BIG ROCK CLUSTER SOLAR FARMS

WATER SUPPLY ASSESSMENT

CALIFORNIA SB-610

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COUNTY OF IMPERIAL, CALIFORNIA

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ACRONYMS

AC	Alternating Current
AAC	All-American Canal
AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AOP	Annual Operations Plan
APN	Assessor’s Parcel Number
AVM	Acoustic Velocity Meter
CAP	Central Arizona Project
CDCR	California Department of Corrections and Rehabilitation
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act

CFR	Code Federal Regulations
CO2e	Carbon Dioxide Equivalent
CRWDA	Colorado River Water Delivery Agreement: Federal QSA
CUP	Conditional Use Permits
CU	Consumptive Use
CVWD	Coachella Valley Water District
CVP	Concentrated Solar Voltaic Technology
CWC	California Water Code
CWMP	Construction Waste Management Plan
DA	Development Agreement
DC	Direct Current
EDP	IID Equitable Distribution Plan
EIS	Environmental Impact Statement
ERP	Emergency Response Plan
ET	Evapotranspiration
HMMP	Hazardous Materials Management Plan
ICPDS	Imperial County Planning and Development Services
ICS	Intentionally Created Surplus
IID	Imperial Irrigation District
In	Inches
IOPP	Inadvertent Overrun Payback Policy
ISG	Interim Surplus Guidelines
ISO	International Organization of Standardization
IRWMP	Integrated Regional Water Management Plan
IWSP	Interim Water Supply Policy
KAF	Thousand Acre-Feet
KAFY	Thousand Acre-Feet Per Year
kV	Kilovolt
LAFCO	Local Agency Formation Commission
LCR	Lower Colorado Region
MAF	Million Acre-Feet
MAFY	Million Acre-Feet per Year
MCI	Municipal, Commercial & Industrial
MGD	Million Gallons per Day
MW	Megawatt
MWAC	Megawatt per Acre
MWD	Metropolitan Water District of Southern California

NAF	Naval Air Facility
NAFTA	North American Free Trade Agreement
O&M	Operation and Maintenance
OWTS	Onsite Water Treatment System
POE	Point of Entry
PPA	Power Purchase Agreement
PPR	Present Perfected Right
PV	Photo Voltaic
PVID	Palo Verde Irrigation District
QSA/Transfer Agreements	Quantification Settlement Agreement and Related Agreements
SB	Senate Bill
Schedule 7	IID Water Rate Schedule 7. For General Industrial Use
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas & Electric
SNWA	Southern Nevada Water Authority
SPCC	Spill Prevention Control and Countermeasures
SQFT	Square Feet
TLCFP	Temporary Land Conversion Fallowing Program
US	United States
USBR	United States Bureau of Reclamation
USD	United States Dollar
USEPA	United States Environmental Protection Agency
WSA	Water Supply Assessment

PURPOSE OF WATER SUPPLY ASSESSMENT

This Water Supply Assessment (WSA) was prepared for the Imperial County Planning and Development Services (ICPDS) and 90FI 8me LLC and 92JT 8me LLC (the “Applicants”) by water supply experts at Development Design & Engineering, Inc. (DD&E), as the consultant, regarding the proposed Big Rock Cluster Solar Farms (the “Project”) consisting of four sites – Big Rock 1 Solar Farm, Laurel 1 Solar Farm, Laurel 2 Solar Farm, and Laurel 3 Solar Farm (collectively, the “Project Sites”). This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610).[1] SB 610 is an act that amended Section 21151.9 of the Public Resources Code, and Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the California Water Code (CWC). SB 221 is an act that amended Section 11010 of the Business and Professions Code, while amending Section 65867.5 and adding Sections 66455.3 and 66473.7 to the Government Code. SB 610 which was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002, requires a lead agency, to determine that a project (as defined in Water Code § 10912) subject to CEQA, to identify any public water system that may supply water for the project and to request the project proponents to prepare a specified water supply assessment. 92JT 8me LLC (the “Big Rock Applicant”) seeks approval of a Conditional Use Permit (CUP) for the up to 75 megawatt-AC (MW) Big Rock 1 Solar Farm. 90FI 8me LLC (the “Laurel Applicant”) seeks approval of three CUPs for the construction of Laurel 1 Solar Farm, Laurel 2 Solar Farm, and Laurel 3 Solar Farm, generating up to 40 MW, 70 MW, and 140 MW, respectively. In all, the Big Rock Cluster Solar Farms would generate up to 325 MW. All four photovoltaic (PV) utility-scale solar farms are located in Imperial County, California. Big Rock 1 and Laurel 1-3 solar farms may cooperate if necessary to meet power production requirements, including by allowing one to utilize land designated for the other. The sites are intended to have O&M facilities and an on-site substation, but they may also utilize shared facilities.

This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by Senate Bill (SB) 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply planning efforts in the State of California, therefore SB 610 requires the lead agency (ICPDS), to identify any public water system or water purveyor that may supply water for the Project, to prepare the WSA after a

[1] SB 610 amended Section 21151.9 of the California Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912, and 10915, repealed Section 10913, and added and amended Section 10657 of the Water Code. SB 610 was approved by California Governor Gray Davis and filed with the Secretary of State on October 9, 2001.

consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the Project, the lead agency is then able to coordinate with the local water supplier the Imperial Irrigation District (IID) and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain Projects (as defined in CWC Section 10912 [a]) that are subject to the California Environmental Quality Act (CEQA). Due to increased water demands statewide, this water bill seeks to improve the link between information on water availability and certain land use decisions made by cities and counties. This bill takes a significant step toward managing the demand placed on California's water supply. It provides further regulations and incentives to preserve and protect future water needs. Ultimately, this bill will coordinate local water supply and land use decisions to help provide California's cities, farms, rural communities and industrial developments with adequate long-term water. Ultimately the lead agency will determine whether water supplies will be sufficient to satisfy the demands of the Project, in addition to existing and planned future uses.

Project Determination According to SB 610 - Water Supply Assessment

With the introduction of SB 610, any project under the California Environmental Quality Act (CEQA) shall provide a Water Supply Assessment (WSA) if the Project meets the definition of CWC Section 10912.2. After review of CWC Section 10912(a) and Section 10912 (a)(5)(B), it was determined that a WSA is required because the project is a renewable energy large-scale utility farm use that will occupy more than 40 acres (Project will occupy 1,380 acres).

EXECUTIVE SUMMARY

ICPDS, the lead agency has requested a Water Supply Assessment (WSA) as part of the environmental review for the Big Rock Solar Cluster. This study is intended for use by ICPDS in its evaluation of water supplies for existing and future land uses.

The evaluation examines the following water elements:

- Water availability during a normal year
- Water availability during a single dry, and multiple dry water years
- Water availability during a 30-year projection to meet existing demands
- Expected water demands of the Project
- Reasonable foreseeable planned future water demands to be served by the water supplier.

The Project location lies within IID's Imperial Unit and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy for Non-Agricultural Project (IWSP) from which water supplies can be contracted to serve new non-agricultural developments within IID's water service area. For applications processed under the IWSP, applicants shall be required to pay a processing fee and, after IID board approval of the corresponding agreement, will be required to pay a reservation fee(s) and annual water supply development fees.

The IWSP sets aside 25,000 acre-feet per year (AFY) of IID's Colorado River water supply to serve new non-agricultural projects. To date, a balance of 23,800 AFY remains available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. The Project water demand of approximately 133.3 AFY represents 0.1% of the unallocated supply set aside for new nonagricultural projects, which would not affect IID's ability to provide water to other users in IID's Imperial Unit.

PROJECT OVERVIEW

Site Information

Big Rock 1 includes five assessor's parcel numbers (APNs), Laurel 1 Solar Farm comprises two APNs, Laurel 2 Solar Farm comprises four APNs, and Laurel 3 Solar Farm comprises seven APNs. The 18 parcels together (Project Sites) total approximately 1,380 gross acres. The topography of the Project Sites is relatively flat. The Project Sites have historically been used for agriculture.

Table 1: Big Rock Solar Field Project Overall Project Description

Big Rock Project Parcels (+/- 342 acres)					
APN	**Owner**	**Zoning**	**Acres**	**Canal/Drain**	**Gate**
Big Rock 1					
051-350-015	Carolyn Childers	A-3	107.0	Westside Main Canal	Gate 11
051-350-016	Carolyn Childers	A-3	0.3	Westside Main Canal	Gate 11
051-360-038	Carroll Childers	A-3	45.0	Fig Canal	Gate 2
051-360-028	Norma Hampton & Carroll Childers	A-3	130.0	Westside Main Canal	Gate 10
051-330-024	Scopesi	A-2-R	60.0	Fig Canal	Gate 3

Table 2: Laurel Solar Field Project Overall Project Table (1 Thru 3)

Laurel Project Parcels (+/- 1,038 acres)					
APN	**Owner**	**Zoning**	**Acres**	**Canal/Drain**	**Gate**
Laurel 1					
051-310-023	*Pearl Evans, LLC*	*A-2-R*	*60*	*Fig Canal*	*Gate 6*
051-360-005	*Nancy & JC Nale*	*A-2-R*	*11*	*Fig Canal*	*Gate 4*
Laurel 2					
051-300-032 (portion)	*Kuhn*	*A-2-R*	*80*	*Fern Canal*	*Gate 15*
051-300-036	*Kuhn*	*A-3*	*40*	*Fig Canal Lat. 2*	*Gate 14-A*
051-310-027	*Kuhn*	*A-2-R*	*120*	*Fig Canal*	*Gate 8*
051-310-028	*Kuhn*	*A-2-R*	*40*	*Fig Canal*	*Gate 7*
Laurel 3					
051-270-027 (portion)	*Preece*	*A-2-R*	*58*	*Fox Glove Canal Lateral 1*	*Gate 4*
051-270-047	*Preece*	*A-2-R*	*81*	*Fern Canal Lateral 3*	*Gate 25*
051-300-008	*Preece*	*A-2-R*	*80*	*Fern Canal*	*Gate 12*
051-300-009	*Preece*	*A-2-R*	*80*	*Fern Canal* *Fern Canal*	*Gate 13-A* *Gate 14*
051-300-030 (portion)	*Preece*	*A-2-R*	*145*	*Fox Glove Canal Lateral 1*	*Gate 4*
051-300-039	*Preece*	*A-2-R*	*48*	*Fox Glove Canal Lateral 1*	*Gate 4*
051-330-001	*Childers*	*A-3*	*95*	*Westside Main Canal*	*Gate 14*

Location

The Project Sites are generally south of Interstate 8, west of Drew Road and Vogel Road, north of Mandrapa Road, and east of Hyde Road in the Imperial Valley. The Project Sites are approximately eight miles southwest of the City of El Centro and three miles south of Seeley, a census-designated place, in the unincorporated area of Imperial County.

Figure 1 - State of California Project LocationMap

DESCRIPTION OF PROPOSED PROJECT

The Applicants together propose to develop four PV energy solar farms, totaling up to 325 MWAC. Power generated by the Project will be delivered from the Project Sites via up to 230 kV overhead and/or underground electrical transmission line(s) originating from an on-site substation(s)/switchyard(s) and terminating at the proposed IID Fern Substation, which will be constructed immediately west of Big Rock Solar Farm 1. In the alternative, power may be delivered to the San Diego Gas & Electric (SDG&E) Imperial Valley Substation, Drew Switchyard, or Imperial Solar Energy Center West Substation.

The Project may share operations and maintenance (O&M), substation, and/or transmission facilities with one another and/or with nearby solar farms, and/or may be remotely operated. Any unused O&M, substation, and/or transmission facility areas on-site could be covered by solar panels under such scenarios.

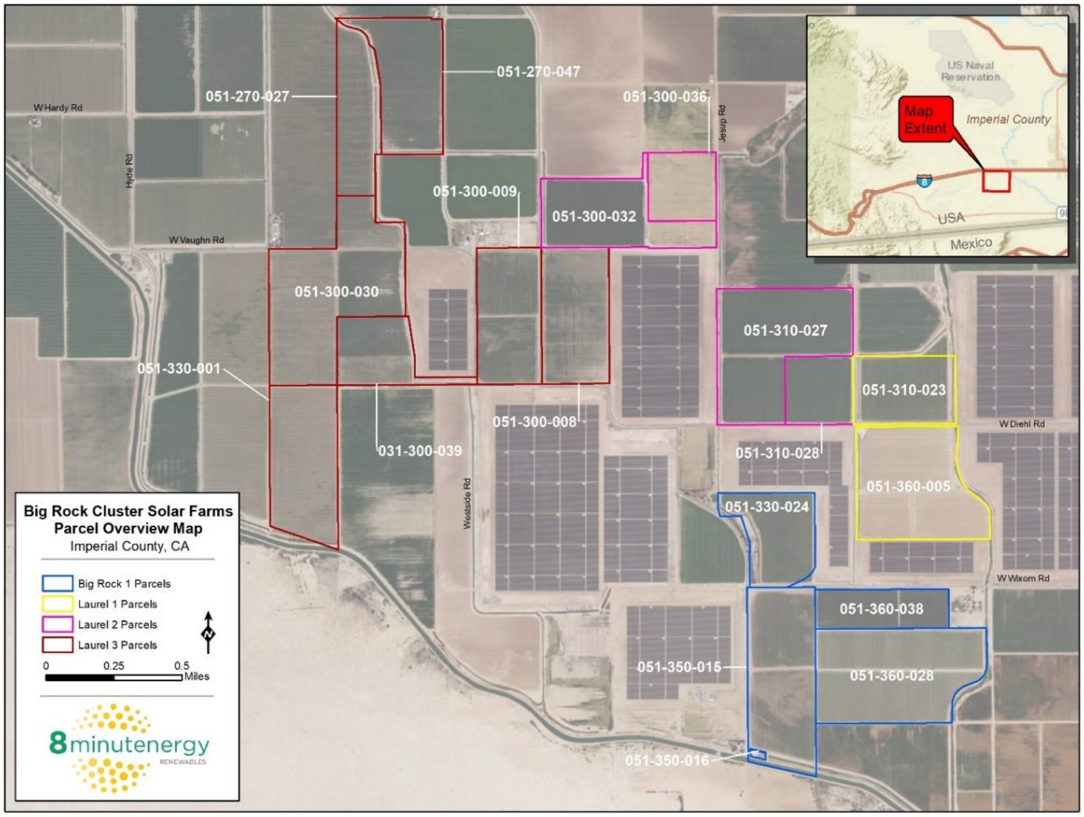
The Applicants have considered the following in their selection of the Project Sites:

- Land availability (approximately 1,380 gross acres)
- Land Use Zoning: A-2-R (General Agricultural Rural Zone) and A-3 (Heavy Agriculture)
- Proximity to interconnecting substation: Fern Substation will be immediately west of Big Rock 1; Imperial Valley Substation is approximately 1 mile south of Big Rock 1; Drew Switchyard is approximately 4 miles southeast Big Rock 1; Imperial Solar Energy Center West Substation is approximately 2.5 miles west of Laurel 3
- Avoidance of high production/value agricultural land: Site avoids Prime Farmland, to the extent feasible

Up to five (5) full-time employees will operate each of the four solar farms (a total of 20 employees split between daytime and nighttime shifts). Typically, up to three (3) staff will work during the day shift at each Project site (sunrise to sunset) and the others during the night shifts and weekend. As noted earlier, it is possible that the Laurel and Big Rock solar farms would share O&M, substation, and/or transmission facilities with one another and/or with nearby solar farms, and/or may be remotely operated. In such scenarios, the Project on-site staff could be reduced. After the useful life of the Project, the panels will be disassembled from the mounting frames and the

Project Sites will be restored to their pre-development condition. **Figure 2** shows the Big Rock Cluster Solar Farms Project Sites.

