AUGUSTIN PLAINS RANCH WATER RESOURCE DEVELOPMENT PROJECT

A PRIVATE PUBLIC PARTNERSHIP

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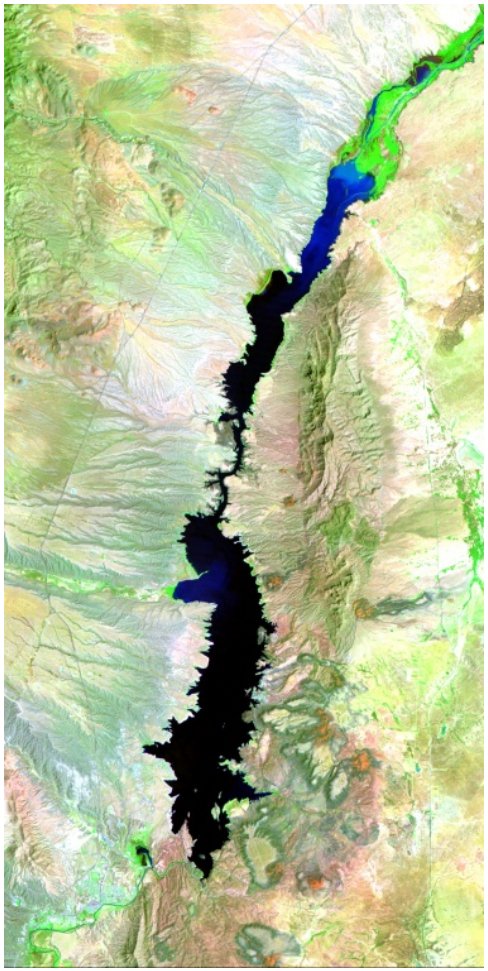
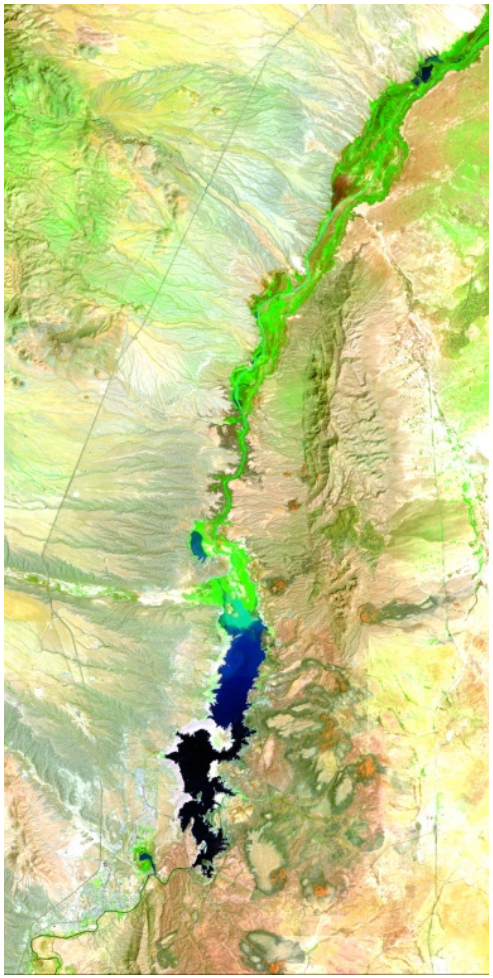
Current Situation

- Throughout New Mexico, cities, ranchers and farmers are forced to pump expensive and dwindling groundwater supplies.
- The Rio Grande River dries up totally in increasingly longer stretches and for increasing longer periods.
- In the fall of 2012, the water level in the Elephant Butte Reservoir on the Rio Grande was only 100,000 AF or *5% of capacity*.

Elephant Butte Reservoir 1991



Elephant Butte Reservoir 2011



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Effects of Global Warming

- Global warming has devastated the snowpack of the Southern Rocky Mountains, threatening New Mexico and Texas with a catastrophic decline in water resources. Less snowpack, earlier snowmelt, more evaporation all lead to reduced stream flows. Conversely, models point to an increased severity of the summer monsoons and flooding.
- State officials in New Mexico have expressed increasing concern in the face of predictions that indicate that global warming will exacerbate what is already a dire situation:

  "The pressures on the Rio Grande now and other rivers of the state in the future are great. If we didn't have the storage in northern New Mexico reservoirs and the San Juan-Chama project, the Rio Grande would be dry right now. That's a pretty shocking thing . . . Where are we going to get the water?"

