Texas Desa 2018 MANAGING COST, RISK & REGULATION

Sept. 13 & 14 Sheraton at the Capitol, Austin TX

P3 and Desal Public Funding vs Private Financing

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P3s Hypothetical Case Study

Public-Private Partnerships Spectrum of Risk Transfer



Public-Private Partnerships Funding and Financing



Credit Risk of the Public Entity

Public-Private Partnerships Funding and Financing

Project Size

\$1,000,000,000	Project Finance	Project Finance (with risk ins. or gov. guarantee)	
\$100,000,000	Corporate or Project Finance	Corporate or Project Finance (with risk ins. or gov. guarantee)	
\$10,000,000		Cornerato Finance	
\$1,000,000	Corporate Finance	(with risk insurance)	
\$100,000			
\$10,000		Grants or Development Fund	ds

AAA AA A BBB BB B CCC CC C Credit Risk of the Public Entity

Hypothetical Case Study Seawater Desalination Project in Texas



Hypothetical Case Study Desalination Project Summary

Data Source

- FINAL Pilot Study Report: Brownsville Public Utilities Board (Oct 2008)
- All costs indexed to present (2018)

Assumed Project Scope

- O 25 MGD capacity
- O Intake: inland ship channel
- Concentrate: diffusion off-shore into the Gulf of Mexico
- Clarifier/MF/RO treatment process
- O AAA-rated municipal off-taker

Objective



FINAL Pilot Study Report Texas Seawater Desalination Demonstration Project









October 2008

Hypothetical Case Study Engineer's Estimates (2018)

Capital Component	Total Price
Desalination Plant	\$144,000,000
Concentrate Disposal (diffusion)	\$24,000,000
Finished Water Transmission	\$14,000,000
Project Implementation (15%)	\$27,300,000
TOTAL Capital Cost	\$209,300,000

O&M Component	\$/1kgal	Monthly Cost
Power	\$1.19	\$905,516
Labor	\$0.50	\$380,469
Chemicals	\$1.09	\$829,422
Sustaining Capex	\$0.48	\$365,250
TOTAL O&M Cost	\$3.26	\$2,480,656

Hypothetical Case Study Private Financing

Term	Corporate Finance (balance sheet)	Project Finance (SPV)
Term (years)	30	30
Leverage Ratio (debt:equity)	60:40	80:20
Cost of Equity	10.00%	15.00%
Cost of Debt	6.00%	6.00%
Corporate Tax Rate (Texas)	21%	21%
Weighted Average Cost of Capital (WACC)	6.84%	6.79%

- Performance-based contract price for water made available
- Client pays for volume made available, whether they use it or not
- Client has no financial obligation until COD

Municipal Bonds	Base Case	\$/1kgal	BVMB30Y:IND BVAL Muni Ber	nchmark 30Y	
Funds Needed	\$209.2 M		3.14 use	o +9.00 +0.06%	•
Term (years)	30		OPEN 3 14	PREV CLOSE	1 YEAR RETURN
Interest Rate	3.00%		YTD RETURN	DAY RANGE	52 WEEK RANGE
Debt Service Reserve	\$23.8 M		13.00%	<u> </u>	
Cost of Issuance*	\$9.5 M				09/07 3.14
Total Bonds Issued	\$237.8 M		Lutu		4.50
Net Monthly P&I Payment	\$942,847	\$1.24	hong and a	m 1	3.50
Monthly O&M	Monthly O&M \$2,480,656 \$3.25		2.50		
Total Monthly Payment	\$3,423,503	\$4.49	BloombergMarkets	· · ·	

* Half of Cost of Issuance financed.

BASE CASE – Risks Assumed by the Public Entity (ratepayers)

Engineering Design risk – the treatment process actually works



BASE CASE – Risks Assumed by the Public Entity (ratepayers)

- Engineering Design risk the treatment process actually works
- Procurement risk low bid equals the best value

Q: "When you were sitting in that capsule listening to the count-down, how did you feel?"

A: "Well, the answer to that one is easy. I felt exactly how you would feel if you were getting ready to launch and knew you were sitting on top of two million parts all built by the lowest bidder on a government contract."

