	2017	7
VEH1801	Ford	F-150	2018	6
VEH1802	Ford	F-150	2018	6
VEH1803	Ford	F-150	2018	6
VEH1804	Ford	F-150	2018	6
VEH1805	Ford	F-150	2018	6
VEH1806	Ford	F-150	2018	6
VEH1807	Ford	F-150	2018	6
VEH1808	Ford	F-150	2018	6
VEH1809	Ford	F-150	2018	6
VEH1810	Ford	F-150	2018	6
VEH1811	Ford	F-150	2018	6
VEH1812	Ford	F-150	2018	6
VEH1814	Ford	F-150	2018	6
VEH1904	Ford	F-150	2019	5
VEH1905	Ford	F-150	2019	5
VEH1906	Ford	F-150	2019	5
VEH1907	Ford	F-150	2019	5
VEH1908	Ford	Escape	2019	5
VEH1909	Ford	Escape	2019	5
VEH1910	Ford	F-150	2019	5
VEH1911	Ford	F-150	2019	5
VEH1912	Ford	F-150	2019	5

Vehicle Name	Make	Model	Model Year	Age (Years)
VEH2101	Ford	Escape	2021	3
VEH2102	Ford	Escape	2021	3
VEH2103	Ford	F-150	2021	3
VEH2104	Ford	F-150	2021	3
VEH2105	Ford	F-150	2021	3
VEH2203	Ford	Escape	2022	2
VEH2204	Ford	Escape	2022	2
VEH2205	Ford	Ranger	2022	2
VEH2206	Ford	Ranger	2022	2
VEH2303	Ford	F-150 Lightning	2023	1
VEH2304	Ford	F-150 Lightning	2023	1
VEH2310	Ford	Escape	2023	1
Affected Vehicles Average Age				**9**

Source: Rincon analysis of data from Fleetistics.

2.3 ZEV Market

The MDHD ZEV market is rapidly growing with increased support from California's policies. The Advanced Clean Trucks (ACT) regulation approved March 2024 is designed to phase out the sales of MDHD internal combustion engine trucks in California. The ACT aligns with the State's long-term vision of transitioning the State's transport system to zero-emissions vehicles by 2045. These requirements along with incentives from the State will drive MDHD ZEV availability in California in the coming years. However, the availability of MDHD ZEVs remains limited today.

According to CARB, 135 zero-emission truck models were being actively produced and delivered to customers in North America as of July 2022 and 7.5 percent of MDHD vehicle sales in California in 2022 were ZEVs.[10, 11] However, despite this availability, there remains a gap according to anecdotal evidence in MDHD ZEV offerings that can haul and tow without a larger package to meet commercial fleets' needs. For example, while ZEV trucks such as the Ford F-150 Lightning advertise they can tow up to 7,700 pounds and offer a range of 240 miles, anecdotal evidence shows when the trucks do tow heavy loads, the actual range is closer to 90 miles.[12] While significantly shorter than the max range, this distance would still suit many of the trips covered by IEUA vehicles. Additionally, increased production and technical advancements in the capabilities of MDHD ZEVs are anticipated in the short term. Thus, a paced purchasing program will allow IEUA more and technically advanced options over time.

[10] CARB. Advanced Clean Fleets Regulation Summary. Accessed at https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary.
[11] CARB. Advanced Clean Trucks Compliance and Incentives Update. Accessed at https://ww2.arb.ca.gov/resources/documents/advanced-clean-trucks-compliance-and-incentives-update.
[12] https://www.motortrend.com/reviews/ford-f150-lightning-electric-truck-towing-test/

Table 10 shows MDHD ZEVs that are available for purchase today while Table 11 includes MDHD ZEVs that are expected to be available for purchase in the near-term. Information in these tables is sourced directly from manufacturers' websites. While these tables do not present exhaustive lists, they include ZEVs that are relevant to IEUA's operations and reveal the limited availability of MDHD ZEVs during the early years of the ACT requirements. As seen in the tables, EVs account for the available ZEVs today. Section 2.5 Hydrogen Fuel Cell Vehicles provides information on other ZEV options expected in the medium or long term.

Table 10 Available MDHD ZEVs

Model Year	Make	Model	Option	Maximum GVWR (pounds)	Potential Equivalent
Pickup Truck					
2023	Ford	F-150 Lightning PRO[1]	Extended Range Battery or Platinum	8,550	Ford F-150 and F-250, Chevrolet 2500, GMC Sierra
2024	Chevrolet	Silverado EV Work Truck (WT)[2]	WT, 3WT, or 4WT	>8,500	Ford F-150 and F-250, Chevrolet 2500, GMC Sierra
2024	GMC	Hummer EV Pickup[3]	2x or 3x	10,550	Ford F-150 and F-250, Chevrolet 2500, GMC Sierra
Vans					
2023	Ford	E-Transit Cargo Van (T-350)[4]	N/A	9,500	Ford Transit
Cutaways & Chassis Cabs					
2023	Ford	E-Transit Cutaway (T-350)[5]	N/A	9,500	Ford F-250 and F-350
2023	Ford	E-Transit Chassis Cab (T-350)[6]	N/A	9,500	Ford F-250 and F-350
N/A	Lightning	Zero Emission Electric Dump Truck[7]	Base chassis options of the Chevrolet Express 4500 Cutaway or GMC Savana 4500 Cutaway	14,200	Ford F-750, Navistar 4700 4x2
N/A	SEA	5e[8] or SEA-Drive 120a to 120c Power-System[9]	Range of bodies and applications available including cranes and dump bodies as well as Ford F-650 EV and Ford F-750 EV.[10]	14,001-33,000	Ford F-650 and F-750
N/A	Freightliner	eM2[11]	N/A	26,000-33,000	Freightliner M2 106

N/A = not applicable.

Sources:

[1] https://www.fordpro.com/en-us/fleet-vehicles/f150-lightning/f150-pro/

[2] https://www.gmenvolve.com/fleet/electric-vehicles/chevrolet-silverado

[3] https://www.gmc.com/electric/hummer-ev/pickup-truck

[4] https://www.ford.com/commercial-trucks/e-transit/models/cargo-van/

[5] https://www.ford.com/commercial-trucks/e-transit/models/cutaway/

[6] https://www.ford.com/commercial-trucks/e-transit/models/chassis-cab/

[7] https://lightningemotors.com/zev4-dump-body-truck/

[8] https://www.sea-electric.com/products/sea-5e/

[9] https://www.sea-electric.com/products/seadrive120/

[10] https://www.sea-electric.com/products/f650-ev/ and https://californiahvip.org/vehicles/sea-f-750-ev-on-ford-f-750-with-sea-drive-power-system/

[11] https://www.freightliner.com/trucks/em2/

Table 11 MDHD ZEVs Available in Near-term

Model Year/Expected Availability	Make	Model	Option	Maximum GVWR (pounds)	Potential Equivalents
Pickup Truck					
Summer 2024	GMC	Sierra EV Denali[1]	Edition 1	N/A	Ford F-150, Chevrolet 2500, GMC Sierra
2024	Tesla	Cybertruck[2]	H	>9,001	N/A
2025	Ram	1500 REV[3]	1500	N/A	Ford F-150, Chevrolet 2500, GMC Sierra
Cutaways & Chassis Cabs					
N/A – co-creation efforts underway	Freightliner (Daimler)	eM2[4]	Vocational offering to utility, dump, and other work truck applications	N/A	Freightliner M2 106, Ford F-700 and F-750, Navistar 4700 4x2

N/A = Not available.

