

THE SDCWA-POSEIDON WATER PURCHASE AGREEMENT DOES NOT SERVE THE PEOPLE OF SAN DIEGO

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ABSTRACT. The San Diego County Water Authority (SDCWA) should not sign the water purchase agreement (WPA) with Poseidon Resources, due to its economic, social and logistical flaws. The first flaw is cost: water costing \$2,000+ per acre foot will either be sold at a lower price (due to average cost pricing), such that SDCWA “buys high and sells low” or it will be sold at its marginal cost. In this latter case of setting the price of all water to reflect the most-expensive source (marginal cost pricing), we can expect that quantity demanded will fall to a level at which the desalinated water would not be necessary. The second flaw is social: the desalinated water will only improve local reliability if it’s sold at marginal prices (meaning it would not be necessary). If it’s sold at lower prices and/or delivered to new housing in the region, then SDCWA is losing money on the deal and/or subsidizing new development at the expense of existing customers. Third, the WPA is too complicated to understand, which means that SDCWA customers risk paying higher-than-promised costs if something goes wrong; Poseidon Resources has not successfully constructed and operated a desalination facility. The bottom line is that SDCWA should find cheaper and more effective ways of improving regional water security. Higher prices that reduce demand are easier to implement and cost ratepayers nothing (assuming excess revenue from those using more water is rebated to all customers). Governance reform at the Metropolitan Water District of Southern California (MWD), the provider of most of SDCWA’s imported water, would remove uncertainty from SDCWA’s supply by allocating water to MWD member agencies willing to pay more for water, rather than allocating water using the current outdated, politicized and inefficient allocation mechanism. SDCWA needs to work harder for its customers instead of spending \$3.3 billion on an “easy” solution that does nothing to reduce long-term scarcity in the region.

OBSERVATIONS OUTSIDE THE WPA

Let’s begin with SDCWA’s summary of the WPA:¹

Under the agreement, the total price for the water including costs to make improvements to the Water Authority’s pipelines and treatment plant to accommodate the new supply is estimated at \$2,042 to \$2,290 per acre-foot in 2012 dollars, depending on how much water is purchased annually. (An acre-foot is approximately 325,900 gallons, or enough to supply two typical single-family households of four for a

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¹<http://sdcwa.org/water-authority-releases-proposed-carlsbad-desalination-water-purchase-agreement>

year [at a rate of 112gcd].) The impact of this new supply on an individual's water bill will vary depending upon their local water agency. The average household's water bill would increase approximately \$5 to \$7 a month by 2016 to pay for the new supply.

In addition, the Water Authority's 24 local member agencies must declare within the next 60 days whether they intend to purchase a portion of the desalinated seawater supply directly from the Water Authority as a local supply at the full cost per acre-foot. Local supplies help improve water agencies' water supply reliability, especially during times of drought or shortages in imported water supplies.

Some thoughts:

If that cost per acre foot is averaged with other cheaper water sources to arrive at a postage stamp price of, say, \$1,100 per acre foot,² then SDCWA is planning to lose money on each acre foot.

If SDCWA sold ALL its water at this marginal cost (\$2,200 per af),³ then what would consumption be? Assuming an average demand elasticity of -0.20,⁴ then the reduction in quantity demanded resulting from doubling the price of water would be greater than the additional quantity supplied (assuming that the plant supplies 7 percent of total supply), i.e., doubling the price to pay for 7 percent more supplies would reduce demand by 20 percent. Put differently, customers facing a price that reflected the actual cost of desalinated water would reduce their demand by enough to eliminate the need for the plant!

Although customers in San Diego may not feel much pain from paying \$5-7 per month (\$60-84 per year), we have to ask them if they are interested in *wasting* that much money per year, for 30 years, in a total that works out to over \$3.3 billion (48TAFY * \$2,290 or 56TAFY * \$2042 over 30 years sums to \$3.3-3.4 billion).

This point above brings us to an important question. Is SDCWA looking for the cheapest way to improve reliability? A desalination plant is certainly easier to control than the Metropolitan Water District of Southern California (MWD) or the weather, but it's also possible to reduce demand. Using SDCWA's numbers from the quotation above (112gcd),⁵ we can see that water consumption is already quite high. Urban demand in Australian cities with similar weather is usually less than 180 lcd (47 gcd), or less than half SDCWA's level. Demand in Monterey, California is 65 gcd.⁶ It seems

²According to <http://www.sdcwa.org/rates-charges>, SDCWA charges \$714+\$256+\$93=\$1063 to deliver a treated acre foot to its member agencies, which then add their own charges.

³Economists advise that companies should sell their production at a price that reflects the marginal cost of the last unit produced. This is what happens in the for-profit world. Utilities that are not allowed to "make profits" assume that they should price their goods at the average cost, but it's more sensible to sell the goods at marginal cost and apply the excess revenue to (1) pay fixed costs and then (2) customer rebates.

