

Via Email: BDCPComments@icfi.com

October 30, 2015

BDCP/California WaterFix Comments
SENT via U.S. MAIL and electronic mail
P.O. Box 1919
Sacramento, CA 95812

RE: Comment Letter to RDEIR/S – California Water Fix

**SolAgra Water Solution – previously known as: West Delta Intake Plan
Viable Alternative to BDCP/ CWF**

The SolAgra Water Solution, previously known as the “SolAgra West Delta Intake Plan” is a viable alternative to the CWF that must be considered under not only NEPA and CEQA, but also the Clean Water Act.

SolAgra is disappointed that the RDEIR/S did not include additional analysis of alternatives that would meet water supply needs without damaging the Delta environment and communities. Since we received no response to our previously provided comments, there is also no publicly available basis for this omission. Our July 29, 2014 comment letter provided a detailed discussion of the various legal requirements to consider alternatives, including the SolAgra West Delta Intake Plan. All alternative solutions that proposed intakes in the west Delta were summarily dismissed without further analysis or consideration. The Pyke Plan (aka: West Delta Intake Concept) which was discussed in DEIR/S Appendix 3A, was preliminarily considered but not included for further analysis in the DEIR/S due to a presumed lack of viability. SolAgra’s prior comment letter discussed the reasons why the SolAgra alternative is completely different from the Pyke Plan. The only similarities between the two alternatives are similar names and the use of Sherman Island for water intakes. To prevent the confusion between alternatives, we have renamed the SolAgra West Delta Intake Plan – the **SolAgra Water Solution (“SWS”)**. All of the comments made in our July 28, 2014 comment letter continue to apply in the context of the new preferred alternative, 4A, and it was a legal error for the RDEIR/S to omit consideration of the SolAgra Water Solution.

An additional basis for consideration of the SolAgra Water Solution, in addition to the requirements of CEQA and NEPA, is for purposes of determining the Least Environmentally Damaging Practicable Alternative (“LEDPA”). (See 33 U.S.C. §

1344(b)(1).) An application was recently submitted to the U.S. Army Corps of Engineers (“USACE”) to fill almost 800 acres of wetlands with up to 30 million cubic yards of excavated material to construct Alternative 4A. USACE regulations provide, “[N]o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.” (40 C.F.R. § 230.10(a).) USACE regulations specifically require the applicant to identify possible practicable alternatives especially including those alternatives that do not involve the discharge of fill material. (40 C.F.R. § 230.10(a)(i).)

The project purpose and need can be met by the SolAgra Water Solution. (See RDEIR/S, pp. I-9 to I-12.) In particular, diversions from the Delta under the SolAgra Water Solution can occur in a manner that “minimizes or avoids adverse effects to listed species, and allows for the protection, restoration and enhancement of aquatic, riparian and associated terrestrial natural communities and ecosystems.” Due to the location of the SolAgra intakes in the western Delta, diversions can also “[r]estore and protect the ability of the SWP and CVP to deliver up to full contract amounts when hydrologic conditions result in the availability of sufficient water.” (See RDEIR/S, pp. I-9.) Even in the case of insufficient available water quantities, as California has experienced during the most recent and ongoing four year drought, the SolAgra Water Solution would provide up to 1 Million Acre-Feet/ year (“MAF”) of newly created water via a large desalination plant on Sherman Island. Using state-of-the-art desalination technologies, this water supply would be drought proof and would be immune to projected sea level rise.