Sources:

[1] https://www.gmc.com/gmc-life/trucks/first-ever-gmc-sierra-ev-denali-edition-1

[2] https://www.tesla.com/cybertruck

[3] https://www.caranddriver.com/ram/1500-rev

[4] https://www.freightliner.com/trucks/em2/

2.4 Existing Charging Infrastructure

EV chargers are distributed across levels that denote the power output of a charging station. The higher the electrical output, the faster an EV will charge. Thus, the availability of faster charging options is predicated on the electrical infrastructure available at desired charging locations. There are three EV charging levels available today: Level 1, Level 2, and DC Fast Charging. Each level requires different infrastructure, provides different charging speeds, and is most appropriate for different use cases. While faster chargers provide improved charging times from many hours to an hour or less, it comes at the cost of significant electricity infrastructure needs. Finding the right charger for each vehicle/use case is an important step in maximizing the benefit and cost effectiveness of EVs. Table 12 presents these charging levels along with their infrastructure needs, known charging speeds for light-duty EVs, estimated charging time for MDHD EVs, and typical use cases. It is important to remember that these charging times are from a 0% battery to a 100% battery which would not be seen in normal operations at IEUA. Additionally, batteries should ideally be used between 20% charge and 80% charge to maximize life expectancy. IEUA should be able to maintain batteries within this range during normal use.

Table 12 EV Charger Types and Speeds

Type	Infrastructure[1]	kWh/hour	Speed for Typical Light-Duty EVs[2]	Estimated Charging Time for MDHD EVs[3]	Typical Use Case
Level 1	120-volt/12-amp AC outlet	1.5	Up to 5 miles of range per hour	40 hours	Light-duty EVs with long downtimes or short mileage per day
Level 2	240-volt/32-amp AC outlet	7.5	Average of 25 miles of range per hour	8 hours	General EV charging including overnight or while at work
DC Fast Charging	480-volt/100-amp DC input	50+	Up to 150+ miles of range per hour	~1 hour	Light-duty EVs with very short downtimes. MDHD vehicles with large batteries and short downtimes

amp = ampere; AC = Alternating current; kWh = kilowatt-hour; DC = Direct current; ~ = approximately.

Sources:

[1] Freightliner. Planning Your Electric Vehicle Charging Infrastructure. Accessed at https://www.freightliner.com/blog-and-newsletters/planning-your-electric-vehicle-charging-infrastructure/.

[2] Duke Energy. Electric Vehicle Chargers. Accessed at https://www.duke-energy.com/energy-education/electric-vehicles/charging-your-ev/types-of-chargers.

[3] Estimated charging time for MDHD EVs is calculated using an estimated range of 200 miles.

IEUA has already deployed a number of EV chargers to support their existing EVs (which include the non-affected Ford C-MAX's in Table 3) and their employees as well as the public who commute using EVs. As shown in Table 13, IEUA has 14 Level 1 charging ports and one Level 2 charging port across three facilities. The table also includes IEUA's future plans for the existing chargers. IEUA plans to keep some existing charging infrastructure and replace or remove others in favor of faster charging infrastructure.

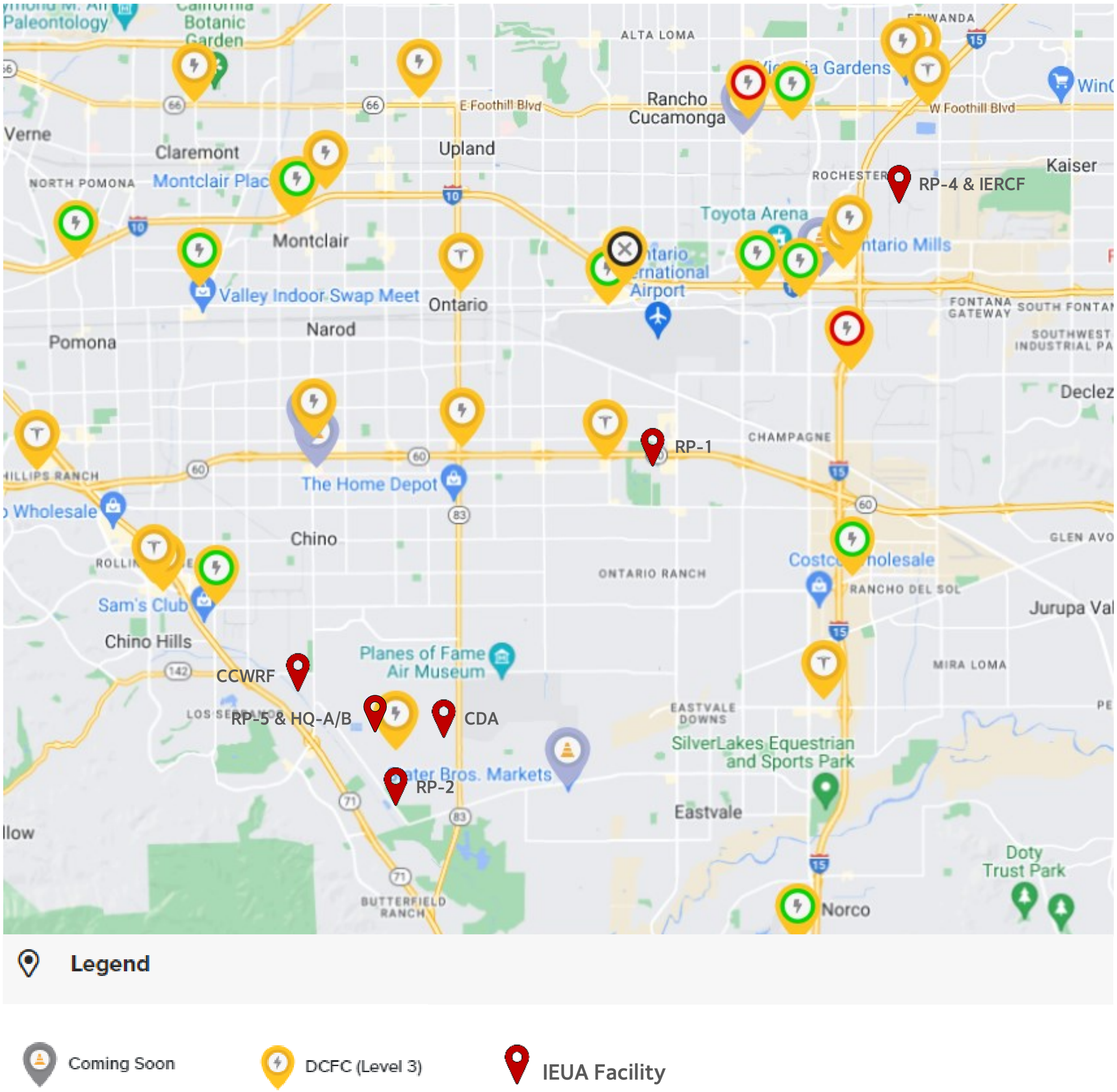
Table 13 IEUA Existing EV Charging Ports by Location

Location	Charging Level	Number of Stations	Number of Total Ports	Plans for Existing Stations
HQ-A 6075 Kimball Avenue, Chino	L1	4	4	Replace
	L1	4	8	Keep
RP-5 and HQ-B 6063 Kimball Avenue, Chino and 6075 Kimball Avenue, Chino	L1	1	1	Remove
	L2	1	1	Remove
2662 E Walnut Street, Ontario	L1	1	1	Replace

L1 = Level 1 charging; L2 = Level 2 charging.

In addition to IEUA's chargers, there is also a network of public DC Fast Chargers in the area. Figure 3 identifies over ten existing DC Fast Chargers within or close to IEUA's service area and identifies where additional chargers are being built. California is currently investing in EV charging infrastructure with $384 million of federal National Electric Vehicle Infrastructure funds to be allocated to build a network of DC Fast Chargers along Alternative Fuel Corridors throughout the State.[13] While IEUA will be able to use the existing and anticipated public DC Fast Chargers, IEUA will still need to install additional chargers to meet their charging needs as the fleet transitions to ZEVs.

Figure 3 Existing DC Fast Chargers Near IEUA Service Area



Source: ChargeHub results for Chino, CA. Retrieved 10/31/2023 from https://chargehub.com/en/charging-stations-map.html.