⁴The price elasticity (a ratio reflecting the fall in quantity demand resulting from an increase in price) for indoor water use can be as low as -0.10, but the price elasticity of outdoor water use is much "stronger," i.e., -0.60 or lower.

⁵I tried to find consumption data for the City of San Diego, without luck.

⁶Per my experience on another consulting project but probably available from the CPUC.

that SDCWA and its member agencies have not done very much to reduce demand before looking for new supplies. Where is SDCWA's comprehensive assessment of options for closing the supply-demand gap? Is there, in fact, an actual threat of a damaging shortage, or are water managers taking an easier path that requires less work from them but increases costs to ratepayers?

This point brings up the interesting question of whether SDCWA wants this additional water as a means of serving current customers or as a supply that can be used to meet new demand from housing developments, industrial expansion, agricultural irrigation, etc. As a point for discussion, consider that agricultural water use in FY2011 was 44TAF, of which 34TAF came from SDCWA – a number that should be compared with the desalination plant's capacity of 56TAF.⁷

Just as a final note (before we get to other matters), consider a potential complication: SDCWA wants local agencies to sign 30-year purchase agreements in the next 60 days rather than allowing them to buy desalinated water on an as-needed basis over the life of the contract. Such deals will surely reduce SDCWA's exposure to the \$3.3 billion liability, but it does nothing to encourage those agencies to limit their water demand. If they are committed to take the water, then they will find ways to use it.

Water scarcity in San Diego. The SDCWA was formed in 1946 to merge the interests of local water providers into one entity that could then join MWD, but SDCWA's relationship with MWD has been strained over the years – mostly due to a mismatch between SDCWA's (high) water purchases and (low) voting power at MWD. Governance reform at MWD has been blocked by members who prefer the status quo and a lack of intervention by the State Legislature. Alternative mechanisms for allocating water and money within MWD have, likewise, been blocked. The resulting dysfunction at MWD has raised costs to water customers in Southern California, decreased water supply reliability, and reduced regional cooperation.⁸

One result of this dysfunction has been SDCWA's quest for "independence" – a quest that has cost ratepayers millions of dollars as SDCWA has built duplicate facilities. This \$900 million desalination plant is only the most recent addition to SDCWA's portfolio. Poseidon Resources has attempted to bring this "solution" into operation for over ten years.⁹

Who is Poseidon? Under "Our Experience" Poseidon Resources lists zero operating desalination projects, two perspective projects (Carlsbad and Huntington), and six water treatment projects – five of which are with PEMEX in Mexico (the other is in Rhode Island).¹⁰

⁷<http://www.sdcwa.org/sites/default/files/files/finance-investor/cafr2011.pdf>

⁸See my dissertation ("Conflict and Cooperation within an Organization: A Case Study of the Metropolitan Water District of Southern California" at <http://ssrn.com/abstract=1129046>) for details.

⁹I interviewed Peter MacLaggan in 2005 or so.

¹⁰http://www.poseidonresources.com/our_experience.html

They therefore omit to mention their involvement with the 25MGD Tampa Bay desalination project, which ran over budget and overdue as three of Poseidon Resources' engineering partners went bankrupt (easy when a corporation is established for each project, to limit liability to the parent company). Tampa Bay Water ended up buying out Poseidon Resources and arranging for American Water/Pridesa to bring it online.

Poseidon Resources, as project manager, will neither finance, design, build nor operate this facility. What will Poseidon Resources do to earn its profits? Why isn't SDCWA, an agency with considerable financial resources and a much stronger stake in a successful project, doing business with Poseidon Resources? There are these potential reasons:

- (1) Poseidon Resources is using its political power to collect money. This is feasible given earlier reports of Poseidon Resources support for San Diego politicians not directly related to SDCWA.¹¹
- (2) Poseidon Resources has some genius in managing projects. This is not obvious from Poseidon Resources' experiences.
- (3) Poseidon Resources is taking on financial risk that SDCWA prefers to avoid. This is hard to support, given that project bonds will be issued by the CPCFA – California Pollution Control Financing Agency (page 5 et seq.).
- (4) Poseidon Resources is assuming technical risks. This is also hard to support, as Poseidon Resources is subcontracting EPC (Engineering Procurement Construction) to Kiewit Infrastructure West-Shea Construction JV) and operations to IDE Technologies (WPA Appendix 14.3.2) These companies will post performance bonds (12.1.B).
- (5) Poseidon Resources has worked on this project and cannot be easily replaced (path dependency).

I would not raise these questions if Poseidon Resources had won a bidding contest for an RFP posted by SDCWA (or its predecessors), especially if the bid had allowed for “unconventional sources” such as recycled water.

