APPENDIX 8

Energy Resources Technical Report

ENERGY RESOURCES TECHNICAL REPORT

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9665 Chesapeake Drive Suite 320
San Diego, CA 92123
858.875.7400

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

Inland Empire Utilities Agency
Chino Basin Program

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1. INTRODUCTION

This report describes environmental and regulatory setting related to energy consumption and resources in the proposed Chino Basin Program (CBP, or Proposed Project) area. The report then describes the methodology and thresholds relied upon to assess the impacts of the Proposed Project. Finally, it identifies the impacts of the Proposed Project. This report discusses the Proposed Project impacts associated with energy consumption and energy resources.

2. PROJECT DESCRIPTION

The CBP consists of an advanced water purification facility (AWPF), injection wells, extraction wells, groundwater treatment facilities, and a pipeline distribution network connecting the proposed facilities to local agencies and Metropolitan Water District of Southern California (MWD) for a water exchange with the State Water Project (SWP). The CBP AWPF and groundwater injection facilities would allow for the recharge/storage of up to 15,000 acre-feet per year (AFY) of recycled water in the Chino Basin, creating a new local supply. The AWPF would process 17,000 AFY of recycled water, which includes currently unused recycled water and 6,000 AFY of external supplies; 2,000 AFY of water will be lost through the AWPF process each year. The CBP would connect CBP potable water facilities to the region, as well as connections to MWD with the ability to pump CBP potable supplies into MWD's water distribution system. This connection would allow the CBP to make 50,000 AFY available to MWD in dry or critically dry years in exchange for the same amount of supply from the SWP. In return, 50,000 AFY that would otherwise have been exported to MWD would be stored in Lake Oroville and used to enhance instream flows in the Feather River. **Figure 1** shows a proposed conceptual layout of the key facilities.

The CBP will provide for an exchange of new water supplies in the Chino Basin for SWP supplies in Lake Oroville in northern California that would otherwise be delivered to southern California. The additional Lake Oroville water would subsequently be released in the form of pulse flows in the Feather River to improve habitat conditions for native salmonids and achieve environmental benefits. The 15,000 AFY of new water supply would be produced for a period of 25 years to provide for the State exchange, to be used in blocks of up to 50,000 AFY in dry and critical years when pulse flows in the Feather River would provide the most ecosystem benefit. The term for this exchange will be fixed at 25 years for a total volume of 375,000 acre-feet, after which time the CBP will be devoted to meeting local water management needs while fulfilling commitments to improve water quality in the Chino Basin and provide a source of emergency water supply. The program would be administered through agreements with California Department of Water Resources (DWR), California Department of Fish and Wildlife (CDFW), MWD, and other project partners. For every acre-foot (AF) of water requested for north of the Delta ecosystem benefits, IEUA would pump locally stored groundwater and deliver it to MWD or use the water locally instead of taking raw imported water from MWD. MWD would then leave behind an equivalent amount of water in Lake Oroville to be dedicated and released for the requested ecosystem benefit. The 375,000 AF would be recharged over 25 years and the same amount would be extracted over 25 years.

Figure 1: Conceptual Chino Basin Program Infrastructure

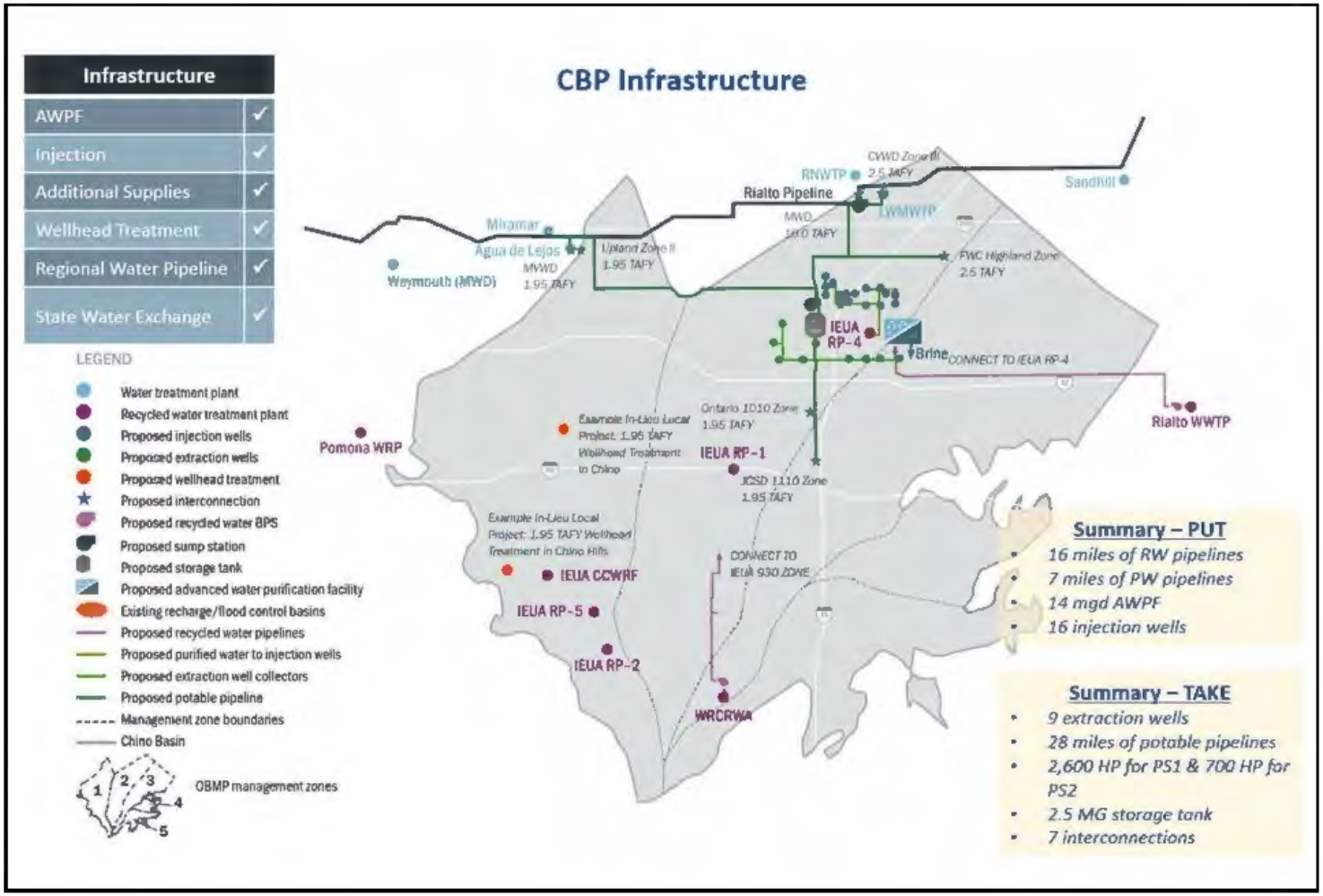


FIGURE 1

Tom Dodson & Associates
Environmental Consultants

CBP Infrastructure

The Proposed Project includes two main categories of facilities: "Put" and "Take" components. The "Put" facilities include the components to recharge purified water to the Chino Basin, while the "Take" facilities include the components to extract groundwater and convey potable water supply from the Chino Basin. These components are summarized in **Table 1** and described in detail in **Table 2**.