The SolAgra Water Solution is a practicable alternative that would have a less adverse effect on the aquatic ecosystem than the currently preferred Alternative 4A. (40 C.F.R. § 230.10(a).) In particular, the SWS requires only one 19-mile long tunnel instead of two 35-mile long tunnels, PLUS the SolAgra tunnel would have a borehole diameter of 32 feet, appreciably smaller than the 46 foot borehole diameter tunnels proposed under Alternative 4A. Moreover, since the SolAgra tunnel would run primarily south of the Delta, from Sherman Island to the SWP facilities at Bethany Reservoir, NO WATERS/WETLAND fill would be necessary. CWF Alternative 4A proposes more than 30 million cubic yards of tunnel excavation/ fill material to be deposited in pristine areas of the Delta, the SolAgra Water Solution would deposit less than 1.5 million cubic yards of fill material, and this material would all be deposited on Sherman Island in areas that are currently upland grazing areas (not wetlands). This quantity of fill material can be deposited on 310 acres at a depth of only 3 feet. This quantity of fill material would be beneficial to the environment by offsetting the land subsidence that has occurred on Sherman Island over many years. When graded and re-compacted, this fill area can be re-seeded and returned to grazing with no impact to the environment. The SWS produces less than 10% the amount of fill material as the Preferred Alternative 4A. The SWS tunnel path uses existing easements and rights of way so that no private lands must be purchased or “taken” by eminent domain. Due to the location of the SolAgra

tunnel, approximately 50% of the material removed from the tunnel will be rock that is sourced from beneath the foothills of Mt. Diablo. This rock will be used to produce the fish screening permeable levee sections that allow fresh and brackish water to be brought onto Sherman for processing and desalination.

The total tunnel length proposed in the Preferred Alternative 4A is more than 70 miles. This exceeds by more than 3 times the length of the single SolAgra tunnel shown in the SolAgra Exhibit 2. The SolAgra plan would be constructed near existing high capacity powerlines and ultimately be powered in large part by SolAgra's Ryer Island Solar Power plant and other locally generated renewable energy. Thus, the upcoming LEDPA determination that will occur with the USACE review provides an additional basis for full consideration of the SolAgra Water Solution.

We are responding to Governor Brown's stated willingness to hear better ideas to improve our Delta water supply system to support all of California. When it was announced that the Bay Delta Conservation Plan ("BDCP") was being abandoned and replaced by the California Water Fix ("CWF"), he said, "If somebody has a better alternative, certainly we'll hear it. This is an imperative. We must move forward."

SolAgra Corporation has a better alternative and requests that it be heard and given serious consideration. The SWS is a reasonable and superior alternative to the BDCP/CWF. It is a legal imperative that practicable alternatives be fairly evaluated.

A description of the SolAgra WDIP was previously submitted as a superior alternative to the many potential project configurations considered in the BDCP's Draft EIR/EIS. As explained in our prior letter (copy attached), the WDIP is designed to better accomplish the tasks for which the BDCP, and the now rebranded "California Water Fix", was designed.

State and federal endangered species acts and environmental review statutes require that every project must fully consider alternatives to minimize take of endangered species and investigate means to avoid significant environmental impacts. The SWS accomplishes these tasks without the un-mitigatable economic, environmental and social impacts of the twin-tunnels proposed by the CWF.

The current CWF tunnel plan to divert up to 9,000 cfs of freshwater from the upper Sacramento River at Clarksburg produces unacceptable water quality in the lower Sacramento River. This plan also increases salinity downstream of the Clarksburg intakes, thus violating basic clean water requirements by moving X2 upstream. This was recently explained in the letter by the U.S. Environmental Protection Agency. The BDCP's severe impacts to fish in the northern Delta are one of the main reasons that

the project could not be permitted as a 50-year conservation plan, and it was ultimately abandoned and replaced by the California Water Fix/EcoRestore.

Water from our proposed Sherman Island water processing and desalination plant is NOT vulnerable to drought or projected sea level rise. It will provide greater reliability to ensure as much (or more) than the quantity proposed by the BDCP/CWF.

The SolAgra Water Solution can be built in half the time and at far less cost both financially and environmentally. (See attached Exhibits for project specifics.)

The water quality in the Sacramento River at Sherman Island is far superior to the San Joaquin River water that is currently drawn into the Clifton Court Forebay by the Banks Pumping Plant. The desalinated water produced by the Sherman Island Desalination Facility will be far superior to the Sacramento River water. Therefore, the blended output from the Sherman Island Desalination Facility will far exceed the water quality that can be diverted by the CWF from the Sacramento River at Clarksburg.