INSIDE THE WPA

In an ideal contract, Poseidon Resources would finance, build and operate a project that would provide water to SDCWA at an agreed price for 30 years, but Poseidon Resources is neither financing, building or operating this plant. That is perhaps why the contract is so long and complex. I am quite overwhelmed by the text in the WPA and its appendices, e.g., 2.2.R¹²

¹¹Poseidon Resources says it “has not directly or indirectly offered or given any gratuities (in the form of entertainment, gifts, or otherwise) to any Water Authority Indemnitee with a view toward securing this Water Purchase Agreement or securing favorable treatment with respect to any determinations concerning the performance of this Water Purchase Agreement” at 2.2.N.

¹²Or how about this?

Project Company Acknowledgment (9.1.A). The Project Company acknowledges that the Project will constitute: (1) a primary source of treated drinking water for conveyance to the Member Agencies and their customers through the

Practicability of Performance. The Design Requirements, the technology and the construction management practices to be employed in the Project are furnished exclusively by the Project Company and its Project Contractors and Subcontractors, and the Project Company assumes and shall have exclusive responsibility for their efficacy. The Project Company assumes the risk that the Raw Seawater pilot testing conducted by the Project Company for the Project may, to any extent, have been inadequate or of insufficient duration to provide a proper basis for the design, construction, operation or maintenance of the Project or for the establishment of the Performance Guarantees and the Monthly Water Purchase Payments. The Project Company further assumes the risk of the practicability and possibility of performance of the Project on the scale, within the time for completion, and in the manner required hereunder, and of treating Raw Seawater and producing and delivering Product Water through the design, construction, operation, maintenance and management of the Project in a manner which meets all of the requirements hereof, even though such obligations may involve technological or market breakthroughs or overcoming facts, events or circumstances (other than Uncontrollable Circumstances) which may be different from those assumed by the Project Company in entering into this Water Purchase Agreement. The Project Company agrees that sufficient consideration for the assumption of all such risks and duties is included in the Monthly Water Purchase Payments. No impracticability or impossibility of any of the foregoing shall be deemed to constitute an Uncontrollable Circumstance. Nothing in this paragraph, however, shall be construed to limit or deny the Project Company's right to be excused from performance where specifically provided elsewhere in this Water Purchase Agreement.

Now it's all well and good to be clear, but these 500+ pages of contracts indicate a certain lack of trust between the parties. From experience, we know that contracts can seem to say one thing but turn out to mean another. I can't really understand the implications of the many inter-related and cross-referenced clauses in this WPA –

Water Authority Distribution System; and (2) a critical part of the Water Authority's emergency storage program, which consists of a system of reservoirs, interconnected pipelines and pumping stations designed to make water available to the San Diego region in the event of an interruption in imported water deliveries. The Project Company further acknowledges that the Water Authority, in meeting the water supply requirements of the Service Area, is providing an essential public service and, in complying with Applicable Law, will rely on the performance by the Project Company of the Contract Obligations. **[YES]** The parties acknowledge and agree that this subsection shall not be construed to expand or otherwise modify the Project Company's obligations under this Water Purchase Agreement **[NO]**.

and I wonder if SDCWA's General Manager or customers can either. It's important – especially with Poseidon Resources' past failure in Tampa – to ensure that SDCWA doesn't get left with a white elephant, as the people of Melbourne, Australia just did with their A\$3.5 billion project that is now mothballed due to recent rainfall.

I've noted that the contract is take or pay, i.e., SDCWA promises to buy 48TAFY for 30 years (5.1), but I'd like to see a few scenarios that clearly spelled out:

- What happens (who pays) if the project goes over cost (Poseidon Resources pays, per 6.1.A, but do water prices stay the same?) or if it's late?
- What happens if Poseidon Resources goes bankrupt (“default” is in Article 20 but then what?) or its subcontractors fail? This is relevant since Poseidon Resources is actually signing the contract as a special purpose LLC, i.e., Poseidon Carlsbad LLC.
- How much will SDCWA pay to buy the project in year 10?
- Poseidon Resources will make an unknown equity contribution (2.2.G), but it will receive equity return charges specified in Table 1.2 (WPA Appendix 10-5). Is Poseidon Resources getting paid \$310-790/af for contributing proportionally to the equity:debt mix? Table 1.2 shows debt service payments of \$650-1240/af. Does that imply that Poseidon Resources' equity contribution will cover 32 percent of costs? If the proportion is lower, then why is Poseidon Resources getting paid a premium, given that subcontractors are posting performance bonds and CPCFA is issuing the bonds?¹³
- What happens to Poseidon Resources' equity if they fail to deliver on time and at price?
- Why does San Diego pay for damage in excess of the insured amount in an earthquake?
- What happens if the Cabrillo lease is cancelled or the seawater intake is de-certified in 2017 (4.7 and 20.1.8)?
- Electricity is important (25 percent of total costs?), but Appendix 9 is painfully exact with prices and formulas. Who bears the risk if prices change?

¹³These calculations may be confused by charges in tables 1.3 and 1.4, so please check.