Table 1: Summary of "Put" and "Take" Components of the Chino Basin Program

"Put" Components	"Take" Components
• Tertiary recycled water supply and conveyance • AWPF • Purified water pumping and conveyance • Groundwater recharge (injection wells and/or use of existing recharge basins)	• Groundwater extraction and treatment • Potable water pumping and conveyance • Potable water usage (MWD pump back or in-lieu)

Table 2: Detail of Chino Basin Program Infrastructure

Project Category	Infrastructure
Project Category 1: Well Development	16 injection wells (maximum) with max operational capacity of 830 gpm each 17 extraction wells (maximum) with max operational capacity of 2,000 gpm each 4 monitoring wells (maximum) Use of existing wells including a mix of up to 4 of the following: • Use of existing Rialto Pipeline • Use of existing member agency wells • Use of existing Agua de Lejos Water Treatment Plant (WTP) Clearwell • Use of existing Lloyd Michael WTP Clearwell
Project Category 2: Conveyance Facilities and Ancillary Facilities	Pipeline: The CBP would ultimately install a total of about 30 miles or 158,400 linear feet (LF) of various types of pipeline. Potential alignments include a mix of the following: • TAKE 1: 9 miles of 12- to 36-inch collector pipelines • TAKE 1: 5 miles of 54-inch potable northern pipeline • TAKE 3: 9 miles of 12- to 42-inch collector pipelines • TAKE 3: 8 miles of 16- through 48-in potable northern pipeline • TAKE 3: 4 miles of 12- through 24-inch potable southern pipeline • TAKE 3: In lieu Brine Disposal Inland Empire Brine Line (IEBL) 6,800 ft 8" pipeline, possible jack and bore across 300 ft under Hwy 71 and Chino Creek • TAKE 7: 7 miles of 36- to 72-inch e/w Water Facilities Authority (WFA) pipeline • TAKE 7: 4.5 miles 24-inch e/w Fontana Water Company (FWC) pipeline • TAKE 7: 4.5 miles 54- to 72-inch & 36-inch Cucamonga Valley Water District (CVWD)/ MWD pipeline • TAKE 7: 0.3 miles 54- to 72-inch MWD pipeline • TAKE 8: 6.3 miles of 48-inch CVWD pipeline • TAKE 8: 7 miles of 24-inch FWC-1 pipeline • TAKE 8: 0.7 miles of 24-inch FWC-2 pipeline • TAKE 8: 0.8 miles of 24-inch MWD pipeline • TAKE 8: 36-inch Jurupa Community Services District (JCSD) 2 miles • PUT 5: 7.1 miles of 8- to 30-inch pipeline for purified water conveyance • PUT 5: 1,400 ft (8-foot pipeline) Non-Reclaimable Wastewater System (NRWS) brine conveyance; NRWS Capacity Units required: 2,603 Reservoir: The CBP would install a storage tank with a maximum capacity of 5 MG with possible and in-conduit hydropower facility. Pump Stations: The CBP would install 4 pump stations serving various PUT and TAKE facilities. One pump station would serve PUT facilities, while up to 3 pump stations would

Project Category	Infrastructure
	support TAKE facilities. The breakdown of the types of pump stations and boosters include a mix of the following: • PUT 5: Pump station at Regional Water Recycling Plant No. 4 (RP-4) 1,500 HP • TAKE 1: Pump Station with a max 9,300 HP, and a max of 31,100 gpm, 823 ft total dynamic head (TDH) • TAKE 3: Potable Water Pump Station #1 with a max 7,000 HP, 23,300 gpm firm capacity, 823 ft TDH • TAKE 7: WFA Booster at 1,700 HP • TAKE 7: FWC Booster at 300 HP • TAKE 7: CVWD/MWD Booster at 4,800 HP • TAKE 8: Booster Station #1 at 5,300 HP • TAKE 8: MWD Booster at 650 HP • An additional TAKE pump station would have a max 650 HP Turnouts: The CBP would install a maximum of 6 turn-outs that would be between 12" and 72" in size to support TAKE facilities at various member agency locations throughout the Chino Basin
Project Category 3: Groundwater Storage Increase	The CBP contemplates a permanent increase in Safe Storage Capacity of 850,000 AF
Project Category 4: Advanced Water Purification Facility and Other Water Treatment Facilities	AWPF: The CBP would install an AWPF at RP-4, which will ultimately have a capacity of 15,000 AFY. The intake of recycled water at this facility will total 17,000 AFY, with a resulting 15,000 AFY of purified water derived from the AWPF processes. Wellhead Treatment: The CBP may install up to 3 wellhead treatment facilities at locations that have yet to be selected but would be sited at existing member agency offline wells. These wellhead treatment systems would be capable of treating up to 3,000 AFY per wellhead treatment system. Each of the 3 wellhead treatment systems would be connected to 3 existing member agency wells (total of 9 existing extraction wells used for the CBP). Wellhead treatment also includes the following brine conveyance and disposal: • Disposal Capacity: 4,900 gpd per wellhead treatment system • Pipeline Length: up to 6,800 LF (8-inch) • Disposal System: Assumed utilization of IEBL

2.1 Construction

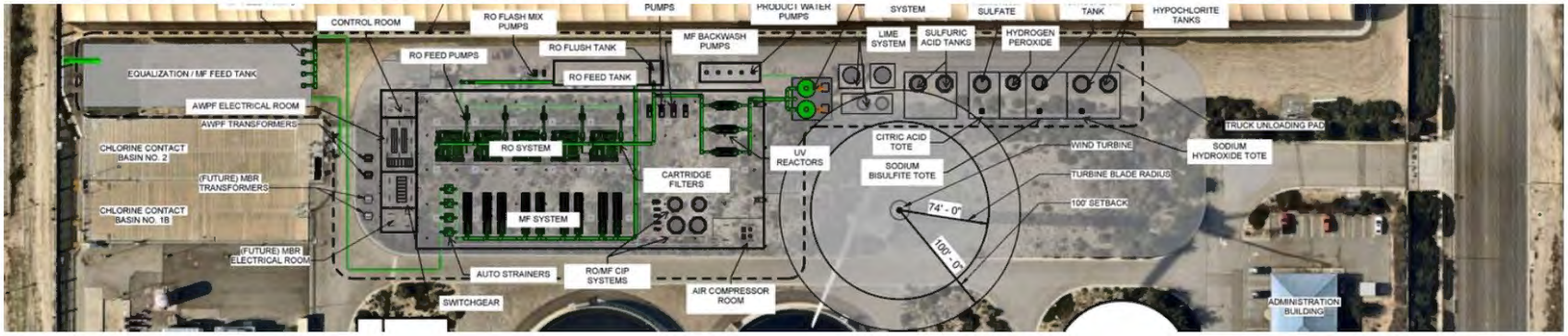
The following section summarizes the construction activity details for each Proposed Project component. The overall assumed construction vehicle fleet can be found in **Table 3**.

2.1.1 AWPF

The installation of the AWPF at IEUA's existing RP-4, located in the City of Rancho Cucamonga, would require approximately 12 months to construct. It is anticipated that the AWPF would be operational by 2028. The construction of the AWPF would consist of site clearing, grading, construction of facilities, installation of equipment, and site completion. Construction equipment would include the following: one bulldozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day will be 20 persons. The maximum number of truck deliveries is forecasted at 15 per day at 40-miles round-trip per day of construction. Materials and equipment would be delivered to the site including piping, building materials, concrete forms, roofing materials, HVAC equipment, pumps, diffusers, screens, belt presses, and screw presses. The site of the proposed AWPF is currently vacant (see **Figure 2**). No demolition is anticipated to be required to construct the AWPF.