Figure 2: Big Rock Cluster Solar Farms Project



PV Module Configuration

The Project will utilize PV panels or modules on mounting frameworks to convert sunlight directly into electricity. [2] Individual panels will be installed on either fixed-tilt or tracker mount systems (single- or dual-axis, using galvanized steel or aluminum). If the panels are configured for fixed tilt, the panels will be oriented toward the south. For tracking configurations, the panels will rotate to follow the sun over the course of the day. The panels will stand up to 20 feet high, depending on mounting system used.

The PV panels would be arranged in continuous rows of up to approximately 500 feet in length, with 10 feet between each row (per fire department requirements) and

[2] Including but not limited to concentrated PV (CPV) or bifacial technology

arrays would be grouped together to form up to 500-foot by 500-foot grids or solar array grids. This grid pattern would be arranged to form blocks, with the center of each block containing an inverter module and a pad mounted transformer. Blocks will produce direct electrical current (DC), which is converted to alternating electrical current (AC) at the inverter stations. The inverter module and transformer for each grid area would be housed within a 160-square-foot container or similar structure.

Each PV module will be placed on a fixed-tilt or tracker mounting structure. The foundations for the mounting structures can extend as deep as 8 feet below ground, depending on the structure, soil conditions, and wind loads, and may be encased in concrete or utilize small concrete footings. If bifacial modules are used, light-colored, permeable gravel or crushed rock may be used as ground cover under the panels. Final solar panel layout and spacing will be optimized for Project Site characteristics and the desired energy production profile.

Inverter Stations

PV energy is delivered via cable to inverter stations, generally located near the center of each block. Inverter stations are typically comprised of one or more inverter modules with a rated power of up to 2 MW each, a unit transformer, and voltage switch gear. The unit transformer and voltage switch gear are housed in steel enclosures, while the inverter module(s) are housed in cabinets. Depending on the vendor selected, the inverter station may lie within an enclosed or canopied metal structure, typically on a skid or concrete mounted pad.

Energy Storage System

The Project may include an energy storage system(s), located at or near one or more substations (onsite or shared) and/or at the inverter stations, but possibly elsewhere onsite. Such a large-scale storage system generally would consist of modular and scalable battery packs and battery control systems that conform to US national safety standards. The energy storage modules, which may include commercially available flow batteries, typically consist of ISO standard containers (approximately 40’L x 8’W x 8’H) housed in pad- or post-mounted, stackable metal structures, but may also be housed in a dedicated building in compliance with applicable regulations. The maximum height of a dedicated structure or the energy storage system itself is not expected to exceed 25 feet. The actual dimensions and number of energy storage modules and structures vary depending on the application, supplier, and configuration chosen, as well as on offtaker/Power Purchase Agreement (PPA) requirements and local building standards. The solar farms may share an energy storage system with one another and/or nearby solar farms.

Substation

Output from the inverter stations will be transferred via electrical conduits and electrical conductor wires to on-site substation(s). The substation(s) may contain several components, including auxiliary power transformers, distribution cabinets, revenue metering systems, microwave transmission tower, and voltage switch gear. The substation(s) will occupy an area of approximately 200' x 200', secured separately by an additional chain-link fence, and located along the perimeter of the Project Sites. The final location(s) will be determined before issuance of building permits.

Substations typically include a small control building (roughly 500 square feet) standing approximately 10 feet tall. The building is either prefabricated concrete or steel housing with rooms for the voltage switch gear and the metering equipment, a room for the station supply transformer, and a separate control technology room in which the main computer, the intrusion detection system, and the main distribution equipment are housed. Components of this building (e.g., control technology room and intrusion detection system) may instead be located at an O&M building described later in this document.

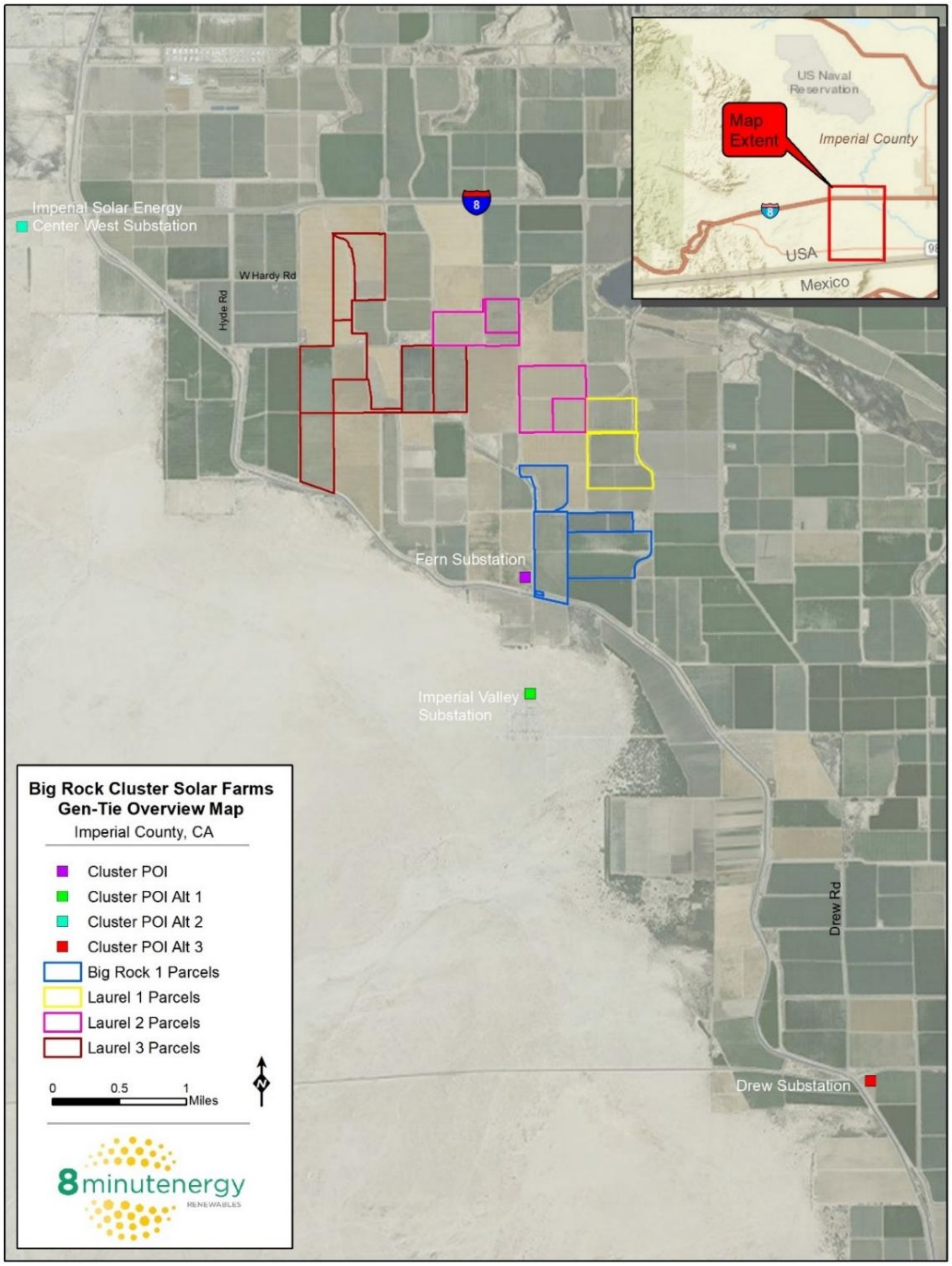
Transmission Line

From the Project substation(s), power will be transmitted to the proposed IID Fern Substation, adjacent to Big Rock 1 Solar Farm, via up to 230 kV overhead and/or underground line(s). Alternatively, power may be transmitted by 230 kV line(s) to SDG&E's Imperial Valley Substation, Drew Switchyard, or Imperial Solar Energy Center West Substation. **Figure 3** provides the locations of these points of interconnection.

PV Module Configuration

Water demand for panel washing and O&M potable use is not expected to exceed 100 AFY for the Project. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 500 AF. Decommissioning may require approximately an additional 500 AF. Potable water for domestic will be obtained from a state approved water delivery provider. A small water treatment system may be installed to provide deionized water for panel washing.

Figure 3: Big Rock Cluster Solar Farms Gen-Tie Overview Map



Water Storage Tank(s)

One or more above-ground water storage tanks with a total capacity of up to 100,000 gallons may be placed on-site near the O&M building(s). The storage tank(s) will have the appropriate fire department connections in order to be used for fire suppression purposes.

Operations and Maintenance Building

The Project is intended to feature one or more O&M buildings of approximately 40’ x 80’ in size, with associated on-site parking. The O&M building(s) will be steel framed, with metal siding and roof panels. The O&M building(s) may include the following:

- Office
- Repair building/parts storage
- Control room
- Restroom
- Septic tank and leach field

Roads, driveways and parking lot entrances will be constructed in accordance with Imperial County improvement standards. Parking spaces and walkways will be constructed in conformance with all California Accessibility Regulations. As noted earlier, the Project Sites may share O&M facilities and/or staff with one another and/or nearby solar projects, and/or may be remotely operated. Any unused O&M areas on-site could be covered by solar panels.

Site Security and Fencing

The Project Sites will be enclosed with a chain link fence with barbed wire measuring up to eight (8) feet in height from finished grade. An intrusion alarm system comprised of sensor cables integrated into the perimeter fence, intrusion detection cabinets placed approximately every 1,500 feet along the perimeter fence, and an intrusions control unit, located either in the substation control room(s) or at the O&M building(s), or similar technology, will be installed. The Project Sites may have additional security measures including, but not limited to, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with operation of the Project.

Controlled access gates will be maintained at the main entrance to each Project Sites. Offsite emergency response teams will be provided with access so they can respond in the event of an after-hours emergency. Enclosure gates will be manually operated with a key provided in a secured key box location.

Site Lighting

All lighting will be directed away from any public rights-of-way. Lighting used on-site will be minimal. Typical lighting may include motion sensor lighting for security purposes. On-site lighting will be of the lowest acceptable foot-candle level measured at the property line after dark.

ANNUAL PRODUCTION

The Project will generate electrical power during daylight hours. Peak electricity demand in California corresponds with air conditioning use on summer afternoons when ambient temperatures are high. The Project peak generating capacity corresponds to this time-period. There is no generating capacity between sunset and sunrise due to the lack of solar energy, though power may be released from the energy storage system(s).

The Project will have a nominal output capacity of up to 325 MWAC, generating sufficient electricity to power roughly 156,000 homes and to displace 484,000 tons of carbon dioxide equivalent (CO_2e) per year when compared to a gas-fired power plant or 960,000 tons when compared to a coal-fired power plant.

CONSTRUCTION ACTIVITIES

Construction for the Project, from site preparation through construction, testing, and commercial operation, is expected to commence as early as Q3 2018 and extend for approximately 12-15 months. The construction period may be extended if the Project is phased, with one or more solar farm development beginning in Q3 2018, and the others being built at a later time to be determined by market conditions.

Construction of the facility will include the following activities:

- Site preparation
- Grading and earthwork
- Concrete foundations

- Structural steel work
- Electrical/instrumentation work
- Collector line installation
- Architecture and landscaping

Roadways will not be affected by the Project except during the construction period. Construction traffic will access the Project from Derrick or Liebert Road. It is estimated that up to 350 workers per day during peak construction periods will be required. Heavy construction is expected to occur between 6:00 am and 5:00 pm, Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities may continue 24 hours per day, seven days per week. Low level noise activities may occur between the hours of 10:00 pm and 7:00 am. Nighttime activities could potentially include, but are not limited to, refueling equipment, staging material for the following day's construction activities, quality assurance/control, and commissioning.

Materials and supplies will be delivered to the Project Sites by truck. Truck deliveries will normally occur during daylight hours. However, there will be offloading and/or transporting to the Project Sites on weekends and during evening hours. Earthmoving activities are expected to be limited to the construction of the access roads, O&M building(s), substation(s), and storm water protection or storage (detention) facilities. Final grading may include revegetation with low lying grass or applying earth-binding materials to disturbed areas.

WORK FORCE

Once the Project is constructed, maintenance will generally be limited to the following:

- Cleaning of PV panels
- Monitoring electricity generation
- Providing Site security
- Facility maintenance - replacing or repairing inverters, wiring, and PV modules

It is expected that each Project Site will require an operational staff of up to five full-time employees, for a total of up to 20. As noted earlier, it is possible that the Project Sites would share O&M, substation, and/or transmission facilities with one another and/or nearby solar farms. In such a scenario, the Project could share personnel, thereby potentially reducing the Project's on-site staff.

The Project Sites would operate seven days a week, generating electricity during normal daylight hours when the solar energy is available. Maintenance activities may occur seven days a week, 24 hours a day to ensure PV panel output when solar energy is available.

PROJECT FEATURES AND BEST MANAGEMENT PRACTICES

The following sections describe standard Project features and best management practices that will be applied during construction and long-term operation of the Project Sites in an effort to maintain safety and avoid environmental impact.

Waste and Hazardous Materials Management

The Project Sites will have minimal levels of materials on-site that have been defined as hazardous under 40 CFR, Part 261. The following materials are expected to be used during the construction, operation, and long term maintenance of the Project:

- Insulating oil – used for electrical equipment
- Lubricating oil – used for maintenance vehicles
- Various solvents/detergents – used for equipment cleaning
- Gasoline – used for maintenance vehicles

Hazardous materials and wastes will be managed, used, handled, stored, and transported in accordance with applicable local, state and federal regulations. All hazardous wastes will be maintained at quantities below the 55-gallon-drum threshold insuring Hazardous Material Management Program (HMMP) compliance. Though not expected, should any on-site storage of hazardous materials exceed one 55-gallon drum, an HMMP would be prepared and implemented.

Spill Prevention and Containment

Hazardous materials stored on a Project Site will be in quantities not to exceed one 55-gallon drum. Spill prevention and containment for construction and operation of the Project will adhere to U.S. Environmental Protection Agency (USEPA) guidance on Spill Prevention Control and Countermeasures (SPCC).

Chemical storage tanks (if any) would be designed and installed to meet applicable local and state regulations. Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers will be stored in an approved storage facility/shed/structure and disposed of as required by local and state regulations. Material quantities of hazardous wastes are not expected.