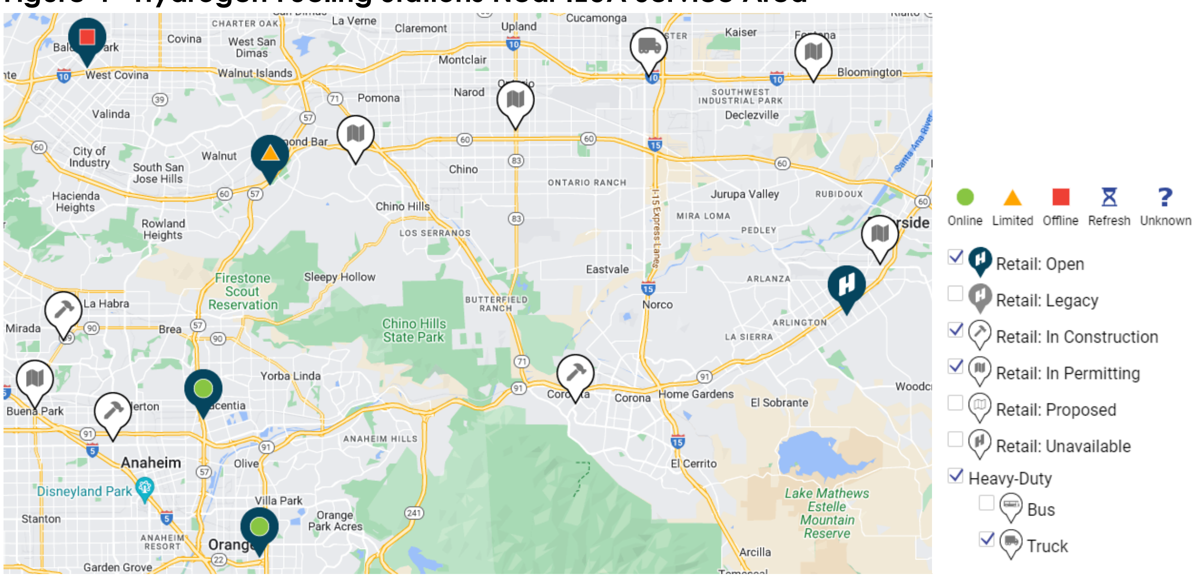
[13] California Energy Commission (CEC). National Electric Vehicle Infrastructure (NEVI) Formula Program. Accessed at https://www.energy.ca.gov/programs-and-topics/programs/national-electric-vehicle-infrastructure-nevi-formula-program.

2.5 Hydrogen Fuel Cell Vehicles

Presently, ZEV technologies include battery EVs and hydrogen fuel cell electric vehicles. While the ZEV market is predominately made up by battery EVs (as demonstrated in Table 10), hydrogen fuel cell vehicles are expected to serve as another solution to help fill the existing ZEV gap for long distance travel and heavy hauling. Hydrogen fuel cell options are currently available for light-duty vehicles and heavy-duty vehicles such as buses and day cab tractors. However, hydrogen fuel cell vehicles relevant to everyday IEUA's operations, such as pickup trucks, are not yet available in the market. While companies like Toyota and Ford have successfully prototyped hydrogen fuel-cell pickup trucks (i.e., the Toyota Hilux and the Ford F-550 Fuel Cell Prototype Chassis Work Truck), no manufacturers have announced plans for commercial production yet.[14, 15]

Nonetheless, MDHD hydrogen fuel cells are expected to breech the ZEV market in the long-term indicating a need for readily available hydrogen fueling stations. According to the Hydrogen Fuel Cell Partnership, there is only one heavy-duty hydrogen fuel station (i.e., truck fuel station) in close proximity to IEUA's service area (see Figure 4) and a few under construction or in the permitting phase of development.

Figure 4 Hydrogen Fueling Stations Near IEUA Service Area



Source: Hydrogen Fuel Cell Partnership. Station Map. Accessed at https://h2fcp.org/stationmap.

[14] Edelstein, Stephen. Toyota Reveals Hydrogen Fuel-cell Electric Pickup Truck (2023). Green Car Reports. Accessed at https://www.greencarreports.com/news/1140734_toyota-reveals-hydrogen-fuel-cell-electric-pickup-truck.
[15] Foote, Brett. Ford F-550 Fuel Cell Prototype Work Truck Joins Ferguson Fleet (2022). Accessed at https://fordauthority.com/2022/09/ford-f-550-fuel-cell-prototype-work-truck-joins-ferguson-fleet/.

Currently, the average retail price for hydrogen is about $33 per kilogram in the California.[16] In terms of powering a typical passenger vehicle, this cost range indicates it would cost about $55 to power a hydrogen fuel cell vehicle 100 miles using retail hydrogen at fueling stations.[17] In contrast, it would cost about $19 to power a gasoline-powered passenger vehicle 100 miles.[18] However, on-site hydrogen production is a possible long-term solution to fuel potential future hydrogen fuel cell vehicles. Currently, on-site generation of clean hydrogen ranges from a cost of about $6 per kilogram to $12 per kilogram in the U.S.[19, 20, 21] In term of powering a typical passenger vehicle, this cost range indicates it would cost about $10 to $20 to power a hydrogen fuel cell vehicle 100 miles using hydrogen produced on site—a cost closer to and even less than that for a gasoline-powered vehcile.[17] Meanwhile the operations and maintenance costs of EV's are significantly less than both ICE and hydrogen vehicles.[22] Table 14 provides examples of viable on-site hydrogen generators on the market today.

Table 14 On-site Hydrogen Production Examples

Company	Produce	Potential Hydrogen Generation	Costs	Notes
One H2	H-Series Hydrogen Generators[1]	N/A	Leasing options for all systems and opportunities to sell excess hydrogen back to company	Footprint requirements are 420 or 630 square feet
Element 1	L-Series Hydrogen Generators[2]	50 to 1000 kilograms/day	Claims offers lowest cost per kilogram and lowest initial cost of equipment (up to 75 percent lower than market)	N/A

N/A = Not available.

Sources:

[1] https://oneh2.com/solutions/on-site-generation/

[2] https://www.e1na.com/onsite-hydrogen-refuelling

[16] Canel Soria, Santiago and Weeks, Daniel (S&P Global). "Feature: Logistical woes and high pump prices stall California H2 market development" (2024). Accessed at: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/012324-logistical-woes-and-high-pump-prices-stall-california-h2-market-development.

[17] According to the U.S. Vehicle Technologies Office, hydrogen fuel cell vehicles currently average 60 miles per one kilogram of hydrogen. Applying this statistic to the cost range for hydrogen generation yields a range of $10 to $20 to power the vehicle 100 miles.
U.S. Vehicle Technologies office. Hydrogen's Role in Transportation (2022). Accessed at https://www.energy.gov/eere/vehicles/articles/hydrogens-role-transportation#:~:text=One%20kg%20of%20hydrogen%20contains,on%20a%20gallon%20of%20gasoline..

[18] According to the U.S. Office of Energy Efficiency and Renewable Energy, one kilogram of hydrogen contains about the same energy as a gallon of gasoline; and conventional vehicles average about 25 miles per gallon. Additionally, according to the U.S. Energy Information Administration, gasoline prices in California have averaged about $4.80 over the past three years. Applying the average fuel efficiency to the average price of gasoline yields a cost of about $19 to power the vehicle 100 miles.
U.S. Vehicle Technologies office. Hydrogen's Role in Transportation (2022).
U.S. Energy Information Administration. Petroleum & Other Liquids Data: California All Grades All Formulations Retail Gasoline Prices (2023). Accessed at https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPM0_PTE_SCA_DPG&f=M.

[19] Clean hydrogen refers to hydrogen produced from energy resources that emit net zero greenhouse gases. These energy resources include renewable energy like solar and wind, nuclear energy, or fossil resources paired with carbon capture.

[20] U.S. Department of Energy. Pathways to Commercial Liftoff: Clean Hydrogen (2023). Accessed at https://liftoff.energy.gov/wp-content/uploads/2023/05/20230523-Pathways-to-Commercial-Liftoff-Clean-Hydrogen.pdf.

[21] International Energy Agency. Global Hydrogen Review 2023. Accessed at https://iea.blob.core.windows.net/assets/8d434960-a85c-4c02-ad96-77794aaa175d/GlobalHydrogenReview2023.pdf.

