

# Carlsbad Desalination Project, California USA

David Moore

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The Carlsbad Desalination Project is the first large-scale ocean-water desalination project on the California coast in the United States, and will be the largest facility of its kind in the Western hemisphere. The plant will use reverse-osmosis technology to produce up to 56,000 acre feet of water per year, enough to supply the needs of more than 100,000 homes and 400,000 people. The project has an all-in capital cost of US\$980 million, and achieved financial closing on Christmas Eve of 2012.

This article tells the story of this landmark project financing, with emphasis on the deal-making process, transaction structure, key financing challenges, and how these challenges were overcome. The author, in his capacity as a principal of Clean Energy Capital, served as financial advisor to water purchaser, the San Diego County Water Authority, and as lead arranger for the project financing. The story is largely the tale of how a public-private partnership between the Water Authority and the private developer, Poseidon Resources (Channelside) LP, was forged and implemented.

Carlsbad Desalination Project	
<ul style="list-style-type: none"> <li>• 54 million gallons per day</li> <li>• 48,000 – 56,000 acre feet per year</li> <li>• Enough water for 100,000 homes</li> <li>• \$980 million capital cost</li> <li>• \$2,000 to \$2,250 water unit price per acre foot</li> </ul>	

  

Selected Project Participants	
<ul style="list-style-type: none"> <li>• San Diego County Water Authority (Water Purchaser)</li> <li>• Poseidon Water (Project Developer)</li> <li>• Clean Energy Capital (Financial Advisor)</li> <li>• Kiewit Corporation and J.F. Shea, Co. (Builders)</li> <li>• IDE Technologies (RO System Provider, Operator)</li> <li>• Stonepeak Infrastructure Partners (Equity Investor)</li> <li>• California Pollution Control Financing Authority (Bond Issuer)</li> <li>• J.P. Morgan (Lead Underwriter)</li> <li>• Black &amp; Veatch (Independent Engineer)</li> <li>• Hawkins Delafield &amp; Wood (Water Authority Counsel)</li> <li>• Dickstein Shapiro (Poseidon Counsel)</li> <li>• Drinker Biddle &amp; Reath (Underwriters' Counsel)</li> <li>• Orrick Herrington &amp; Sutcliffe (Bond Counsel)</li> </ul>	

  

Allocation of Key Risks	
Poseidon	Water Authority
<ul style="list-style-type: none"> <li>• Construction (cost and timing)</li> <li>• Operations (output volume and cost)</li> <li>• Electricity consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Water affordability</li> <li>• Electricity price escalation</li> <li>• Certain uncontrollable circumstances</li> </ul>

Mark Twain is famously attributed with the quote “Whiskey is for drinking; water is for fighting over.” Whether or not Mark Twain actually uttered these words, the phrase illustrates the importance of water in arid Southern California, and the controversial nature of major water projects. This controversy played out in the boardroom of the Water Authority through more than 40 public meetings, providing an unforgiving backdrop for the deal-making process. Opponents of the project pointed to the high cost of the project and its potential environmental impact. Supporters of the project emphasized the region’s need for a drought-proof and locally-controlled water supply, and how environmental considerations had been vetted and definitively resolved through the project’s extensive permitting process. The Water Authority deal team was required to publicly demonstrate that the project and the deal terms struck with Poseidon were consistent with the public interest.

## Public Authority

San Diego County Water Authority is a highly-rated wholesale water utility comprised of 24 retail water agencies and cities who supply water to their residential, commercial and industrial customers in San Diego County. The Water Authority had long considered desalinated ocean water, or “water from the west,” as an important source of highly-reliable, locally-controlled supplemental water that could lessen the

region's dependence on imported water from the San Francisco Bay-Delta and the Colorado River.

### **Private Partner**

Poseidon Resources (Channelside) is a privately-held company that was developing a 54 million gallon per day desalination plant in Carlsbad, California, approximately 35 miles north of downtown San Diego. The project was designed to extract high-quality drinking water from the Pacific Ocean, and included a 10-mile conveyance pipeline to connect the plant to the regional aqueduct system. Poseidon would engage Kiewit Corporation and J.F. Shae to build the project, with IDE Technologies supplying the reverse osmosis system and serving as the project's operator.

### **Structuring**

The project financing process began in July 2010 with the execution of a termsheet between the Water Authority and Poseidon. Previously, Poseidon had been developing the project with an eye towards a subset of the Water Authority's individual member agencies as the intended water purchasers. Facing difficulties financing the project as then structured, Poseidon and those nine member agencies requested that the Water Authority step in as water purchaser so that the costs and benefits of the project could be spread county-wide. Focus shifted to developing a public-private partnership between Poseidon and the Water Authority.

This coming-together of the Water Authority and Poseidon created a distinctive challenge. The parties faced one another as seller and buyer with a clean slate between them. Deal terms would have to be established through bilateral negotiations, rather than through the discipline of a competitive bidding process. The July 2010 termsheet laid out the core principles that would guide negotiations and contract development. Construction and operating risk would be borne by Poseidon. The Water Authority would only pay for water that was produced. However, the Water Authority would purchase the project's output at a price sufficient to allow Poseidon to recover its capital and operating costs. The water unit price would comprise components providing for repayment of project debt, a target equity return, and the fixed and variable costs of operations. Detailed provisions would allocate electricity cost risk such that Poseidon took responsibility for the energy consumption requirements of the plant, while the Water Authority took responsibility for the energy prices.