Waste Water/Septic System

A standard on-site septic tank and leach field may be used at the O&M building to dispose of sanitary wastewater, designed to meet operation and maintenance guidelines required by Imperial County laws, ordinances, regulations, and standards.

Inert Solids

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. A Construction Waste Management Plan will be prepared for review by the County. Consistent with local regulations and the California Green Building Code, the plan would provide for diversion of a minimum of fifty percent (50%) of construction waste from landfill.

Health and Safety

Safety precautions and emergency systems will be implemented as part of the design and construction of each Project Site to ensure safe and reliable operation. Administrative controls will include classroom and hands-on training in operating and maintenance procedures, general safety items, and a planned maintenance program. These will work with the system design and monitoring features to enhance safety and reliability.

The Project will have an Emergency Response Plan (ERP). The ERP will address potential emergencies including chemical releases, fires, and injuries. All employees will be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency.

The Project Sites are located within the jurisdiction of Imperial County Fire Department. On-site fire protection would be provided via portable and fixed fire suppression systems throughout each of the solar farms. Portable fire extinguishers would be provided at various locations throughout the solar farms, while fixed fire suppressions systems would be available in the form of dedicated 20,000-gallon on-site water storage tank(s).

Water from the on-site water storage tank(s) would be intended for the fire protection of the O&M building(s). The O&M building(s) would have access to a wet-fire connection to provide sufficient fire protection. Both the access and service roads (along the perimeter of the Project facilities) would have turnaround areas to allow clearance for fire trucks per fire department standards (70' x 70', and 20' wide access road).

DESCRIPTION OF IID SERVICE AREA

The Project is located in Imperial County in the southeastern corner of California. The County is comprised of approximately 4,597 square miles or 2,942,080 acres[3], bordered by San Diego County to the west, Riverside County to the north, the Colorado River/Arizona boundary to the east, and 84 miles of international border with the Republic of Mexico (Mexico) to the south. Approximately fifty percent (50%) of Imperial County is undeveloped land under federal ownership and jurisdiction. The Salton Sea accounts for approximately eleven percent (11%) of Imperial County's surface area. In 2016, fifteen percent (15%) of the area was in irrigated agriculture (446,796 acres), including 14,676 acres of the Yuma project, some 35 sections or 5,600 acres served by Palo Verde Irrigation District (PVID), and 432,797 acres served by IID.[4]

The area served by IID is located in Imperial Valley, which is generally contiguous with IID's Imperial Unit, lying south of the Salton Sea, north of the US/Mexico international border and generally within the 658,942 acre area between IID's Westside Main and East Highline canals.[5] In 2016, IID delivered untreated water to 432,797 net irrigated acres, predominantly in the Imperial Valley along with small areas of East and West Mesa land.

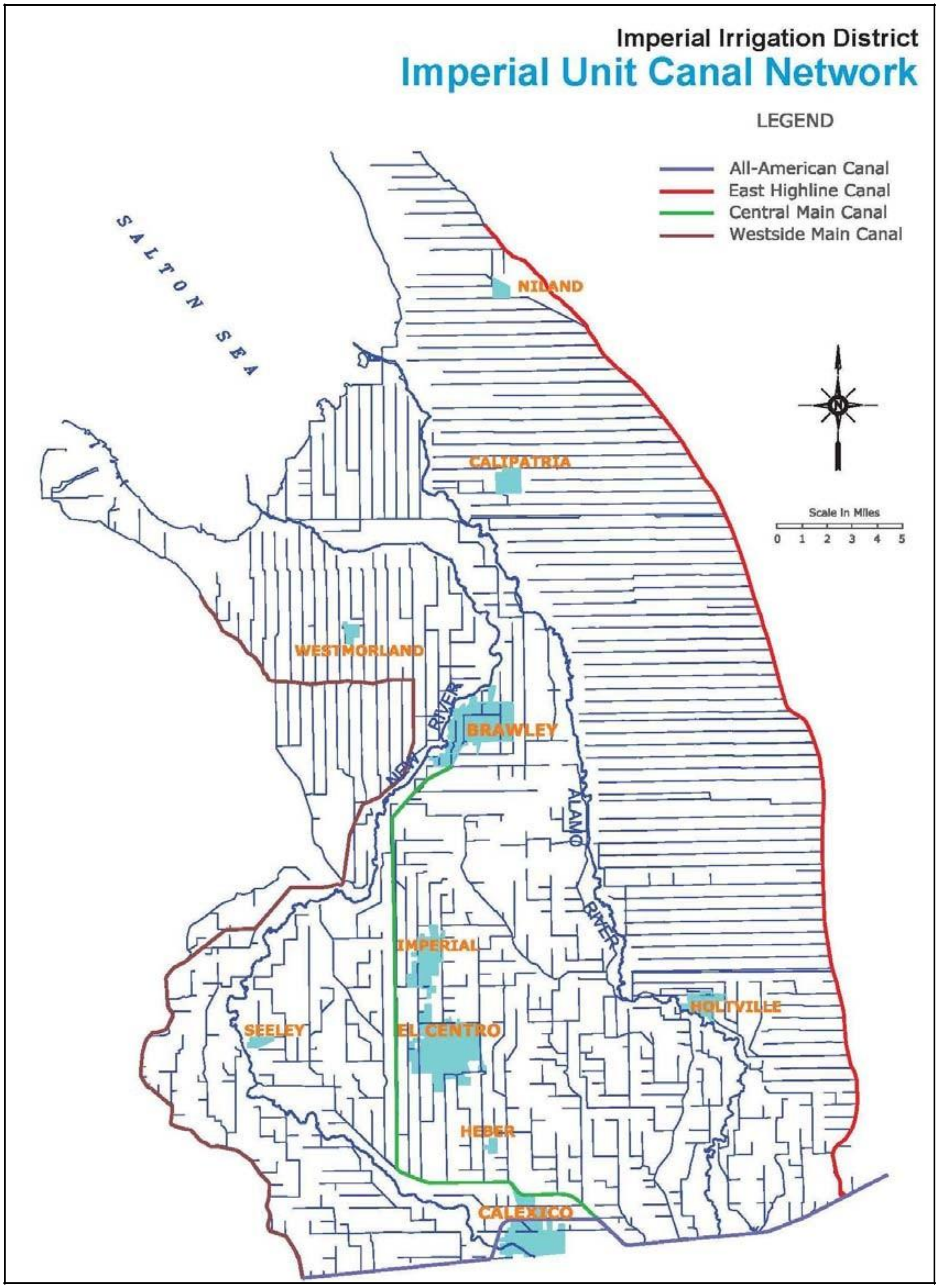
The developed area consists of seven (7) incorporated cities (Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland), three (3) unincorporated communities (Heber, Niland, Seeley), and three (3) institutions (Naval Air Facility [NAF]

[3] Imperial County General Plan, Land Use Element 2008 Update.
[4] USBR website: Yuma Project. 7 June 2017, PVID website: About Us, Acreage Map. 7 June 2017.
[5] IID Annual Inventory of Areas Receiving Water, 2016, , 2014

El Centro, Calipatria California Department of Corrections and Rehabilitation [CDCR], and Centinela CDCR) and supporting facilities**.**

Figure 4 provides a map of the IID Imperial Unit boundary, as well as cities, communities and IID main canals and laterals.

Figure 4 - IID Imperial Unit Boundary and Canal Network



Imperial Valley is located in the Northern Sonoran Desert, which has a subtropical desert climate characterized by hot, dry summers and mild winters. Clear and sunny conditions typically prevail, and frost is rare. The region receives 85 to 90 percent of possible sunshine each year, the highest in the United States. Winter temperatures are mild rarely dropping below 32°F, but summer temperatures are very hot, with more than 100 days over 100°F each year. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s.

The 100-year average climate characteristics are provided in **Table 3.** Rainfall contributes around 50,000 AF of effective agricultural water per inch of rain. Most rainfall occurs from November through March; however, summer storms can be significant in some years. Annual areawide rainfall is shown **Table 4**. The thirty-year, 1995-2014, average annual air temperature was 72.9°F, and average annual rainfall was 2.67 inches, see **Table 5** and **Table 6**. This record shows that while average annual rainfall has fluctuated, monthly average temperatures are remarkably consistent.

Table 3: Climate Characteristics, Imperial, CA 100-Year Record, 1915-2014

Climate Characteristic	Annual Value
Average Precipitation (100-year record, 1915-2014)	3.00 inches (In)
Minimum Temperature, Jan 1937	16 °F
Maximum Temperature, July 1995	121 °F
Average Minimum Temperature, 1915-2014	47.8 °F
Average Maximum Temperature, 1915-2014	98.2 °F
Average Temperature, 1915-2014	72.8 °F

Table 4: IID Areawide Annual Precipitation (In), 1990-2014

1990	1991	1992	1993	1994	1995	1996
1.646	3.347	4.939	2.784	1.775	1.251	0.685
1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
1.328	2.604	1.399	0.612	0.516	0.266	2.402
2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
4.116	4.140	0.410	1.331	1.301	0.619	3.907
2011	**2012**	**2013**	**2014**			
2.261	2.752	2.772	1.103			

Computation based on polygon average of CIMIS and IID data as stations came online in the WIS[6]

[6] From 1/1/1990-3/23/2004, 3 CIMIS stations: Seeley, Calipatria/Mulberry, Meloland; 3/24/2004-7/5/2009, 4 CIMIS stations (added Westmorland N.); 7/6/2009-12/1/2009, 3 CIMIS stations: Westmorland N. offline; 12/2/2009-2/31/2009, 4 CIMIS stations, Westmorland N. back online; 1/1/2010-9/20/2010, 4 CIMIS & 4 IID stations; from 9/21/2010-present 4 CIMIS & 3 IID stations: IID Calexico was decommissioned on 09/20/2010.

Table 5: Monthly Mean Temperature (ºF) – Imperial, CA, 10-Year, 30-Year & 100-Year, 2005-2014, 1995-2014, 1915-2014

	Jan			Feb			Mar			Apr		
	Max	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**
10-year	81	31	56	84	36	59	94	40	66	99	45	71
30-year	80	33	56	84	36	60	92	41	65	100	47	71
100-year	80	31	55	84	35	59	91	40	64	98	45	71
	May			**Jun**			**Jul**			**Aug**		
	Max	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**
10-year	107	54	79	113	60	86	115	68	92	114	67	91
30-year	105	54	79	112	60	86	114	68	92	113	69	92
100-year	105	52	78	112	59	86	114	68	92	113	67	91
	Sep			**Oct**			**Nov**			**Dec**		
	Max	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**
10-year	107	54	79	84	36	59	94	40	66	99	45	71
30-year	105	54	79	84	36	60	92	41	65	100	47	71
100-year	105	52	78	84	35	59	91	40	64	98	45	71

Source: IID Imperial Headquarters Station Record (Data provided by IID staff).

Table 6: Monthly Mean Rainfall (In) – Imperial, CA 10-Year, 30-Year & 100-Year, 2005-2014, 1995-2014, 1915-2014

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10-year	0.47	0.36	0.15	0.03	0.00	0.00	0.21	0.38	0.17	0.21	0.24	0.34	2.54
30-year	0.44	0.44	0.26	0.06	0.04	0.00	0.13	0.23	0.26	0.30	0.23	0.34	2.67
100-year	0.42	0.38	0.26	0.11	0.02	0.00	0.12	0.35	0.37	0.26	0.21	0.50	3.00

Source: IID WIS: CIMIS stations polygon calculation (Data provided by IID staff).

Imperial Valley depends on the Colorado River for its water, which IID transports, untreated, to delivery gates for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses. IID supplies the cities, communities, institutions and Golden State Water (which includes all or portions Calipatria, Niland, and some adjacent Imperial County territory) with untreated water that they treat to meet state and federal drinking water guidelines before distribution to their customers. Industries outside the municipal areas treat the water to required standards of their industry. The IID Water Department tracks nearly 4,000 raw water service accounts required by the California Department of Public Health (CDPH) to have alternate state approved drinking water service. IID maintains a small-acreage pipe and drinking water database and provides an annual compliance update to CDPH.

IMPERIAL COUNTY PAST AND FUTURE LAND AND WATER USES

Agricultural development in the Imperial Valley began at the turn of the twentieth century. In 2016, gross agricultural production for Imperial County was valued at $2,063,214,000 USD, of which approximately $1,980,685,440 USD was produced in the IID water service area.[7] While the agriculture-based economy is expected to continue, land use is projected to change somewhat over the years as industrial and/or alternative energy development and urbanization occur in rural areas and in areas adjacent to existing urban centers, respectively.

Imperial Valley's economy is gradually diversifying. Agriculture will likely continue to be the primary industry within the valley; however, two principal factors anticipated to reduce crop acreage are renewable energy (geothermal and solar) and urban development. Over the next 40 years, urbanization is expected to replace some agricultural land uses due to an increase in residential, commercial, municipal and industrial uses. The transition from agricultural land use typically results in a minor net decrease in water demand for municipal and commercial development, a considerable net decrease in water demand for solar energy development, and a net increase in water demand for geothermal energy development. Local energy resources include geothermal, wind, biomass and solar. The County General Plan provides for development of energy production centers or energy parks within Imperial County.[8] Alternative energy facilities, like the one proposed in the Project, will help California meet its statutory and regulatory goals for increasing renewable power generation and use and decrease water demands in Imperial County.

The IID Board has adopted the following policies and programs to address how to accommodate water demands under the terms of the QSA/ Transfers Agreements and minimize potential negative impacts on agricultural water uses:

<u>Imperial Integrated Regional Water Management Plan</u> adopted by the board on December 18, 2012, and by the County, the City of Imperial, to meet the basic requirement of CDWR for an IRWM plan. In all, 14 local agencies adopted the 2012 Imperial IRWMP.

[7] 2016 Imperial County Crop and Livestock Report.
[8] Imperial County General Plan, Geothermal/Alternative and Transmission Element, revised 2006 and 2015.

Interim Water Supply Policy for Non-Agricultural Projects adopted by the board on September 29, 2009, to ensure sufficient water will be available for new development, in particular, anticipated renewable energy projects until the board selects and implements capital development projects such as those explored in the Imperial IRWMP.

Temporary Land Conversion Fallowing Policy adopted by the board on May 8, 2012, and revised on March 29, 2016, to provide a framework for a temporary, long-term fallowing program to work in concert with the IWSP and IID's coordinated land use/water supply strategy.

Equitable Distribution Plan adopted by the board on October 28, 2013, to provide a mechanism for IID to administer apportionment of the district's quantified annual supply of Colorado River water. IID board approved a resolution repealing the EDP on February 6, 2018.