  - *Senator Tom Udall,* Annual Water Conference, Las Cruces, August 2012

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Growing Need for Water

- Between 2000 and 2010, the population of the Albuquerque Metropolitan Area increased by 22%
- Surface and groundwater in the Middle Rio Grande are severely over-utilized
- The sources of additional water required to sustain the natural growth in the area have not been identified
- It is increasingly difficult for New Mexico to attract industry due to the unavailability of water
- Texas is suing New Mexico over Rio Grande Deliveries

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Conservancy District Water Bank Issues a Warning

El Defensor-Chieftain

Unless New Mexico gets surprised with a couple of good snowstorms, irrigators who rely on the Middle Rio Grande Conservancy District's water bank may get cut off as early as May, the district is warning.

The MRGCD water bank is a way for farmers to irrigate lands from which water rights have been severed, either because of disuse, transfer or sale. These farmers lease irrigation water made available because other land in the district is now incapable of being irrigated, usually because of incompatible uses, such as buildings or roadways.

The water bank curtailments do not affect farmers irrigating lands in the district from which the water rights have not been sold or transferred.

Last year, the MRGCD board, responding to irrigation shortages caused by drought conditions in 2012, voted to implement a new water bank policy that took effect this January.

Under the new policy, water bank users will face curtailment — irrigation cutoff — if the amount of water in storage and flowing in the Rio Grande drops below certain monthly parameters already posted on the district's website.

Other irrigators will not be subject to the water bank curtailments.

The new policy is designed to create more flexibility in the system, so irrigators can benefit from quickly changing flow

See WATER on PAGE C2

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Augustin Plains

- Extinct Pleistocene lake
- Located at 7,000 feet above sea level
- Approximately 1 million acres
- Estimated to hold 50 million Acre Feet of water
- Hydrologically closed basin

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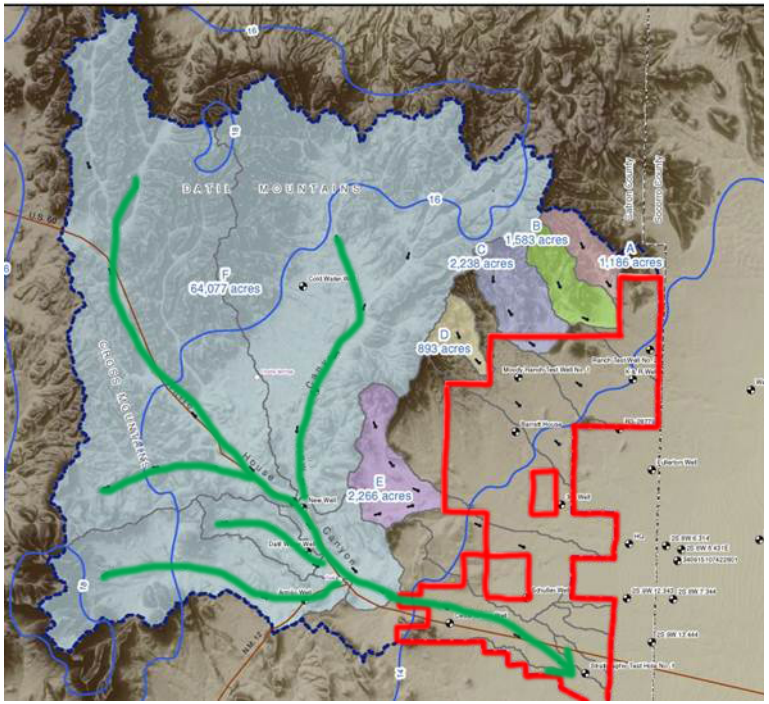
Ranch Watershed

- Augustin Plains Ranch, LLC owns 17,780 acres of fee title property in the northwest corner of the Plains
- The Datil Range watershed drains into the Plains through the ranch property
- The average annual rainfall is over 80,000 acre feet per year (AFY)
- The water reaching the plains and lost to evaporation can be salvaged and stored in the aquifer