- John Glenn, astronaut

BASE CASE – Risks Assumed by the Public Entity (ratepayers)

- Engineering Design risk the treatment process actually works
- Procurement risk low bid equals the best value
- **Construction risk** change orders and scope changes do not increase project cost



Source: PwC analysis, based on industry resea

BASE CASE – Risks Assumed by the Public Entity (ratepayers)

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- Schedule risk the sale of water begins on time



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- Schedule risk the sale of water begins on time
- O&M risk long-term conformity with original cost expectations



BASE CASE – Risks Assumed by the Public Entity (ratepayers)

- Public Entities assume all "full life-cycle cost" risks (by agreeing to make full, timely bond payments regardless of):
 - o Whether or not the project performs;
 - How much it cost and how much time it took to build;
 - When it begins to perform;
 - For how long it performs; and
 - At what cost it performs.
- O These factors are rarely, if ever, considered in the cost of debt

So what is the "effective" cost of public debt when something goes wrong?

Hypothetical Case Study Public Funding SIMULATED CASE – Not everything goes according to plan...

Engineering, Procurement and Construction risks – nobody's perfect assume cumulative EPC cost is 30% over estimate

Schedule risk – time is money

assume 6 month delay to COD

O&M cost risk – who's crystal ball is really that good anyway

assume actual O&M cost is 10% higher than estimate

Municipal Bond Term	Base Case	\$/1kgal	SIM Case	\$/1kgal
Funds Needed	\$209.2 M		\$277.7 M	
Term (years)	30		30	
Interest Rate	3.00%		3.00%	
Debt Service Reserve	\$23.8 M		\$31.6 M	
Cost of Issuance*	\$9.5 M		\$12.6 M	
Total Bonds Issued	\$237.8 M		\$315.6 M	
Net Monthly P&I Payment	\$942,847	\$1.24	\$1,251,781	\$1.64
Monthly O&M	\$2,480,656	\$3.25	\$2,728,722	\$3.58
Total Monthly Payment	\$3,423,503	\$4.49	\$3,980,503	\$5.22

* Half of Cost of Issuance financed.

Municipal Bond Term	Base Case	\$/1kgal	Δ SIM Case	\$/1kgal
Funds Needed	\$209.2 M			
Term (years)	30			
Interest Rate	3.00%			
Debt Service Reserve	\$23.8 M			
Cost of Issuance*	\$9.5 M			
Total Bonds Issued	\$237.8 M			
Net Monthly P&I Payment	\$942,847	\$1.24	+\$308,934	
Monthly O&M	\$2,480,656	\$3.25	+\$248,066	
Total Monthly Payment	\$3,423,503	\$4.49	+\$557,000	>

Municipal Bond Term	Base Case	\$/1kgal	Δ SIM Case	\$/1kgal
Funds Needed	\$209.2 M			
Term (years)	30			
Effective Cost of Debt	7.04%	$\mathbf{)}$		
Debt Service Reserve				
Cost of Issuance*				
Total Bonds Issued				
Net Monthly P&I Payment	\$1,499,847	X	+\$308,934	
Monthly O&M			+\$248,066	
Total Monthly Payment			+\$557,000	>

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- Performance-based contract price for water made available
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Hypothetical Case Study Public Funding UGLY CASE – Serious busts in project estimates...

Engineering, Procurement and Construction risks – perfection is over-rated

assume cumulative EPC cost is 50% over estimate

Schedule risk – time is real money

O&M cost risk – what crystal ball?

assume 12 month delay to COD

assume actual O&M cost is 25% higher than estimate

Municipal Bond Term	Base Case	\$/1kgal	∆ UGLY Case	\$/1kgal
Funds Needed	\$209.2 M			
Term (years)	30			
Interest Rate	3.00%			
Debt Service Reserve	\$23.8 M			
Cost of Issuance*	\$9.5 M			
Total Bonds Issued	\$237.8 M			
Net Monthly P&I Payment	\$942,847	\$1.24	+\$523,081	
Monthly O&M	\$2,480,656	\$3.25	+ <u>\$620</u> ,164	
Total Monthly Payment	\$3,423,503	\$4.49	+\$1,143,245	>

Municipal Bond Term	Base Case	\$/1kgal	Δ UGLY Case	\$/1kgal
Funds Needed	\$209.2 M			
Term (years)	30			
Effective Cost of Debt	11.25%	$\mathbf{)}$		
Debt Service Reserve				
Cost of Issuance*				
Total Bonds Issued				
Net Monthly P&I Payment	\$2,086,092	X	+\$510,615	
Monthly O&M			+ <u>\$620,12</u> 4	
Total Monthly Payment			+\$1,130,779	>

* Half of Cost of Issuance financed.

Hypothetical Case Study Concluding P3 Thoughts

■ Funding ≠ Financing

■ Risk = \$\$

Cost of Capital \propto Performance Risk



Thank You

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