Imperial Integrated Regional Water Management Plan (October 2012)

The Imperial IRWMP serves as the governing document for regional water planning to meet present and future water resource needs and demands by addressing such issues as additional water supply options, demand management and determination and prioritization of uses and classes of service provided. In November 2012, the Imperial County Board of Supervisors approved the Imperial IRWMP, and the City of Imperial City Council and the IID Board of Directors approved it in December 2012. Approval by these three (3) stakeholders meets the basic requirement of California Department of Water Resources (CDWR) for an IRWMP. Through the IRWMP process, IID presented to the region stakeholders options in the event long-term water supply augmentation is needed, such as water storage and banking, recycling of municipal wastewater, and desalination of brackish water[9]. As discussed herein, long term water supply augmentation is not anticipated to be necessary to meet Project demands.

Chapter 5 of the 2012 Imperial IRWMP addresses water supplies, demand, baseline and forecasted through 2050, and IID water budget. Chapter 12 addresses projects, programs and policies, and funding alternatives. Chapter 12 of the IRWMP lists, and Appendix N details, a set of capital projects that IID could pursue, including the amount of water that might result (AFY) and cost ($/AF) if necessary. These highlight potential capital improvement projects that could be implemented in the future.

[9] October 2012 Imperial Integrated Regional Water Management Plan, Chapter 12.

Imperial Valley historic 2015 and forecasted for 2020 to 2055 non-agricultural water delivery demand is provided in **Table 7** in five-year increments. Total water demand for non-agricultural uses is projected to be 199.3 KAF in the year 2055. This is a forecasted increase in the use of non-agricultural water from 107.2 KAF for the period of 2015 to 2055.[10] These values were modified from Chapter 5 of the Imperial IRWMP to reflect updated conditions from the IID Provisional Water Balance for calendar year 2015. Due to the recession in 2009 and other factors, non-agricultural growth projections have lessened since the 2012 Imperial IRWMP, and projections in **Table 7** have been adjusted (reduced by 3%) to reflect IID 2015 delivery data.

Table 7: Historic and Forecasted Non-Agricultural Water Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Without Conservation									
Municipal	30.0	34.1	37.1	40.1	41.9	46.9	52.4	58.7	62.8
Industrial	26.4	33.1	39.8	46.6	53.3	60.1	66.8	73.5	80.3
Other	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Feedlots/Dairies	17.8	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1
Envr Resources	8.1	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Recreational	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Service Pipes	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Non-Ag Delivery Demand	107.2	123.4	133.1	142.9	151.4	163.2	175.4	188.4	199.3

Notes:
2015 non-agricultural water demands are from IID 2015 Provisional Water Balance rerun 03/21/2017
2020-2055 demands are modified from 2012 Imperial IRWMP Chapter 5 based on IID 2015 Provisional Water Balance analysis with assistance from IID staff: projections have been reduced by 3% based on IID 2015 delivery data.
Industrial Demand includes geothermal, but not solar, energy production.

Agricultural evapotranspiration (ET) demand of approximately 1,475.7 KAFY is expected to increase in 2018 to around 1,566.5 KAFY with the termination of fallowing programs implemented to provide as much as 150 KAFY of water for Salton Sea mitigation in 2015-2017. Forecasted agricultural evapotranspiration (ET) remains constant as reductions in water use are to come from efficiency conservation measures not reduction in agricultural production. Market forces and other factors may impact forecasted future water demand. The 2015 historic and forecasted 2020 to 2055 are provided in **Table 8**.

Table 8: Historic and Forecasted Agricultural Water Consumptive Use and Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

[10] Wistaria Solar Ranch, Final Environmental Impact Report, December 2014

When accounting for agriculture ET, tailwater and tilewater to the Salton Sea, total agricultural consumptive use (CU) demand ranges from 2,157.7 KAF in 2015 to 2,209.5 KAF in 2055. Forecasted total agricultural delivery demand is around 100 KAFY higher than the CU demand, ranging from 2,158.7 KAF in 2015 to 2,210.5 KAF in 2055.

Table 8: Historic and Forecasted Agricultural Water Consumptive Use and Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Ag ET from Delivered & Stored Soil Water	1,475.7	1,566.5	1,566.5	1,566.5	1,566.5	1,566.5	1,566.5	1,566.5	1,566.5
Ag Tailwater to Salton Sea	283.6	322.9	272.9	222.9	222.9	222.9	222.9	222.9	222.9
Ag Tilewater to Salton Sea	398.4	420.1	420.1	420.1	420.1	420.1	420.1	420.1	420.1
Total Ag CU Demand	2,157.7	2,309.5	2,259.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5
Total Ag Delivery Demand	2,158.7	23,010.6	2,260.5	2,010.5	2,210.5	2,210.5	2,210.5	2,210.5	2,210.5
Notes: 2015 record from IID 2015 Provisional Water Balance rerun 03/21/2017; 2020-2055 forecasts from spreadsheet used to develop Figure 19, et seq. in Imperial IRWMP Chapter 5 (Data provided by IID staff).									

IID INTERIM WATER SUPPLY POLICY FOR NON-AGRICULTURAL PROJECTS[11] (SEPTEMBER 2009)

The IID IWSP provides a mechanism to address water supply requests for projects being developed within the IID service area. The IWSP designates up to 25,000 acre-feet per year of IID's annual Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands do not adversely affect existing users by funding water conservation or augmentation projects as needed.

Depending on the nature, complexity and water demands of the proposed projects, new projects may be charged a one-time Reservation Fee and an annual Water Supply Development Fee for the contracted water volume used solely to assist in funding new

[11] IID website: Municipal, Industrial and Commercial Customers.

water supply projects. The 2018 fee schedule is shown in **Table 9.** All new industrial use projects are subject to the fee, while new municipal and mixed-use projects shall be subject to the fee if the project water demands exceed certain district-wide average per capita use standards. The applicability of the fee to mixed-use projects will be determined by IID on a case-by-case basis, depending on the proportion of types of land uses and water demand proposed for a project.

Table 9: Interim Water Supply Policy 2018 Annual Non-Agricultural Water Supply Development Fee Schedule

Annual Demand (AF)	Reservation Fee ($/AF)*	Development Fee ($/AF)*
0-500	$71.41	$285.64
501-1000	$100.54	$402.18
1001-2500	$126.25	$505.01
2501-5000	$155.96	$623.83

*Adjusted annually in accordance with the Consumer Price Index (CPI).

IID customers with new projects receiving water under the IWSP will be charged the appropriate water rate based on measured deliveries, see IID Water Rate Schedules. As of October 2016, IID has issued one Water Supply Agreement for 1,200 acre-feet per year, leaving a balance of 23,800 acre-feet per year of supply available for contracting under the IWSP.

IID TEMPORARY LAND CONVERSION FALLOWING POLICY[12] (MAY 2012)

Imperial County planning officials determined that renewable energy facilities were consistent with the county's agricultural zoning designation and began issuing conditional use permits for these projects with ten- to twenty-year terms. These longer-term, but temporary, land use designations were not conducive to a coordinated land use/water supply policy as envisioned in the Imperial IRWMP, because temporary water supply assignments during a conditional use permit (CUP) term were not sufficient to meet the water supply verification requirements for new project approvals. Agricultural land owners also sought long-term assurances from IID that, at project termination, irrigation service would be available for them to resume their farming operations.

[12] IID website: Temporary Land Conversion Fallowing Policy (TLCFP), and The TLCFP are the sources of the text for this section.

Based on these conditions, IID determined it had to develop a water supply policy that conformed to the local land use decision-making in order to facilitate new development and economic diversity in Imperial County. IID concluded that certain lower water use projects could still provide benefits to local water users. The resulting benefits; however, may not be to the same categories of use (e.g., MCI) but to the district as a whole.

At the general manager's direction, staff developed a framework for a fallowing program that could be used to supplement the IWSP and meet the multiple policy objectives envisioned for the coordinated land use/water supply strategy. Certain private projects that, if implemented, will temporarily remove land from agricultural production within the district's water service area include renewable solar energy and other non-agricultural projects. Such projects may need a short-term water supply for construction and decommissioning activities and longer-term water service for facility operation and maintenance or for treating to potable water standards. Conserved water will be credited to the extent that water use for the Project is less than historic water use for the Project Site's footprint as determined by EDP analysis.[13]

Water demands for certain non-agricultural projects are typically less than that required for agricultural production; this reduced demand allows additional water to be made available for other users under IID's annual consumptive use cap. This allows the district to avail itself of the ability during the term of the QSA/Transfer Agreements under CWC Section 1013 to create conserved water through these projects as temporary land fallowing conservation measures. This conserved water can then be used to satisfy the district's conserved water transfer obligation and for environmental mitigation purposes.

Under the terms of the legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the TLCFP was adopted by the IID board on May 8, 2012 and revised on March 29, 2016 to update the fee schedule for 2016. This policy provides a framework for a temporary, long-term fallowing program to work in concert with the IWSP. While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce efficiency conservation and water use reduction demands on IID water users, thus providing district wide benefits.

[13] For details of how water conservation yield attributable to land removed from agricultural production and temporarily fallowed is computed, see TLCFP for Water Conservation Yield.

IID WATER RIGHTS

As noted above, IID and its customers are dependent on Colorado River water. The following section summarizes the laws and regulations that influence IID's water supply and demand. The Law of the River (as described below), along with the 2003 Quantification Settlement Agreement and Related Agreements serve as the laws, regulations and agreements that primarily influence the findings of this WSA. These agreements state that California has the most senior water rights along the Colorado River and that IID specifically has access to 3.1 MAF per year (the largest allocation on the Colorado River). These two components will influence future decisions in terms of water supply during periods of shortages.

California Law

IID's has a longstanding right to divert Colorado River water, and IID holds legal titles to all of its water and water rights in trust for landowners within the district (Water Code §§ 20529, 22437; *Bryant v. Yellen*, 447 U.S. 352, 371 (1980), fn. 23..) Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. The rights to these appropriations were among the properties acquired by IID from the California Development Company.

Law of the River

Colorado River water rights are governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." Together, these documents form the basis for allocation of the water, regulation of land use, and management of the Colorado River water supply among the seven Basin States and Mexico.

Of all regulatory literature that governs Colorado River water rights, the following are the specifics that impact IID:

- Colorado River Compact (1921)
- Boulder Canyon Project Act (1928)
- California Seven-Party Agreement (1931)
- *Arizona v. California* US Supreme Court Decision (1964, 1979)
- Colorado River Basin Project Act (1968)

- Quantification Settlement Agreement and Related Agreements (2003)
- 2003 Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA)
- 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Annual Operating Plan (AOP) for Colorado River Reservoirs
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead (2007 Interim Guidelines).

Colorado River Compact (1924)

With authorization of their legislatures and urging of the federal government, representatives from the seven Colorado River Basin States began negotiations regarding distribution of water from the Colorado River in 1921. In November 1922, an interstate agreement called the Colorado River Compact (Compact) was signed by the representatives giving the Lower Basin (Arizona, California and Nevada) perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water (75 MAF over ten [10] years). The Upper Basin (Wyoming, New Mexico, Colorado and Utah) was to receive the remainder, which based on the available hydrological record was also expected to be 7.5 MAF annually, with enough left over to provide 1.5 MAF annually to Mexico.

Boulder Canyon Project Act (1928)

Provisions in the 1928 Boulder Canyon Project Act made the compact effective and authorized construction of Hoover Dam and the AAC, and served as the United States' consent to accept the Compact. Through a Presidential Proclamation on June 25, 1929, this act resulted in ratification of the Compact by six (6) of the basin states and required California to limit its annual consumptive use to 4.4 MAF of the lower basin's apportionment plus not less than half of any excess or surplus water unapportioned by the Compact. A lawsuit was filed by the State of Arizona after its refusal to sign. Through the implementation of its 1929 Limitation Act, California abided by this federal mandate. The Boulder Canyon Act authorized the Secretary of the Interior (Secretary) to "contract for the storage of water… and for the delivery thereof… for irrigation and domestic uses," and additionally defined the Lower Basin's 7.5 MAF apportionment split, with an annual allocation 0.3 MAF to Nevada, 2.8 MAF to Arizona, and 4.4 MAF to California. Although the three (3) states never formally settled or agreed to these terms, a 1964 Supreme Court decision (*Arizona v. California*, 373 U.S.

546) declared the three (3) states' consent to be insignificant since the Boulder Canyon Project Act was authorized by the Secretary.

California Seven-Party-Agreement (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its apportionment of Colorado River water. In August 1931, under chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties to prioritize California water rights. The Secretary accepted this agreement and established these priorities through General Regulations issued in September of 1931. The first four (4) priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. Additional priorities are defined for years in which the Secretary declares that excess waters are available.

Arizona v. California U.S. Supreme Court Decision (1964, 1979)

The 1964 Supreme Court decision settled a 25-year disagreement between Arizona and California that stemmed from Arizona's desire to build the Central Arizona Project (CAP) to enable use of its full apportionment. California's argument was that as Arizona used water from the Gila River, which is a Colorado River tributary, it was using a portion of its annual Colorado River apportionment. An additional argument from California was that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project. California's arguments were rejected by the United States Supreme Court. Under direction of the Supreme Court, the Secretary was restricted from delivering water outside of the framework of apportionments defined by law. Preparation of annual reports documenting consumptive use of water in the three Lower Basin states was also mandated by the Supreme Court. In 1979, present perfected water rights (PPRs) referred to in the Compact and in the Boulder Canyon Project Act were addressed by the Supreme Court in the form of a Supplemental Decree.

In March of 2006, a Consolidated Decree was issued by the Supreme Court to provide a single reference to the conditions of the original 1964 decrees and several additional decrees in 1966, 1979, 1984 and 2000 that stemmed from the original ruling. The Consolidated Decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

Colorado River Basin Project Act (1968)

In 1968, various water development projects in both the Upper and Lower Basins, including the CAP were authorized by Congress. Under the Colorado River Basin Project Act, priority was given to California's apportionment over (before) the CAP water supply in times of shortage. Also under the act, the Secretary was directed to prepare long-range criteria for the Colorado River reservoir system in consultation with the Colorado River Basin States.

Quantification Settlement Agreement and Related Agreements (2003)

With completion of a large portion of the CAP infrastructure in 1994, creation of the Arizona Water Banking Authority in 1995, and the growth of Las Vegas in the 1990s, California encountered increasing pressure to live within its rights under the Law of the River. After years of negotiating among Compact states and affected California water delivery agencies, a Quantification Settlement Agreement and Related Agreements and documents were signed on October 10, 2003, by the Secretary of Interior, IID, Coachella Valley Water District (CVWD), Metropolitan Water District of Southern California (MWD), San Diego County Water Authority (SDCWA), and other affected parties.

The Quantification Settlement Agreement and Related Agreements (QSA/Transfer Agreements) are a set of interrelated contracts that resolve certain disputes among the United States, the State of California, IID, MWD, CVWD and SDCWA, for a period of 35 to 75 years, regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification and priority of Priorities 3(a) and 6(a)[14] within California for use of Colorado River water; and the obligation to implement and fund environmental impact mitigation.

Conserved water transfer agreements between IID and SDCWA, IID and CVWD, and IID and MWD are all part of the QSA/Transfer Agreements. For IID, these contracts identify conserved water volumes and establish transfer schedules along with price and payment terms. As specified in the agreements, IID will transfer nearly 415,000 AFY over a 35-year period (or longer), as follows:

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[14] Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights within the State of California and other existing surplus water contracts are not affected by the QSA Agreement.