The project aims at producing 54,000 AFY while keeping the aquifer in balance

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Recharge

UNDERGROUND STORAGE PROJECT

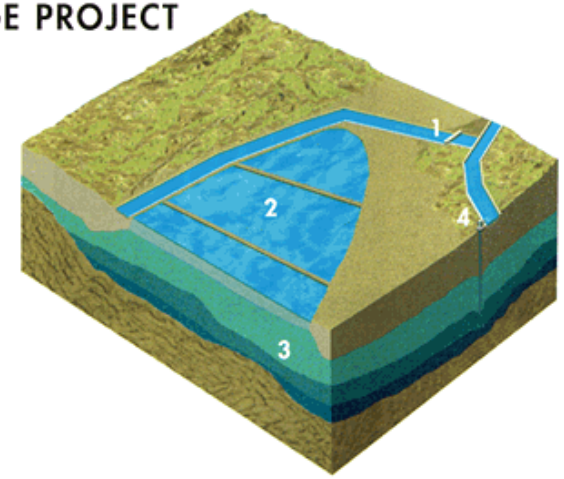
How underground water storage works

1 Water is delivered by canal to recharge basins.

2 Water percolates through the porous sand and gravel above to the water table.

3 The water reaches the underground aquifer, where it is stored.

4 As need arises, water can be pumped out and returned to the canal for delivery.



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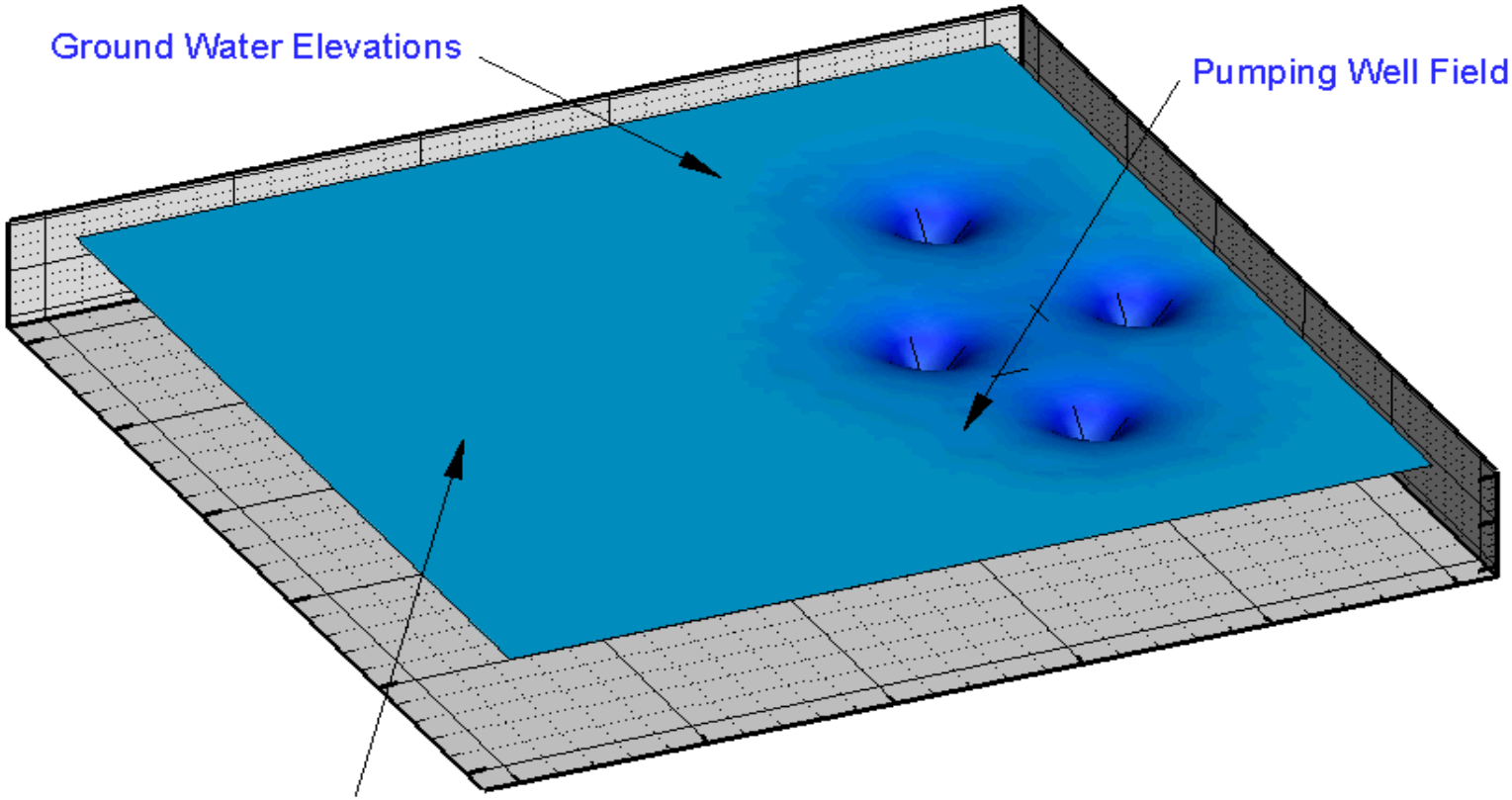
EXAMPLE OF HOW ARTIFICIAL RECHARGE REDUCES DRAWDOWNS IN PUMPING WELL FIELD