[22] https://www.fleetnews.co.uk/electric-fleet/policy/are-service-and-maintenance-costs-for-electric-vehicles-really-cheaper

3 IEUA's ZEV Goals

IEUA aims to utilize the existing vehicle fleet and conditions analysis to comply with ACF requirements while maintaining adequate and reliable service to the approximately 935,000 people IEUA serves over a 242 square mile area.[23] As such, IEUA's ZEV goals include purchasing and planning for the use of MDHD vehicles to:

- Comply with ACF requirements,
- Meet vehicle and operational needs,
- Maintain a resilient energy supply, and
- Minimize vehicle and infrastructure costs.

Complying with ACF requirements will involve procuring ZEVs to phase out the use of ICE MDHD vehicles as they reach the end of their useful life and phase in the use of ZEVs. IEUA aims to balance these procurements in a way that meets their operational needs, maintains a resilient energy supply, and minimizes costs to maintain reliable service to all customers.

Based on an analysis of IEUA's existing vehicle fleet and conditions as well as IEUA's goals, IEUA has developed several strategies to phase in MDHD ZEVs over time. Section 4 *ZEV Phase in Strategies* outlines IEUA's overall approach for phasing in ZEVs and provides specific strategies under four focus areas. These strategies can be implemented over time in conformance with the regulation. Implementation of every strategy will not be required, but combining strategies will help IEUA adhere to the overall approach and maximize their goals. While the strategies do not provide IEUA with a specific vehicle replacement schedule, they provide IEUA with a process to develop one as information is gathered, systems are refined, and new technologies continue to become available.

[23] IEUA. https://www.ieua.org/about-us/.

4 ZEV Phase in Strategies

IEUA's ZEV phase-in approach includes strategies centered around four focus areas: vehicle replacements, behavior change, charging, and funding. The focus areas and strategies are to be implemented in phases that correspond to ACF requirements and projected trends in IEUA's affected fleet. The phases are defined as follows:

- **Near Term.** 2024 to 2025, when 50 percent of affected vehicles purchased must be ZEVs but IEUA will most likely not need to purchase new affected vehicles.
- **Medium Term.** 2025 through 2026, when 50 percent of affected vehicles purchased must be ZEVs and IEUA will need to purchase new affected vehicles.
- **Long Term.** After 2027, when 100 percent of affected vehicle purchases must be ZEVs.

The four focus areas include:

- **Phased Vehicle Replacements.** In the near term, avoid early ZEV purchases for affected vehicles and focus on expanding charging infrastructure and replacing, as needed, non-affected vehicles with ZEV alternatives, if cost effective, to demonstrate proof-of-concept. In the medium and long term, pair affected ZEV purchases with affected ICE vehicles purchases for vehicles that need replacement but do not yet have available or optimal ZEV alternatives.
- **Behavior Change.** Analyze affected vehicle use behavior and pilot behavior change recommendations to optimize IEUA's vehicle use system for the ZEV phase-ins.
- **Charging and Resilience.** In the near term, install Level 2 EV ready spaces at all facilities with a focus on wiring, conduits, and electrical panel upgrades. In the medium term, install about 35 percent of projected EV chargers at key locations and continue to scale over time.
- **Funding.** Apply for early action funding opportunities and monitor state funding opportunities as they arise.

The strategies under each focus area are summarized in Table 15 and detailed in the below subsections.

Table 15 Summary of Strategies by Focus Area

Strategy Identifier	Strategy	Timeline
Vehicle Replacements		
VR-1	Focus, as needed, on replacing non-affected vehicles with ZEV alternatives	Near term
VR-2	Identify ICE vehicle replacements to pair with affected ZEV purchases	Medium term
VR-3	Continue to develop relationships with ZEV manufacturers	Near and medium term
VR-4	Continue to monitor CARB exemptions	Near to long term
Behavior Change		
BC-1	Identify specific “home bases” for ZEVs	Near to long term
BC-2	Identify specific vehicles for specific tasks	Near to long term
BC-3	Provide trainings for fleet managers and drivers on efficient ZEV operation, maintenance, and charging protocols	Near to long term
Charging and Resilience		
CR-1	Prioritize wiring, conduit, and electrical panel upgrades in the near-term	Near term
CR-2	Plan for needed EV charging capacity based on vehicle use scenarios	Near and medium term
CR-3	Continue to coordinate with SCE early to plan infrastructure upgrades	Near term
CR-4	Utilize smart chargers for capacity-constrained buildings	Medium to long term
CR-5	Consider back-up power options for fleet resilience and emergency planning	Medium to long term
CR-6	Consider DC Fast Chargers	Medium to long term
Funding and Resources		
FR-1	Apply for early action funding opportunities	Near term
FR-2	Monitor funding opportunities	Near to long term
FR-3	Leverage technical assistance programs	Near to long term

4.1 Vehicle Replacements

After January 1, 2024, at least 50 percent of affected vehicle purchases will need to be near-ZEVs or ZEVs pursuant to the ACF regulation. IEUA’s recent purchase of ICE MDHD vehicles indicates IEUA may not need to purchase affected vehicles in the near-term. IEUA can likely postpone the purchase of ZEVs until affected ICE vehicle replacements that do not have ZEV alternatives are needed. Therefore, ZEV purchases can be paired with needed ICE vehicle replacements on a one-to-one basis and meet the regulatory requirement until 2027. This approach will allow IEUA to maintain compliance with ACF requirements in the medium term and gain additional time to both prepare ZEV charging infrastructure and wait for relevant improvements in the ZEV market. Strategies VR-1, VR-3, and VR-4 are included below and will help IEUA prepare for future affected ZEV purchases while strategy VR-2 provides IEUA a preliminary affected vehicle replacement schedule which IEUA can refine to better project future affected ZEV purchases.

VR-1 Focus on Replacing Non-affected Vehicles with ZEV Alternatives

While non-affected ZEVs (e.g., passenger vehicles and light-duty trucks) have different capabilities and technological demands compared to affected ZEVs (e.g., MDHD trucks), their deployment and use in IEUA's fleet will provide IEUA proof-of-concept for wider ZEV adoption. Electric drivetrains, including those in EVs and hydrogen fuel cell vehicles, are well suited for stop-and-go driving where ICE vehicles are least efficient.[24] Integrating non-affected ZEVs into IEUA's fleet will help identify activities and uses for which ZEVs at IEUA are more efficient than ICE vehicles. Introducing the non-affected ZEVs will also familiarize IEUA drivers with the technology and charging needs and location requirements as well as fleet managers with their lower maintenance needs.[25]

VR-2 Identify ICE Vehicle Replacements to Pair with Affected ZEV Purchases

To plan for future affected ZEV purchases, IEUA should identify how many affected ICE vehicles will need replacement in the early years of the ACF regulation pursuant to the model year schedule option. Table 16 presents a preliminary replacement schedule for IEUA's affected vehicles. The schedule is based on CARB's ACF Calculator and follows CARB's model assumption that each vehicle will have a lifespan of approximately 18 years.[26] However, some vehicles in the table have a lifespan longer than 18 years. These vehicles are already older than 18 years and are instead assumed to need replacement in the next five years (i.e., by 2028).

The table details that before January 1, 2027, 12 affected vehicles may need replacement. These replacements would need to either be ZEVs or be paired with another affected ZEV purchase. While Table 16 provides this schedule, it is intended be used as a starting point for further planning. IEUA should refine the schedule by focusing on the oldest vehicles in the fleet (identified with an asterisk) and survey fleet operators to identify vehicles that exhibit poor performance.

Table 16 Preliminary IEUA Affected Vehicle Replacement Schedule

Vehicle Name	Make	Model	Model Year	Maximum Useful Life (years)	Replacement Year[1]
VQUI0700*	Ford	F-750	2007	18	2025
VEH0710	Ford	F-350	2008	18	2026
VEH0711	Ford	F-350	2008	18	2026
VEH0712	Ford	F-350	2008	18	2026
VEH0713	Ford	F-350	2008	18	2026
VEH0714	Ford	F-350	2008	18	2026
VEH0715 (2008)	Ford	F-350	2008	18	2026
VEH0807	Ford	F-350	2008	18	2026
VEH0808	Ford	F-350	2008	18	2026

[24] CARB. Advanced Clean Trucks Fact Sheet. Accessed at https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet#:~:text=Today%2C%20electric%20drivetrains%20are%20well,conventional%20engines%20are%20least%20efficient.
[25] https://www.motortrend.com/news/government-ev-ice-maintenance-cost-comparison/
[26] A copy of CARB's ACF Calculator with IEUA's affected vehicle fleet information will be provided to IEUA as an attachment to this plan.