- MWD 110,000 AFY [modified to 105,000 AFY in 2007]
- SDCWA 200,000 AFY
- CVWD and MWD combined 103,000 AFY
- San Luis Rey Indian Tribes 11,500 AFY of water

All of the conserved water will ultimately come from IID system efficiency and on-farm efficiency conservation improvements. In the interim, IID has implemented a fallowing program to generate water associated with Salton Sea mitigation related to the impacts of the IID/SDCWA water transfer (Fallowing Program), as required by the State Water Resources Control Board, which is to run from 2003 through 2017. In return for its QSA/Transfer Agreements programs and deliveries, IID will receive payments totaling billions of dollars to fund needed efficiency conservation measures and to pay growers for conserved on-farm water, so IID can transfer water without impacting local productivity. In addition, IID will transfer 67,700 AFY annually to SDCWA of water conserved from the lining of the All American Canal (AAC) in exchange for payment of lining project costs and a grant to IID of certain rights to use the conserved water. In addition to the 105,000 acre-feet of water currently being conserved under the 1988 IID/MWD Conservation Program, these more recent agreements define an additional 303,000 AFY to be conserved by IID from on-farm and distribution system conservation projects for transferred to SDCWA, CVWD, and MWD.

Colorado River Water Delivery Agreement (2003)[15]

As part of QSA/Transfer Agreements among California and federal agencies, the Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA) was entered into by the Secretary, IID, CVWD, MWD and SDCWA. This agreement involves the federal government because of the change in place of diversion from Imperial Dam into the AAC to Parker Dam into MWD's Colorado River Aqueduct.

The CRWDA assists California to meet its "4.4 Plan" goals of using 4.4 MAFY Colorado River entitlement goal by quantifying deliveries for a specific number of years for certain Colorado River entitlements so transfers may occur. In particular, for the term of the CRWDA, quantification of Priority 3(a) was effected through caps on water deliveries to IID (consumptive use of 3.1 MAF per year) and CVWD (consumptive use of 330 KAF per year). In addition, California's Priority 3(a)

[15] CRWDA: Federal QSA accessed 7 June 2017.

apportionment between IID and CVWD, with provisions for transfer of supplies involving IID, CVWD, MWD and SDCWA are quantified in the CRWDA for a period of 35 years or 45 years (assumes SDCWA does not terminate in year 35) or 75 years (assumes SDCWA and IID mutually consent to renewal term of 30 years).

Allocations for consumptive use of Colorado River water by IID, CVWD and MWD that will enable California to stay within its basic annual apportionment (4.4 MAF plus not less than half of any declared surplus) are defined by the terms of the QSA/Transfer Agreements shown in **Table 10.** As specified in the CRWDA, by 2026, IID annual use within its water service area (Imperial Valley) is to be reduced to just over 2.6 MAF of its 3.1 MAF quantified annual apportionment. The remaining nearly 500,000 AF (which includes the 67,000 AF from AAC lining) are to be transferred annually to urban water users outside of the Imperial Valley.

Table 10: Colorado River Entitlement – QSA Annual 4.4 MAF Apportionment Cap (Priorities 1 to 4) for California Agencies (Excluding Transfers and Exchanges)

User	Apportionment (AFY)
Palo Verde Irrigation District and Yuma Project*	420,000
Imperial Irrigation District	3,100,000
Coachella Valley Water District	330,000
Metropolitan Water District of Southern California*	550,000
Total:	**4,400,000**

* PVID and Yuma Project did not agree to a cap; value represents a contractual obligation by MWD to assume responsibility for any overages or be credited with any volume below this value.

Notes: All values are consumptive use at point of Colorado River diversion: Palo Verde Diversion Dam (PVID), Imperial Dam (IID and CVWD), and Parker Dam (MWD). Source: IID 2009 Annual Water Report, p 15.

Quantification of Priority 6(a) was effected through quantifying annual consumptive use amounts to be made available in order of priority to MWD (38 KAF), IID (63 KAF), and CVWD (119 KAF) with the provision that any additional water available to Priority 6(a) be delivered under IID's and CVWD's existing water delivery contract with the Secretary.[16] The CRWDA provides that the underlying water delivery contract with the Secretary remain in full force and effect (*Colorado River Documents 2008*, Chapter 6, pages 6-12 and 6-13). The CRWDA also provides a source of water to affect a San Luis Rey Indian Water rights settlement. Additionally, the CRWDA satisfies the requirement of the 2001 Interim Surplus

[16] When Colorado River reservoir water levels are low, Priority 5, 6 and 7 apportionments are not available for diversion.

Guidelines (ISG) that a QSA be adopted as a prerequisite to the interim surplus determination by the Secretary in the ISG.

Inadvertent Overrun Payback Policy (2003)

The Inadvertent Overrun Payback Policy (IOPP), adopted by the Secretary contemporaneously with the execution of the CRWDA, provides additional flexibility to Colorado River management and applies to entitlement holders in the Lower Division States (Arizona, California and Nevada).[17] The IOPP defines inadvertent overruns as "Colorado River water diverted, pumped, or received by an entitlement holder of the Lower Division States that is in excess of the water users' entitlement for the year." An entitlement holder is allowed a maximum overrun of ten percent (10%) of its Colorado River water entitlement.

In the event of an overrun, the IOPP provides a mechanism to payback the overrun. When the Secretary has declared a normal year for Colorado River diversions, a contractor has from one to three years to pay back its obligation, with a minimum annual payback equal to twenty percent (20%) of the entitlement holder's maximum allowable cumulative overrun account or 33.3 percent of the total account balance, whichever is greater. However, when Lake Mead is below 1,125 feet on January 1, the terms of the IOPP require that the payment of the inadvertent overrun obligation be made in the calendar year after the overrun is reported in the United States Bureau of Reclamation (USBR) Lower Colorado Region Colorado River Accounting and Water Use Report for Arizona, California, and Nevada (Decree Accounting Report).[18]

[17] USBR, 2003 CRWDA ROD Implementation Agreement, IOPP and Related Federal Actions Final EIS. Section IX. Implementing the Decision A. Inadvertent Overrun and Payback Policy. Pages 16-19 of 34.
[18] 2003 CRWDA ROD. Section IX. A.6.c,, page 18 of 34.

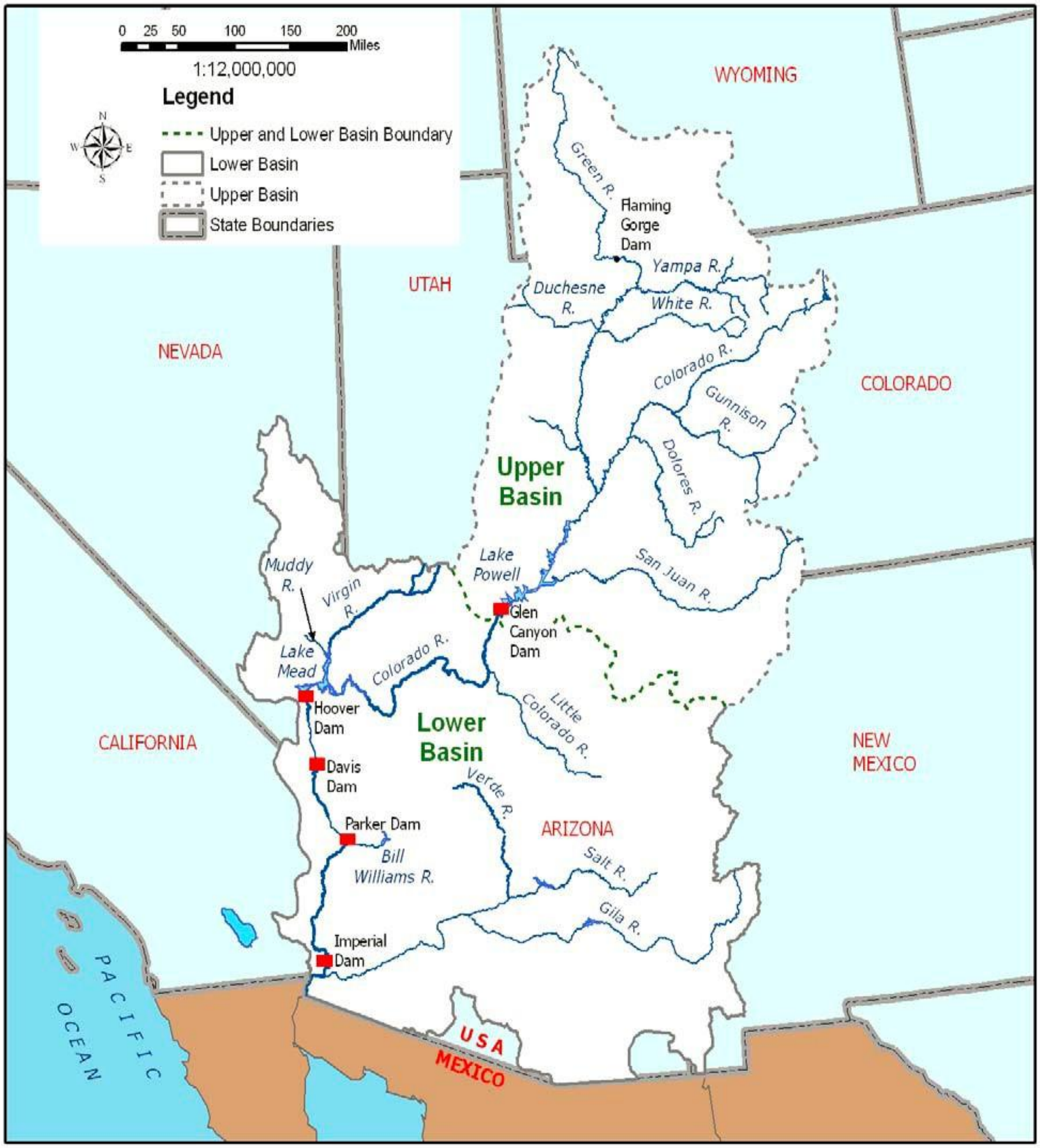
1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs

The 1970 Operating Criteria control operation of the Colorado River reservoirs in compliance with requirements set forth in the Colorado River Compact of 1922, the United States-Mexico Water Treaty of 1944, the Colorado River Storage Project Act of 1956, the Boulder Canyon Projects Act (Lake Mead) and the Colorado River Basin Project Act (Upper Basin Reservoirs) of 1968, and other applicable federal laws. Under these Operating Criteria, the Secretary makes annual determinations published in the USBR Annual Operating Plan for Colorado River Reservoirs (discussed below) regarding the release of Colorado River water for deliveries to the Lower Basin states. A requirement to equalize active storage between Lake Powell and Lake Mead when there is sufficient storage in the Upper Basin is included in these operating criteria. **Figure 5** identifies the major storage facilities and the Upper Basin and Lower Basin boundaries.

Annual Operating Plan for Colorado River Reservoirs

The Annual Operating Plan (AOP) is developed in accordance with Section 602 of the Colorado River Basin Project Act (PL 90-537); the Criteria for Coordinated Long-Range Operations of Colorado River Reservoirs pursuant to the Colorado River Basin Project Act of 1968, as amended, promulgated by the Secretary; and Section 1804(c)(3) of the Grand Canyon Protection Act (PL 102-575). As part of the AOP process, the Secretary makes determinations regarding the availability of Colorado River water for deliveries to the Lower Basin states, including whether normal, surplus, and shortage conditions are in effect on the lower portion of the Colorado River.

Figure 5: Major Colorado River Reservoir Storage Facilities and Basin Location Map



Source: [Final EIS – Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Volume 1 Chapter 1 Purpose and Need]() , p I-10.

2007 Colorado River Interim Guidelines for Lower Basin Shortages (2007 Interim Guidelines)

A multi-year drought in the Upper Colorado River basin that began in October 1999 was the trigger for the Interim Shortage Guidelines. In the summer of 1999, Lake Powell was essentially full with reservoir storage at 97 percent of capacity. However, precipitation fell off starting in October 1999 and 2002 inflow was the lowest recorded since Lake Powell began filling in 1963.[19, 20] By August 2011, inflow to was 279 percent of average; however, drought resumed in 2012 and has continued through water year 2014. Using the record in**,** average unregulated inflow to Lake Powell for water years 2000-2014 is 71 percent; or if 2011 is excluded, 66 percent of the historic average, see **Table 11**.

Table 11: Unregulated Inflow to Lake Powell, Percent of Historic Average, 2000-2015

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
62%	59%	25%	51%	49%	105%	73%	68%	102%	88%	73%	136%	35%	49%	90%	83%

Sources: Drought in the Upper Colorado River Basin (2000-2010), and UCR Water Operations: Historic Data (2011-2016)

In the midst of the drought period, USBR developed 2007 Interim Guidelines with consensus from the seven basin states, which selected the Draft EIS Preferred Alternative as the basis for USBR's final determination. The basin states found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[21]

The 2007 Interim Guidelines Preferred Alternative highlights the following:

- The need for the Interim Guidelines to remain in place for an extended period of time.
- The desirability of the Preferred Alternative based on the facilitated consensus recommendation from the basin states.
- The likely durability of the mechanisms adopted in the Preferred Alternative in light of the extraordinary efforts that the basin states and water users have undertaken to develop implementing agreements that will facilitate the water

[19] Water Year: October 1 through September 30 of following year, so water year ending September 30, 1999

[20] Drought in the Upper Colorado River Basin. August 2011

[21] USBR Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead

management tools (shortage sharing, forbearance, and conservation efforts) identified in the Preferred Alternative.

- That the range of elements in the Preferred Alternative will enhance the Secretary's ability to manage the Colorado River reservoirs in a manner that recognizes the inherent tradeoffs between water delivery and water storage.

In June 2007, USBR announced that a preferred alternative for Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead (Final Preferred Alternative) had been determined. The Final Preferred Alternative, based on the Basin States' consensus alternative and an alternative submitted by the environmental interests called "Conservation Before Shortage," is comprised of four key operational elements which are to guide operations of Lake Powell and Lake Mead through 2026 are:

- Shortage strategy for Lake Mead and Lower Division states: The Preferred Alternative proposed discrete levels of shortage volumes associated with Lake Mead elevations to conserve reservoir storage and provide water users and managers in the Lower Basin with greater certainty to know when, and by how much, water deliveries will be reduced during low reservoir conditions.
- Coordinated operations of Lake Powell and Lake Mead: The Preferred Alternative proposed a fully coordinated operation of the reservoirs to minimize shortages in the Lower Basin and to avoid risk of curtailments of water use in the Upper Basin.
- Mechanism for storage and delivery of conserved water in Lake Mead: The Preferred Alternative proposed the Intentionally Created Surplus (ICS) mechanism to provide for the creation, accounting, and delivery of conserved system and non-system water thereby promoting water conservation in the Lower Basin. Credits for Colorado River or non-Colorado River water that has been conserved by users in the Lower Basin creating an ICS would be made available for release from Lake Mead at a later time. The total amount of credits would be 2.1 MAF, but this amount could be increased up to 4.2 MAF in future years.
- Modifying and extending elements of the ISG: The ISG determines conditions under which surplus water is made available for use within the Lower Division states. These modifications eliminate the most liberal surplus conditions thereby leaving more water in storage to reduce the severity of future shortages.