Cost discipline was imposed on this cost pass-through structure by the requirement that the water unit price only include costs that the Water Authority had reviewed and accepted as reasonable. This prudence standard was supported by the requirement that Poseidon provide adequate transparency to allow the Water Authority to undertake cost-related due diligence. The ability of the Water Authority to disallow costs was tempered by the requirement that the water unit price be sufficient to support high standards of construction and operations, and to attract debt and equity capital to the project.

### **Financing**

In the months that ensued between termsheet execution and financial closing, Poseidon continued to fund development costs. At financial closing, Poseidon's contribution of development equity was supplemented by US\$167 million of project-level equity provided by Stonepeak Infrastructure Partners, a private equity investor specializing in North American infrastructure. The leverage portion of the project financing was provided by US\$733 million of tax-exempt municipal bonds offered through JP Morgan as senior-managing underwriter. The Water Authority agreed to self-fund an additional US\$80 million in capital improvements to its aqueduct and water treatment facilities to accept and incorporate the new supply of desalinated water into its system.

Municipal bonds were issued through the California Pollution Control Financing Authority in two 33-year, fixed-rate tranches. US financing regulations establish a special class of municipal bonds, called private activity bonds (PABs), which may be used to finance certain exempt facilities (including water furnishing facilities) even if the facilities are privately-owned. Interest payments on PABs are exempt from state and Federal income tax, but are subject to the Federal alternative minimum tax. In order to further reduce interest costs, the project was bifurcated so that plant ownership would reside with Poseidon while the pipeline would be owned by the Water Authority. This approach allowed PABs for the plant financing, while opening the door for true "governmental purpose" municipal bonds, not subject to the alternative minimum tax, for the pipeline financing. In order to maintain the risk allocation principle that the Water Authority would only pay for water that was produced, the two debt tranches were unified for credit purposes through an innovative feature in which the Water Authority's obligation to repay the pipeline bonds was contingent on the plant's actual production of desalinated water, with Poseidon obligated to make up any debt service payment shortfalls. This credit feature protected the Water Authority from the "pipeline-to-nowhere" risk of paying for a US\$200 million pipeline that would become a stranded asset should Poseidon fail to produce water.

### **Hybrid**

This capital structure, and especially the integration of private equity with municipal bonds, was distinctive and innovative. Typical project

finance capital structures combine private equity and bank debt. Typical water projects are financed debt-only, with recourse bonds secured by the credit of the municipal utility. In contrast to both, the Carlsbad Desalination project took advantage of the risk-bearing characteristics of private equity, while tapping into the low interest rates and long tenor of municipal bonds. The use of municipal bonds attracted new lenders not typically involved in project financing, allowing these investors to diversify their investment portfolios. The use of municipal bonds allowed the project costs to be amortized over a 30-year contract term, minimized the project's cost of funds, and resulted in an acceptable water unit price for the Water Authority and its member agencies.

### Pricing

The bifurcated debt structure, coverage ratio, liquidity features, and other credit terms of the transaction were designed to support investment grade credit ratings at the "triple-B" level, received from Moody's and Fitch. Bonds were offered to qualified institutional buyers (QIBs) with the sophistication to undertake an independent analysis of the risks of the project. December 2012 provided favorable market conditions for debt issuance, with low long-term interest rates and tight credit spreads. The longest-dated plant bonds (maturing in 2045) were priced to yield 4.78 per cent with the corresponding pipeline bonds priced to yield 4.37 per cent.

### Challenges

Clean Energy Capital's role in the Carlsbad desalination project illustrates the distinctive challenges of implementing a public-private partnership, and the role for an advisory firm with expertise in both public finance and private-sector project finance. The Water Authority had to balance its requirement that construction and operating risk be transferred to Poseidon, with the competing requirement that Poseidon not take on so much risk as to jeopardize investment-grade credit ratings. The Water Authority had to satisfy its board and the public that it had negotiated the lowest possible cost of water with Poseidon, without squeezing so hard that the project's commercial viability was compromised. The Water Authority had to develop a detailed understanding of the business needs of Poseidon and its investors, while Poseidon had to navigate the unique public trust role and obligations of its public-sector customer.

### Conclusion

The Carlsbad desalination project is a significant new chapter in the story of California water. The project demonstrates the ability of the State's municipal water utilities and private-sector industry participants to tap into the Pacific Ocean to secure a drought-proof supply, and sets the stage for future projects. More broadly, the project demonstrates afresh how public-private partnerships can marry up the specialized expertise and risk-taking capacity of private sector entities with the financial strength and long-term stability of governmental entities. As new technology solutions are introduced to address the infrastructure challenges of the twenty-first century, the successful allocation of risk and cost that was demonstrated by the Carlsbad desalination project offers an encouraging example of the ongoing usefulness of public-private partnerships as a tool for infrastructure development.

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### About the Author

*David M. Moore founded Clean Energy Capital and serves as managing director and chief executive officer. Clean Energy Capital is a Houston-based investment banking boutique specialized in energy and infrastructure finance. Mr. Moore shares his time between the firm's Houston and San Francisco offices. Mr. Moore has been involved in the energy and infrastructure sectors for nearly 30 years. He is known as an innovator and problem-solver with a commitment to integrity and client service. Mr. Moore holds a bachelor's degree from Harvard College and a PhD in political science from the University of California at Berkeley, where his doctoral dissertation addressed governance and financial risk allocation in the U.S. nuclear power sector. For more information, please see [www.cleanenergycap.com](http://www.cleanenergycap.com).*

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