Artificial Recharge Basins Add Supplemental Recharge to Pumping Wells Reducing Ground Water Levels

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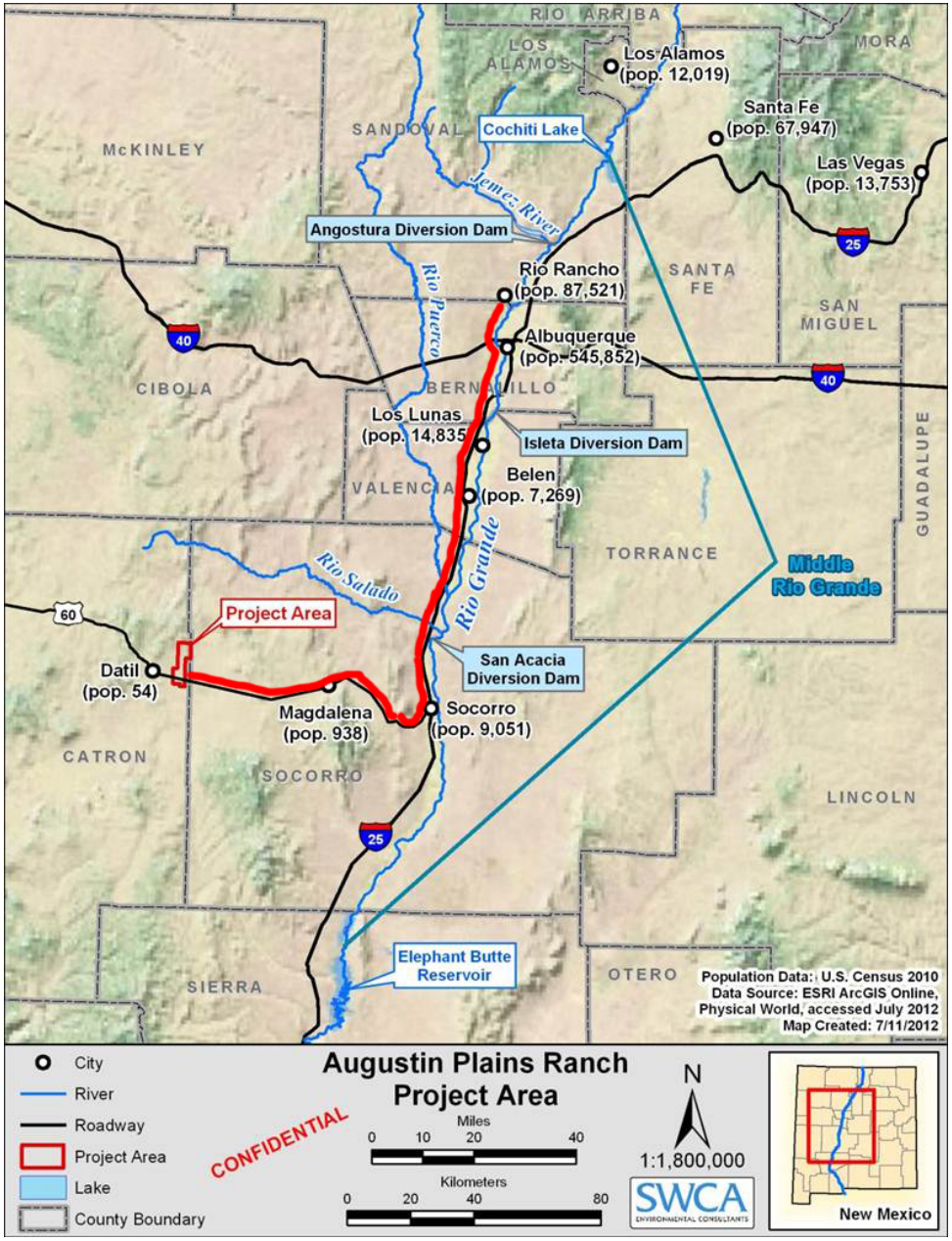
Pipeline

- A 54” pipeline with multiple connection points would be constructed over 140 miles from APR to Socorro, and on to the Albuquerque metropolitan area
- Pipeline will be built in the right of way of existing US60 and I-25 highways avoiding cultural resource impacts, endangered species critical habitat, sensitive public land, and infrastructure conflicts.