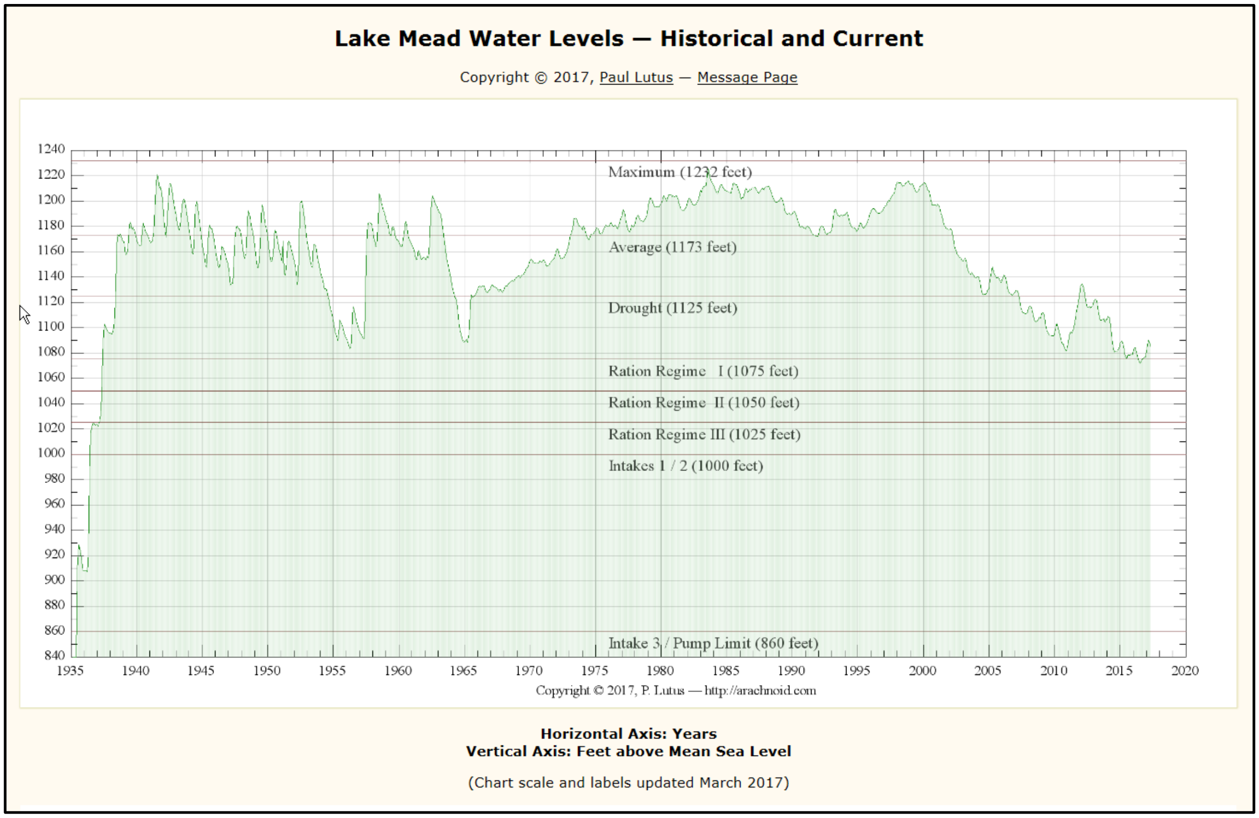
With respect to the various interests, positions and views of each of the seven basin states, this provision adds an important element to the evolution of the legal framework for the prudent management of the Colorado River. Furthermore, the coordinated operation element allows for adjustment of Lake Powell releases to respond to low reservoir storage conditions in either Lake Powell or Lake Mead[22]. States found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[23]

Lower Colorado Region Water Shortage Operations

The drought in the Colorado River watershed has continued through 2016 despite an increase in observed runoff in August 2011 when unregulated inflow to Lake Powell was 279 percent of the average. Since 2000, Lake Mead has been below the "average" level of lake elevations. Such conditions have caused the preparation of shortage plans for waters users in Arizona and Nevada, and in Mexico.

[22] For a discussion of the 2007 Interim Guidelines, see: Intermountain West Climate Summary by The Western Water Assessment, issued Jan. 21, 2008, Vol. 5, Issue 1, *January 2009 Climate Summary*, Feature Article, pages 5-7, 22 Mar 2013.
[23] USBR Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead.

Figure 6: Lake Mead Water Elevation Levels



For graph of latest elevations visit<http://www.arachnoid.com/NaturalResources/index.html>

According to guidelines put in place in 2007, Arizona and Nevada begin to take shortages when the water elevation in Lake Mead falls below 1,075 feet. The volumes of shortages increase as water levels fall to 1,050 feet and again at 1,025 feet. In 2012, Mexico agreed to participate in a 5-year pilot agreement to share specific volumes of shortages at the same elevations. The 2007 interim shortage guidelines contain no reductions for California, which has senior water rights to the Central Arizona Project water supply, through 2025 when the guidelines expire. If Lake Mead's elevation drops to 1,025 feet, a re-consultation process would be triggered among the basin states to address next steps. Consultation would start out within each state, then move to the three lower basin states, followed by all seven states and the USBR. Mexico will then be brought into the process unless they choose to participate earlier.

IID WATER SUPPLY – NORMAL YEAR, SINGLE DRY AND MULTIPLE DRY YEARS

SB 610 requires an analysis of a normal, single dry, and multiple dry water years to show that adequate water is available for the proposed Project in various climate scenarios. Water availability for this Project in a normal year is no different from water availability during a single-dry and multiple-dry year scenarios. This is due to the small effect rainfall has on water supply in IID's arid environment along with IID's strong entitlements to the Colorado River water supply. Local rainfall does have some impact on how much water is consumed (i.e. if rain falls on agricultural lands, those lands will not demand as much irrigation), but does not impact the definition of a normal year, a single-dry year or a multiple-dry year scenario.

IID Water Supply – Normal Year

IID is entitled to annual net consumptive use of 3.1 million acre-feet of Colorado River, less its QSA/Transfer Agreement obligations. Imperial Dam, located north of Yuma, Arizona, serves as a diversion structure for water deliveries throughout southeastern California, Arizona and Mexico. Water is transported to the IID water service area through the AAC for use throughout the Imperial Valley.

IID historic and forecast net consumptive use volumes at Imperial Dam from CRWDA Exhibit B are shown in **Table 12.** Volumes for years 2003-2016 are adjusted for USBR Decree Accounting historic records. Volumes for years 2016-2077 are from the CRWDA Exhibit B modified to reflect 2014 Letter Agreement changes to the 1988 IID/MWD Water Conservation Agreement.[24]

Due to limits on annual consumptive use of Colorado River water under the QSA/Transfer Agreements, IID's water supply during a normal year is best represented by the CRWDA Exhibit B Net Available for Consumptive Use (**Table 12**, Column 11). The annual volume is IID Priority 3(a) Quantified Amount of 3.1 million acre-feet (MAF) (**Table 12**, Column 2) less the IID transfer program reductions for each year (**Table 12**, Columns 3-9). These volumes represent the supply available to IID at Imperial Dam.

[24] 2014 Imperial Irrigation District Letter Agreement for Substitution and Conservation Modifications to the IID/MWD Water Conservation Agreement - December 17, 2014.

CRWDA Exhibit B Net Available for Consumptive Use volumes less system operation demand represent the amount of water available for delivery by IID Water Department to its customers each year. In a normal year, perhaps 50,000 to 100,000 AF of effective rainfall would fall in the IID water service area. However, rainfall is not evenly distributed throughout the IID water service area and is not taken into account by IID in the submittal of its Estimate of Diversion (annual water order) to the USBR.

IID Water Supply – Single Dry and Multiple Dry Years

When drought conditions exist within the IID water service area, as has been the case for the past decade or so, the water supply available to meet agricultural and non-agricultural water demands remains the same as normal year water supply because IID continues to rely solely on its entitlement for Colorado River water. Due to the priority of IID water rights and other agreements, drought conditions affecting Colorado River water supplies cause shortages for Arizona, Nevada and Mexico, before impacting California and IID. Accordingly, the Net Available for Consumptive Use volumes in **Table 12**, Column 11 represent the water supply at Imperial Dam available for diversion by IID in single-dry year and multiple-dry year scenarios.

Under CRWDA Inadvertent Overrun Payback Policy (IOPP), IID has some flexibility to manage its water use. When the water level in Lake Mead is above 1,125 feet, an overrun of its USBR approved annual water order is permissible, and IID has up to three years to pay water use above the annual water order. When Lake Mead's water level is at or below 1,125 feet or less on January 1 in the calendar year after the overrun is reported in the USBR Lower Colorado Region Decree Accounting Report, the IOPP prohibits additional overruns and requires that outstanding overruns are to be paid back in the subsequent calendar year rather than in three years as allowed under normal conditions; that is, the payback is to be made in the calendar year following publication of the overrun in the USBR Colorado River Accounting and Water User Report: Arizona, California, and Nevada (Decree Accounting report).

For historic IID annual rainfall, net consumptive use, transfers and IID underrun/overrun amounts, see **Table 13.**

Table 12: IID Historic and Forecast Net Consumptive Use for Normal Year, Single-Dry Year and Multiple-Dry Year Water Supply, 2003-2037, et seq. (CRWDA Exhibit B)

IID Quantification and Transfers, Volumes in KAF at Imperial Dam [1]										
Col 1	2	3	4	5	6	7	8	9	10	11
	IID Priority 3(a)									
		IID Reductions								IID Net Available for Consumptive Use (Col 2 - 10)
Year	IID 3(a) Quantified Amount	1988 MWD Transfer [2]	SDCWA Transfer	AAC Lining	Salton Sea Mitigation SDCWA Transfer [3]	Intra-Priority 3 CVWD Transfer	MWD Transfer w\ Salton Sea Restoration [4]	Misc. PPRs	IID Total Reduction (Σ Cols 3-9) [5]	
2003	3,100	105.1	10.0	0.0	0.0	0.0	0.0	11.5	126.6	2978.2
2004	3,100	101.9	20.0	0.0	15.0	0.0	0.0	11.5	148.4	2743.9
2005	3,100	101.9	30.0	0.0	15.0	0.0	0.0	11.5	158.4	2756.8
2006	3,100	101.2	40.0	0.0	20.0	0.0	0.0	11.5	172.7	2909.7
2007	3,100	105.0	50.0	0.0	25.0	0.0	0.0	11.5	191.5	2872.8
2008	3,100	105.0	50.0	8.9	26.0	4.0	0.0	11.5	205.4	2825.1
2009	3,100	105.0	60.0	65.5	30.2	8.0	0.0	11.5	280.2	2566.7
2010	3,100	105.0	70.0	67.7	33.7	12.0	0.0	11.5	299.9	2540.5
2011	3,100	103.9	63.3	67.7	0.0	16.0	0.0	11.5	246.4	2915.8
2012	3,100	104.1	106.7	67.7	15.2	21.0	0.0	11.5	326.2	2,903.2
2013	3,100	105.0	100.0	67.7	71.4	26.0	0.0	11.5	381.6	2,554.9
2014	3,100	104.1	100.0	67.7	89.2	31.0	0.0	11.5	403.5	2,533.4
2015	3,100	107.82	100.0	67.7	153.3	36.0	0.0	11.5	476.32	2,480.9
2016	3,100	105	100	67.7	130.8	41	0.0	11.5	556.0	2,504.3
2017	3,100	105	100	67.7	150	45	91	11.5	570.2	2,529.8
2018	3,100	105	130	67.7	0	63	0	11.5	377.2	2,722.8
2019	3,100	105	160	67.7	0	68	0	11.5	412.2	2,687.8
2020	3,100	105	193	67.7	0	73	0	11.5	450.2	2,649.8
2021	3,100	105	205	67.7	0	78	0	11.5	467.2	2,632.8
2022	3,100	105	203	67.7	0	83	0	11.5	470.2	2,629.8
2023	3,100	105	200	67.7	0	88	0	11.5	472.2	2,627.8
2024	3,100	105	200	67.7	0	93	0	11.5	477.2	2,622.8
2025	3,100	105	200	67.7	0	98	0	11.5	482.2	2,617.8
2026	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2027	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2028	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2029-37	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2038-47 [6]	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2048-77 [7]	3,100	105	200	67.7	0	50 [8]	0	11.5	434.2	2,665.8

1. 2003 through 2016, volumes are adjusted for actual USBR Decree Accounting values; IID Total Reduction and Net Available for Consumptive Use may not equal Col 2 minus Col 10, if IID conservation/use was not included in Exhibit B.
2. 2014 Letter of Agreement provides that, effective January 2016 total amount of conserved water available is 105 KAFY
3. Salton Sea Mitigation volumes may vary based on conservation volumes and method of conservation.
4. *This transfer is not likely given lack of progress on Salton Sea restoration as of 2016.*
5. Reductions include conservation for 1988 IID/MWD Transfer, IID/SDCWA Transfer, AAC Lining; SDCWA Transfer Mitigation, MWD Transfer w/Salton Sea Restoration (if any), and Misc. PPRs. Amounts are independent of increases and reductions as allowed by the IOPP.
6. Assumes SDCWA does not elect termination in year 35.
7. Assumes SDCWA and IID mutually consent to renewal term of 30 years.
8. Modified from 100 KAFY in CRWDA Exhibit B; stating in 2018 MWD will provide CVWD 50 KAFY of the 100 KAFY.

Note: Shaded columns represent volumes of water that may vary.