Figure 2: AWPF Site

Regional Water Recycling Plant No. 4 Advanced Water Purification Facility Site Layout



Google Street view of Regional Water Recycling Plant No. 4 Advanced Water Purification Facility Site

2.1.2 Pipelines and Turnouts

With rare exceptions, all proposed pipelines would be aligned through the public right-of-way (ROW) and properties owned or to-be acquired by IEUA. Typically, pavement removal would occur, followed by excavation of the pipeline trench, installation of the pipe, then backfilling and compaction, and finally ground surface restoration or pavement reinstallation. Trenchless technologies would be required at freeway, flood channel, and railroad crossings: jack and bore for lengths less than 500 feet; and horizontal directional drilling (HDD) for lengths exceeding 500 feet. HDD involves establishing entry and exit pits, using a drill rig to create an underground bore hole, and then stringing the pipeline through the hole. Jack and bore also employs entry and exit pits but uses an auger to remove material and push a casing forward, then the pipeline is inserted in the casing. Most of the pipe would range from 10-inch to 48-inch diameter. Depending on the pipe size, the trenches may vary in depth and width. Roughly half an acre of land would be actively excavated on a given day.

An estimated 30 miles or 158,400 LF of conveyance pipeline would be installed in support of the CBP. The rate of pipeline installation would depend on whether the pipeline installation is in undeveloped areas or developed roadways. Installation of 158,400 LF of pipeline was assumed to occur over a period of 3 years, with 53,000 LF being installed each year to coincide with the opening year (2028) of the AWPF. For the purposes of analysis, it is assumed that an underground utility installation team can install an average of 200-400 LF of pipeline per day and that three teams will be installing pipelines at any given time for a maximum total of 1,200 LF per day (400 LF/team/day x 3 teams = 1,200 LF per day). It is assumed that the proposed pipeline installation will occur for a maximum of 260 days in one calendar year.

In addition to conveyance pipeline, a maximum of six turnout structures would be provided to deliver water from the main canal to the water users via a pipeline or other means. The type of turnout structure and its design requirements would depend on location. Installation of the six turnouts would occur over a period of two years, with three turnouts being installed each year to coincide with the opening year (2028) of the AWPF. For the turnouts, roughly a quarter acre of land would be actively excavated on a given day.

The daily construction fleet required to install the average 200-400 LF/day of conveyance pipelines or for each turnout consists of a pavement cutter, grinder, backhoe, crane, two dump trucks, roller/vibrator, and traffic control signage and devices operating 6 hours per day; a water truck and excavator operating 4 hours per day; and a paving machine and compacter operating 2 hours per day. In addition, the contractor may occasionally use a portable generator and welder for equipment repairs or incidental uses. Installation of pipeline in unpaved locations would require the same equipment as in paved locations, without the paving equipment (cutter, grinder, paving machine). In general, trenches would have vertical side walls to minimize the amount of soil excavated. Soils excavated from the trenches, if of suitable quality, would be stockpiled alongside the trench or in staging areas for later reuse in backfilling the trench. If not reusable, the soil would be hauled off site for disposal. Engineered backfill material would be imported to stockpiles near the trenching. During the installation of the pipelines, there would be a surplus of native soil requiring off-site export. Pipeline and turnout installation would require an estimated 10 dump/delivery trucks (40 miles round trip distance) per day, and a crew of 14 members per team (40-mile round-trip commute). For the purposes of analysis, it is assumed that each phase of pipeline construction would be occurring simultaneously at some location in the basin (i.e., one segment would be in the repaving phase while another segment begins trenching).

2.1.3 Pump Stations

Pump stations are required to pump water from areas at a lower elevation within the Basin, to areas located at a higher elevation. A total of four pump stations are anticipated to be constructed as part of the CBP. At each site, no more than 0.5 acre would be actively graded on a given day for site preparation of each pump station. Grading activities would occur over a five-day period and this phase of construction would require up to six truck trips with an average round

trip distance of 20 miles to deliver construction materials and equipment (concrete, steel, pipe, etc.). Installation of the pump station would require the use of a crane, forklift, backhoe and front loader operating four hours per day. Five workers would each commute 40 miles round-trip to the work site.

Each pump station would be housed within a block building and would require a transformer to be installed to deliver electric power to the pumps. The proposed pump station building would include a pump room, electric control room, odor control facilities, chemical tanks, and storage room. Construction of the pump station would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site completion.

The proposed pump stations are anticipated to be located at sites that have permanent power available for construction, as such a generator is not anticipated to be required for welding required to construct the pump stations.

2.1.4 Injection, Extraction, and Monitoring Wells

The CBP would install up to 37 new wells, (16 injection wells [12 duty, 4 stand-by], 17 extraction wells, and 4 monitoring wells). Installation of the 37 new wells would occur over a period of three years, with 12 wells being installed each year to coincide with the opening year of the AWPF, 2028. Production well, injection well, and monitoring well development have essentially the same construction impacts.

The drilling and development of each well would require drilling to—in most cases—between 250 and 1,500 feet below ground surface (bgs). The proposed schedule for constructing each well would be as follows: drilling, construction, and testing of each well would require approximately six weeks to complete (about 45 days, of which 15 to 20 days would include 24-hour, 7-day a week drill activity). For planning purposes, a construction and testing schedule duration of 60 days per well is assumed to account for unforeseen circumstances (e.g., extreme weather, equipment break downs, etc.) that could affect the drilling and testing schedule. The well casings would be welded and well development and installation would require a two week use of a diesel generator.

Development of up to 12 new wells during a given year would require the delivery and set up of the drilling rig at each site. It is anticipated the wells would be drilled at different times and the drilling equipment transported to and from the sites on separate occasions. For the purposes of this evaluation, it is assumed that delivery of the drilling equipment 12 times in a year would result in 12 50-mile round-trips for the drill rigs. It is anticipated that a crew of five persons would be on a given well site at any one time to support drilling a well: three drillers, the hydrologist inspector, and a foreman. Daily trips to complete the well would average approximately 15 round trips per day, which at various points of construction would include: two round trips for drill rigs; between six and 12 round trips for cement trucks; five trips to deliver pipe; and 10 trips per day for employees.

The average area of disturbance of each well site is estimated to be 0.5 acre or less to allow for construction, periodic well rehabilitation, and the drilling of a new well should the original well fail and need to be replaced. For analysis purposes, it is assumed that each well would be drilled using the direct rotary or fluid reverse circulation rotary drilling methods. Access to the drilling site for the drilling rig and support vehicles would be from adjacent roadways. Typically, well drilling requires only minimal earth movement or grading.

2.1.5 Wellhead Treatment Facilities

Several existing wells would require wellhead treatment in order to become operational in support of the CBP. The CBP would construct up to three wellhead treatment facilities at existing member agency wells. Two are shown in **Figure 1**, and a third could be constructed in the vicinity of the AWPF. The area expected to be disturbed by the construction of the proposed treatment facilities would be less than three acres for each site. A regional groundwater treatment facility would range from about one acre to two acres in size per facility. Construction of water treatment

facilities would involve site demolition; site paving; site prep/grading; excavation and installation of yard pipes; installation of treatment facilities; site finishing (landscaping, misc. curb/cutter, etc.); and site drainage (above and below grade). Construction equipment would include the following: one bulldozer or motor grader, backhoes, loaders, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that the maximum number of construction personnel at a site on any given day would be 10 persons. The maximum number of construction material truck deliveries would be approximately 10 per day at 40 miles round trip per day. Each wellhead treatment facility would require about six months to construct, with construction of two treatment systems assumed to occur simultaneously. The operational year is anticipated to coincide with the opening year of the AWPF, 2028.