Vehicle Name	Make	Model	Model Year	Maximum Useful Life (years)	Replacement Year[1]
VEH0809	Ford	F-350	2008	18	2026
VEH0810	Ford	F-350	2008	18	2026
VEH0811	Ford	F-350	2008	18	2026
VQUI1102	Freightliner	M2 106 Medium Duty	2009	18	2027
VEH0205*	Chevrolet	Full Size Truck	2002	26	2028
VEH0304*	Ford	F-250	2003	25	2028
VEH0417*	Ford	F-250	2004	24	2028
VEH0609*	Ford	F-350	2006	22	2028
VQUI8810*	Ford	L-8000	1988	40	2028
VQUI8908*	Ford	F-700	1989	39	2028
VQUI9216*	Navistar Int'l Transportation Corp	4700 4x2	1992	36	2028
VEH1101	Ford	F-250	2012	18	2030
VEH1301	Ford	F-350	2013	18	2031
VEH1402	Ford	E-450	2014	18	2032
VQUI1203	Mack	GU (Granite) 700	2014	18	2032
VEH1601	GMC	Sierra	2016	18	2034
VEH1706	Ford	F-250	2017	18	2035
VEH1708	Ford	F-250	2017	18	2035
VEH1709	Ford	F-250	2017	18	2035
VEH1707	Ford	F-250	2017	18	2035
VEH1800	Ford	Transit	2018	18	2036
VEH1813	Ford	F-350	2018	18	2036
VEH1815	Ford	F-250	2018	18	2036
VEH1816	Ford	F-250	2018	18	2036
VEH1817	Ford	F-250	2018	18	2036
VEH1818	Ford	F-250	2018	18	2036
VEH1819	Ford	F-250	2018	18	2036
VEH1820	Ford	F-250	2018	18	2036
VEH1821	Ford	F-250	2018	18	2036
VEH1822	Ford	F-250	2018	18	2036
VQUI 1901	Ford	F-750	2018	18	2036
VEH1901	Ford	F-250	2019	18	2037
VEH1902	Ford	F-250	2019	18	2037
VEH1903	Ford	F-250	2019	18	2037
VEH1913	Ford	F-250	2019	18	2037

Vehicle Name	Make	Model	Model Year	Maximum Useful Life (years)	Replacement Year[1]
VEH1914	Ford	F-250	2019	18	2037
VEH1916	Ford	F-250	2019	18	2037
VEH1917	Ford	F-250	2019	18	2037
VEH1918	Ford	Transit	2019	18	2037
VQUI1900	Freightliner	108 SD	2019	18	2037
VQUI2001	Western Star Trucks	4700 Set Forward Axle	2020	18	2038
VQUI2002	Freightliner	M2 106 Medium Duty	2021	18	2039
VQUI2101	Ford	F-750	2021	18	2039
VEH2201	Ford	F-250	2022	18	2040
VEH2202	Ford	F-350	2022	18	2040
VEH2301	Ford	F-350	2023	18	2041
VEH2302	Ford	F-350	2023	18	2041
VEH2305	Ford	F-350	2023	18	2041
VEH2306	Ford	F-350	2023	18	2041
VQUI2302	Ford	F-550	2023	18	2041
VQUI2303	Ford	F-550	2023	18	2041
VQUI2304	Ford	F-550	2023	18	2041

(*) indicates vehicle is among the oldest in the affected vehicle fleet.

Source: Rincon Consultants, Inc. (Rincon) analysis of CARB's ACF Calculator using data from Fleetistics.

[1] For replacement years 2025 and 2026, 50% of affected vehicle purchases must be ZEVs. For replacement years 2027 and higher, 100% of affected vehicle purchased must be ZEVs.

VR-3 Continue to Develop Relationships with ZEV Manufacturers

As IEUA begins to identify affected vehicles that need replacement, they will need to continue developing relationships with ZEV manufacturers. Most ZEVs listed in Table 10 and Table 11 have limited availability and long wait times. However, getting on the waitlist early for affected ZEVs will help position IEUA to obtain such vehicles when needed in the medium term. Many ZEVs in pre-production already have waitlists and manufacturers tend to prioritize commercial and fleet customers. For example, the Chevrolet Silverado EV Work Truck was made available to commercial and fleet customers well ahead of the general market.[27]

Manufacturers will also work directly with commercial and fleet customers to understand their vehicle needs and provide them with ZEV solutions. For example, Navistar helps fleets develop weight reduction plans (relative to battery weights) and Kenworth provides fleet customers support on grant writing processes and applications.[28] Manufacturers have also been known to partner with fleets on ZEV demonstration projects, providing those customers early access to ZEVs. As such,

[27] Chevrolet. The First-ever All-electric Silverado. Accessed at: https://www.chevrolet.com/electric/silverado-ev#:~:text=Initial%20availability%20for%20Fleet%20and,Retail%20availability%20expected%20summer%202024.&text=Ready%20to%20get%20things%20done,impressive%20450%20miles%20of%20range.

[28] Brawner, Steve. Medium-Duty Segment Offers Entrée to Fleet Electrification (2023). Accessed at https://www.ttnews.com/articles/electric-trucks-medium-duty.

continuing to develop relationships with ZEV manufacturers now will help IEUA access affected ZEVs when needed.

VR-4 Continue to Monitor CARB Exemptions

The ACF regulation includes the option for ZEV Purchase Exemptions. Pursuant to this option, fleet owners shall receive an exemption from the ZEV purchase requirements to purchase a new ICE vehicle if either the vehicle is included in CARB's ZEV Purchase Exemption List, or the fleet owner obtains an approved ZEV Purchase Exemption Application from CARB. CARB has not yet published the list; however, it will not include any pickup trucks, buses, box trucks, vans, or tractors.[29] Furthermore, CARB is still establishing the process for the exemption application. Due to the uncertainties with the application process and the determination that the list will not include pickup trucks—which account for the majority of IEUA's affected vehicles—IEUA should not rely on the possibility of exemptions to meet ACF requirements while maintaining their fleet operations. Rather, IEUA should continue to monitor the exemption list and application process as CARB determines them and rely on strategies VR-2 and VR-3 to meet their fleet goals.

4.2 Behavior Change

In most cases switching from ICE vehicles to ZEVs works as a "drop-in" replacement which does not necessitate additional behavior changes in most situations. EV's work much like ICE vehicles aside from charging infrastructure. However, behavior changes can help IEUA optimize their fleet for EV's, further reduce costs, and prepare for ZEV phase-ins. Studying affected vehicle use and piloting strategies now for behavior change can help IEUA reduce the need for affected ZEV purchases, reduce the need for charging infrastructure, and support a smooth transition to ZEVs. Strategies BC-1 through BC-3 outline IEUA's opportunities for behavior change and the steps for which IEUA can plan for and pilot new strategies.

BC-1 Identify Specific "Home Bases" for ZEVs

IEUA currently has significant flexibility around where their fleet vehicles are stored and maintained. Maintaining such flexibility with a ZEV fleet, however, would require the installation of more chargers than would be necessary to maintain a fully charged fleet. To minimize charger needs and associated costs, IEUA can identify "home bases" for each ZEV and reliable provide charging and avoid stranded charging assets. This change would minimize the number of chargers needed across IEUA facilities and would be accommodated through a simple travel patterns survey for each vehicle.