Source: CRWDA: Federal QSA Exhibit B, p 13; updated values from 2016 IID QSA Implementation Report

Table 13: IID Annual Rainfall (In), Net Consumptive Use and Underrun/Overrun Amounts (AF), 1988-2016

Year	IID Total Annual Rainfall	IID Water Users	IID/MWD Transfer	IID/ SDCWA Transfer	SDCWA Transfer Salton Sea Mitigation	IID Underrun / Overrun	IID/CVWD Transfer	AAC Lining
1988		2,947,581						
1989		3,009,451						
1990	91,104	3,054,188	6,110					
1991	192,671	2,898,963	26,700					
1992	375,955	2,575,659	33,929					
1993	288,081	2,772,148	54,830					
1994	137,226	3,048,076	72,870					
1995	159,189	3,070,582	74,570					
1996	78,507	3,159,609	90,880					
1997	64,407	3,158,486	97,740					
1998	100,092	3,101,548	107,160					
1999	67,854	3,088,980	108,500					
2000	29,642	3,112,770	109,460					
2001	12,850	3,089,911	106,880					
2002	12,850	3,152,984	104,940					
2003	116,232	2,978,223	105,130	10,000	0	6,555		
2004	199,358	2,743,909	101,900	20,000	15,000	166,408		
2005	202,983	2,756,846	101,940	30,000	15,000	159,881		
2006	19,893	2,909,680	101,160	40,000	20,000	8,957		
2007	64,580	2,872,754	105,000	50,000	25,021	6,358		
2008	63,124	2,825,116	105,000	50,000	26,085	47,999	4,000	8,898
2009	30,0354	2,566,713	105,000	60,000	30,158	237,767	8,000	65,577
2010	189,566	2,545,593	105,000	70,000	33,736	207,925	12,000	67,700
2011	109,703	2,915,784	103,940	63,278	0	82,662	16,000	67,700
2012	133,526	2,903,216	104,140	106,722	15,182	134,076	21,000	67,700
2013	134,497	2,554,845	105,000	100,000	71,398	65,451	26,000	67,700
2014	53,517	2,533,414	104,100	100,000	89,168	797	31,000	67,700
2015	97,039	2,480,933	107,820	100,000	153,327	0	36,000	67,700
2016	90,586	2,504,258	105,000	100,000	130,796	62,497	41,000	67,700

Notes:
Volumes in acre-feet and except Total Annual Rainfall are USBR Decree Accounting Report record at Imperial Dam.
IID Total Annual Rainfall from IID Provisional Water Balance, first available calculations are for 1990
Not all IID QSA programs are shown on this table.
Source: 2016 IID QSA Implementation Report, except IID Total Rainfall and IID Overrun/Underrun is a separate calculation

PROJECT WATER SUPPLY SOURCES

Untreated Colorado River water will be supplied to the Project via the adjacent delivery gates, as noted in **Table 1** and **Table 2**, potable drinking water will be obtained for the duration of the Project from a state-approved provider.[25] For other water usage in the O&M building(s), canal water will be treated through a Point-of-Entry (POE) water purification system to a level necessary to meet any applicable health department standards. No groundwater will be utilized due to the poor groundwater quality in the region.

The Project proponents will seek to obtain a Conditional Use Permit (CUP) from Imperial County to allow a change from crop production to solar energy production. As noted previously, under the terms of California legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the IID board adopted the TLCFP to address how to deal with any such temporary reduction of water use by projects like Big Rock Cluster Solar Farms that are developed under a CUP.

While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce the need for efficiency conservation and other water use reduction practices on the part of IID and its water users providing the district with wide benefits. One of the considerations in developing the TLCFP was to provide agricultural land owners with long-term assurances from IID that, at Project termination, irrigation service would be available for them to resume their farming operations.

At the present time, IID is providing water for use by solar energy generation projects under Water Rate Schedule 7 General Industrial Use. If IID determines that the Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects rather than Schedule 7 General Industrial Water, the Project proponents will do so. The IWSP designates up to 25,000 AFY of water for potential non-agricultural projects within IID's water service area. As of April 2018, IID has 23,800 AFY available under the IWSP for new projects like Big Rock Cluster Solar Farms. The IWSP establishes a schedule for Processing Fees, Reservation Fees, and Connection Fees that change each year for all non-agricultural projects, and annual Water Supply

[25] To avoid penalties that could exceed $25,000 a day, IID tracks nearly 4,000 raw water service accounts required by the CDPH to have alternate drinking water service. The section maintains a small-acreage pipe and drinking water database, and provides an annual compliance update to CDPH.

Development fees for some non-agricultural projects. Big Rock Cluster Solar Farms water use will be subject to the annual Water Supply Development fee if IID determines that water for the Project is to be supplied under the IWSP.

The likelihood that IID will not receive its annual 3.1 MAF apportionment, less transfer obligations of Colorado River water is low due to the high priority the IID entitlement enjoys relative to other Colorado River contractors. See the "Lower Colorado Region Water Shortage Operations" discussion at the end of the IID Water Rights section above. However, if such reductions were to come into effect within the 30-year span of the Project, the Project proponents are to work with IID to ensure it can manage any reduction.

As such, lower Colorado River water shortage does not present a material risk to the available water supply that would prevent the County from making the findings necessary to approve this WSA. IID, like any water provider, has jurisdiction to manage the water supply within its service area and impose conservation measures during a period of temporary water shortage. Without the Project, IID's task of managing water supply under the QSA/Transfer Agreements would be more difficult, because agricultural use on the Project Sites would be significantly higher than the proposed demand for the Project as explained in more detail below.

To obtain water delivery service, each of the Project proponents will complete an IID-410 Certificate of Ownership and Authorization (Water Card), which provides the Water Department with information needed to manage the District's apportioned supply. Water cards are used for Agriculture, Municipal, Industrial and Service Pipe accounts. If water is to be provided under IWSP rather than Schedule 7, General Industrial Use, each of the Project proponents will seek to enter into an IWSP Water Supply Agreement.

EXPECTED WATER DEMANDS FOR THE PROJECT

Big Rock 1 Solar Farm and Laurel Solar Farms 1- 3 are known as the Big Rock Cluster Solar Farms (the Project). Operational water is needed for Project fire protection, sanitary water, panel washing, dust control and potable water non-drinking water. At Full Buildout the requirement is estimated to be 100 AFY as shown in **Table 14**. The Project will attain potable drinking water from a certified State of California provider.

Table 14: Operational Water Demand at Buildout for Big Rock Solar Cluster (the Project)

Water Use	Amount Required, AFY
Fire Protection	10
Sanitary Water	5
Panel Washing	30
Dust Suppression	40
Potable Water (non-drinking water)	15
Total	**100**

Note* Water delivery demand projections are approximate and may vary slightly by water use.

Total water demand for construction, operation, decommissioning of the Project is estimated to be 4,000 AF, for an annualized demand of 133.3 AFY for the 30-year life of the project, as shown in **Table 15**.

Table 15: Total and Annual Estimated Life-of-Project Water Demand for Big Rock Solar Cluster (the Project)

Big Rock Cluster Solar Farm	**Total Demand (AF)**	**Annual Demand (AFY)**
Construction Water Demand	500	
Operational Water Demand (100 AFY x 30 years)	3,000	
Decommissioning/Site Reclamation Water Demand	500	
Total Water Demand	**4,000**	
Annual Water Demand (Total Demand/30 years)		**133.3**

IID delivers untreated Colorado River water to the Project Sites for agricultural uses. IID water delivery for years 2003-2012, the period of EDP analysis, to the gates that serve the land in the Project is shown in **Table 16** and **Table 17**. The 10-year average annual delivery to the Project Sites for this period is 8765.9 AFY, see **Table 18.**

Table 16: Historic Ten-Year Historic Delivery and FP Yield Record for Delivery Gates, Big Rock Solar Farm Project, (AF), 2003-2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Big Rock 1 Solar Farm										
FIG-2-001	236.0	222.4	202.9	234.8	182.3	116.6	218.1	238	254.1	228.1
FIG-3-001	284.8	282.5	330.8	242.6	244.0	220.2	277.4	328.9	337.0	399.9
WSM-10-001	956.2	938.0	1172.2	1253.4	999.3	970.9	1033.1	482.8	1096.1	1276.2
WSM-11-001A	505.2	603.4	684.1	755.1	694.6	728.1	670.9	467.7	681.3	629.6
Total	**1982.2**	**2046.3**	**2390**	**2485.9**	**2120.2**	**2035.8**	**2199.5**	**1517.4**	**2368.5**	**2533.8**

Table 17: Historic Ten-Year Historic Delivery and FP Yield Record for Delivery Gates, Laurel Solar Farms 1-3, (AF), 2003-2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Laurel Solar Farm 1										
FIG-4-001A	544.1	513.5	480.2	579	600	552.6	641.4	543.1	598.8	721.6
FIG-6-001A	267.2	277.1	0.0	305.5	302.7	294.0	299.9	292.0	284.2	342.2
Total	**811.3**	**790.6**	**480.2**	**884.5**	**902.7**	**846.6**	**941.3**	**835.1**	**883.0**	**1063.8**
Laurel Solar Farm 2										
FIG-14A001	1496.2	1428.1	1355.5	1405.5	1595.9	1295.4	1584.0	1149.6	1608.0	1433.1
FIG-7-001	435.8	393.1	410.4	473.1	229.9	330.1	336.4	442.4	534.8	624.8
FIG-8-001	490.7	439.3	425.5	436.2	218.1	317.5	367.9	402.8	439.7	408.0
Total	**2422.7**	**2260.5**	**2191.4**	**2314.8**	**2043.9**	**1943.0**	**2288.3**	**1994.8**	**2582.5**	**2465.9**
Laurel Solar Farm 3										
FOX-4-001	2188.8	2101.0	2448.0	2409.8	1016.4	1262.3	459.8	1903.0	1803.6	692.2
WSM-14-001A	313.4	500.8	537.7	551.0	553.6	621.4	594.3	446.7	622.8	630.4
FER-13A001	179.1	227.5	243.0	160.3	233.5	297.9	228.6	180.6	317.2	296.9
FER-14-001	301.1	224.7	358.6	487.7	425.5	436.2	290.6	263.5	370.5	415.7
FER-25-001A	469.5	512.9	320.7	337.1	328.9	237.5	166.8	422.1	285.2	83.3
FER-12-001	364.6	511.7	366.4	395.9	405.2	549.0	290.6	433.0	473.5	483.6
Total	**3816.5**	**4078.6**	**4274.4**	**4341.8**	**2963.1**	**3404.3**	**2030.7**	**3648.9**	**3872.8**	**2602.1**

Source: IID Records. 2003-2012 are the 10 years of Historical and Fallowing Program records that were used for EDP analysis.

Table 18: Total and 10-Year Average Historic Delivery and FP Program Yield (AF) and for Laurel Solar Farms 1 - 3 and for Big Rock 1 Solar Farm Project (AFY), 2003-2012

	10-Year Total for Delivery Gates (AF)	10-Year Average (AFY)
Big Rock 1 Solar Farm		
Total Big Rock Solar Farm	**21,679.6**	**2,168.0**
Laurel Solar Farms 1-3		
Laurel Solar Farm 1	8,438.1	843.8
Laurel Solar Farm 2	22,507.8	2,250.8
Laurel Solar Farm 3	35,033.2	3,503.3
Total Laurel Solar Farms 1-3	**65,979.1**	**6,597.9**
Big Rock Cluster Farm (the Project)		
Total Laurel Solar Farms 1-3	65,979.1	6,597.9
Total Big Rock 1 Solar Farm	21,679.6	2,168.0
Total Big Rock Cluster Solar Farms	**87,658.7**	**8,765.9**

Source: IID, Historical Records. Based on 2003-2012, the 10 years of Historical and Fallowing Program Records that were used for EDP analysis.

The Project has an estimated total annualized delivery demand of 133.3 AFY (for all delivery gates for Laurel Solar Farms 1, 2 and 3 and for Big Rock 1 Solar Farm). Thus, Project demand is a reduction of 8,632.6 AFY from the historical 10-year average of 8,765.9 AFY, or 98.4 per cent (98.4%) less than the historic 10-year average annual delivery for agricultural uses at the Project Sites. The Project's estimated water demand represents only 0.56% of the 23,800 AYF balance of supply available for contracting under the IWSP.

IID ABILITY TO MEET DEMANDS WITH WATER SUPPLY

Non-agricultural water demands for the Project Sites has been projected for 2020-2055 in **Table 7**, IID agricultural demands including system operation have been projected from 2020-2055 in **Table 8**, all volumes within the IID water service area. IID water supplies available for consumptive use after accounting for mandatory transfers have been projected to 2077 in **Table 12** (Column 11), volumes at Imperial Dam.

To assess IID's ability to meet future water demands, IID historic and forecasted demands are compared with CRWDA Exhibit B net availability, volumes at Imperial Dam **Table 12** (Column 11). The analysis requires accounting for IID system operation consumptive use within the IID water service area and from AAC at Mesa Lateral 5 to Imperial Dam, and for water pumped for use by the USBR Lower Colorado Water Supply Project (LCRWSP) which is an IID consumptive use component in the USBR

Decree Accounting Report. IID system operation consumptive use for 2015 is provided in **Table 19** to show the components included in the calculation and their 2015 volumes.

Table 20 provides the basis for assessing IID's ability to meet customer water demands through 2055 based on the following:

- Non-agricultural use from **Table 7**
- Agricultural and Salton Sea mitigation uses from **Table 8**
- CRWDA Exhibit B net available for IID consumptive use from **Table 12**
- System operation consumptive use from **Table 19**

Table 19: IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2015

	Consumptive Use (KAF)
IID Delivery System Evaporation	133.3
IID Canal Seepage	92.4
IID Main Canal Spill	1.5
IID Lateral Canal Spill	125.4
IID Seepage Interception	-41.1
IID Unaccounted Canal Water	-7.5
Total IID System Operational Use, within water service area	288.6
"Losses" from AAC @ Mesa Lat 5 to Imperial Dam	62.5
LCWSP pumpage	-7.2
Total System Operational Use in 2015	**343.9**
Sources: 2015 Water Balance rerun 03/21/2017, and Unpublished Draft 2016 IID Water Conservation Plan	

Table 20: IID Historic and Forecasted Consumptive Use vs CRWDA Exhibit B IID Net Available Consumptive Use, volumes at Imperial Dam (KAFY), 2015-2055

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Non-Ag Delivery	107.2	123.4	133.1	142.9	151.4	163.2	175.4	188.4	199.3
Ag Delivery	2,157.7	2,309.6	2,259.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5
QSA Salton Sea Mitigation	142.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Op CU in IID & to Imperial Dam	343.9	436.0	411.0	407.0	407.0	407.0	407.0	407.0	407.0
IID CU at Imperial Dam	**2,751.4**	**2,869.0**	**2,803.6**	**2,759.4**	**2,767.9**	**2,779.7**	**2,791.9**	**2,804.9**	**2,815.8**
Exhibit B IID Net Available CU at Imperial Dam	2,564.8	2,649.8	2,617.8	2,612.8	2,612.8	2,612.8	2,612.8	2,665.8	2,665.8
IID Underrun/ Overrun	**-97,188.0**	**219.2**	**185.8**	**146.6**	**155.1**	**166.9**	**179.1**	**139.1**	**150.0**

Notes: 2015 Provisional Water Balance rerun 03/21/2017
Non-Ag Delivery CI 15.0%, Ag Delivery CI 3.0%, QSA SS mitigation CI 15%
QSA Salton Sea Mitigation Delivery terminates on 12/31/2017
Underrun /Overrun = IID CU at Imperial Dam minus CRWDA Exhibit B Net Available
Notes: Ag Delivery for 2020-2055 does not take into account land conversion for solar use nor reduction in agricultural land area due to urban expansion.

Table 21 presents IID's 2015 approved water order, consumptive use at Imperial Dam from USBR 2015 Decree Accounting Report, and IID underrun/overrun reported in the 2015 QSA Implementation Report.