2.1.6 Storage Reservoir

One 5 million gallon (MG) storage tank is anticipated to be required in support of the CBP. Overall, reservoir construction is anticipated to require about three months from start to finish. During mass grading of the site, an assumed 5,000 cubic yards (CY) of material would be imported as engineered backfill. The amount of material that would need to be exported is unspecified, but conservatively assumed to be roughly the same quantity (5,000 CY). This material would be delivered by trucks to the site in the amount of about 300 trips, assuming 50 trips maximum per day to and from the site, with a roundtrip length of no more than 50 miles. Fine grading of the site will be completed after the reservoir and piping are installed. A maximum of five to 12 workers would be on the site during grading, which would take place for about 10 days. Following mass excavation, the tank foundation would be installed. The foundation would consist of concrete, steel, and aggregate. It is assumed that a maximum of five to 12 workers would be on the site during foundation construction for a maximum of about 25 days. The new 5 MG storage tank would be constructed in the following fashion: floor; walls and columns; roof; prestressing; and appurtenances. It is assumed that a maximum of 12 employees would be on the site during reservoir construction for a maximum of about 50 days total (grading and construction).

Table 3 summarizes the overall construction vehicle fleet described above that has been assumed to be necessary for the purposes of estimating construction-related energy use. **Table 4** summarizes the daily trips described above that would be made during construction of each phase to transport workers, haul material, and deliver supplies to and from the sites.

Table 3: Estimated Construction Equipment Fleet by Phase

Construction Phase	Modeled Daily Equipment Fleet	Unit Amount	Hours per Day	Hp	Load Factor
Well Development (assume mobilization, drilling, and construction and testing occurs simultaneously at some location in area)	Rubber Tired Dozers	4	6	247	0.4
	Tractors/Loaders/Backhoes	12	6	97	0.37
	Bore/Drill Rigs	1	24	221	0.5025
	Cranes	4	6	231	0.2881
	Welders	4	4	46	0.45
Pipelines (assume pavement cutting, excavation, install, and paving occurs simultaneously at some location in area)	Excavators	3	4	158	0.38
	Graders	1	8	187	0.41
	Rubber Tired Dozers	6	6	247	0.4
	Tractors/Loaders/Backhoes	3	6	97	0.37
	Crushing/Proc. Equipment	6	6	85	0.78
	Cranes	3	6	231	0.2881
	Rollers	3	6	80	0.3752
	Sweepers/Scrubbers	3	4	64	0.4556
	Paving Equipment	3	2	132	0.3551
	Generator Sets	3	1	84	0.74
Storage Reservoir – Grading phase	Excavators	1	8	158	0.38
	Graders	1	8	187	0.41
	Rubber Tired Dozers	1	8	247	0.4

Construction Phase	Modeled Daily Equipment Fleet	Unit Amount	Hours per Day	Hp	Load Factor
	Tractors/Loaders/Backhoes	3	8	97	0.37
Storage Reservoir – Construction phase	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.2
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Storage Reservoir – Site finishing phase	Cement and Mortar Mixers	2	6	9	0.56
	Pavers	1	8	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38
	Tractors/Loaders/Backhoes	1	8	97	0.37
Pump Stations - Grading	Graders	1	8	187	0.41
	Rubber Tired Dozers	1	8	247	0.4
	Tractors/Loaders/Backhoes	2	7	97	0.37
Pump Stations - Construction	Cranes	1	4	231	0.29
	Forklifts	1	4	89	0.2
	Tractors/Loaders/Backhoes	2	4	97	0.37
	Welders	1	4	46	0.45
Turnouts (assume excavation, install, and resurfacing occurs simultaneously at some location in area)	Excavators	3	4	158	0.38
	Graders	1	8	187	0.41
	Rubber Tired Dozers	6	6	247	0.4
	Tractors/Loaders/Backhoes	3	6	97	0.37
	Crushing/Proc. Equipment	6	6	85	0.78
	Cranes	3	6	231	0.2881
	Rollers	3	6	80	0.3752
	Sweepers/Scrubbers	3	4	64	0.4556
	Paving Equipment	3	2	132	0.3551
	Generator Sets	3	1	84	0.74
AWPF – Site preparation	Rubber Tired Dozers	3	8	247	0.4
	Tractors/Loaders/Backhoes	4	8	97	0.37
AWPF - Grading	Excavators	1	8	158	0.38
	Graders	1	8	187	0.41
	Rubber Tired Dozers	1	8	247	0.4
	Tractors/Loaders/Backhoes	3	8	97	0.37
AWPF – Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.2
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
AWPF - Paving	Cement and Mortar Mixers	2	6	9	0.56
	Pavers	1	8	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38
	Tractors/Loaders/Backhoes	1	8	97	0.37
Wellhead Treatment – Demolition	Concrete/Industrial Saws	2	6	81	0.73
	Rubber Tired Dozers	2	6	247	0.4
Wellhead Treatment – Grading	Graders	2	6	187	0.41
	Tractors/Loaders/Backhoes	4	6	97	0.37
Wellhead Treatment – Construction	Cranes	2	4	231	0.29
	Forklifts	2	6	89	0.2
	Generator Sets	2	4	84	0.74
	Tractors/Loaders/Backhoes	4	6	97	0.37
	Welders	2	4	46	0.45
Wellhead Treatment – Paving	Pavers	2	6	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38

Table 4: Estimated Construction Vehicle Trips

Vehicle Trip Type	Construction Phase Description	Number of Round Trips (per day)
Construction Worker Trips	Wells	10
	Pipelines	42
	Turn Outs	14
	Pump Stations	5
	Water Storage Tank	12
	Advanced Water Purification Facility	20
	Wellhead Treatment Facilities	10
Materials/ Equipment/ Backfill Delivery and Water Truck Trips	Wells	31
	Pipelines	36
	Turn Outs	12
	Pump Stations	6
	Water Storage Tank	50
	Advanced Water Purification Facility	15
	Wellhead Treatment Facilities	10
Daily Construction Vehicle Trips		**263**

2.1.7 Construction Schedule

Construction is expected to begin in 2025 and extend to the opening of the AWPF in 2028. Construction would be limited to daytime, with the exception of well drilling for injection and extraction wells, which would last up to 20 days per well at 24 hours per day to prevent bore hole collapse. Trenchless drilling methods (HDD and jack-and-bore) would also require round-the-clock construction to prevent borehole collapse. Construction of the wells and pipelines would occur over three years from 2025-2027; construction of the turnouts would occur over two years from 2026-2027; construction of the wellhead treatment, AWPF and the pump stations would occur over one year, 2027; and the storage reservoir would be constructed at the end of 2027.

2.1.8 Construction Best Management Practices

The Proposed Project would comply with applicable State regulations including:

- All portable diesel-powered construction equipment shall be registered with the state's portable equipment registration program or shall obtain a South Coast Air Quality Management District (SCAQMD) permit.
- Fleet owners of mobile construction equipment are subject to the California Air Resource Board (CARB) Regulation for In-Use Off-Road Diesel Vehicles (Title 13, California Code of Regulations (CCR), §2449), the purpose of which is to reduce oxides of nitrogen (NO_x), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. Off-road heavy-duty trucks shall comply with the State Off-Road Regulation.

