# The Rosarito Desalination Project

- A Regional Water Solution
- Sustainable Water for Sustainable Growth



NSC Agua, S.A. de C.V.

### Baja Water Infrastructure

U.S./Mexico Border
Colorado River
Canals and Aqueducts
Morelos Dam



- Tijuana/Rosarito receive up to 4.4 m<sup>3</sup>/s of untreated water from the Colorado River
- Water is transported 200 km at great energy cost to Tijuana and Rosarito prior to treatment
- Tijuana and Rosarito's water supply is vulnerable to seismic damage of the canal and aqueduct infrastructure
- Tijuana and Rosarito are exceeding their concession. They are borrowing water from other users

#### **Baja Water Infrastructure**

#### From the Colorado River to the Tijuana area

- via Canal Reforma & Acueducto Rio Colorado-Tijuana (ARCT)
  - The Canal Reforma has seismic risk & history of failure
  - The ARCT is energy inefficient and costly to operate



## The Solution?



Rosarito Beach Binational Seawater Desalination Feasibility Study Project Update Meeting December 3, 2009

#### A LANDMARK BINATIONAL SWRO PLANT ADDRESS SUSTAINABLE WATER SUPPLY ISSUES

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#### Presenter: Abstract

The combination of a severe and prolonged drought, over allocation of surface water supplies, and the largeneng water densed, of a prowing region has against fifty diamed evolving water resonances in Ba-soultweat US and neithwort Mexico. This adverse condition is compounded by the potential for global climate change to yield less precipitation over time, as well as by public concern regarding the need to maintain environmental flows for aesthetica, recreation, and monitoring seattimable fisherica. The contribution of these factors has resolted in unprecedented regional water supply challenges. However, the common problems of historic proportion confronting water agencies in both the US and Menico also provide an opportunity for historic collaboration. Recognizing the mutual benefit of apping the Pacific Ocean as a drought proof and virtually limitless source of supply, some of the largest water purveyors. on both sides of the border have partnered to develop a large scale, binational reverse comosis servicier deadhathin plant at a site in Reserite Beach, Mexico - Net only would a Reserite Beach deadhathin plant have the advantage of being co-located with an existing, coastal water cooled power facility (thus resulting in lower capital and operating costs), but also allow for significant economies of scale with respect to both the large equacity of the plant and an extensive customer have over which to spread the costs. Participating agencies include: the San Diego County Water Anthonity, the Metropolitan Water District of Southern California, the Southern Newida Water Authority, the Central Arizona Water Conservation District. Consistion National del Agua, Consistion Estatel de Servicios Públicos de Tijuma. Comisión Estatal del Agua de Baja California, and the International Boundary and Water Commission. Working on behalf of the partner agencies, a team led by Malcolm Pinnie is conducting studies cricial to determine the feasibility of the project and subsequently to subserve it through 50 percent design in a phased implementation approach. This paper discusses Plane 1 of the Rosanto Beach SWRO project, which focused on studying concept feasibility based on factors including, water derivand assessment; siting conduction, power supply inconjuncies, and environmental review and permitting requirements. The results of Phase 1 are being presented for the first time at the 2011 IDA World Congress.

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Wy Water Authority

Mexico & United States

dy of Seawater Desalination ment Opportunities Diego/Tijuana Region

## **Bi-National Project Concept:**

- No fatal flaws were uncovered
- Originally conceived as a traditional DBB, DB or DBO
- A immediate (2015) regional need for 5.9 m<sup>3</sup>/s (134 MGD)
- Several sites were identified as far south as Ensenada. The optimal sites were located in Playas de Rosarito.





- Focus on Functional Performance Specification rather than Equipment Specification
- Private equity
- Commercial Debt

Why use commercial debt when low interest, tax-free bonds obviously have a lower cost of money?

Value for Money (VfM) - assessed by a thorough, often mandatory, review and valuation of the comparative costs and risks.

Risk	DB or DBB		РРР	
	Offtaker	Contractor	Offtaker	Contractor
Demand	X		Х	
Revenue	X			X
Design	X		10	X
Construction		X		X
Operating	X			X
Financial	X			X
Political	X		X	aua
Legal	X	X	X	X
Environment	Х	X	X	X
Force Majeure	X	X	X	Х

Diale	D	DBB		
KISK	Offtaker	Contractor		
Demand	X			
Revenue	X			
Design				
Construction		X		
Operating				
Financial	X			
Political	X			
Legal	X	X		
Environment	X	X		
Force Majeure	X	X		

Even some DB and DBO projects can leave the Offtaker with large portions of design risk

DB, DBB and some DBO projects can also leave the Offtaker with larger portions of O&M risk than anticipated

Risk	DBB		PPP	
	Offtaker	Contractor	Offtaker	Contractor
Demand	Х		Х	
Revenue	Х			Х
Design	X		10	X
Construction		X		X
Operating	X			X
Financial	X			X
Political	X		X	aua
Legal	X	X	X	X
Environment	Х	X	X	X
Force Majeure	X	X	X	Х

A properly developed PPP project, with non-recourse financing, offers maximum control over risk allocation and mitigation.

# The Legal Framework: General Constitution of the United Mexican States



The waters within the Mexican territory are national property.



Exploitation, use and benefit of national waters may be authorized through concessions/assignations granted by the CONAGUA.



Water supply and related services (sewerage, treatment, disposal) are each municipality's responsibility. Municipalities may provide potable water services through entities acting as municipal operators.



In Baja California the potable water services are rendered by a state commission and not by a municipal operator, in this case the CESPT provides the potable water services to the municipalities of Tijuana and Playas de Rosarito.



In SE San Diego County, California the water, recycled water and sewer services are provided by Otay Water District. So we must comply with Mexican as well as US/CA legal requirements.

#### A non-recourse financed PPP



#### A non-recourse financed PPP

- A robust project delivery model
- Proven to share and shift risk to the party best suited to mitigate it
- Can yield Value for Money relative to public financing
- •Need to focus on functional performance rather than equipment specification

## The Rosarito Desalination Project