1. **The SWS provides a superior alternative to BDCP and CWF. Please see below for the compare/contrast between the BDCP/CWF and the SolAgra Water Solution. The comparisons are undeniable.** Since the beginning of construction of the State Water Project (“SWP”) in the 1950s, California has relied upon high risk “serial engineering”. This means undertaking quick-fix solutions - reasoning that “the end justifies the means” OR “let’s get the water flowing south and we’ll worry about the consequences later.” “Later” has now arrived and the consequences are dire. Each new engineering solution attempts to remediate the disastrous conditions created by the previous “solution.” This is also the case with the currently proposed CWF. SWS will better restore Sacramento River flow pathways and volumes, resulting in significant benefits to native fish species and other wildlife in the Delta. It will also benefit fishermen, local residents and farmers. SWS would pump the SWP’s entitlement through intakes on State owned land at Sherman Island.
2. SWS would increase the SWP’s capabilities to export water to the rest of California. In fact, the SWS is the only alternative offered with the capability of generating approximately **1 million acre-feet of “new” drinking water each year** by filtering and desalinating brackish water arriving on the tides from Suisun Bay. **The SWS provides this capability irrespective of drought conditions.**
3. SWS would employ a Public-Private partnership similar to the business structure that was used by IDE Technologies to design and build the largest seawater desalination facility in the Western Hemisphere in Carlsbad, California – just north of San Diego. Desalinating brackish water from eastern Suisun Bay, with only 2-4% the salinity of seawater, can be up to 25 times more efficient and far less power intensive than desalinating 100% seawater.

The SWS would produce the same quantity of water (2.4 Million AF/year) at Sherman Island than is currently pumped from the south Delta at the Banks Pumping Plant (“Banks”) during a “normal-water year”. However, our use of desalination produces higher quality water than is pumped at Banks.

The water production and pumping to the SWP is accomplished using renewable hydroelectric power. The SWS would also be powered by 100% renewable energy from SolAgra’s locally proposed Ryer Island Solar Power Plant. When required, that solar power could be augmented by wind power from the existing nearby Montezuma Hills (Rio Vista) wind farms. All power would be delivered via existing power corridors. No additional easements or rights of way would be required.

Banks currently uses eleven 26,000-horsepower pumps to pump water from the Clifton Court Forebay up to Bethany Reservoir, where it enters the SWP. This is a vertical rise of 244 feet. The SWS would use pressure created by the desalination process to pump water directly from Sherman Island to Bethany Reservoir, thereby bypassing Banks. This allows the current power used at Banks to become available for other uses while Banks is on standby, and it makes Banks available for a better use.

The needs of the Central Valley Project (“CVP”) can be addressed by:

- In high water years, when water is plentiful and local hydroelectric power is available to power Banks, that pumping plant would be used, as needed, to create surge pumping capacity that has never before existed. This accomplishes the “Big Gulp” aspired to in the BDCP, and it does so with renewable energy.
- The SWS bypassing Banks would enable this increased surge capacity. This capacity, combined with the prudent design and construction of additional high capacity “plumbing”, could move large quantities of water during the infrequent flood stages when reservoirs throughout the state are releasing water to avoid overtopping. This “Big Gulp” flow can be stored in Tulare Lake for later redistribution to San Joaquin Valley water districts. This provides a complete, environmentally superior alternative to the BDCP/CWF proposals.