BC-2 Identify Specific Vehicles for Specific Tasks

As identified in Section 2.2 Existing Behavior, IEUA uses affected vehicles for multiple uses. Maintaining this use pattern would require many of the affected fleet to be transitioned to MDHD ZEVs for ACF compliance as they need replacement. However, with intentional planning, IEUA can implement a refined system for vehicle use that does not require every vehicle to complete all tasks. This refined system could help IEUA reduce the number of affected vehicle purchases needed in the medium and long term. For example, if 80 percent of an affected vehicle's duties include

[29] The list will be kept on CARB's website and will include the following vehicle configurations: bucket truck, boom truck, dump truck, flatbed truck, stake bed truck, front-loader refuse compactor truck, sideloader refuse compactor truck, rear-loader refuse compactor truck, refuse roll-off truck, service body truck, street sweeper, tank truck, tow truck, water truck, car carrier truck, concrete mixer truck, concrete pump truck, crane, drill rig, vacuum truck.

transporting tools and the remaining 20 percent include towing or using a crane, a non-affected (i.e., light-duty) ZEV could be used for most of the duties while a shared, affected vehicle could be scheduled for the specialized duties. Specifically, a non-affected Ford F-150 Lightning could be used to transport lighter-weight tools, equipment, and trailers while current ICE Ford F-350s and F-550s could be retained for crane use and heavy hauling.

A use pattern like this example in the medium and long term would allow IEUA to purchase available non-affected ZEVs for general use while retaining ICE vehicles for specialized work in the interim when affected ZEVs are not available. This strategy could save IEUA considerable resources and reduce the need to purchase affected ZEVs before new technologies become available. To implement a shared use pattern for specialized, affected vehicles, IEUA will need to survey affected vehicle uses to better understand their use requirements. The system could distribute vehicles to operators on a daily or project-by-project basis based on operator requests and projected needs. The system can also include flex vehicles to cover unexpected needs for specialized tasks.

BC-3 Provide Trainings for Fleet Managers and Drivers on Efficient ZEV Operation, Maintenance, and Charging Protocols

While ZEVs operate in similar ways to ICE vehicles they will require new operating, maintenance, and charging procedures to optimize their operation. IEUA should work with ZEV manufacturers to develop training for fleet operators and managers. As non-affected and affected ZEVs are acquired, IEUA should require training for all fleet managers and ZEV drivers. In addition to these trainings, IEUA should also train all managers and operators on changes to the fleet vehicle use system (pursuant to BC-1 and BC-2) as changes are implemented.

4.3 Charging and Resilience

Leveraging the recent purchase of affected ICE vehicles means IEUA will not need full buildout of EV chargers in the near term. Instead IEUA should focus on installing the infrastructure needed to ready facilities for future ZEV charging needs and begin exploring options to increase resilience in the long term. Strategy CR-1 outlines IEUA's near-term focus for EV charging infrastructure while strategy CR-2 presents EV charging scenarios for IEUA to utilize for medium- and long-term EV infrastructure planning. As detailed in the Vehicle Downtime section, it is recommended that IEUA plan to install mostly Level 2 charging infrastructure because most affected vehicles experience long downtimes (i.e., at least eight hours) for charging. Strategy CR-6 however helps IEUA consider additional DC Fast Chargers to these scenarios. Strategy CR-3 helps IEUA preposition for buildout services and strategies CR-4 and CR-5 help IEUA begin planning for resilience as ZEV adoption progresses.

CR-1 Prioritize Wiring, Conduit, and Electrical Panel Upgrades in the Near-Term

In the near term, IEUA should focus on installing wiring and conduits, and upgrading electrical panels to create EV ready spaces at all facilities. EV ready spaces are dedicated parking spaces provided with a branch circuit and conduits to support future EV supply equipment. Pursuant to strategy CR-2, all EV ready spaces should have the capacity to support Level 2 charging (i.e., 240-volt outlet).

To plan and budget for EV ready spaces, IEUA should coincide wiring and conduit installations with parking lot redesign and expansions. Likewise, IEUA should also begin to consider future EV charging needs in all electrical panel upgrade projects whether they are related to EV spaces or building and facility projects. Coinciding these installations and upgrades with adjacent projects will help IEUA minimize infrastructure costs by preventing repetitive upgrade projects. In addition to these priorities for EV readiness, IEUA should begin installing some fully functional Level 2 EV charging stations for the non-affected ZEVs purchased for strategy VR-1. This early buildout will help IEUA build capacity for future ZEV adoption and establish relationships with installers.

CR-2 Plan for Needed EV Charging Capacity Based on Vehicle Use Scenarios

In the long term (i.e., by 2030) IEUA should aim to install about 35 percent of the EV chargers needed to support the projected fully transitioned ZEV fleet. This goal is proportional to the projection of affected ZEVs IEUA will have by 2030 pursuant to CARB's ACF Calculator.[26] To plan for this goal and determine the number of chargers associated with it, IEUA must determine an EV charging scenario that will work for their fleet operation and storage locations.

Both EV charging scenarios presented below assume IEUA will mostly need Level 2 charging to support their affected ZEV fleet. Because IEUA's existing affected vehicles exhibit long downtimes times (see Table 5), most affected ZEVs will be able to reliably receive a full charge overnight. As detailed in Table 12, Level 2 chargers are well suited to support overnight charging (i.e., at least eight hours of downtime) for MDHD vehicles and will thus meet most of IEUA's affected ZEV needs in each scenario. Although IEUA does not need DC Fast Chargers due to the availability of affected fleet vehicles (based on analysis in the Vehicle Downtime section), DC Fast Chargers can supplement Level 2 chargers to provide additional flexibility in each scenario and account for the occasional emergencies when affected ZEVs may exhibit shorter downtimes or be used overnight. Table 17 provides further details on the EV charger types recommended for IEUA.

Table 17 EV Charger Recommendations for Affected ZEVs

Type	Estimated Charging Time for MDHD EVs	IEUA Recommendation	Charger Examples
Level 1	40 hours	Not recommended	▪ PortFI Commercial EV Charging Solution – Smart Level 1 Station & Software Package[1] ▪ ProMountDuo Universal Pedestal (Rugged Model)[2]
Level 2	8 hours	Recommended for all charging in medium term and majority of charging in long term	▪ ChargePoint CT 4000 or CPF50[3] ▪ EvoCharge iEVSE w/Wi-Fi[4] ▪ Blink IQ 200[5] ▪ JuiceBox Pro 40[6] ▪ Ford Pro AC Charging Station[7]
DC Fast Charging	~1 hour	Recommended for small portion of charging in long term for flexibility and emergencies	▪ ChargePoint Express Plus[8] ▪ Electrify America (Hyper-Fast, Ultra-Fast, CHAdeMO)[9] ▪ EVgo Fast Charger[10] ▪ Tesla DC Fast-Charger[11] ▪ Ford Pro DC Charging Station or Cabinet 180[12]

DC = Direct current.

Sources:

[1] https://portfi.biz/products/portfi-smart-level-1-commercial-charging-package

[2] https://enphase.com/store/ev-chargers/ev-charger-accessories/promountduo-universal-pedestal-evse-ruggedized?hsa_acc=1236416428&hsa_cam=20130257651&hsa_grp=&hsa_ad=&hsa_src=x&hsa_tgt=&hsa_kw=&hsa_mt=&hsa_net=google&hsa_ver=3&gad_source=1&gclid=Cj0KCQiApOyqBhDlARIsAGfnyMqiW9y_7-vpJhD30EMztoK_YvPRTKJz7Ep8ujkFmcVfZ8JO0liLBrkaAmLNEALw_wcB&utm_term=&utm_campaign=&utm_source=google&utm_medium=ppc

[3] https://www.chargepoint.com/businesses/ac-stations/ct4000 or https://www.chargepoint.com/fleet/stations/cpf50

[4] https://commercial.evocharge.com/product/evocharge-ievse/

[5] https://blinkcharging.com/products/iq-200-level-2-ev-charging-station?locale=en

[6] https://evcharging.enelx.com/store/commercial/juicebox-pro-40-commercial

[7] https://www.fordpro.com/en-us/charging/ecommerce-products-list/#public

[8] https://smartchargeamerica.com/electric-car-chargers/commercial/chargepoint-express-plus/

[9] https://www.electrifyamerica.com/what-to-expect/

[10] https://www.evgo.com/charging-solutions/evgo-fleet-solutions/

[11] https://www.tesla.com/supercharger

[12] https://content.fordpro.com/content/dam/fordpro/us/en-us/pdf/charging-products-list/dc-chargers/Ford-Pro-DC-Charging-Station-60_120kW.pdf or https://content.fordpro.com/content/dam/fordpro/us/en-us/pdf/charging-products-list/dc-chargers/Ford-Pro-DC-Charging-Cabinet.pdf

While the type of chargers IEUA will need remains consistent between scenarios, the following scenarios can be used to determine the total number of charging ports needed, the distribution of such ports across IEUA's facilities, and the infrastructure costs IEUA will need to budget for. The first scenario assumes no behavior change strategies are implemented and the affected ZEV fleet performs the same as the existing affected fleet. This scenario provides the maximum number of EV chargers IEUA may need. The second scenario assumes some behavior change strategies (i.e., strategy BC-1) is implemented to reduce the number of affected ZEVs and EV chargers needed. This scenario provides a lower, but still conservative, number of EV chargers IEUA may need. Infrastructure costs are estimated using the cost data from the California Electric Vehicle Infrastructure Project (CALeVIP) which shows the average cost of a Level 2 charging connector is

$9,014 per connector and the average cost of a DC Fast Charger is $104,326 per charger.[30, 31] The differences between the scenarios are mainly driven by behavior change strategies implemented.