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use (On-Road) Heavy-Duty Diesel-Fueled Vehicles (Title 13, CCR, §2025), the purpose of which is to reduce DPM, NO_x and other criteria pollutants from in-use (on-road) diesel-fueled vehicles. On-road heavy-duty trucks shall comply with the State On-Road Regulation.
- All commercial off-road and on-road diesel vehicles are subject, respectively, to Title 13, CCR, §2449(d)(3) and §2485, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

The Project would be subject to SCAQMD Rule 403, Fugitive Dust. Rule 403 requires the implementation of best available dust control measures during activities capable of generating fugitive dust.

2.2 Operation

Operations and maintenance (O&M) for each of the Proposed Project's key facilities is briefly described below.

Wells: The injection wells would recharge up to 15,000 AFY per year, while the new extraction wells would pump up to 50,000 AFY of water from the Basin in call years, or 10,000 AFY in non-call years (only 7.5 call years are anticipated over a 25-year period). After the 25-year period in which the CBP would be active, IEUA member agencies could utilize the water purified at the AWPF in the amount of 15,000 AFY. The 16 injection wells would have a maximum operational capacity of 830 gpm each. The 17 extraction wells would have a maximum operational capacity of 2,000 gpm each. All energy demands would be met by electricity supplied by Southern California Edison. The four monitoring wells would be visited by a field technician on a monthly to quarterly frequency. There would be negligible energy consumption in obtaining groundwater levels from the monitoring wells. Ongoing operation and maintenance of the wells may involve periodic backwash and inspection.

AWPF: The AWPF would include various processes and facilities, including an MF System, RO System, Equalization Tank, UV-AOP System, Chemical Facilities, Post Treatment, and CIP Systems. It is assumed that the AWPF would involve daily inspections and maintenance of treatment processes, daily backflush and maintenance cleans, more rigorous weekly to monthly cleans, and weekly deliveries of chemicals and supplies to the AWPF. The Reverse Osmosis (RO) system would require chemical cleaning and inspection monthly and membranes would be replaced every five years. All energy demands would be met by electricity supplied by Southern California Edison or from onsite sources at the RP-4; the Proposed Project would not consume natural gas.

Other Well Treatment Facilities: The CBP may install up to three wellhead treatment facilities at locations that have yet to be selected but would be sited at existing member agency offline wells. These wellhead treatment systems would be capable of treating up to 3,000 AFY per wellhead treatment system. Each of the three wellhead treatment systems would be connected to three existing member agency wells (total of nine existing extraction wells used for the CBP). The Wellhead treatment facilities would require routine inspection and maintenance of the treatment processes. Wellhead treatment would also include the following brine conveyance and disposal:

- Disposal Capacity: 4,900 gpd per wellhead treatment system
- Pipeline Length: up to 6,800 LF (8-inch)
- Disposal System: Assumed utilization of IEBL

Brine Disposal: The additional brine stream flow from the AWPF at RP-4 would be 1,027,300 gpd. The brine stream flow from the AWPF would ultimately need to be treated by the Los Angeles County Sanitation District (LACSD) through the Joint Outfall System (JOS) or by the Orange County Sanitation District (OCSD).

Pipelines and Turnouts: Once a pipeline or turnout is installed, operations would not require any operations and maintenance visits unless unforeseen circumstances arise that would require maintenance or repair of the pipelines. In the event of routine maintenance, one vehicle trip per maintenance event would be required.

Pump Stations: A total of four pump stations will be installed. It is assumed that the three TAKE Pump stations would range between 650 HP to 9,300 HP, with the booster pumps averaging 4,200 HP each. The PUT pump station would operate at 1,500 HP. All energy demands would be met by electricity supplied by Southern California Edison. The pump stations would require routine inspection and maintenance.

Water Storage Tank: Once the reservoirs are installed, operation of the reservoir would not require any shifts or employees as it would be monitored and controlled remotely. Scheduled maintenance visits would occur in the future with one trip per maintenance event. Reservoirs typically do not directly consume energy as water or recycled water is pumped into reservoirs directly from wells or through booster pump stations.

Renewable Energy: In-conduit hydropower facilities may be considered in locations of the potable water distribution system where the system pressure needs to be reduced and energy can be produced. Current renewable on-site generation at RP-4, which shares the same Southern California Edison (SCE) meter with the Inland Empire Regional Composting Facility (IERCF), is about 20%. In addition to the 1 MW wind turbine and 1.5 MW battery at RP-4, additionally, there is a potential for use of a 2.5 MW solar at the IERCF. As the Proposed Project has not undergone site specific design, at this time, alternative energy options would be explored when design has been further specified.

According to the IEUA Facilities Management Plan, over the course of the next 15 years, IEUA intends to procure 100 percent of its electricity needs from carbon neutral sources, so in that period of time, IEUA will slowly begin to use less carbon sourced energy for greater operational demands. Additionally, the Proposed Project would create a source of local water supply within the Chino Basin, which would offset the energy required to transfer water from MWD from the Sacramento-San Joaquin Delta to IEUA's service area.

3. ENVIRONMENTAL SETTING

California has a diverse portfolio of energy resources, including crude oil, natural gas, and renewable resources, such as geothermal, solar, and wind. According to the U.S. Energy Information Administration, in 2021 California's net electricity generation by source consisted of 8,662 thousand MWh of natural gas fired sources, 1,544 of hydroelectric, 1,634 of nuclear, and 6,423 MWh of non-hydroelectric renewables; no electricity was sourced from coal or petroleum-fired sources. Energy efficiency efforts have dramatically reduced statewide per capita energy consumption relative to historical averages. In 2018, per capita energy consumption in California was the fourth-lowest in the country (U.S. Energy Information Administration 2021). Additionally, with the passage of California Senate Bill (SB) 100 in 2018, California will be required to obtain 100 percent of its retail electricity from renewable sources by 2045. Despite reductions in per-capita energy consumption, overall demand is expected to go up in the next decade (California Energy Commission [CEC] 2021).

The CBP electricity demand would be served by SCE. SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2019 Power Content Label (SCE 2020), SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers. The table below summarizes SCE's Power Content Label, compared to the California Power Mix.

Table 5: SCE and California 2019 Power Content Mix

Energy Resources	SCE Power Mix	CA Power Mix
Renewable:	35.1%	31.7%
Biomass & Biowaste	0.6%	2.4%
Geothermal	5.9%	4.8%
Eligible Hydroelectric	1.0%	2.0%
Solar	16.0%	12.3%
Wind	11.5%	10.2%
Coal	0.0%	3.0%
Large Hydroelectric	7.9%	14.6%
Natural Gas	16.1%	34.2%
Nuclear	8.2%	9.0%
Other	0.1%	0.2%
Unspecified*	32.6%	7.3%
Total	100%	100%
*Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.		

3.1 Regulatory Setting

This section discusses applicable federal, state, regional, and local rules and regulations surrounding energy use and energy resources.

3.1.1 Federal Regulations

National Energy Conservation Policy Act. The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it is regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements.

National Energy Policy Act of 2005. The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government, and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance) signed in 2009 (Federal Register 2009).