The SWS would create a dual-plant, interconnected water processing system on State-owned land at Sherman Island. Plant #1 filters and processes incoming fresh water from the Sacramento and San Joaquin rivers via multiple fish-screened intakes around Sherman Island. Plant #2 intakes brackish water through fish-screened intakes on Sherman Lake and Mayberry Slough and then effectively desalinates this low salinity brackish water. After processing, desalinated water from Plant 2 is blended with fresh, filtered water from Plant 1. The combining of fresh water with the treated and desalinated brackish water will replace the 2.4 million Acre-Feet/year of fresh water that is currently conveyed through the SWP in a “normal water year.” The water produced at Sherman Island will be of higher quality than the water that is pumped from the Clifton

Court Forebay in the south Delta via Banks because it will be **processed** at Sherman Island, not just screened and pumped. This means the State Water Contractors that receive the water from the SWP will receive higher quality water than they are currently receiving from Banks, **OR** that they would receive from the twin tunnels of the proposed CWF. **The SolAgra Water Solution is the ONLY alternative that processes and desalinates the water before supplying that water to the SWP.**

- The SWS can augment the low flow of fresh river water in years of reduced river flow due to drought or other issues. The output volume of the desalination plant can be increased to provide additional desalinated water to make up for reduced quantities of available fresh water caused by drought or sea level rise.
- The separation of processing functions into two discrete, but interconnected plants, allows both plants to operate at peak efficiency, while still accomplishing the end result of producing 2.4 Million Acre-Feet/year of fresh water for the SWP **irrespective of drought** conditions.

The fresh water that is produced at Sherman Island would be pumped through a single, 28 foot ID/ 32 foot OD pressure tunnel that is only 19 miles long (see Exhibit 2). This is far superior to the twin tunnels proposed by the BDCP/CWF, which are each 40 foot ID/ 46 foot OD. Due to the tunnel liner thickness, the proposed CWA tunnels require borehole diameters that are a minimum of **46 feet in diameter**. **Each tunnel** is proposed to be **35 miles long!**

Since the incoming water to Sherman Island will be fish-screened by long, low velocity intakes via permeable levees and pressurized via the filtration and desalination processes, it can completely bypass the Clifton Court Forebay and the Banks Pumping Plant. It can be pumped directly to Bethany Reservoir, where it will begin its gravity flow into the SWP's California Aqueduct.

The principle objectives and benefits of intake relocation to Sherman Island as proposed in the SWS:

- By placing the Banks Pumping Plant on standby, the 2.4 Million Acre-feet/year ("MAF") being drawn into the Banks' intakes is instead permitted to once again flow completely through the Sacramento and San Joaquin Rivers. This restores more natural East to West flow through the Delta, closer to what occurred before the State Water Project began pumping operations in 1960.
- After flowing completely through the Delta, 1.4 MAF is brought onto Sherman Island and added to 1.0 MAF of desalinated brackish water that is in taken from Sherman Lake on the south end of Sherman Island. The additional 1.0 MAF of fresh water that is not brought onto Sherman Island continues its flow into the San Francisco Bay/Delta Estuary ("SFBDE"). This additional flow supports the retention of X2 at its historic range **OR** even moves it further west. This improves

water quality in the SFBDE and facilitates the recovery of natural breeding and feeding grounds for aquatic species of concern. This meets the recommendations for increased minimum Delta outflow that the EPA, State of the Estuary Report, State Water Resources Control Board and many other analyses have clearly shown are necessary to restore the Bay-Delta and its fisheries;

- Improves both in-Delta and export water quality, rather than improving export water quality **at the expense of in-Delta water quality**; and
- Avoids significant impacts to the Sacramento Region, including North Delta communities, farmers, water supplies and flood control facilities.

We believe the SolAgra Water Solution is a viable alternative which could accomplish this greater task in less than half the time and at far less cost than the BDCP/CWF.

This new capability can be created by SolAgra using renewable energy, with no need to build additional fossil fuel power plants, nuclear plants, or to import “brown” power from other states. The SolAgra approach is thus fully consistent with groundbreaking statewide efforts to reduce greenhouse gas emissions.

The power easements, water conveyance rights-of-way currently exist. No additional purchases of easements or rights-of-way are required. The State of California owns 8,776 acres on Sherman Island that are more than adequate for the facilities that are proposed by the SolAgra Water Solution. No additional land must be condemned or acquired. No Delta property owners must be displaced or have their lives and/or farming operations temporarily or permanently impacted.