Scenario 1 – No Behavior Change

The first scenario for IEUA's EV charging needs is one that assumes the affected ZEV behaves the same as the existing affected fleet does now (see Section 2.2). This means Level 2 chargers will be needed at each facility to support the full range of affected vehicles' movement between facilities for overnight charging. This scenario also assumes charging needs during short downtimes for emergencies will be met with existing DC Fast Chargers in IEUA's service area (see Figure 3). Table 18 presents the EV charging ports needed to support a full transition to ZEVs in this scenario. Full buildout of this scenario's 257 ports would cost IEUA about $2.3 million. A 35 percent buildout of this scenario (i.e., 90 Level 2 ports), would cost IEUA about $810,000. Potential funding from sources such as SCE's Charge Ready program may reduce the charging infrastructure costs for IEUA (see strategy FR-2 for additional details).

[30] CEC. CALeVIP Level 2, Range of Rebate, Unit Costs, and Total Project Cost per Level 2 Connector. Accessed at https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/california-electric-vehicle/calevip-1.
[31] CEC. CALeVIP DC Fast Chargers, Range of Rebate, Unit Costs, and Total Project Cost per Level 2 Connector. Accessed at https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/california-electric-vehicle/calevip-dc-0.

Table 18 IEUA Projected EV Charging Ports No Behavior Change

Location	Charging Level	Number of Total Ports	Notes
RP-1 2662 E Walnut Street, Ontario	L2	35	Included in SCE preliminary Charge Ready design. Potential space for additional MDHD charging as parking layout is modified
	L2	16	Proposed
	L2	8	Proposed
RP-4 12811 6th Street, Rancho Cucamonga	L2	12	Parking lot repaint will provide additional parking space
	L2	7	Proposed
HQ-A 6075 Kimball Ave, Chino	L2	18	Proposed as public chargers
	L2	14	Proposed as public chargers
	L2	12	Proposed behind the gate
	L1	8	Existing and proposed to keep. Located behind gate
RP-5 and HQ-B 6063 Kimball Ave, Chino and 6075 Kimball Ave, Chino[1]	L2	12	Proposed as public chargers
	L2	45	Proposed
	L2	24	Proposed
CCWRF 14950 Telephone Ave, Chino	L2	16	Proposed
	L2	2	Proposed
	L2	3	Proposed as public chargers
Inland Empire Regional Composting Authority, 12645 6th Street, Rancho Cucamonga	L2	10	Proposed
	L2	15	Proposed
Total		**257**	

L1 = Level 1 charging; L2 = Level 2 charging.

[1] Potential space for additional MDHD charging behind REEP building.

Scenario 2 – Some Behavior Change

Alternatively, if IEUA implements recommended behavior changes, the need for affected vehicles can be optimized and the number of EV charging ports reduced. For example, if IEUA were to identify and implement home bases (pursuant to strategy BC-1) for each affected vehicle, the number of total charging ports for a full ZEV fleet would fall to 124 ports. This estimate for total ports represents one Level 2 charging port per ZEV with an additional three ports at each facility to allow for some flexibility in vehicle end location. The scenario also allocates one DC Fast Charger to the facilities where the most vehicle trips occur (as shown in Figure 2) to help account for occasional occurrences of short downtimes or emergencies during planned power shutoffs (both shown to be unlikely in Table 5 and Table 7). While the distribution of these ports across facilities cannot be finalized without further study, Table 19 presents the distribution of EV charging ports based on preliminary home bases identified from currently available data. Full buildout of this scenario's 124 ports would cost IEUA about $1.3 million while a 35 percent buildout of this scenario (i.e., 43 Level 2 ports), would cost IEUA about $390,000. Potential funding from sources such as SCE's Charge Ready program may reduce the charging infrastructure costs for IEUA (see strategy FR-2 for additional details).

Table 19 IEUA Projected EV Charging Ports with Home Base Behavior Change

Location	Charging Level	Number of Total Ports	Notes[1]
RP-1 2662 E Walnut Street, Ontario	L2	40	Determined based on current data on vehicle locations with an additional 5 ports for flexibility
	DC Fast	1	Determined based on high frequency of trips seen at facility in Figure 2.
RP-4 12811 6th Street, Rancho Cucamonga	L2	15	Determined based on current data on vehicle locations with an additional 4 ports for flexibility
HQ-A, HQ-B, and RP-5 6075 Kimball Avenue, Chino and 6068 Kimball Avenue, Chino	L2	49	Determined based on current data on vehicle locations with an additional 7 ports for flexibility[2]
	DC Fast	1	Determined based on high frequency of trips seen at facility in Figure 2
CCWRF 14950 Telephone Avenue, Chino	L2	9	Determined based on current data on vehicle locations with an additional 4 ports for flexibility
Inland Empire Regional Composting Authority, 12645 6th Street, Rancho Cucamonga	L2	9	Determined based on current data on vehicle locations with an additional 4 ports for flexibility
Total		**124**	

L1 = Level 1 charging; L2 = Level 2 charging; DC = Direct current.

Location data was not provided for the ten affected vehicles purchased after June 28, 2023. Due to this data constraint, these vehicles were not assigned home bases and not accounted for in this scenario analysis. The additional flex ports at each facility can be assumed to cover these new vehicles.

[1] Since IEUA does not own the CDA facility, the three vehicles reported at the CDA facility as well as three additional chargers for flexibility at that facility were reallocated to the five other facilities. These chargers were reallocated to keep the estimate conservative and are included in the additional chargers for each facility.

[2] Since IEUA is going to relocate the solids treatment located at RP-2 to RP-5, chargers for the vehicles reported at RP-2 were added to the RP-5 chargers.

While the above scenarios do not represent final EV charging port needs for IEUA, they demonstrate the type of planning IEUA will need to perform to determine the ports needed at each facility. IEUA should consider vehicle use patterns of the fleet vehicles, including consideration of the behavior change pilot studies (strategy BC-1's home bases and strategy BC-2's shared vehicles). When planning, IEUA can also assume employees will be able to charge their vehicles during the day (while the fleet vehicles are working) and that existing DC Fast Chargers in the area (see Figure 3) can serve as additional chargers for flexibility and emergencies.

CR-3 Continue to Coordinate with SCE Early to Plan Infrastructure Upgrades

While most of IEUA's EV charging infrastructure buildout will not happen in the near term, services from the electric utilities can take over a year to be completed after they are requested. For this reason, it is important that IEUA coordinates early with SCE to plan for future services the full implementation of the plans in strategy CR-2 will require. SCE can also help assess IEUA's existing infrastructure and provide guidance based on charging solutions they have already deployed for other customers.