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Pipeline - Vertical Profile

- Pumping is only necessary in the well field
- No booster pump stations are required along the right of way
- Preferred solution includes a hydroelectric power plant at an elevation of 5,800 feet

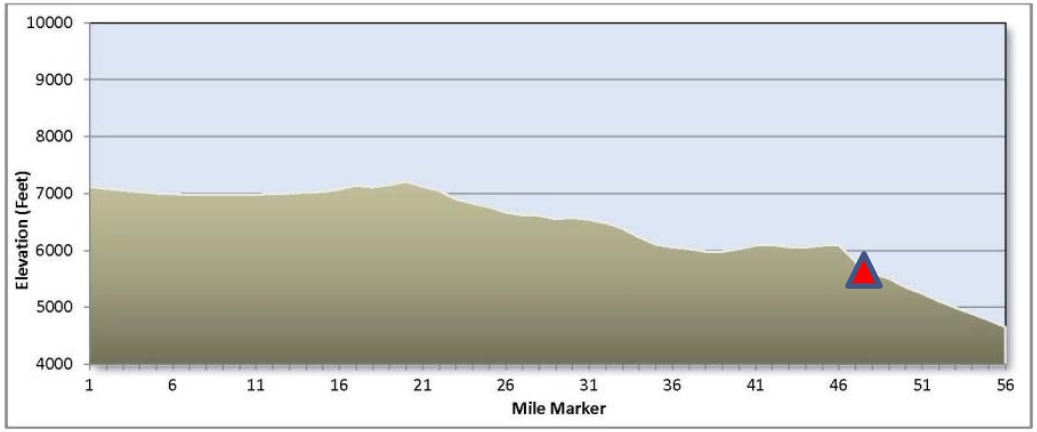

Figure 2. Preferred Route A Datil to Socorro elevation profile

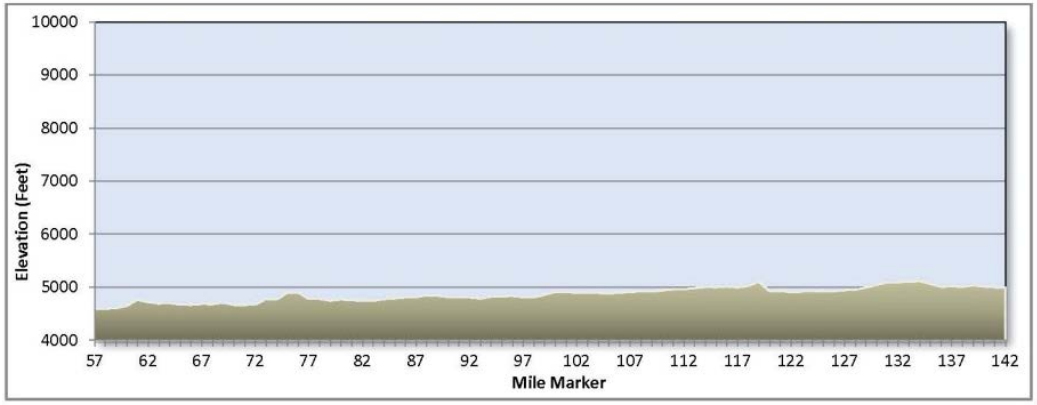

Figure 3. Preferred Route A Socorro to Albuquerque elevation profile

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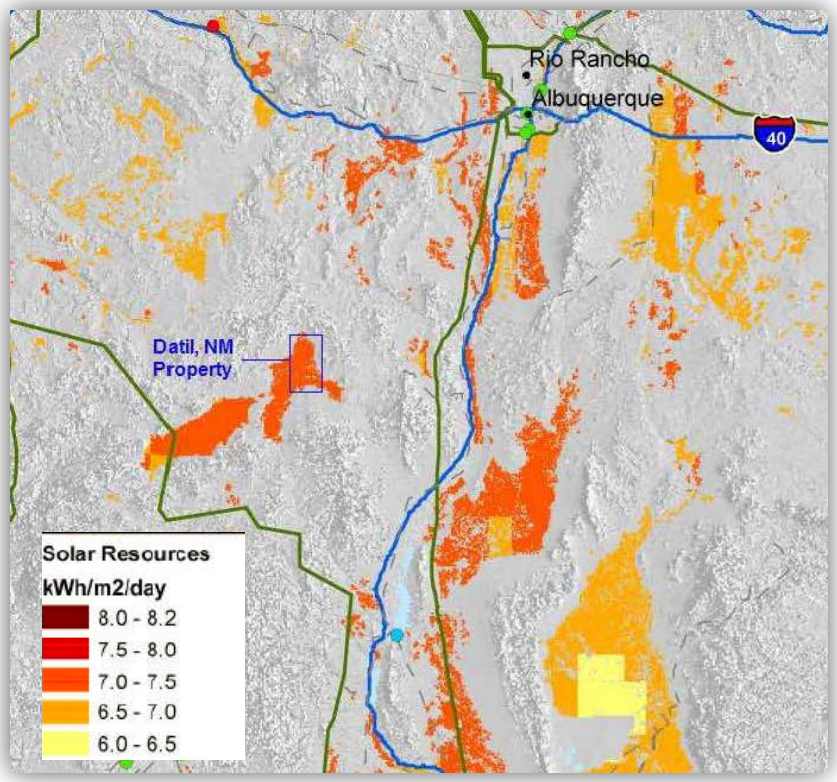
Power Supply

- Energy requirement for the system is 70 GWh/year
- The hydroelectric power plant is estimated to generate 53 GWh/year or 75% of total energy requirement
- Balance of 17 GWh/year to be provided by solar energy
- Size of solar field required is estimated to be 1.5 acres



100% of the project's energy comes from renewable sources

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Environmental Benefits

- The project would augment Rio Grande water flows enhancing the river's ecosystem.
- In periods of drought the project would provide water for maintaining refugia for the silvery minnow

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Project Cost Estimate

Development Costs	$ 24,000,000
Wells (25)	$ 25,000,000
Well Pumps/Electrical	$ 14,326,827
Well field Collection Piping	$ 24,841,500
Recharge basins	$ 19,800,000
Storage Tank	$ 14,000,000
Pipeline	$ 382,213,311
Hydroelectric Power Plant	$ 15,408,319
Total	$ 495,589,957
Total with markups	$ 600,322,552

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Price of Water Rights

In spite of the severe recent downturn, prices of water rights have doubled since 2002

WestWater Research LLC

WRPIx, 2002-2011

- In 2011, water right prices throughout the West dropped in response to:
  - California's wet year
  - Continuing depressed real estate market conditions in Nevada and New Mexico
  - Temporary market exit by high-value buyers in Colorado