The SolAgra Water Solution better restores Bay-Delta ecosystems than the alternatives studied in the RDEIR/S while equaling or exceeding the water quantities projected by the CWF with far less cost, in far less time and without environmental impact. This reduces or eliminates expensive environmental mitigation requirements. Under the SWS, Sherman Island can become the center of the “California Water Solution.”

The SolAgra Water Solution alternative would preserve natural river flows and maintain water quality in the Delta while simultaneously improving reliability of export water supply. It would also minimize or completely avoid many of the significant environmental impacts that are identified in the RDEIR/S. The SWS is the drought-proof solution that has been desperately needed in California for more than 50 years. This Plan **IS** the necessary alternative to the “serial engineering” that has been plaguing California since the creation of the CVP and the SWP. The SWS is a practicable and superior alternative to the BDCP/CWA. It must be fully evaluated.

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SolAgra has evaluated the construction methodology in the Final Draft of the DWR's Conceptual Engineering Report for the CWF that is dated July 1, 2015. Barry Sgarrella, CEO of SolAgra is an experienced tunnel engineer. He has major reservations and concerns regarding the viability of the construction methodology in the CER, and particularly in Chapter 11 – Tunnels. SolAgra will be submitting his evaluation of the CER under separate cover for evaluation and consideration by DWR.

We welcome the opportunity to discuss the SolAgra WDIP in greater detail. We have all invested significant resources to find the best solution to California's longstanding water issues. California is experiencing the longest drought in its history. It is essential that we find the most sustainable and best solutions to resolve this issue.

We agree with Governor Brown: "...this is an imperative. We must move forward." We believe that we must move forward with the best solution possible.

Please contact us to schedule an appointment to discuss the benefits of the SolAgra Water Solution so that you may obtain the information needed to adequately review this superior alternative to the CWF.

Sincerely,



Barry Sgarrella
Chief Executive Officer
SolAgra Corporation

Exhibits:

1. Compare Contrast BDCP/CWF to SolAgra Water Solution
2. Master Map of the SolAgra Water Solution.
3. Ryer Island to Sherman Island Map – POWER PATH
4. Sherman Island to Bethany Reservoir Map – WATER PATH

BDCP/CWF - COMPARE/ CONTRAST with SOLAGRA WATER SOLUTION

| Project Refinements | BDCP Administrative Draft EIR/EIS | BDCP 2013 Project Refinements | CWF 2014 Project Refinements | SolAgra 2015 Water Solution |
|--|-----------------------------------|-------------------------------|------------------------------|-----------------------------|
| 1 Water Facility Footprint (acres) | 3,654 | 1,851 | 1,810 | 110 |
| 2 Intermediate Forebay Size (Surface Acres) | 750 | 40 | 28 | 500 |
| 3 Private Property Impacts (acres) | 5,965 | 5,557 | 4,288 | 0 |
| 4 Public Lands Utilized (acres) | 240 | 657 | 733 | 610 |
| 5 Number of Tunnel Reaches | 6 | 5 | 11 | 2 |
| 6 Number of Launch & Retrieval Shaft Locations | 7 | 5 | 9 | 2 |
| 7 Agricultural Impacts (acres) | 6,105 | 6,033 | 4,890 | 1,100 |
| 8 Number of Tunnels | 2 | 2 | 2 | 1 |
| 9 Total Length of Tunnels (miles) | 70 | 70 | 70 | 19 |
| 10 Borehole (finished diameter + tunnel liner) (feet) | 46 | 46 | 46 | 32 |
| 11 Total Volume of Tunnel Excavation (cubic yards) | 30,705,928 | 30,705,928 | 30,705,928 | 2,988,225 |
| 12 Number of Tunnel Boring Machines | 9 | 9 | 11 | 1 |
| 13 New Tunnel Easements required (acres) | 1,273 | 1,273 | 1,273 | 0 |
| 14 Tunnel Path Access for Geotech work (soil borings) | 15% | 15% | 15% | 100% |
| 15 Length of Screens to prevent fish entrapment (feet) | 5,000 | 5,000 | 3,000 | 58,080 |
| 16 Intake Water Velocity @ fish screens | HIGH | HIGH | VERY HIGH | VERY LOW |
| 17 Probability of Entraining Endangered Fish Species | HIGH | HIGH | VERY HIGH | VERY LOW |
| 18 Probability of Successful Completion | LOW | LOW | LOW | VERY HIGH |