CR-4 Utilize Smart Chargers for Capacity-Constrained Buildings

In the long term, EV charging infrastructure buildout will significantly increase electricity demand at IEUA key facilities. This increased demand could require costly service and transformer upgrades and increase overall grid impacts. Incorporating smart charging stations into IEUA's plan for EV charging can help minimize and balance the demand while supporting all needed ZEVs. Smart chargers monitor EV charging consumption as well as the pressure an electrical circuit is under. With this information, the smart chargers can automatically balance the load at a facility by adjusting power output based on the available capacity. For example, the chargers can slow the charging to ZEVs or prioritize certain ZEVs over others to maintain balance and keep key operations powered. Additionally, smart chargers can also allow IEUA to participate in SCE's Demand Response (DR) programs.[32] SCE's DR programs allow customers to lower utility bills by reducing electricity use when electricity demand is high. While most chargers listed in Table 17 are also smart chargers, the Autel's MaxiCharger is another example of a smart charger for fleets.[33]

CR-5 Consider Back-up Power Options for Fleet Resilience and Emergency Planning

In the long term, the transition to ZEVs will change the energy needs of IEUA's fleet and potentially expose the fleet to grid disruptions such as planned power shutoffs. Resilience planning with help IEUA maintain ZEV operation during potential disruptions. While Table 7 shows nearly all of IEUA's affected vehicles should be able to perform for at least one full day without access to charging, IEUA should begin exploring options to protect key ZEVs in the long term. To begin the planning process, IEUA should identify priority vehicles needed to maintain key operations and respond to emergencies. IEUA can then consider back-up power options to support the energy required by these priority vehicles. Table 20 presents back-up power options available today that IEUA may begin to consider.

Table 20 Back-up Power Examples

Company	Product	Capacity	Size	Notes
Batteries				
HCI Energy	Zero-glitch Power Module[1]	1 to 100 kW	25'6" x 84" x 19"	
Electric Vehicle Energy Storage Company (EVESCO)	Containerized battery energy storage systems (BESS)[2]	60kw and up	Varies	Many different power and size options
Motive Energy	Watt.io[3]	50 kW to 5MW	Varies	Is modular
EVLO	EVLOFLEX[4]	500 kW to 1500 kW	20' x 8' x 9' 6"	

[32] SCE Demand Response Programs for Business. Accessed at: https://www.sce.com/business/demand-response.
[33] Autel. MaxiCharger AC Elite Business. Accessed at https://autelenergy.us/pages/commercial.

Company	Product	Capacity	Size	Notes

Sources:
[1] https://www.hcienergy.com/our-products/zpm
[2] https://www.power-sonic.com/battery-energy-storage-systems/
[3] https://www.motiveenergy.com/energy-storage-solutions/
[4] https://evloenergy.com/solutions/products-technology/evloflex

CR-6 Consider DC Fast Chargers

While IEUA's downtime analysis indicates IEUA does not need DC Fast Chargers for normal operations, IEUA should continue to evaluate the option for DC Fast chargers in the middle to long term. As IEUA transitions to a ZEV fleet, pilots Behavior Change strategies, and installs Level 2 charging, they can assess the need for additional or faster charging capacity. DC Fast Chargers would provide IEUA faster charging (see Table 12) to decrease the required downtime of vehicles. Although the faster chargers are not the only way to provide resilience benefits (e.g., Behavior Change strategies will also reduce vehicle and charging needs), shorter downtimes will provide IEUA resilience benefits during potential emergencies. However, DC Fast Chargers are significantly more expensive than other chargers (at about $104,326 per charger),[34, 35] and require additional electrical capacity which could trigger significant utility upgrades. While battery degradation was thought to be increased by routine fast charging, recent studies have shown minimal increased degradation due to new software that limits charging rates above 80%.[36]

4.4 Funding and Resources

California has budgeted for several funding programs to support early adoption of ZEVs before adoption becomes a requirement through the ACF regulation. Thus, in the near term, funding opportunities exist for IEUA to pursue while future funding opportunities can be expected as the State begins to distribute funding from the Inflation Reduction Act. Strategy FR-1 outlines funding opportunities IEUA can pursue today, and strategy FR-2 provides IEUA information to track future funding opportunities. California has also begun funding programs to support fleets' compliance with the ACF regulation. Strategy FR-3 provides the resources that IEUA can use today.

FR-1 Apply for Early Action Funding Opportunities

The California Hybrid and Zero-emission Truck and Bus Voucher Incentive Project (HVIP) offer point-of-sale vouchers for approved MDHD near-ZEVs and ZEVs. Currently, funding is available for Ford T-350s (as listed in Table 10 which are similar to IEUA's existing Ford Transits) and on-road heavy-duty vehicles. CALeVIP's vouchers are updated on an ongoing basis and can be searched by vehicle type at: https://californiahvip.org/vehicles/.

IEUA is also eligible for SCE's Charge Ready program. The program provides participants with financial incentives, infrastructure, and technical support to installing EV charging equipment. Additional information can be found at: https://www.sce.com/evbusiness/chargeready.

[34] CEC. CALeVIP Level 2, Range of Rebate, Unit Costs, and Total Project Cost per Level 2 Connector. Accessed at https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/california-electric-vehicle/calevip-1.
[35] CEC. CALeVIP DC Fast Chargers, Range of Rebate, Unit Costs, and Total Project Cost per Level 2 Connector. Accessed at https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/california-electric-vehicle/calevip-dc-0.
[36] https://www.recurrentauto.com/research/impacts-of-fast-charging

FR-2 Monitor Funding Opportunities

Many state funding opportunities for ZEVs run on annual cycles and are reopened as budget is allocated to them. The following funding opportunities are currently closed but may reopen when additional budget is allocated. IEUA should monitor these opportunities regularly.

- CALeVIP 1.0 Rebates: https://calevip.org/find-project
- CALeVIP 2.0 Rebates: https://calevip.org/find-project-2
- Carl Moyer Program through South Coast Air Quality Management District: https://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-(carl-moyer)-program

In addition to existing programs listed above, the State may open additional funding programs as budget is obtained. IEUA should monitor the general pool of ZEV funding opportunities on a regular basis through the following compiled resources.

- CARB's Drive Clean: https://driveclean.ca.gov/search-incentives
- U.S. Department of Energy's Alternative Fuels Data Center: https://afdc.energy.gov/laws/all?state=CA

FR-3 Leverage Technical Assistance Programs

CARB and the transportation nonprofit CALSTART launched Cal Fleet Advisor to provide fleets personalized guidance to understand and meet ACF requirements. Cal Fleet Advisor is a free assistance program that provides fleets ZEV models that match their needs as well as funding and charging resources. IEUA can connect with an advisor at: https://calfleetadvisor.org/trucks/.

5 Monitoring and Reporting

With an inventory and goals in place, IEUA will need to develop a process to monitor ZEV adoption and report progress to CARB. Monitoring ZEV adoption will include tracking ZEV and charging infrastructure deployment as well as ZEV utilization patterns and charging habits.

While IEUA already tracks vehicle use through Fleetistics, implementing a quarterly review process to add or remove vehicles as fleet changes occur and validate the fuel, mileage, and characteristic data will improve the data for planning and reporting use. Additionally, IEUA will need to work with Fleetistics or relevant EV charging station providers to track ZEV electricity use, charging habits, and vehicle battery life. This information, coupled with improved vehicle use data, will help IEUA accurately plan for ZEV purchases and charging infrastructure needs.

As for reporting, the ACF regulation requires State and local government agencies to submit annual compliance reports to CARB for each calendar year. The compliance reports are due April 1 of each year with the first report required to be submitted by April 1, 2024 for calendar year 2023.[37] The reports must include all information specified in Section 2013.2 of the regulation which includes:

- Local government agency information as listed in Section 2013.2(c)(1)
- Vehicle information for each affected vehicle in the fleet including vehicle information number (VIN), make and model, model year, license plate number and state or jurisdiction or issuance, GVWR, body type, fuel and powertrain type, date vehicle purchase was made, and date vehicle was added to or removed from fleet as well as information on odometer readings, funding contracts, and exemptions, if applicable.

In addition to the annual reporting, State and local government agencies must report changes to the existing affected vehicle fleet during the calendar year. Affected vehicles added to the fleet must be reported within 30 calendar days of being added to the fleet and affected vehicles permanently removed from the fleet must be reported within 30 calendar days of removal. Lastly, all information reported to CARB must be stored for a period of at least five years.

[37] Compliance reports must be submitted online through the CARB Advanced Clean Fleets webpage at https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets in the TRUCRS reporting system.