U.S. Department of Energy Integral Horsepower Motor Rule (10. CFR Part 431). The U.S. Department of Energy (DOE) Integral Horsepower Motor Rule, effective as of June 1, 2016, establishes efficiency requirements that cover 1-500 HP (0.75 370 kW) three phase electric motors. This law superseded the existing Energy Independence and Security Act of 2007. Several categories of motors were previously covered at lower efficiency levels or exempt. The motors regulated under the expanded scope meet the following nine characteristics: 1) Is a single speed motor; 2) Is rated for

continuous duty (MG 1) operation or for duty type S1 (IEC); 3) Contains a squirrel-cage (MG 1) or cage (IEC) rotor; 4) Operated on polyphase alternating current (AC) 60-hertz sinusoidal line power; 5) Has 2-, 4-, 6-, or 8-pole configuration; 6) Is rated 600 volts or less; 7) Have a three or four-digit NEMA frame size (or IEC metric equivalent), including those designs between two consecutive NEMA frame sizes (or IEC metric equivalent) or an enclosed 56 NEMA Frame size (or IEC metric equivalent); 8) Has no more than 500 HP, but greater than or equal to 1 HP (or kilowatt equivalent); 9) Meets all the performance requirements of a NEMA design A, B or C electric motor or an IEC design N or H electric motor. As indicated above, the voltage range for motors covered by the scope of the policy includes those less than 600 volts, and less than 500 HP. Submersible motors are not covered under this rule (CFR 2019).

Corporate Average Fuel Economy (CAFE) Standards. The Corporate Average Fuel Economy standards were first enacted by Congress in 1975, requiring vehicle manufacturers to comply with the gas mileage or fuel economy standards. These standards are set and regulated by the National Highway Traffic Safety Administration, with testing and data support from the United States Environmental Protection Agency (EPA). The issued rules include fuel economy standards for light-, medium- and heavy-duty vehicles.

For light-duty vehicles, National Highway Traffic Safety Administration (NHTSA) and EPA issued a joint final rulemaking on October 15, 2012, to establish coordinated standards to improve fuel economy for vehicle model years 2017 through 2025 (77 FR 62624). EPA established standards that are projected to require, on an average industry fleet wide basis, 54.5 miles per gallon; the NHTSA standards are projected to require, on an average industry fleet wide basis, a range from 40.3-41.0 miles per gallon. For medium- and heavy-duty vehicles, EPA and NHTSA issued a final rule on December 27, 2016 on Greenhouse Gas (GHG) standards and fuel consumption standards for engines and vehicles model years 2018 through 2029 (81 FR 73478).

On April 2, 2018, the EPA issued the Mid-term Evaluation Final Determination, finding that the GHG standards for model years 2022-2025 should be revised, and that EPA and NHTSA should further consider appropriate standards for model year 2022-2025 light-duty vehicles. In September 2019, NHTSA and the EPA released the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part 1, which revoked California's waiver under the Clean Air Act allowing it to establish stricter emissions standards. In March 2020, EPA and NHTSA released SAFE Part 2, which set new fuel economy and emissions standards for model years 2021-2026 (increasing the stringency of emissions standards by 1.5 percent each year for model years 2021-2026, as compared with the standards issued in 2012, which would have required about 5 percent annual increases). In January 2021, the Biden administration directed EPA and NHTSA to review SAFE Part 1 and SAFE Part 2. NHTSA's CAFE Preemption Rule and EPA's reconsideration notice, issued in April 2021, dealt with SAFE Part 1, rescinding NHTSA's preemption determination and reconsidering EPA's waiver revocation. The waiver withdrawal reconsideration is still pending. New CAFE standards were proposed in August 2021, which would set standards for passenger cars and light trucks for model years 2024-2026.

Clean Power Plan and Affordable Clean Energy. In 2012, the EPA proposed performance standards for carbon dioxide (CO_2) emissions for new electricity generation from fossil fuels. New sources greater than 25 megawatts were required to meet the standard of 1,000 pounds of CO_2 per megawatt-hour. However, in 2016 a stay of this rule was ordered due to pending litigation. The 2015 Clean Power Plan, which also aimed to reduce power sector emissions, never took effect due to legal action, and was officially repealed in June 2019 when EPA issued the Affordable Clean Energy rule, which established new emission guidelines for power sector emissions. In January 2021, the D.C. Circuit Court vacated the Affordable Clean Energy Rule and remanded to EPA for reconsideration.

3.1.2 State Regulations

California Energy Action Plan. California's Energy Action Plan II, developed by the California Public Utility Commission (CPUC) and the CEC, is the state's principal energy planning and policy document (CPUC and CEC 2008). The plan describes a coordinated implementation plan for state energy policies and refines and strengthens California's original Energy Action Plan I published in 2003. California Energy Action Plan II identifies specific action areas to ensure that

California's energy is adequate, affordable, technologically advanced, and environmentally sound. It adopts a loading order of preferred energy resources to meet the state's needs and reduce reliance on natural gas and other fossil fuels. The plan identifies energy efficiency and demand response as the primary ways to meet the energy needs of California's growing population, and it identifies renewable energy and distributed generation as the best ways on the supply side. To the extent that energy efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, CEC supports clean and efficient fossil fuel-fired generation. The 2008 Energy Action Plan Update provided a status update to the 2005 Energy Action Plan II and continues the goals of the original California Energy Action Plan (CPUC and CEC 2008).

Integrated Energy Policy Report. Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to, "[C]onduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The CEC shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code § 25301a). The CEC adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The 2021 IEPR, the draft of which will be released October 2021, will address four major topics: energy reliability over the next five years; natural gas outlook and assessments; building decarbonization and energy efficiency; and energy demand.

California Renewables Portfolio Standard and Senate Bill 100. In September 2002, SB 1078 was enacted, establishing the Renewables Portfolio Standard (RPS) program. The RPS requires retail sellers of electricity, including electrical corporations, community choice aggregators, and electric service providers, to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources such as wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. The targets for the minimum percentage of renewable energy have increased with subsequent pieces of legislation, with the most recent being set by SB 100 in 2018. SB 100 revised previous renewable portfolio standards for electricity retail sales. SB 100 requires that 50 percent of power must come from renewable resources by December 31, 2026 and that 60 percent of power must come from renewable sources by December 31, 2030. The legislation also establishes a State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

The Proposed Project would be served by SCE. SCE has historically met the RPS targets. The CPUC enforces compliance of all utilities in the state with the RPS and tracks progress toward meeting targets for renewable energy production to ensure that 100 percent of the state's electricity comes from renewable and carbon-free sources by 2045. The CPUC imposes fines for non-compliance with program requirements. In its 2020 California Renewables Portfolio Standard Annual Report, the CPUC reported that the three large utilities in the state (Pacific Gas & Electric, SCE and San Diego Gas & Electric) "are on track to meet their 60 percent 2030 RPS procurement mandate." The 2019 target for renewable energy was 31 percent and in 2019, SCE had achieved 38 percent renewable energy; SCE has thus already exceeded the 33 percent requirement for 2020 (CPUC 2020). Given the progress to date, the CPUC states that all three large utilities "are currently forecasted to continue to surpass RPS requirements and have excess procurement for the next seven years" (CPUC 2020). SCE is meeting its renewable energy requirements using a mix of biopower, geothermal power, small hydroelectric power, solar photovoltaic power, solar thermal power, and wind power (CPUC 2020).

Senate Bill 350. The Clean Energy and Pollution Reduction Act (Senate Bill 350) established clean energy, clean air, and GHG reduction goals, including reducing GHG to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050. SB 350 also requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help meet these goals and reduce GHG emissions, large utilities will be required to develop and submit integrated resource plans (IRPs). These plans detail how utilities will meet their customers' resource needs, reduce GHG emissions, and ramp up the use of clean energy resources.