- The WRPIx declined by approximately 445 points in 2011, indicating that prices have returned to 2005 levels.

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Project Financials

- At today's prices, the project's water rights are worth over $800 million. The monetization of this value would be sufficient to finance the development and construction of the project.
- Because the project uses no purchased power or fuel, operation and maintenance costs are considerably lower than current municipal pumping and treatment costs.

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PPP in New Mexico: economic analysis

Project	Effects	
Augustin Plains Ranch	Project Operations	Capital Expenses
		Operating Expenses
	Water to Municipalities	Ease of OSE compliance
		Lower operating costs
		Lower costs for future water rights
		Water Fees
		Water Hook-up Fees
		Economic development
		Support population
		Higher property values
		More property sales
	Water to the Rio Grande	. . .

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PPP in New Mexico: analysis for gov’ts

Project	Effects		Economic Benefits for Governments				
			Gov't Costs	State GDP	Income Taxes	Prop. Taxes	Sales Taxes
Augustin Plains Ranch	Water to the Rio Grande	Environmental flows	↓				
		Compact management	↓				
		Value for recreation		↑	↑		↑
		Value for tourism		↑	↑		↑
		Value to farmers		↑	↑	↑	↑
		Value to municipalities		↑	↑		↑
		Value to pueblos		↑	↑		↑
		Economic development		↑	↑		↑
		Support population		↑	↑	↑	↑
		Higher property values		↑	↑	↑	
		More property sales		↑	↑		

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Stakeholders

Augustin Plains Ranch, LLC

Project Participants

- Owner: Augustin Plains Ranch, LLC
- Project Management: Ascendant Program Services, LLC
- Hydrological Modeling: Geoscience Support Services, Inc.
- Engineering: CH2M HILL
- Environmental: SWCA Environmental Consultants
- Solar: URS Corp.
- Legal: Montgomery & Andrews, PA
- Financial: Aqueous Advisors

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THANK YOU!