Table 21: Approved Water Order, Actual CU (Decree Accounting Report) and IID Underrun, (KAF at Imperial Dam), 2015

	Accounting at Imperial Dam
IID Approved Water Order [1]	2,592.6 KAF to 2,617.5 KAF less 7.2 KAF supplied by LCWSP
IID Consumptive Use [2]	2,480.9 KAF
IID Underrun [3]	-97.2 KAF

Sources:
1 2015 IID Revised Water Order, Nov 25, 2015
2 2015 Decree Accounting Report
3 2015 IID QSA Implementation Report
Notes: Ag Delivery for years 2020-2055 in line 2 does not take into account future land conversion for solar use nor reduction in agricultural land area due to urban expansion; the forecast ag demand is for 2003 acreage with reduction for projected on-farm conservation efficiency.

As reported in the IID 2015 QSA Implementation Report and summarized in **Table 21** and in **Table 22**, in 2015 IID consumptive use was less than IID's QSA Entitlement of 3.1 MAFY less QSA/Transfer Agreements obligations. This would indicate that although IID forecasted demand shown in **Table 20** exceeds CRWDA Exhibit B Net Consumptive Use volumes for the entire the life of the Project, IID consumptive use measured at Imperial Dam may, in fact, not be as high as forecasted. In addition, given that the Project will use less water than the historic agricultural demand, the Project will ease rather than exacerbate overall IID water demands.

Finally, if (1) IID has issued water supply agreements that exhaust the 25 KAFY IWSP set aside, and (2) it becomes apparent that IID delivery demands due to non-agricultural use are going to cause the district to exceed its quantified 3.1 MAFY entitlement less QSA/Transfer Agreements obligations, IID has identified options to meet these new non-agricultural demands. These options include (1) tracking water yield from temporary conversion from agricultural to non-agricultural land uses (renewable solar energy); and (2) only if necessary, developing projects to expand the size of the district’s water supply portfolio.

Table 22: IID 2015 Water Accounting: All Values are Provisional Consumptive Use at Imperial Dam (AF), 2015

	Consumptive Use	Fallowing Programs	Efficiency Conservation Programs	Salton Sea Mitigation Delivery	Storage at MWD
Miscellaneous Present Perfected Rights					
1988 IID/MWD Transfer	107,820		107,820		
SDCWA Transfer	100,000	40,000	60,000		
CVWD Transfer	36,000	4,157	31,843		
SDCWA Transfer - Salton Sea Mitigation	153,327	153,327		153,327	
IOP Payback	0				
Intentionally Created Surplus	38,313		38,313		38,313
AAC Lining Project Transfer	67,700		67,700		
IID Water Users	2,480,933				
LCWSP Wellfield Pumpage	7,219				
Total	3,002,812	197,484	305,676	153,327	38,313
IID QSA Entitlement	3,100,000				
Inadvertent Overrun Reported by USBR	--				
Underrun	-97,188				

Notes:

1. Adjusted for excess conservation and delivery of 566 AF in 2014 and 43,893 AF in 2015 (110,000-566+43,893=153,327 AF). See Salton Sea Mitigation Accounting for details.
2. Draft USBR Water Accounting, 4/22/2016.
3. Included as part of IID's CU in lieu of an equivalent diversion.
4. As reported in IID QSA Implementation Report 2015

Tracking Water Savings from Growth of Non-Agricultural Land Uses

The Imperial County Board of Supervisors has targeted up to 25,000 acres of agricultural lands for temporary conversion to solar farms about 5 percent (5%) of the County’s agricultural lands, because they found that this level of reduction in agricultural lands for solar farms would not adversely affect agricultural production. As reported for IID’s 2016 Temporary Land Conversion Fallowing Program, existing solar developments have converted approximately 7,864 acres of farmland. Through the temporary land conversion fallowing program, these projects had a yield at-river of 37,717 AF of water in 2016. The balance of the 25,000-acre agriculture-to-solar policy is 21,037 acres. On average, each agricultural acre converted would reduce agricultural demand by 5.1 AFY, which results in an additional at-river yield of 107,289 AFY (reduction in IID net consumptive use) – a total at-river yield (reduction in consumptive use) of 145,006 AFY.

However, due to the nature of the conditional use permits under which solar farms are developed, IID cannot rely on this “new” supply being permanently available. In fact, should a solar project decommission early, that land may go immediately back to agricultural use (it remains zoned an agricultural land). Nevertheless, during their operation, the solar farms do ameliorate pressure on IID to implement projects to meet demand from new non-agricultural projects.

Unlike water use by solar farms, other non-agricultural water demands are forecasted to increase use, as reflected in the nearly 100 percent (100%) increase in non-agricultural water demand from 107.2 KAF in 2015 to 199.3 KAF in 2055 reflected herein in **Table 7**. During these years, municipal development is expected to occur within the sphere of influence areas surrounding incorporated city boundaries within the IID water service area. At present, these lands are used for agriculture which have higher levels of water use.

Developed municipal land use is projected to grow by 55,733 acres from 2015 to 2050 within the sphere of influence of the incorporated cities and specific plan areas in Imperial County. That would be use of 52.9 KAF in 2050 (0.95 AF/AC times 55.7 KAC). [26] The projected municipal use 62.8 KAFY for 2055 in **Table 7** adequately projects this change and is included in non-agricultural delivery in **Table 20**.

By 2050, agricultural water demand use reduction from farm land retired for municipal use based on the Imperial Local Agency Formation Commission (LAFCO) sphere of influence maps and existing zoning and land use in Imperial County would be 284.1 KAFY (5.1 AF/AC times 55.7 KAC). While this volume of water is sufficient to meet the projected 2050 overrun, the change in land use projected for 2050 is unlikely to occur in time to provide sufficient water to meet overruns projected for 2020 and 2025. Therefore, in the event that Schedule 7 Industrial Use water is unavailable, the applicants will rely on IID IWSP water to supply the Project (**Table 20**).

Expanding Water Supply Portfolio

While long-term forecast annual yield at-river from the reduction in agricultural acreage due to expansion of non-agricultural development in the IID service area is sufficient to meet the forecasted excess of non-agricultural use over CRWDA Net Available supply (**Table 20**) without expanding IID’s Water Supply Portfolio, IID has also

[26] Municipal use rate is 0.95 AF/AC, based on 2015 municipal water use of 30.0 KAF (**Table 7**) and 31.4 KAC acres in municipal use (IID Annual Inventory of Areas Receiving Water, 2016, , 2014).

evaluated the feasibility of several capital projects to increase its Water Supply Portfolio. As reported in 2012 Imperial IRWMP Chapter 12, IID contracted with GEI Consultants, Inc. to identify a range of capital project alternatives that the district could implement. Qualitative and quantitative screening criteria and assumptions were developed in consultation with IID staff. Areas within IID's service area with physical, geographical, and environmental characteristics most suited to implementing short- and long-term alternatives were identified. Technical project evaluation criteria included volumes of water that could be delivered and/or stored by each project, regulatory and permitting complexity, preliminary engineering components, land use requirements, and costs.

After preliminary evaluation, a total of 27 projects were configured: 17 groundwater or drain water desalination, two (2) groundwater blending, six (6) recycled water alternatives, one (1) groundwater banking alternative, and one (1) IID system conservation project alternative.

These projects were assessed at a reconnaissance level to allow for comparison of project costs. IID staff and the board identified key factors to categorize project alternatives and establish priorities. Lower priority projects were defined as those projects that were less feasible due to technical, political, or financial constraints. Preferential criteria were project characteristics that would increase the relative benefits of a project and grant it a higher priority. Four criteria were used to prioritize the IID capital projects:

- **Financial Feasibility.** Projects whose unit cost was more than $600/AF were eliminated from further consideration.
- **Annual Yield.** Project alternatives generating 5,000 AF or less of total annual yield were determined not to be cost-effective and lacking necessary economies of scale.
- **Groundwater Banking.** Groundwater banking to capture and store underruns is recognized as a beneficial use of Colorado River water. Project alternatives without groundwater banking were given a lower priority.
- **Partnering.** Project alternatives in which IID was dependent on others (private and/or public agencies) for implementation were considered to have a lower priority in the IID review; this criterion was reserved for the IRWMP process, where partnering is a desirable attribute.

Based on these criteria, the top ten included six desalination, two groundwater blending, one system conservation, and one groundwater storage capital projects. These capital projects are displayed **Table 23** below.

Table 23: IID Capital Project Alternatives and Cost (May 2009 price levels $)

Name	Description	Capital Cost	O&M Cost	Equivalent Annual Cost	Unit Cost ($/AF)	In-Valley Yield (AF)
GW 18	Groundwater Blending East Mesa Well Field Pumping to AAC	$39,501,517	$198,000	$2,482,000	$99	25,000
GW 19	Groundwater Blending East Mesa Well Field Pumping to AAC with Percolation Ponds	$48,605,551	$243,000	$3,054,000	$122	25,000
WB 1	Coachella Valley Groundwater Storage	$92,200,000	$7,544,000	$5,736,746	$266	50,000
DES 8	East Brawley Desalination with Well Field and Groundwater Recharge	$100,991,177	$6,166,000	$12,006,000	$480	25,000
AWC 1	IID System Conservation Projects (2)	$56,225,000	N/A	$4,068,000	$504	8,000
DES 12	East Mesa Desalination with Well Field and Groundwater Recharge	$112,318,224	$6,336,000	$12,831,000	$513	25,000
DES 4	Keystone Desalination with IID Drainwater/ Alamo River	$147,437,743	$15,323,901	$23,849,901	$477	50,000
DES 14	South Salton Sea Desalination with Alamo River Water and Industrial Distribution	$158,619,378	$15,491,901	$24,664,901	$493	50,000
DES 15	South Salton Sea Desalination with Alamo River Water and MCI Distribution	$182,975,327	$15,857,901	$26,438,901	$529	50,000
DES 2	Keystone Desalination with Well Field and Groundwater Recharge	$282,399,468	$13,158,000	$29,489,000	$590	50,000

Source: Imperial IRWMP, Chapter 12; see also Imperial IRWMP Appendix N, IID Capital Projects

IID Near Term Water Supply Projections

As mentioned above, IID's quantified Priority 3(a) water right under the QSA/Transfer Agreements secures 3.1 MAF per year, less transfer obligations of water for IID's use from the Colorado River, without relying on rainfall in the IID service area. As the IID Water website states,

> . . . Through the implementation of extraordinary conservation projects, the development of innovative efficiency measures and the utilization of

progressive management tools, the IID Water Department is working to ensure both the long-term viability of agriculture and the continued protection of water resources within its service area.

As such, IID actively promotes on-farm efficiency conservation and is implementing system efficiency conservation measures including seepage recovery from IID canals and the All-American Canal and measures to reduce operational discharge.

Overall, agricultural water demand in the Imperial Valley will decrease due to IID system and grower on-farm efficiency conservation measures that are designed to maintain agricultural productivity at pre-QSA levels while producing sufficient yield at-river to meet IID's QSA/Transfer Agreements obligations. These efficiencies combined with the conversion of some agricultural land uses to non-agricultural land uses (both solar and municipal), ensure that IID can continue to meet the water delivery demand of its existing and future agricultural and non-agricultural water users, including the Big Rock Cluster Solar Project for the next 20 years and for the life of the Project.

IID has also evaluated the feasibility of new capital water supply projects, but does not find them necessary to implement at this time in order to meet existing and forecasted water demands within its service IID serves as the regional wholesale water supplier, importing raw Colorado River water and delivering it, untreated, to agricultural, municipal, industrial, environmental and recreational water users within its Imperial Unit water service area.

PUBLIC WATER SYSTEM/LEAD AGENCY FINDINGS

IID's annual entitlement to consumptive use of Colorado River water is capped at 3.1 MAF less water transfer obligations, pursuant to the QSA and Related Agreements. In 2016 IID consumptively used 2,504,258 AF of Colorado River water (volume at Imperial Dam, see **Table 13**); 2,263,665 AF (volume in Imperial Valley) were delivered to customers of which 2,159,085 AF or 95.4 percent went to agricultural users. **Table 20** provides the basis for assessing IID's ability to meet customer water demands through 2055 based on the following:

- Non-agricultural use from **Table 7**
- Agricultural and Salton Sea mitigation uses from **Table 8**

- CRWDA Exhibit B net available for IID consumptive use from **Table 12**
- System operation consumptive use from **Table 19**

Under the terms of the CRWDA, IID is to implement efficiency conservation measure to reduce net consumptive use of Colorado River water needed to meet its QSA/Transfer Agreements obligations. Agricultural evapotranspiration and tailwater use in the Imperial Valley will not decline. However, IID operational spill and agricultural tailwater will decline, impacting the Salton Sea with termination of Salton Sea mitigation deliveries at the end of 2017.

Due to the dependability of IID's water rights and Colorado River water storage facilities, it is unlikely that the water supply of IID would be disrupted even under shortage conditions because Mexico, Arizona and Nevada have lower priority and are responsible for reducing their water use during a declared Colorado River water shortage before California would be impacted. Nevertheless, IID is participating in discussions for possible actions in response to extreme drought on the Colorado River. Historically, IID has never been denied the right to use the annual volume of water it has available for its consumptive uses under its entitlement.

The Big Rock Cluster Solar Farms are estimated to use 500 AF of water during commissioning, 100 AFY of water during operation during the 30 year life of the project, and 500 AF during decommissioning. Amortized over the 30 year life of the Project (including construction, operation and decommissioning), this equates to 133.3 AFY. This is a decrease of 98.6% when compared to existing agricultural water use at the Project Sites.

It is anticipated that IID will apportion Schedule 7 Industrial Use water for this Project. In the event that IID determines that the Project is to utilize IWSP for Non-Agricultural Projects water, the Project proponents will enter into an IWSP Water Supply Agreement with IID. In which case, the Project would use only 0.56% of the remaining 23,800 AFY of IWSP water. Based on the Environmental Impact Report (EIR) prepared for this Project pursuant to the CEQA, California Public Resources Code sections 21000, *et seq*., Imperial County hereby finds that the IID projected water supply will be sufficient to satisfy the demands of this Project in addition to existing and planned future uses, including agricultural and non-agricultural uses for a 20 year period and for the life of the Project.

ASSESSMENT CONCLUSION

This WSA has shown that IID water supply is adequate for this Project. IID's IWSP for Non-Agricultural Projects dedicates 25,000 AFY of IID's annual water supply to serve new projects. To date 23,800 AF per year remain available for new projects ensuring reasonably sufficient supplies for new non-agricultural water users. Total water usage for the life of the Projects represents 0.56%, of the unallocated supply set aside in the IWSP for non-agricultural project, and approximately 0.56% of forecasted future non-agricultural water demands planned in the Imperial IRWMP through 2055. Furthermore, the Project represents a 98.4% decrease of operational water demand for agricultural uses at the Project Sites and will provide a reduction in use 8,632.6 AFY and thus a reduction for the life of the project. For all the reasons described herein, the amount of water available and the stability of the IID water supply along with on-farm and system efficiency conservation and other measures being undertaken by IID and its customers ensure that this Project's water needs will be met for the next 20 years as required by SB-610.

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