EO N-79-20. In September 2018, the Governor issued EO N-79-20, requiring that all new passenger cars and trucks sold in the state be zero-emission by 2035. A further goal is that all medium- and heavy-duty vehicles in California be zero-emission by 2045 for all operations where feasible, and that all off-road vehicles and equipment be zero-emission by 2035 where feasible.

Assembly Bill 1493. AB 1493 (2002) required the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards, referred to as "Pavley" standards, apply to automobiles and light trucks beginning with the 2009 model year. Litigation was filed by automakers, challenging these regulations. EPA initially denied California's related request for a waiver to allow California to regulate vehicle emissions beyond EPA requirements, but a waiver subsequently was granted. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG," regulates model years from 2017 to 2025. The Advanced Clean Cars I program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs. The Advanced Clean Cars Program is projected to lower GHG emissions from new automobiles by 40 percent compared to 2012 model years in 2025 (CARB 2019). In 2021, CARB began a series of public workshops to solicit input on the development of the Advanced Clean Cars II regulations. The Advanced Clean Cars II regulations will seek to reduce criteria pollutant and GHG emissions from new light- and medium-duty vehicles beyond the 2025 model year, and increase the number of ZEVs for sale.

In-Use Off-Road Diesel Vehicle Regulation. In 2007, CARB adopted a regulation to reduce diesel particulate matter and nitrogen oxide (NOx) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. The regulation imposes limits on unnecessary vehicle idling to five minutes and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. The restrictions on adding older vehicles into fleets vary by fleet size. Heavy-duty diesel vehicle fleets may not add a vehicle with a Tier 0 or Tier 1 engine. For large and medium fleets, and in January 2023 for small fleets, a fleet may not add a vehicle with a Tier 2 engine, rather the engine must be Tier 3 or higher. By 2029, all fleets' vehicles must have Tier 2 or higher engines. This regulation would apply to vehicles used in construction of the Proposed Project.

Truck and Bus Regulation. On December 12, 2008, CARB approved a new regulation to substantially reduce emissions of diesel particulate matter, NOx, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements between 2011 and 2023. By January 1, 2023, nearly all trucks and buses will be required to have 2010 or newer model year engines. Affected vehicles included on-road, heavy-duty, diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds. The regulation was updated in 2011, with revisions that provide more compliance flexibility and reflect the impact of the economic recession on vehicle activity and emissions. Heavy-duty trucks used in Proposed Project activities would have to comply with this regulation.

Commercial Vehicle Idling Regulation. The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling was initially adopted by CARB in 2004 and subsequently amended in 2005, 2009, and 2013. This regulation requires that drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, including buses and sleeper berth equipped trucks, not idle the vehicle's primary diesel engine longer than five minutes at any location. There are exceptions if a truck engine meets the optional low-NOx idling emission standard, and the truck is located more than 100 feet from any restricted area (clean idle label required), which include: housing units, schools, hotels, motels, hospitals, senior care facilities, or childcare facilities. Trucks used for vendor delivery and material hauling for Proposed Project activities would be required to comply with the commercial vehicle idling regulatory requirements.

Heavy-Duty On-Board Diagnostic System Regulations. In 2016, CARB approved the latest version of the Heavy-Duty On-Board Diagnostic systems regulations to reduce emissions by establishing standards and other requirements for onboard diagnostic systems that are installed in 2010 and subsequent model-year engines. The systems, through the use of an onboard computer, monitor emission systems in-use for the actual life of the engine and must be capable of

detecting malfunctions of the monitored emission systems, illuminating a malfunction indicator light to notify the vehicle operator of detected malfunctions, and storing fault codes identifying the detected malfunctions. The use and operation of On-Board Diagnostic systems reduces in-use motor vehicle and motor vehicle engine emissions through improvements of emission system durability and performance. Heavy-duty trucks used for Proposed Project activities would be required to comply with the On-Board Diagnostic systems regulatory requirements.

Heavy-Duty Diesel Vehicle Enforcement. The CARB's Heavy-Duty Vehicle Inspection Program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering, and engine certification label compliance. Any heavy-duty vehicle (i.e., vehicles with a gross vehicle weight rating greater than 6,000 pounds) traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. The related Periodic Smoke Inspection Program requires that diesel fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB randomly audits fleets, maintenance and inspection records and tests a representative sample of vehicles. All vehicles that do not pass the test must be repaired and retested. In July 2018, CARB approved amendments to the regulations, which require heavy-duty vehicles to meet a more stringent opacity limit of 5 percent opacity for most vehicles. The new opacity limit went into effect July 1, 2019. In addition, each vehicle operating in California - including those in transit from Mexico, Canada, or any other state - must be equipped with engines that meet California and/or EPA or equivalent emission standards and must maintain an Emission Control Label. Heavy-duty trucks used for Proposed Project activities would be subject to these inspection programs.

California Diesel Fuel Program. The California diesel fuel program set stringent standards for California diesel that produced cost-effective emission reductions from diesel-powered vehicles. The diesel fuel program set specifications for aromatic hydrocarbons and sulfur and also established a lubricity standard.

Title 24. California's energy code is designed to reduce wasteful and unnecessary energy consumption in newly constructed and existing buildings. The CEC updates the Building Energy Efficiency Standards (Title 24, Parts 6 and 11) every three years. The 2019 Building Energy Efficiency Standards took effect on January 1, 2020. The updates focused on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The 2019 standards also establish requirements for newly constructed healthcare facilities. The Building Energy Efficiency Standards would apply to the facilities of the Proposed Project.

Model Water Efficient Landscape Ordinance. Water use and energy use are highly interconnected, meaning that water use efficiency often results in energy savings. New development and retrofitted landscape water efficiency standards are governed by the Model Water Efficient Landscape Ordinance (MWELO). All agencies must adopt, implement, and enforce the MWELO or a more stringent ordinance. Projects that include landscape areas of 500 square feet or more are subject to the MWELO. The MWELO sets requirements related to irrigation, grading, recycled water, stormwater, and public education.

4. METHODOLOGY

This impact analysis is based on relevant Project information and consideration of applicable state and local regulations for renewable energy or energy efficiency. The Project would consume energy from both construction and operation. Energy consumption can also be considered in terms of direct and indirect impacts, where direct impacts would be, for example, the fuel for construction vehicles, and indirect impacts would come from the demand for electricity from SCE. The Proposed Project energy use and energy demands were developed based on information in the Project Description chapter of the PEIR. This Project information is summarized in detail in Sections 2.1.1 through 2.1.6. This analysis also relied on default values from the California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program for information that was not available in the Project Description, such as construction equipment HP and load

factor values. As explained in Section 2.1.7, it was assumed that construction of the Proposed Project would commence in 2025 and proceed through the start of operations of the AWPF in 2028.

5. SIGNIFICANCE THRESHOLDS

The criteria used to determine the significance of potential Project-related energy impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). In addition, Appendix F of the State CEQA Guidelines states that EIRs may include a discussion of the potential energy impacts of proposed projects and presents a list of items that may be considered in the EIR impact analysis. Based on these thresholds, the Project would result in a significant impact related to energy if it would:

a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b) Conflict with or obstruct existing energy standards, or a state or local plan for renewable energy or energy efficiency.