Data provided by CWF Website & CER

Data provided by SolAgra Corporation

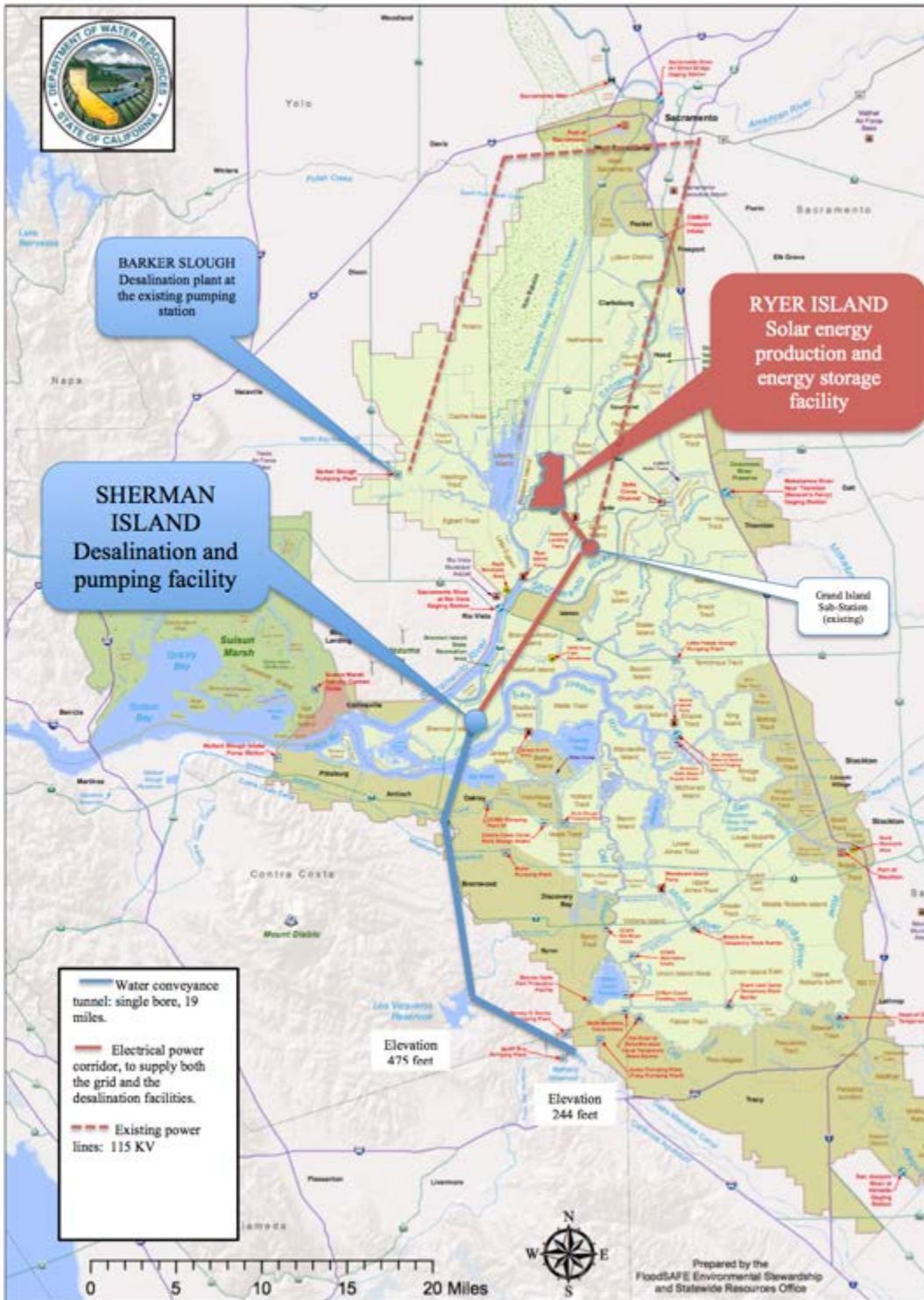
Outline of the SolAgra Water Solution:

Historic maximum water shipments from the State Water Project ("SWP") via Banks Pumping Plant/ California Aqueduct is 2.4 Million Acre Feet/ year ("MAF"). This 2.4 MAF never reaches the confluence of the San Joaquin & Sacramento Rivers. It increases salinity and moves X2 east (up river) especially in droughts. The BDCP/CWF would seriously exacerbate the salinity issues in the lower Sacramento River impacting fish and other marine life.

The SolAgra Water Solution **turns off the Banks Pumping Plant. This** allows that 2.4 MAF to flow to the confluence of the rivers at Sherman Island. SolAgra captures 1.4 MAF of fresh water from the rivers & brings it onto Sherman Island using low velocity fish screen sections that total 8 miles in length. The additional 1.0 MAF flowing downstream in the rivers continues flowing toward Suisun Bay, significantly improving environmental conditions in the SFBDE. SolAgra intakes brackish water from Sherman Lake using low velocity intakes (permeable levees) adjacent to and thru Mayberry Slough. The brackish water is desalinated using renewable energy from the SolAgra Solar Power Plant on Ryer Island - producing 1.0 MAF of high quality water. Desalination of low salinity brackish water is done with greater thru-put and far less energy than desalinating sea water. Brine from desalination process is greatly reduced due to low salinity intake water. Brine from desalination will NOT significantly influence salinity in the SFBDE. With 1.0 MAF of fresh water flowing west - X2 will move west (down river) improving the environment in the SFBDE. The fresh water from north Sherman Island is blended with desalinated water from the south end of Sherman. A total of 2.4 MAF is pumped into a new tunnel. This new single tunnel, 28 feet inside diameter, extends 19 miles to Bethany Reservoir where it enters the SWP after completely bypassing the Banks Pumping Plant. The path of the new tunnel uses existing easements & R/W beneath SR-160 & SR-4 to access Open Space beneath Mt. Diablo - no new easements or R/W are needed. Banks Pumping Plant is placed on Standby, but held in reserve for "Big Gulp" years when it can pump an additional 2.4 MAF during periods of heavy rainfall. THE SWS PROVIDES DIRECT SOLUTIONS TO THE SWP SIDE OF THE EQUATION. THE CVP IS AIDED VIA "BIG GULP" TRANSFERS WHEN WATER IS AVAILABLE.

Summary:

Creating 1.0 MAF of new water and adding it to the captured 1.4 MAF, equals the 2.4 MAF currently pumped by Banks, but with no environmental impacts. Using Banks to pump an additional 2.4 MAF during "Big Gulp" times of available heavy rains brings the SolAgra Water Solution to 4.8 MAF/year. Alternatively, the 2.4 MAF available during "Big Gulp" times enters the Clifton Court Forebay. It could be used by SWP (via Banks) or CVP (via Jones Pumping Plant). The SolAgra Water Solution requires no private land to be condemned and/or acquired. SWS uses ONLY public lands on Sherman Island and highway rights of way. The SWS supports: 3.7 MAF to CVP + 2.4 MAF to SWP via Sherman Island + 2.4 MAF Big Gulp water - while adding 1.0 MAF to the SF Bay-Delta Estuary.





**RYER ISLAND to SHERMAN ISLAND
Electrical Power Corridor**



SHERMAN ISLAND to BETHANY RESERVOIR
Water Tunnel Conveyance