6. PROJECT IMPACTS

6.1 Proposed Project Energy Consumption

6.1.1 Construction

During construction, the Proposed Project would use energy primarily as fuel for the construction vehicle fleet, and trips to transport workers, materials, and supplies to and from the sites. The estimated construction vehicle fleet and trips are described in Sections 2.1.1 through 2.1.6 and summarized in **Table 3** and **Table 4.** Consumption of fuel during construction would be temporary, and would not represent an ongoing, long-term demand. The Proposed Project would adhere to applicable regulations for reducing criteria air pollutant emissions and consequently conserve energy, including the in-use, off-road vehicle regulation, which limits unnecessary vehicle idling to five minutes and requires older, and less fuel-efficient, construction equipment to be retired and, heavy-duty diesel vehicle enforcement which requires any vehicle operating in California to be equipped with an engine that meets California emissions standards. Construction would involve equipment and trips that are typical for the type of facilities being constructed and would not involve excessive or unnecessary consumption of fuel. With compliance with existing applicable regulations, Proposed Project construction energy consumption would not be considered inefficient, wasteful or unnecessary.

6.1.2 Operation

The Proposed Project would be energy intensive. It would require electricity for treatment, conveyance, injection, and extraction. The Project would not consume natural gas. A summary of the estimated annual energy usage of operation of each component of the Proposed Project, based on similar projects in Southern California (Carpinteria Valley Water District 2019, Sanchez elec. comm. 2020), is presented below:

- Injection well: 5 kWh per AF per well
- Extraction well: 100 kWh per AF per well
- AWPF: 1,665 kWh per AF
- Pump station: 600 kWh per AF
- Wellhead treatment: 10 kWh per AF
- Brine treatment and disposal: 625 kWh per AF

Energy consumption from the groundwater monitoring wells would be negligible. The Storage Reservoir would not directly consume energy, as water would be pumped into it directly from wells or through booster pump stations. The pipelines and turnouts would not consume energy once constructed.

Long-term operation of the Proposed Project would also involve occasional vehicle trips for operations and maintenance of the Proposed Project facilities. However, these activities are assumed to result in a negligible amount of energy consumption because the Project facilities would be largely monitored remotely. The Proposed Project facilities would require no more than five to six trips per day, on average, for inspections, testing, and maintenance and these trips would be largely incorporated into existing IEUA operations activities.

The approximate energy requirements from the Proposed Project are summarized in **Table 6** for operations of the Proposed Project in a "call year" and "non-call year."

Table 6: Proposed Project Annual Energy Use

Project Component	kWh/ AF	Qty	Call Year		Non-Call Year	
			AFY	MWh/ year	AFY	MWh/ year
Injection wells	5	16	15,000	75	15,000	75
Extraction wells	100	17	50,000	5,000	10,000	1,000
Pump stations	600	4	50,000	30,000	10,000	6,000
AWPF	1,665	1	17,000	28,305	17,000	28,305
Wellhead treatment	10	3	17,000	170	17,000	170
Brine disposal	625	1	1,167	730	1,167	730

Although the Proposed Project would require the consumption of energy, it would not do so in an inefficient or wasteful manner. The Project would be in compliance with existing regulations for building energy efficiency. In addition, the CBP would explore options for new, on-site energy generation facilities, such as in-conduit hydropower facilities in locations of the potable water distribution system where the system pressure needs to be reduced and energy can be produced. Furthermore, in "call years" water that would otherwise have been transported to MWD via the SWP would remain in northern California, which would save a substantial amount of energy. The amount of electricity required to supply, treat, and distribute water in Southern California is approximately 11,111 kWh/million gallons (California Air Pollution Control Officers Association [CAPCOA] 2010), or 3,621 kWh/AF. Thus, in "call years" when the CBP would avoid import of 50,000 AFY of water from the SWP, it would conserve approximately up to 181,000 MWh of electricity.

Finally, investment in local water supplies that offsets the need for imported water is seen as necessary to begin to reduce the amount of energy associated with water conveyance in the State. The 2017 Climate Change Scoping Plan (CARB 2017) recognizes that about two percent of the total energy used in the state is related to water conveyance; it calls for, "increased water conservation and efficiency, improved coordination and management of various water supplies, greater understanding of the water-energy nexus, deployment of new technologies in drinking water treatment, groundwater remediation and recharge, and potentially brackish and seawater desalination." With compliance with existing applicable regulations, Proposed Project operational energy consumption would not be considered inefficient, wasteful or unnecessary. Impacts would be less than significant and no mitigation would be required.

6.2 Consistency with Plans and Standards

The Proposed Project would develop a local water supply and would reduce the demand for energy required to import water from the SWP to Southern California. In this way, the Proposed Project would be consistent with Statewide plans that address the energy-intensity of the State's water delivery systems. An overarching goal of the 2017 Climate

Change Scoping Plan is to "make conservation a California way of life by using and reusing water more efficiently through greater water conservation, drought tolerant landscaping, stormwater capture, water recycling, and reuse to help meet future water demands and adapt to climate change." The 2017 Climate Change Scoping Plan notes recycled water has the potential to reduce overall energy use and GHGs if it replaces (rather than serves as an alternative to) an existing water supply with higher GHG emissions. The Proposed Project would replace imported SWP water, which is energy-intensive, with a local, recycled water source in "call years." Furthermore, the Project would procure energy from SCE, which has historically achieved the RPS and anticipates meeting the RPS of 60 percent renewable energy by 2030. IEUA would explore options for additional on-site renewable energy, including use of a 2.5 MW solar at the IERCF and in-conduit hydropower facilities in locations of the potable water distribution system where the system pressure needs to be reduced and energy can be produced. As such, the Proposed Project would not obstruct a plan for renewable energy or energy efficiency. Impacts would be less than significant and no mitigation would be required.

6.3 CEQA Guidelines Appendix F Considerations

Most of the Proposed Project's energy needs would be met by SCE, although the proposed AWPF may receive a portion of its energy needs from onsite sources at the RP-4. SCE (2021) provides electric power to more than 15 million people in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. In 2015, SCE delivered more than 87 billion kWh of electricity. SCE maintains an electrical system with 12,635 miles of transmission lines, 720,800 distribution transformers, and 2,959 substation transformers. The CBP annual electricity demand in "call years" (approximately 64,280 MWh/year) would be roughly 0.07% of SCE's total annual electricity service (87 million MWh/year). In "non-call years" the CBP annual electricity demand (approximately 36,280 MWH/year) would be roughly 0.04% of SCE's total annual electricity deliveries. Thus, the Proposed Project's energy demand is minimal compared to SCE's overall total annual electricity service. IEUA, as part of Project planning, would coordinate with SCE to ensure adequate electrical service capacity and distribution facilities are available. If necessary, IEUA would coordinate and develop additional sources of supply to meet the CBP's energy needs, and thus would not be expected to impact local and regional energy supplies, including peak and base period supplies.

6.4 Cumulative Impacts

The geographic scope of the cumulative impact analysis for energy is the SCE service area because the Proposed Project would procure electricity primarily from SCE. A substantial cumulative impact would occur if the Project were to impact SCE's energy supplies, require additional capacity, or exceed SCE's ability to meet peak demand. Cumulative growth in the Project Area would affect regional energy demand. SCE energy demand planning is based in future growth predictions based on the general plans of local jurisdictions. For this reason, development consistent with the applicable general plan would also be consistent with SCE demand planning. Cumulative development within the SCE service area is not anticipated to result in a significant impact in terms of impacting energy supplies because the majority of cumulative projects would be consistent with their respective general plans and the growth anticipated by SCE. The Proposed Project and cumulative projects would also be required to comply with the California Energy Code. The CBP would serve water supply needs for existing and planned water demand and would not result in or accommodate unplanned growth. Therefore, the CBP, in combination with other cumulative projects, impacts would not be cumulatively considerable with respect to energy impacts.

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